MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES

Performance Mechanisms

Expert Presentation Series | November 11, 2025

This expert level presentation series session will provide the Massachusetts Electric Rate Task Force an opportunity to learn from experts and/or other jurisdictions on the above topic.

Note: The contents of this presentation do not necessarily reflect the views or positions of the Massachusetts Department of Energy Resources.

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Massachusetts Electric Rate Task Force Goals

The Rate Task Force brings together diverse stakeholders to reimagine how electric rates and the regulatory framework can drive an affordable, equitable, and decarbonized energy future.

Through targeted conversations, expert presentations, and thoughtful exploration of complex issues, the Task Force aims to deepen understanding, surface critical questions, clarify challenges, and build the foundation for durable regulatory reform and action.

The Rate Task Force will use the Massachusetts Interagency Rates Working Group's Long-Term Ratemaking Study and Recommendations as a starting point for discussion and knowledge building on rate designs, ratemaking, and regulatory mechanisms.

Build technical knowledge

Provide an opportunity for **knowledge-building** by and amongst stakeholders, including those who have not traditionally been involved

Develop shared understanding

Converge towards **shared understandings** of the challenges and priorities

Today's Focus

Facilitate open, inclusive dialogue

Engage in **open, inclusive dialogue** about complex ratemaking and regulatory issues outside of a regulatory proceeding

Frame critical questions and opportunities

Empower stakeholders to identify **critical questions and opportunities** for the advancement of rate design and ratemaking reform

Ground Rules & Engagement

This work is complex – and your insight matters; let's focus on learning, listening, and shaping together!

Participation, Engagement, & Respect

- Everyone's perspective is valuable – this space works best when all voices are heard
- Respect differences in background, experience, and priorities
- Bring curiosity – ask questions and offer potential answers
- Focus on understanding others' goals and values, not just their positions
- It's okay not to have a solution – help us shape the right questions

Collaboration, Not Consensus

- This body is deliberative, it is not a decision-making space
- We don't need to agree on everything, but we should work toward shared understanding
- Where we disagree, help clarify what the tension is and why it matters

Transparency & Trust

- We'll be clear about how input is used
- Share what you can; identify when you're speaking on behalf of your organization or personally
- Materials, summaries, and key findings will be shared openly to support accountability

Focus & Productivity

- Stay on topic and honor the scope of the Task Force
- Raise related concerns, but help us stay anchored in the rate design and regulatory issues at hand
- Use the structures provided (i.e., expert sessions, targeted conversations, office hours) to deepen discussion
- Avoid discussion about open and ongoing proceedings at the DPU

Expert Presentations

I. Performance Mechanisms in Massachusetts

Massachusetts Electric Distribution Companies

Present on the current use of performance Mechanisms, including PBR metrics, service quality standards, and timeline enforcement mechanisms

II. Performance Mechanisms in Other Jurisdictions

Synapse Energy Economics, Melissa Whited

Present on performance mechanisms utilized in other jurisdictions (e.g., load factor PIM, DER interconnection PIM, shared savings mechanisms)

III. PIMs: From Design to Evaluation

RMI, Carina Rosenbach

Present on the PIM lifecycle and design approaches

IV. Performance Mechanisms on Load Management

Massachusetts Department of Energy Resources, Charles Dawson

Present on forthcoming analysis and policy recommendations of DOER's Peak Potential Study, exploring load management strategies for an affordable net-zero grid.

Reminder

Expert presentation sessions are not for substantive deliberation amongst participants. Questions for each speaker will be taken as time allows.

EVERSOURCE

PBR and Service Quality Metrics

What is PBR?

EVERSOURCE

Performance-Based Regulation (PBR)

PBR is a regulatory approach that seeks to align utility incentives with the interests of customers and society. It does this by compensating utilities based on their performance against target outcomes rather than just costs — and by removing perverse incentives. It is a collection of tools, not a single thing.

- **PBR aligns revenue recovery with performance outcomes**
  - **The PBR mechanism provides gradual revenue recovery increases without the need for frequent rate cases**
  - **PBR framework motivates and enables high service quality levels and strong cost control**
  - **Performance Incentive Mechanisms (PIMs) provide incentives/penalties based on performance metrics. PIMs are expected to be implemented in the third generation PBR plan.**
  - **Benchmarking and other external productivity studies are used to set and measure performance metrics**

PBR & Performance Metrics

EVERSOURCE

Reporting Metrics

- Standard of unit of measurement used to track EDC performance against identified outcomes

Scorecards

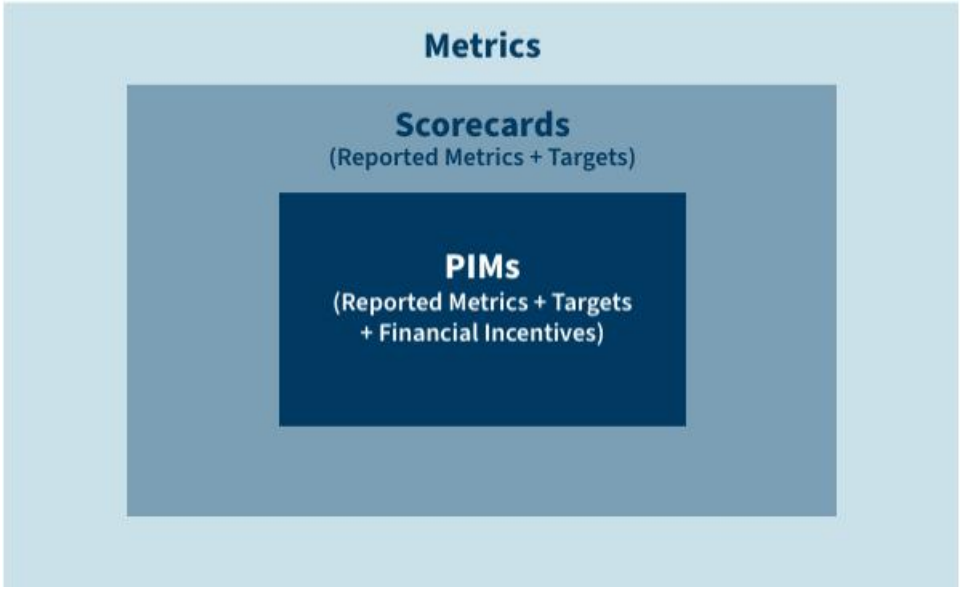
Reported Metric + benchmark/target

- Characterized by a metric or a set of metrics with a point of comparison – baseline or peer performance to provide clarity to understand EDC performance and the need for course correction
- Scorecards can support the outcomes of Reliable and Resilient Electric Service, Business Operations and Investment Efficiency, Quality Customer Service, and GHG Reduction

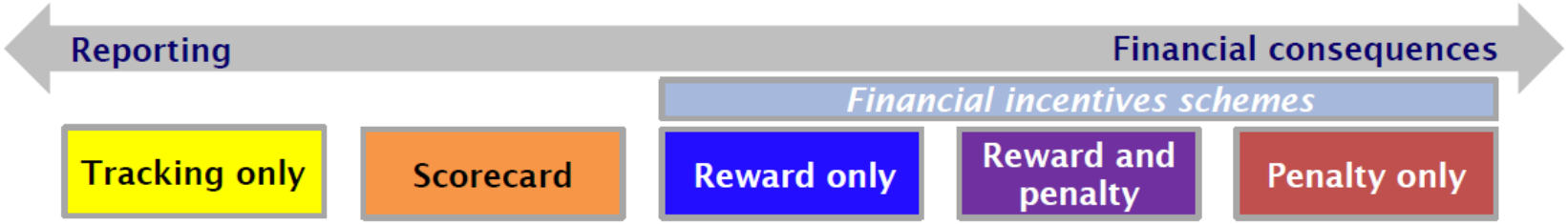
Performance Incentive Mechanism (PIMs)

Reported Metric + benchmark/target + financial incentive/penalty

- Adds a financial incentive and/or penalty to the EDC's achievement of a specific benchmark or target as measure by a reported metric



Different Types of Performance Metrics



Design Principle	Metrics	Scorecards	PIMS
Reflect desired outcomes	X	X	X
Be quantifiable through reasonably available data with a clearly defined calculation methodology	X	X	X
Be easily verified	X	X	X
Provide certainty in the short-term while adapting as-needed in the public interest	X	X	X
Have a clear benchmark or target for comparison		X	X
Be comparable across peer EDCs, as applicable		X	X
Be inclusive of indirect and/or direct EDC control			X
Incentivize exemplary performance			X
Include a clearly stated PIM objective			X
Include incentive structures that are: (1) cost effective; (2) sized to achieve the identified PIM objective; and (3) and include appropriate marginal incentives.			X

- **Not all performance metrics need to evolve to the point of reward or penalty – some are best kept as static measures!**
- **Balance on metrics is essential so that financial rewards or penalties do not create unintended consequences!**

Eversource MA Performance Based Ratemaking (PBR)

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	NSTAR Electric	NSTAR Gas	EGMA
PBR Metrics	22 Metrics 10 Metric Categories	19 Metrics 3 Metric Categories	11 Metrics 3 Metric Categories
Filing Date (Annual)	Sept 15th	June 15th	Provided as appendix to ASQR March 1st (Tracking Only)
Terms	Second Generation Term: 2023-2027 Option to extend 5 years	1st 5-year term (2020-2024) 2nd 5-year term (2025-2029)	Tracking only through 2026

Massachusetts Service Quality Plan

EVERSOURCE

Purpose of Service Quality:

- To ensure that companies provide adequate and reliable services to Massachusetts customers in accordance with the Service Quality Guidelines issued by the Department of Public Utilities (DPU).

Company Requirements:

- Meet Performance Benchmarks: Companies must meet the benchmarks establish in Service Quality Guidelines or face potential penalties.
- Report Non-Penalty Data: Submit data as defined in the guidelines.
- Reporting: Report service quality performance on an annual basis.

DPU 24-53 – Ongoing Investigation:

- Objective: The DPU is currently investigating Service Quality Standards for electric and gas companies.
- Purpose: To assess and determine whether changes are needed to improve service quality across the industry.

Massachusetts Service Quality Penalty and Non-Penalty Reporting

EVERSOURCE

Penalty/Non-Penalty	NSTAR Electric	NSTAR Gas	EGMA
Penalty Metrics	SAIDI SAIFI Consumer Complaints Consumer Credit Cases Service Appointments Kept CKAIDI CKAIFI	Odor Calls Consumer Complaints Consumer Credit Cases Service Appointments Kept	Odor Calls Consumer Complaints Consumer Credit Cases Service Appointments Kept
Non-Penalty	Customer Surveys	Customer Surveys	Customer Surveys
Non-Penalty	Lost Work Time Accident Rate and Restricted Workday Rate	Lost Work Time Accident Rate and Restricted Workday Rate	Lost Work Time Accident Rate and Restricted Workday Rate
Non-Penalty	Line Losses	Unaccounted For Gas	Unaccounted For Gas
Non-Penalty	Service Appts. Exclusions due to Emergencies	Service Appts. Exclusions due to Emergencies	Service Appts. Exclusions due to Emergencies
Non-Penalty	Excludable Major Event Events	Grade 1,2 and 3 Natural Gas Leaks	Grade 1,2 and 3 Natural Gas Leaks
Non-Penalty	Poor Performing Circuits and Poor Circuit Remediation	Customer Service Guarantees	Customer Service Guarantees
Non-Penalty	IEEE 1366-2003 Electric Reliability	Service Quality Benchmark	Service Quality Benchmark
Non-Penalty	MAIFI, CEMI,CELID	PBR Performance Benchmark	PBR Measures for Target Setting
Non-Penalty	Emergency Response Times	Emergency Response Times	Emergency Response Times
Non-Penalty	Down Wire Response		Leak Rate Performance
Non-Penalty	CAIDI		
Non-Penalty	FERC Form 1 Pages 300 and 301 (Revenues)		
Non-Penalty	T&D Revenue (440 Accounts)		
Non-Penalty	Feeder and Circuit Reliability		
Non-Penalty	Customer Service Guarantee Payment Report		
Non-Penalty	Performance Benchmarks		

Massachusetts Electric
Performance Incentive Mechanisms, Scorecard Metrics, and Service Quality Metrics

nationalgrid

Performance Incentive Mechanisms

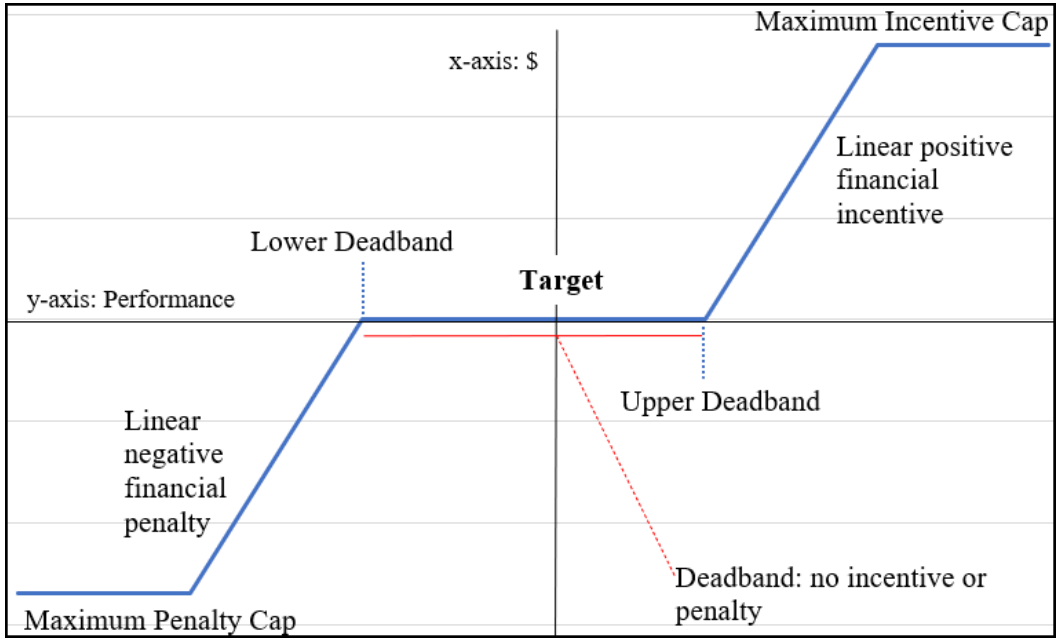
Performance Incentive Mechanisms (PIMs) can support utility innovation to create value for customers and facilitate achievement of public policy goals.

Mass Electric's current rate plan contains two symmetrical performance incentives.

- Low Income Discount Enrollment
- DER Interconnection

Current PIMs design includes

- Performance **Target** informed by historical performance
- **Dead band** around target where incentive/penalty does not apply to mitigate variability in performance
- **Symmetrical Incentive/Penalty** based on performance
- Maximum **Incentive or Penalty Cap**

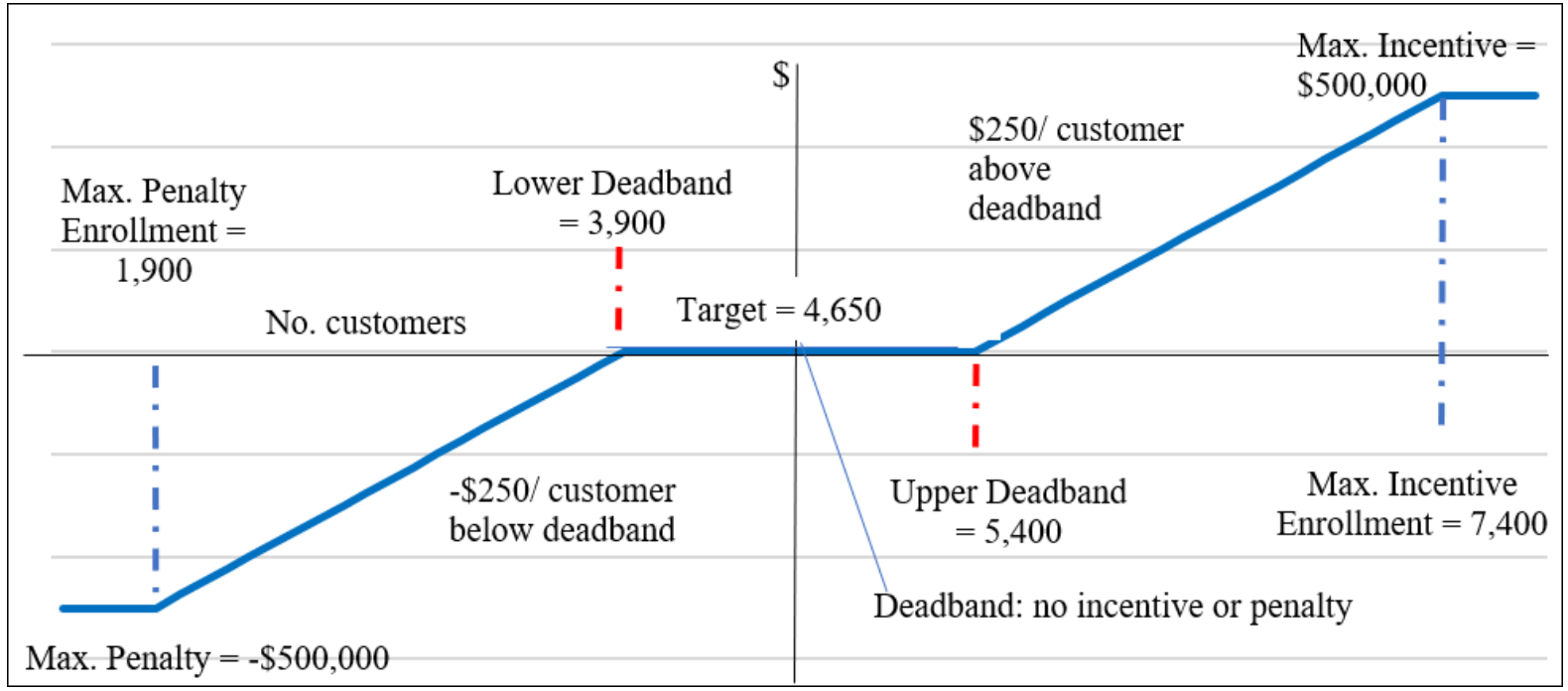


Low-Income Discount PIM

Objective: Advance the Department's goal to lower energy burden to our low-income customers.

Description: Increased outreach and targeted enrollment of Low-Income customers in the Company's tiered bill discount program (R-2).

Annual Target: 4,650 additional customers enrolled in R-2 rate each year.

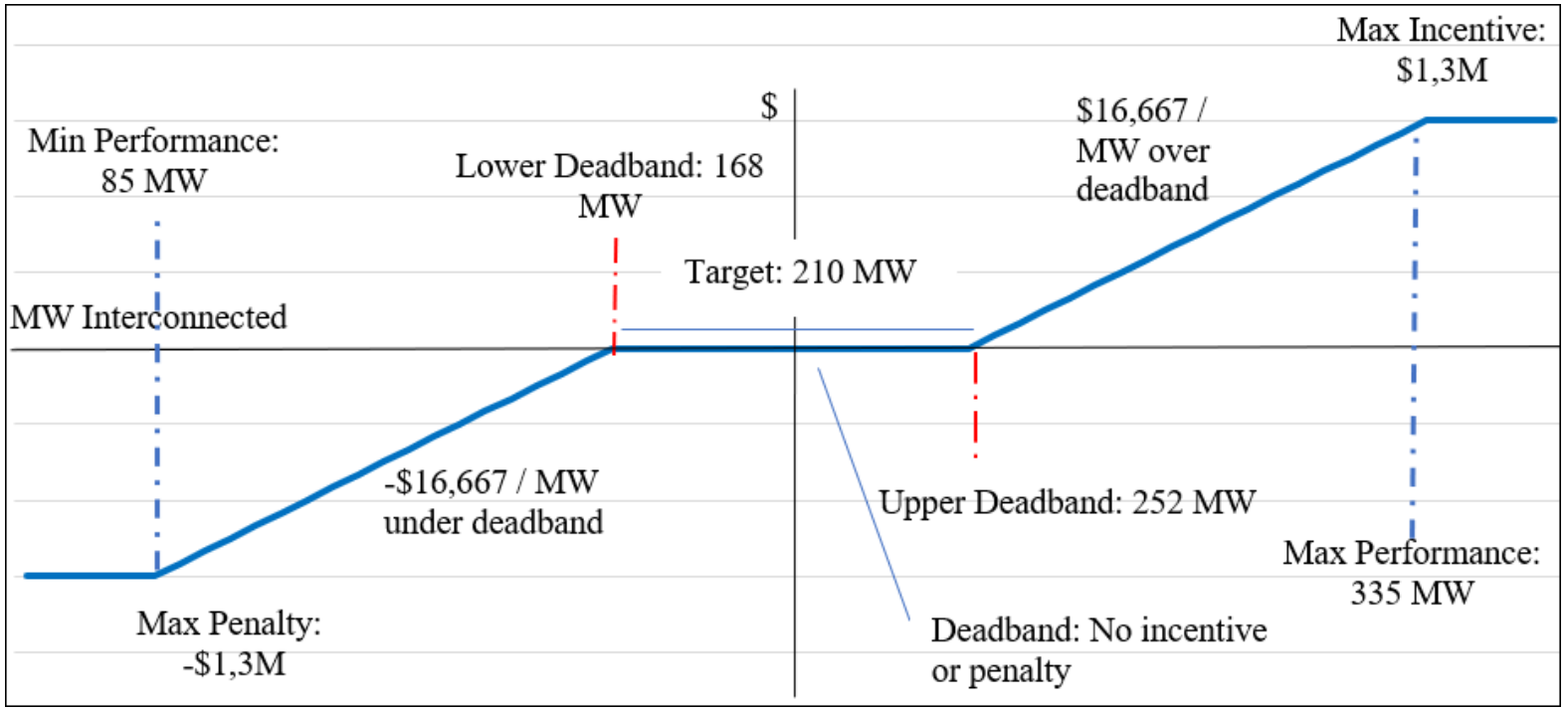


DER Interconnection PIM

Objective: Accelerate Commonwealth's decarbonization progress through increased deployment of DERs.

Description: Support and provide increasing opportunity for our customers to install solar PV and energy storage projects interconnected to the distribution system to support Company's and Commonwealth's energy transition goals.

Annual Target: 210 MW of incremental DER capacity each year.



MECO Rate Plan Metrics

Category	Metric	Description
Customer Engagement	Customer Satisfaction Survey	J.D. Power Residential Customer Satisfaction annual raking for 1) Power Quality and Reliability 2) Price 3) Billing and Payment 4) Communications, 5) Corporate Citizenship and 6) Customer care.
		Results of 1) Non-contact survey customer satisfaction, 2) contact survey.
	Outage Communication	Customer satisfaction survey results from customers who had recent outages at their home.
	First Call Resolution	Percentage of customer inquires resolved on the initial call made to the Company.
	Digital Customer Engagement	Number of digital transactions completed by customers.
GHG Emissions	Company's GHG Emissions	Annual GHG emissions of Company's electric operations including operations, property, and fleet.
	Fleet Electrification	Number of electric vehicles in Company's fleet.
Clean Energy Adoption	Customer enrolled in DER programs	Percentage of customers participating in Company's DER programs (net metering, Host/Satellites, SMART program); includes breakdown by Low income and Environmental Justice populations.
Affordability	Low Income Service Terminations	Low-income customer service terminations by month for non-payment, and accounts with past due balances

Metric performance submitted each June in PBR filing

Massachusetts Electric Service Quality Penalty and Non-Penalty Measures

Penalty/Non-Penalty	MECO/Nantucket Electric
Penalty Metrics	SAIDI; SAIFI ; CKAIDI; CKAIFI Consumer Complaints(non-credit related) Consumer Complaints(credit related) Service Appointments Kept
Non-Penalty	Customer Satisfaction Surveys
Non-Penalty	Lost Work Time Accident Rate and Restricted Workday Rate
Non-Penalty	Electric Line Losses
Non-Penalty	Service Appts. Exclusions due to Emergencies
Non-Penalty	Excludable Major Event Events
Non-Penalty	Poor Performing Circuits and Poor Circuit Remediation
Non-Penalty	IEEE 1366-2003 Electric Reliability
Non-Penalty	MAIFI, CEMI,CELID
Non-Penalty	CAIDI
Non-Penalty	Down Wire Response Summary & Detail
Non-Penalty	Feeder and Circuit Information
Non-Penalty	Replacement of Potted Porcelain Cutouts and Overloaded Transformers
Non-Penalty	Customer Service Guarantees Paid for 1) missed appointment 2) failure to notify of planned outage
Non-Penalty	Unplanned Significant and Insignificant Outages

nationalgrid

Fitchburg Gas and Electric Light Company d/b/a Unitil

Massachusetts

Performance Based Ratemaking and Service Quality Metrics

November 10, 2025

Massachusetts Performance Based Ratemaking Metrics

	FG&E Electric	FG&E Gas
PBR Metrics	14 Metrics 3 Metric Categories	15 Metrics 4 Metric Categories
Filing Date (Annual)	February 28th	February 28th
Terms	July 1, 2024 through June 30, 2029	July 1, 2024 through June 30, 2029

Massachusetts Service Quality Penalty/Non-Penalty Reporting

Penalty/Non-Penalty	FG&E Electric	FG&E Gas
Penalty Metrics	SAIDI – System Average Interruption Duration Index SAIFI – System Average Interruption Frequency Index Consumer Complaints Consumer Credit Cases Service Appointments Met CKAIDI* - Circuit Average Interruption Duration Index CKAIFI* - Circuit Average Interruption Frequency Index	Class I/Class II Odor Call Response Consumer Complaints Consumer Credit Cases Service Appointments Met
Non-Penalty	Electric Line Loss Emergency Response Times Downed Wire Response Lost Work Time Accident Rate Restricted Work Day Rate Customer Surveys Customer Service Guarantees CAIDI – Customer Average Interruption Duration Index Excludable Major Events Poor Circuit Remediation	Unaccounted For Gas Emergency Response Times Lost Work Time Accident Rate Restricted Work Day Rate Customer Surveys Customer Service Guarantees Odor Call Response Time Exceeded Odor Call response Time Overrides Leak Report
Capability Reporting	CEMI - Customers Experiencing Multiple Interruptions CELID - Customers Experiencing Long Interruption Duration MAIFI - Momentary Average Interruption Frequency Index	

* Applies only if electric company is not subject to SAIDI & SAIFI penalty in a given year.

Performance Incentive Mechanisms from Other Jurisdictions

Presentation to the Massachusetts Electric Rate Task Force

November 10, 2025

Melissa Whited

Vice President, Synapse Energy Economics, Inc.

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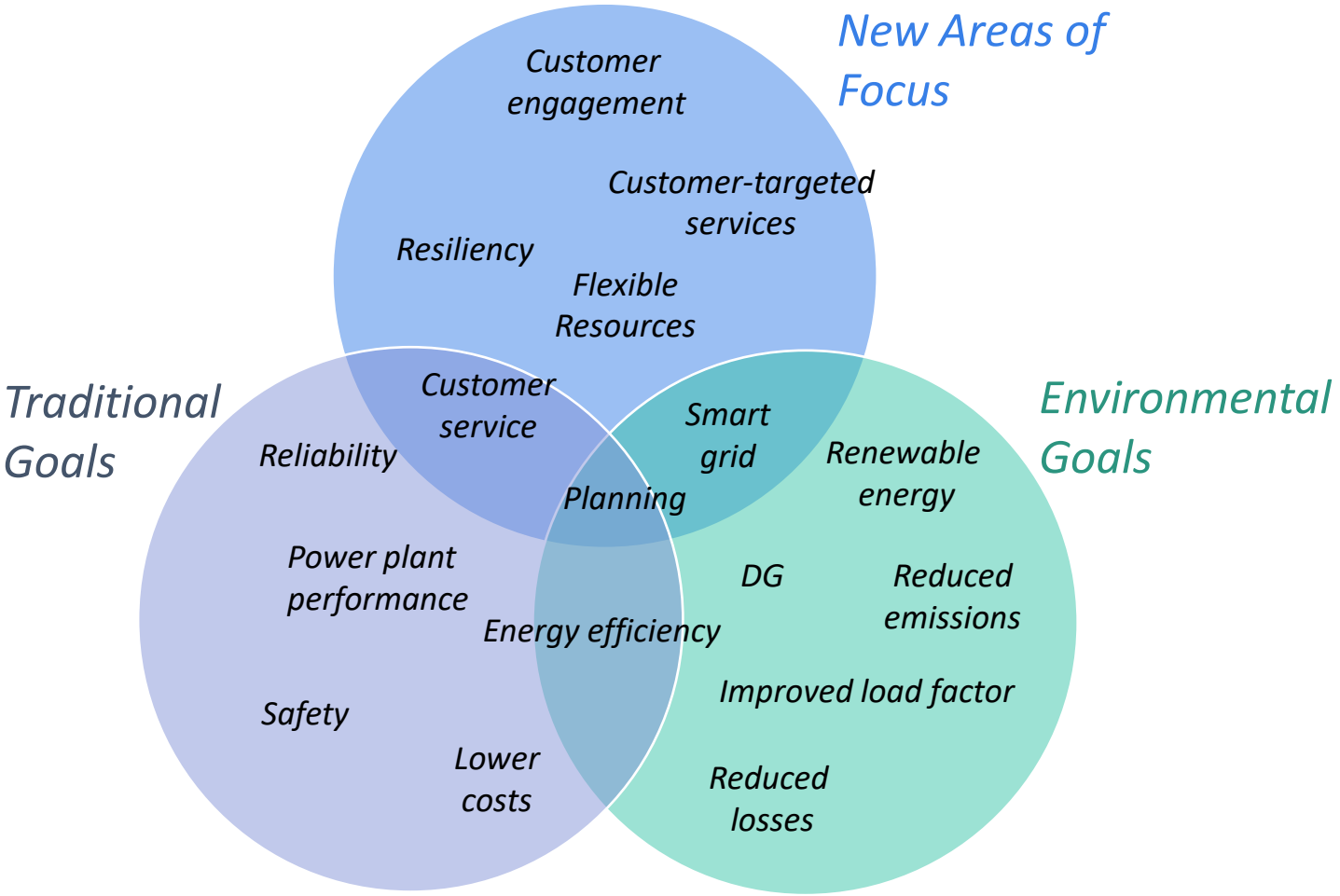
Synapse Energy Economics

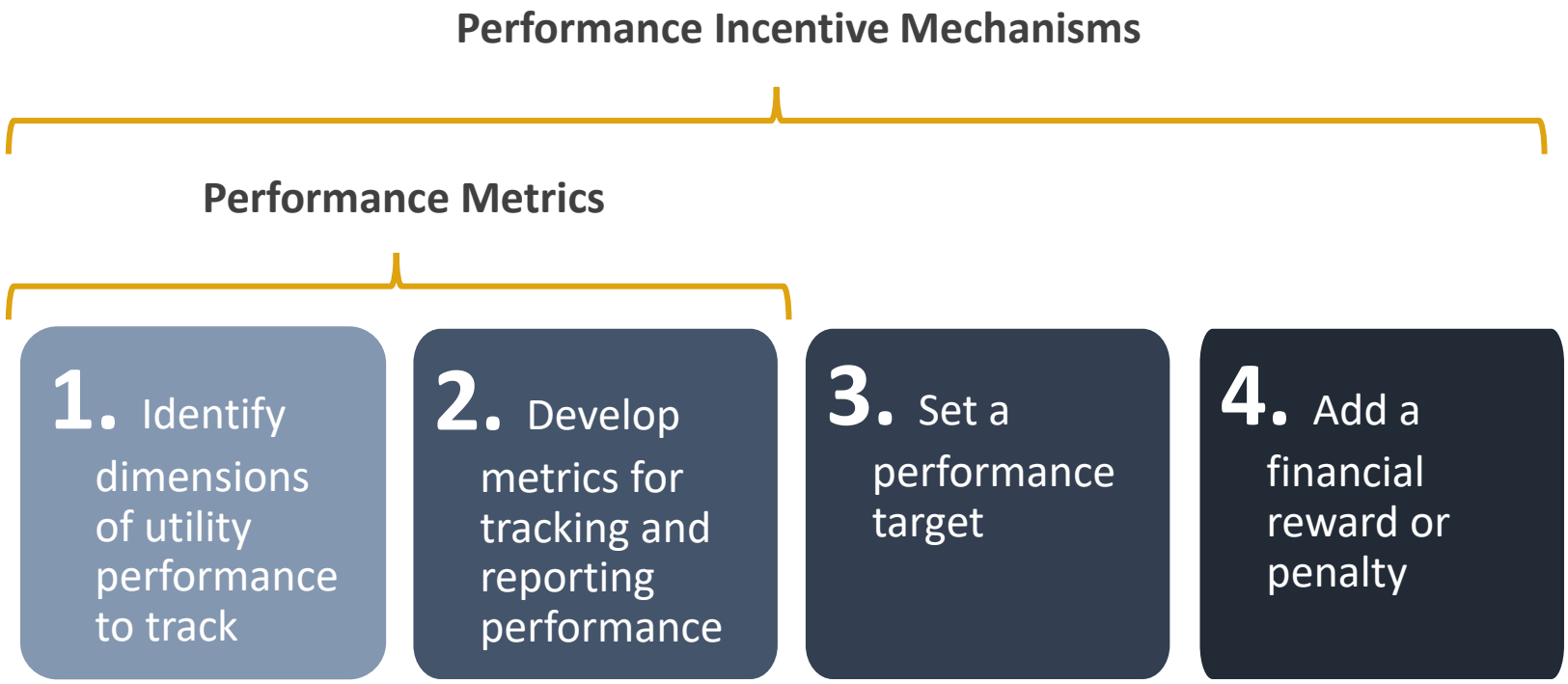
- Founded in 1996 by Bruce Biewald and Jean Ann Ramey
- Leader for public interest and government clients in providing rigorous analysis of the electric power and natural gas sectors
- Staff of 40+ includes experts in energy, economic, and environmental topics

Potential PIM goals



Four Discrete Steps

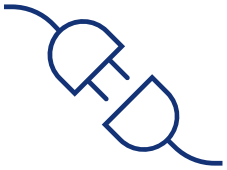
PIMs can be implemented incrementally, allowing for flexibility



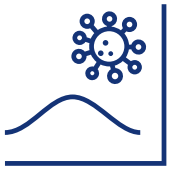
Managed Charging PIM

Con Edison Residential Managed Charging

increase EV enrollment in the residential managed charging program (Smart Charge New York);



encourage program participants to avoid EV charging during system peak hours; and



reduce program participants' EV charging demand coincident with peak demand hours.

Managed Charging, continued

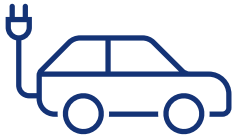
As of August 2024, ConEdison:

- Increased enrollment in the program by 20,287 EVs
  - Leveraged new tools to identify EV customers by disaggregating load
  - Developed in-app promotions for Tesla drivers
  - Translated materials into more languages for rideshare drivers
  - Expanded eligibility of EVs

- Reduced participant peak charging by 11% per vehicle compared to prior year (avoiding 2.08 kW per vehicle, up over 1.75 kW per vehicle)
  - Avoided peak charging is calculated as the difference between the maximum potential demand and the actual coincident demand of EVs in the program, and then is divided by the total number of light-duty vehicles in the Company's service territory

Equity in Transportation Electrification

Public Service Colorado (2021-2023)



EV rebates provided to Low- and Moderate-Income customers

Charging ports supporting income-qualified customers and targeted communities

AMI Utilization

Hawaii 2021-2023 (discontinued)

% of customers authorizing data sharing through Green Button Connect My Data

% of customers signing up for energy usage alerts

% of customers newly enrolling in TOU or DER programs

AMI Utilization

Hawaii 2021-2023 (discontinued)

% of customers authorizing data sharing through Green Button Connect My Data

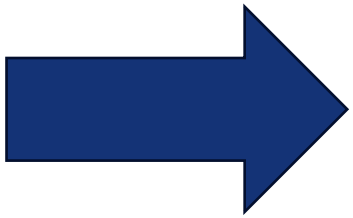
% of customers signing up for energy usage alerts

% of customers newly enrolling in TOU or DER programs

AMI Utilization, Continued

Targets were not achieved

- Performance was defined as % of total customers, not just customers with AMI
  - Delays in AMI rollout made targets difficult to achieve
- TOU enrollment likely moot
  - Expectation is that customers will soon be defaulted onto TOU rates



Subsequent Developments:

- Duke Energy Progress has a PIM for enrollment in time-varying rates = $5/customer
- Liberty NH proposed a PIM for TOU enrollment, but targets were too low and was rejected

Peak Load Reduction

Commonwealth Edison

Increase in event-based demand response capacity

- Central AC Cycling (direct load control)
- Peak Time Savings

(Calculated based on test events or actual load management events)

Dynamic pricing load reductions

- Hourly pricing

(Calculated as weather-normalized peak reductions based on AMI data)

Contact

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Break: 5-10 minutes
(if time allows)

PIMs: From Design to Evaluation

Massachusetts Rate Task Force

November 10, 2025

Why PIMs? Addressing perverse incentives associated with cost-of-service regulation

GOLD PLATING refers to the utility's incentive to overinvest in capital projects to earn a higher return, which can **undermine affordability.**

CAPEX BIAS creates a utility preference for capital-intensive projects (e.g., large power plants) **over solutions funded through operating expenses, which may be less expensive.**

The **THROUGHPUT INCENTIVE** motivates the utility to increase its "throughput," or sales, to increase its revenue. This can come at **the expense of cheaper, grid-balancing resources like energy efficiency (EE) and demand flexibility.**

RESISTANCE TO THIRD-PARTY AND CUSTOMER-OWNED SOLUTIONS, driven by the utility's preference for asset ownership and its returns, can undermine **cost-effectiveness**, **distributed generation** and **storage**, and **equitable benefit distribution**.

PIMs can help realign utility incentives with desired outcomes

What are they?

A PIM has three components: a metric, a target, and a financial incentive.

PIMs can be structured in many ways. For example:

- Failure to achieve a target triggers a penalty.
- An incremental incentive is applied over a range.
- The utility earns a share of estimated savings. This is known as a **shared-savings mechanism.**

PIMs should be designed to deliver **net benefits**, and rewards should not be larger than needed.

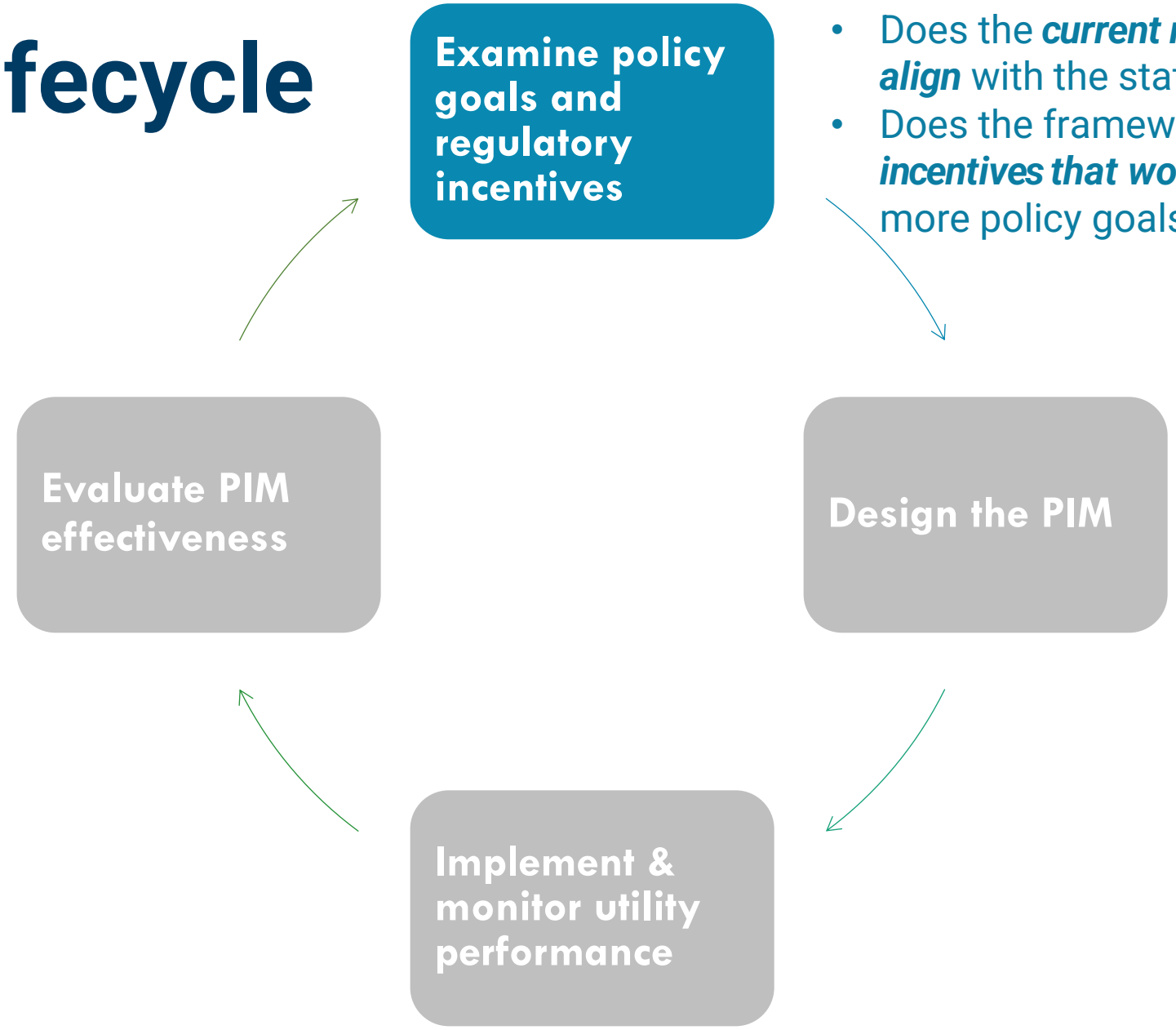
Benefits of PIMs

- Can be used to motivate improved performance in specific areas
- Can reduce information asymmetry

Drawbacks of PIMs

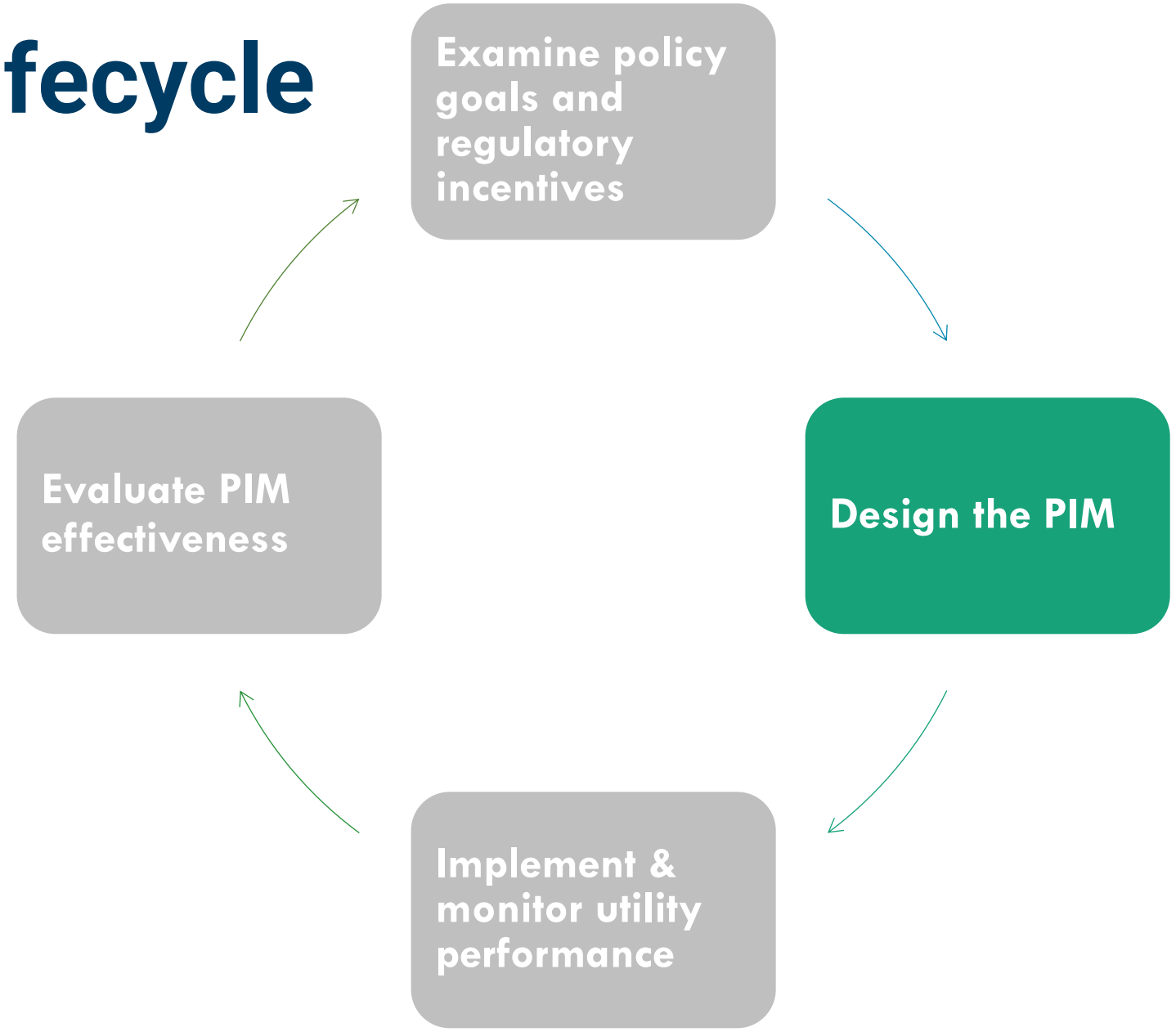
- Getting PIMs "right" can be challenging, especially for emergent outcomes
- PIMs may interact with each other, and with other existing incentives
- PIM design can be contentious

PIM Lifecycle



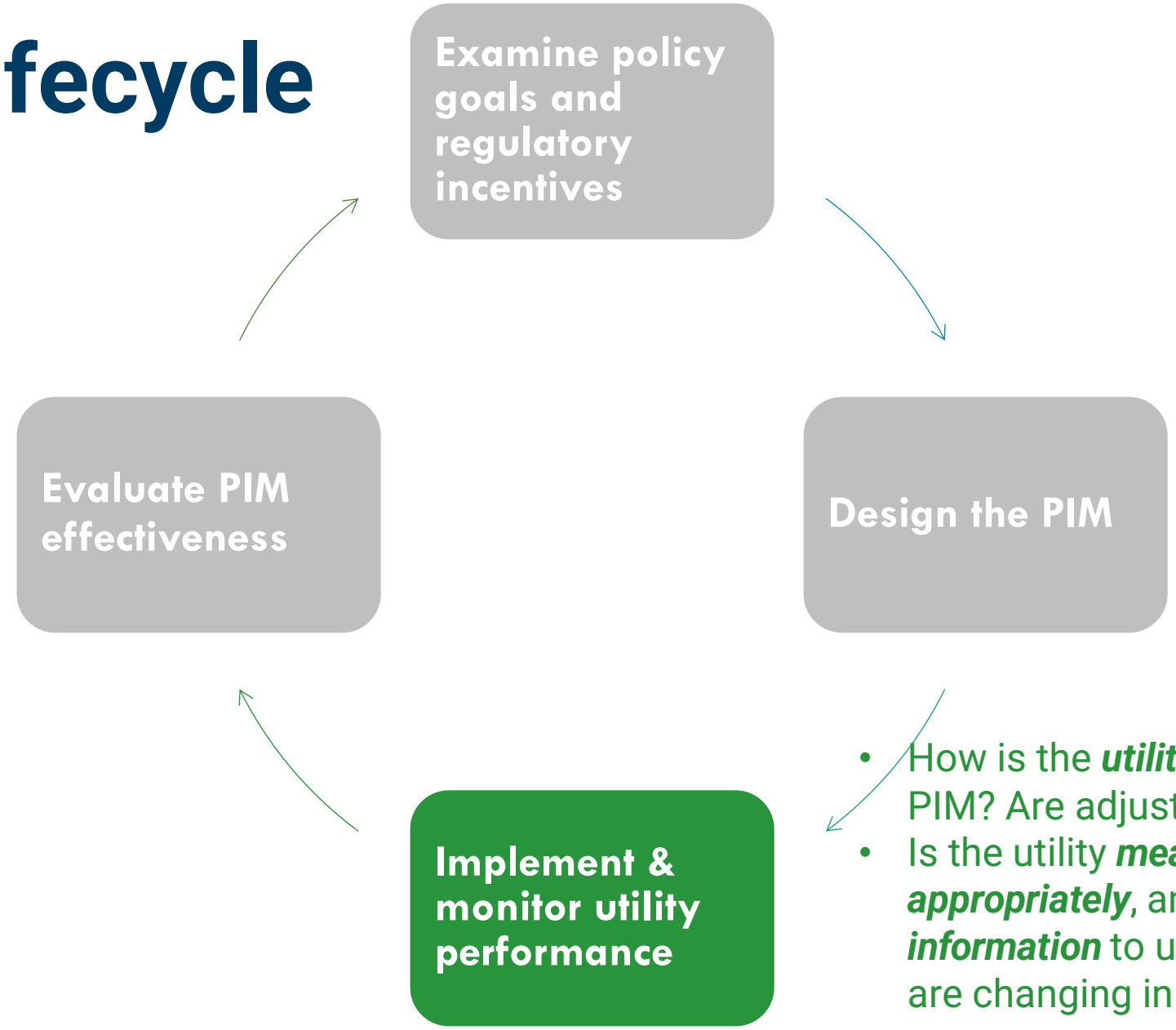
- Does the ***current regulatory framework align*** with the state's policy goals?
- Does the framework create any ***incentives that work counter*** to one or more policy goals?

PIM Lifecycle



- What ***metric*** would best capture an improvement against the policy goal or regulatory outcome?
- What is the ***desired level of performance*** against that metric? What ***data*** can be used to determine the target?
- What ***incentive structure*** will provide appropriate incentive without overcompensating the utility?

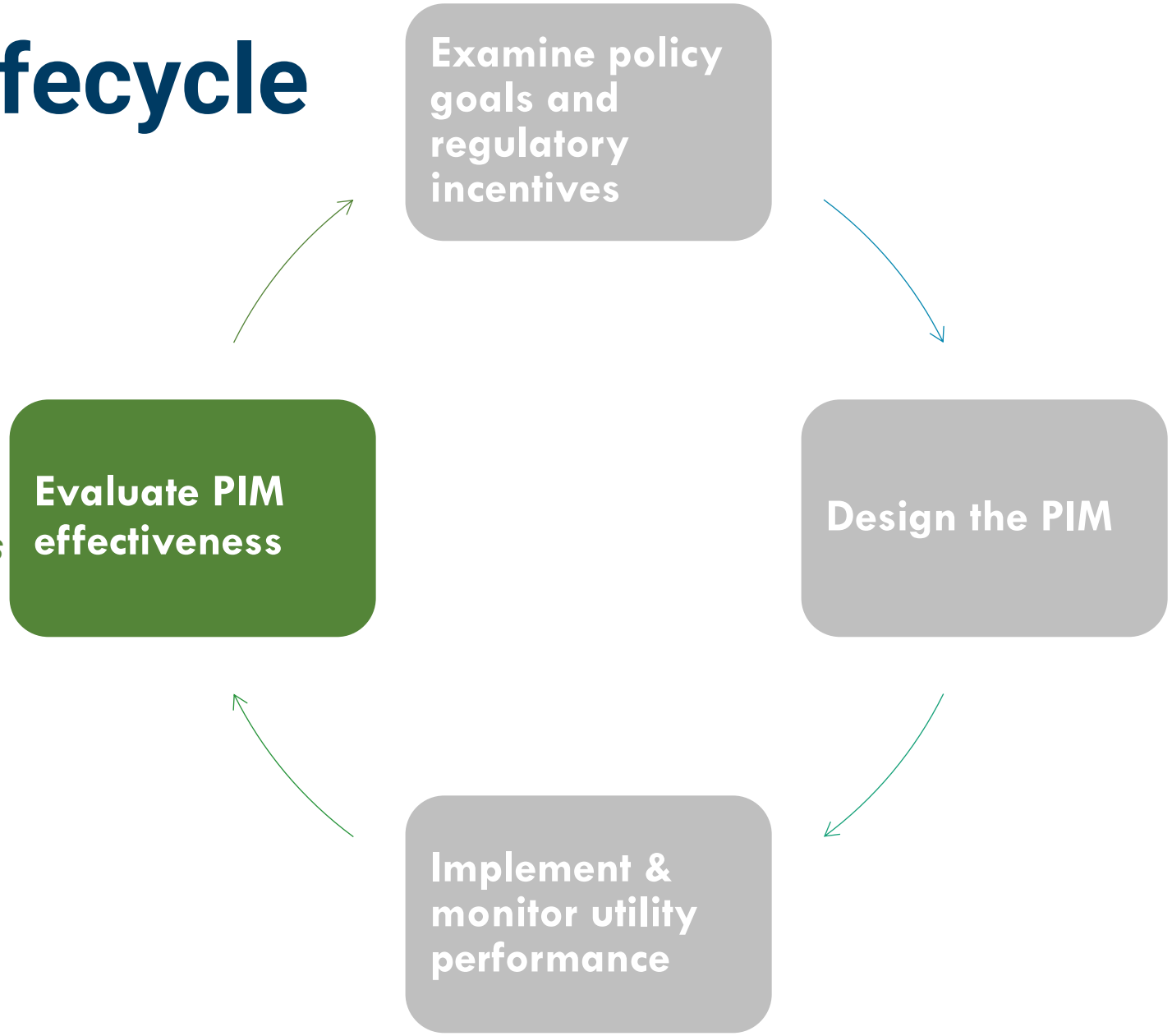
PIM Lifecycle



- How is the ***utility performing*** under the PIM? Are adjustments needed?
- Is the utility ***measuring performance appropriately***, and submitting ***sufficient information*** to understand how they are changing in response to the PIM?

PIM Lifecycle

- ***Was the PIM effective*** at motivating improved performance?
- Do the PIM's ***benefits outweigh the costs***?
- Does the PIM need to ***continue***, be ***revised***, or should it be ***sunset***?



Regulators can adopt design principles to guide the development of new PIMs

Connecticut Performance Mechanism Design Principles

Design Principle	Metrics	Scorecards	PIMs
Reflect desired outcomes	X	X	X
Be quantifiable through reasonably available data with a clearly defined calculation methodology	X	X	X
Be easily verified	X	X	X
Provide certainty in the short-term while adapting as-needed in the public interest	X	X	X
Have a clear benchmark or target for comparison		X	X
Be comparable across peer EDCs, as applicable		X	X
Be inclusive of indirect and/or direct EDC control			X
Incentivize exemplary performance and discourage substandard performance			X
Include a clearly stated PIM objective			X
Include incentive structures that are: (1) cost effective; (2) sized to achieve the identified PIM objective; and (3) and include appropriate marginal incentives.			X

Source: Connecticut Public Utilities Regulatory Authority, Proposed Decision, 21-05-15RE02, July 14, 2025

Rhode Island PIM Design Principles

1. A performance incentive mechanism can be considered when the utility lacks an incentive (or has a disincentive) to better align utility performance with the public interest and there is evidence of underperformance or evidence that improved performance will deliver incremental benefits.
2. Incentives should be designed to enable a comparison of the cost of achieving the target to the potential quantifiable and cash benefits.
3. Incentives should be designed to maximize customers' share of total quantifiable, verifiable net benefits. Consideration will be given to the inherent risks and fairness of allocation of both cash and non-cash system, customer, and societal benefits.
4. An incentive should offer the utility no more than necessary to align utility performance with the public interest.
5. The utility should be offered the same incentive for the same benefit. Stated another way, no action should be rewarded more than an alternative action that produces the same benefit.

Source: Rhode Island Public Utilities Commission, Public Utilities Commission's Guidance on Principles for the Development and Review of Performance Incentive Mechanisms, Docket No. 4943.

There's an opportunity to focus more intentionally on PIM evaluation

RMI research found that northeast states tend to focus more on upfront design, and less on retrospective evaluation. To level up PIM evaluation, PUCs can consider the following:

Evaluate PIMs on a recurring basis, and make the findings transparent

Evaluate all of a utility's PIMs together

Create opportunities for informal dialogue about PIM development and evaluation

Use guidance for PIM design to inform PIM evaluation

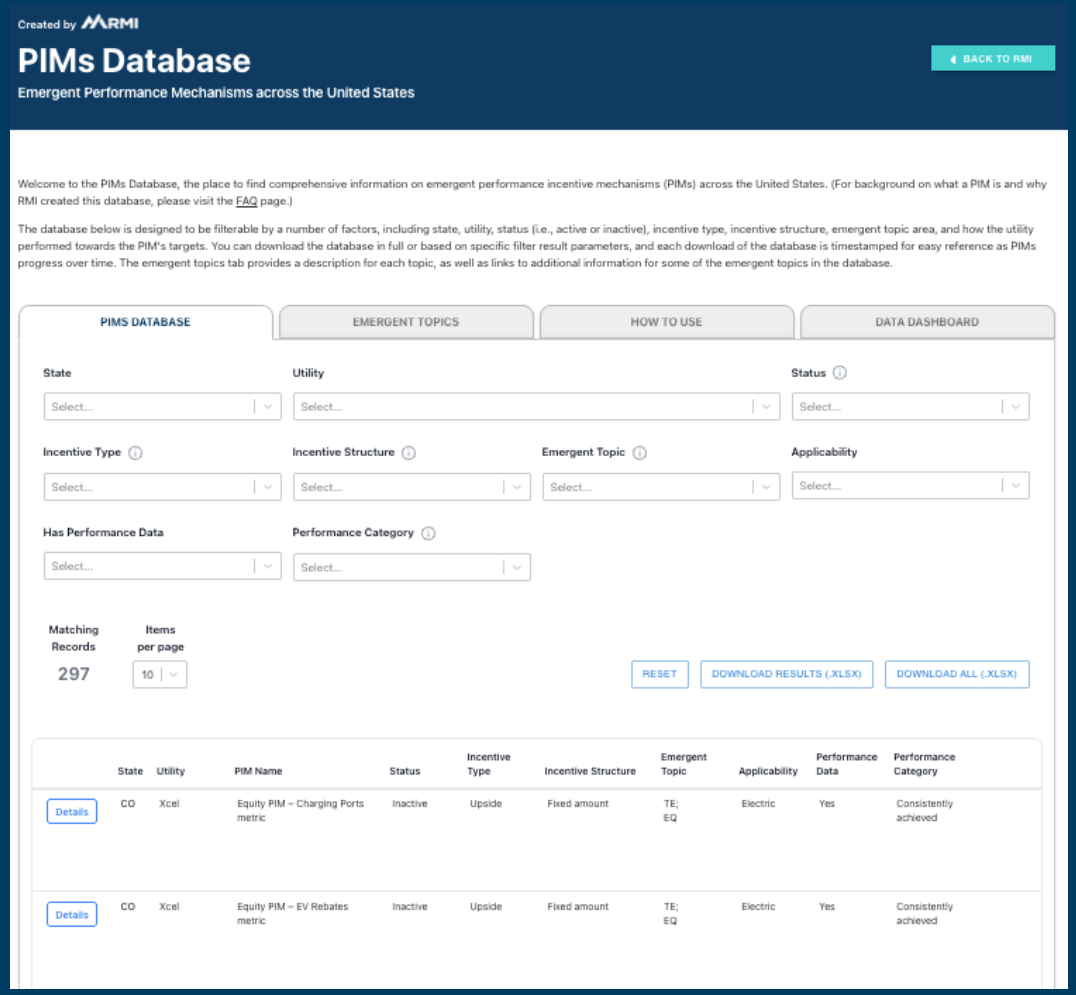
Sources: RMI, Looking Under the Hood: How PUCs Evaluate Performance Incentive Mechanisms,; RMI, How PIM Evaluation Can Level Up

RMI's PIMs Database

A resource to reference design and utility performance information on ~300 PIMs across the US

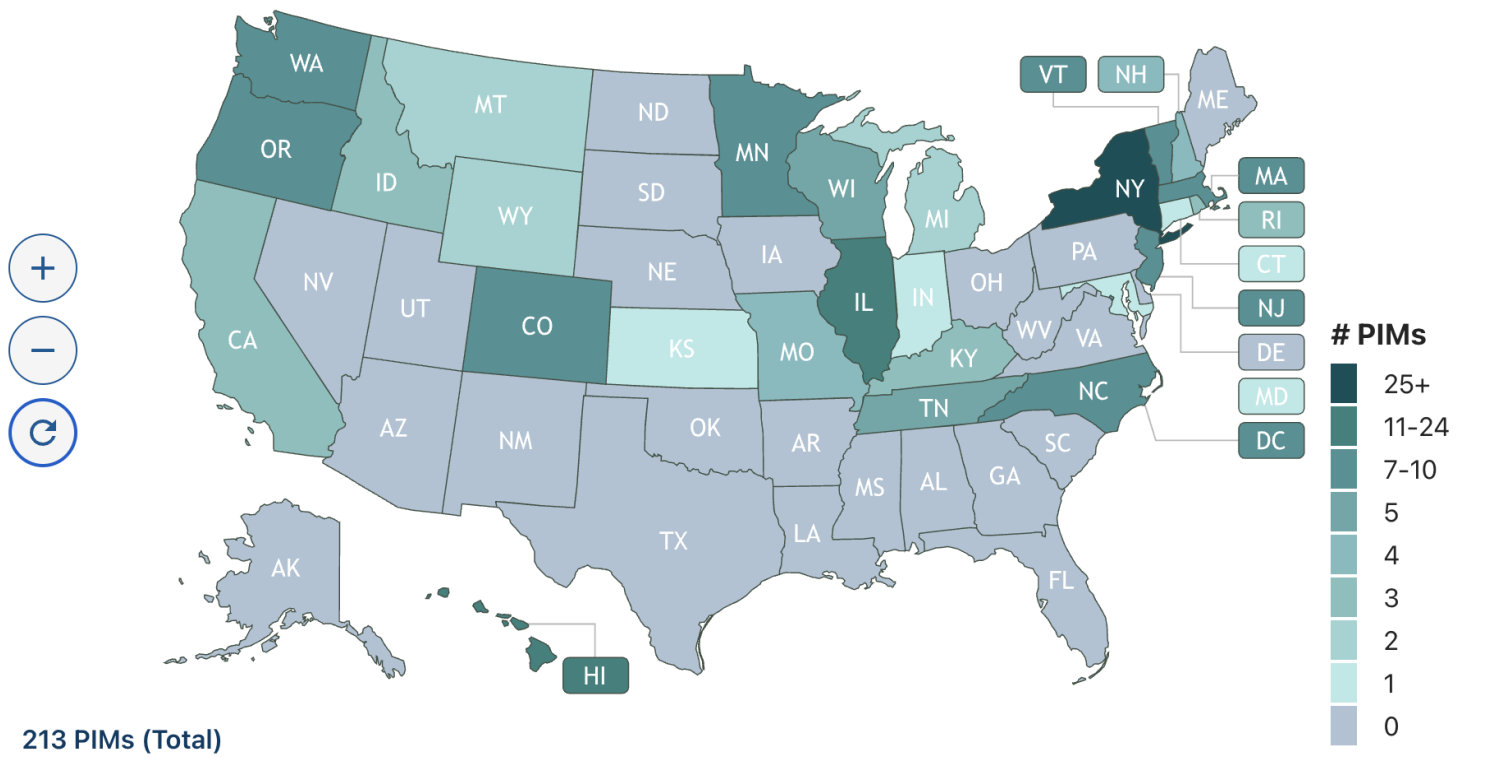
https://rmi.org/pims-database/

Sign up for the quarterly Newsletter to receive updates and insights straight to your inbox!



RMI – Energy. Transformed.

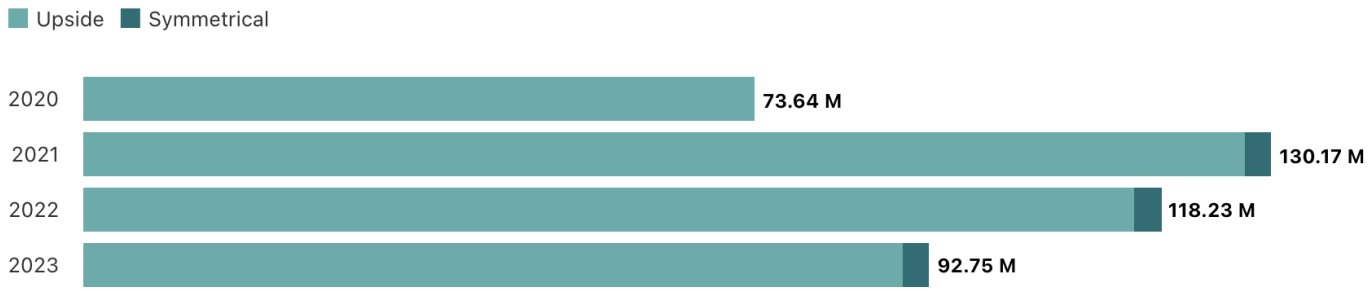
Insights from the PIMs Database



213 PIMs (Total)

Total utility incentives earned by incentive type

This chart shows the total annual dollar value of incentives earned for PIMs in the database for which utility performance and earnings data is publicly available. The earnings are broken apart by the incentive type associated with the PIMs for which a utility earned an incentive.



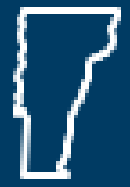
RMI – Energy. Transformed.

There are a range of innovative PIMs on emergent topics central to climate-forward, affordable resource deployment

DTE and Consumers Energy (MI) have demand response (DR) financial incentive mechanisms that reward the utilities for achieving peak demand reductions beyond the baseline targets set in their IRPs.

Rhode Island Energy (RI) has a system efficiency PIM that incentivizes the use of behind-the-meter DERs to increase peak demand capacity savings

NY utilities have Non-Wires Alternative (NWA) and Non-Pipeline Alternative (NPA) shareholder incentives that encourage deferral or avoidance of traditional infrastructure investments. Con Edison also has a PIM that incentivizes light-duty EV deployment.



Efficiency Vermont (VT) has a two-part peak demand savings PIM with differentiated targets for summer and winter peak savings

Thank you

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Additional resources

- **NARUC PBR Working Group Webpage & Webinars:**
  - Webinar: Strategies for Developing Effective Performance Incentive Mechanisms – Part 2; Vermont's lessons learned with PIMs for energy efficiency programs, December 1, 2022
    - Speaker: Joan White, Vermont Public Utility Commission
  - Webinar: Establishing Metrics, April 14, 2022
    - Speakers: Ryan Katofsky, Advanced Energy Economy; Rachel Gold, Rocky Mountain Institute; Doug Scott, Great Plains Institute
- **Reports:**
  - *PIMs for Progress*, RMI, 2018
  - *Rewarding What Matters in Energy Efficiency; Shifting Utility Performance to Focus on Climate*, RMI, 2022

MASSACHUSETTS
DEPARTMENT OF
ENERGY RESOURCES

DOER Peak Potential Study

Using load management to empower consumers and reduce energy costs

Presented to the Rates Task Force

Presented by
Charles Dawson

Our Mission

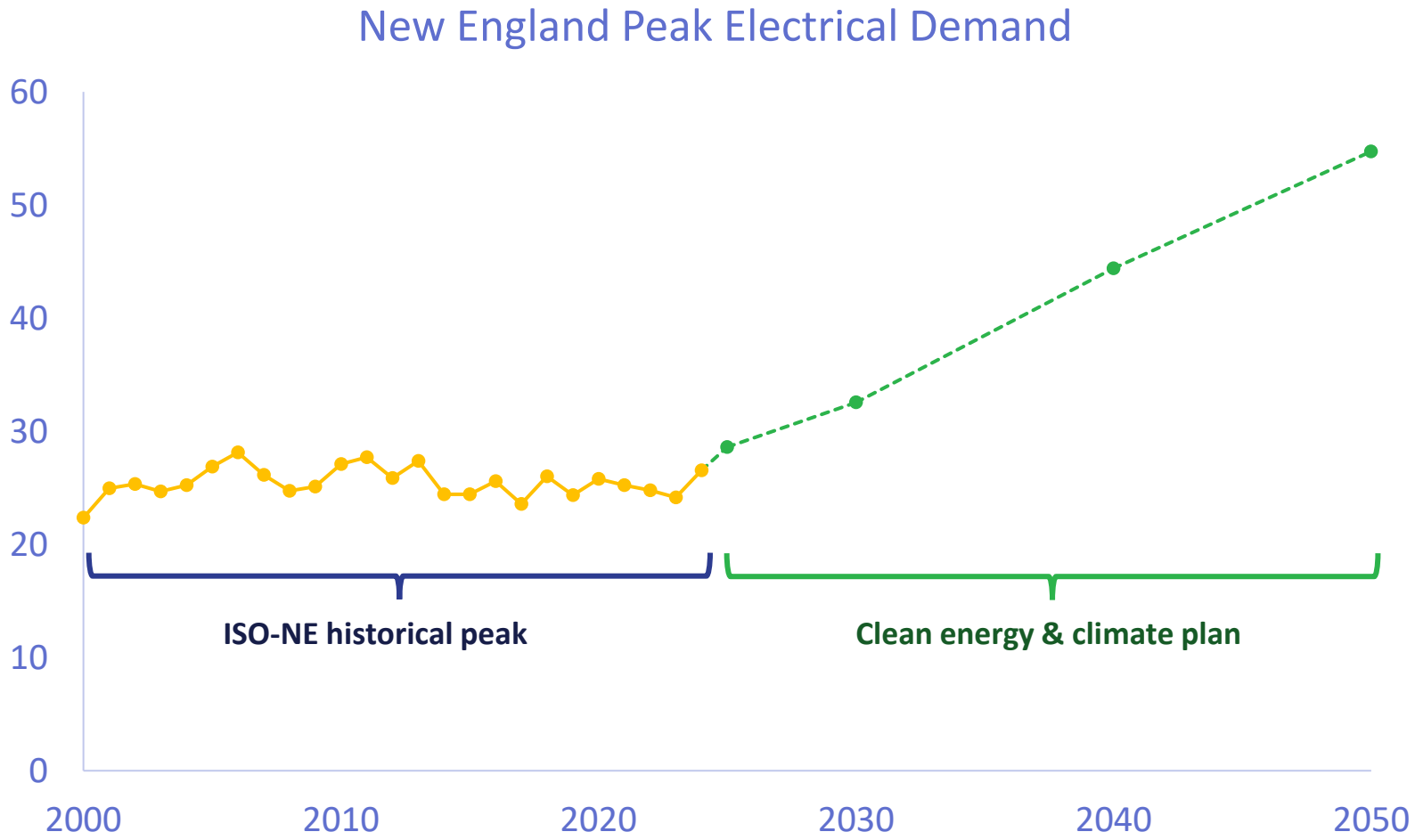
The Department of Energy Resources' (DOER) mission is to create a clean, affordable, resilient, and equitable energy future for all in the Commonwealth.

- ***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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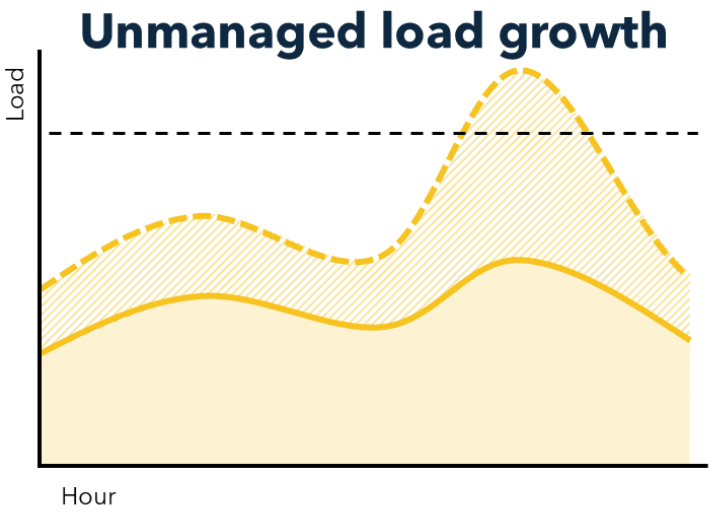
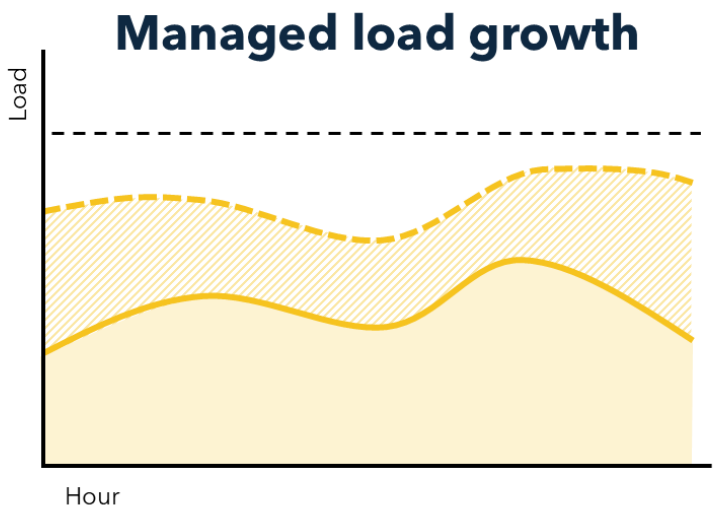
But load growth only increases rates if unmanaged



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

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

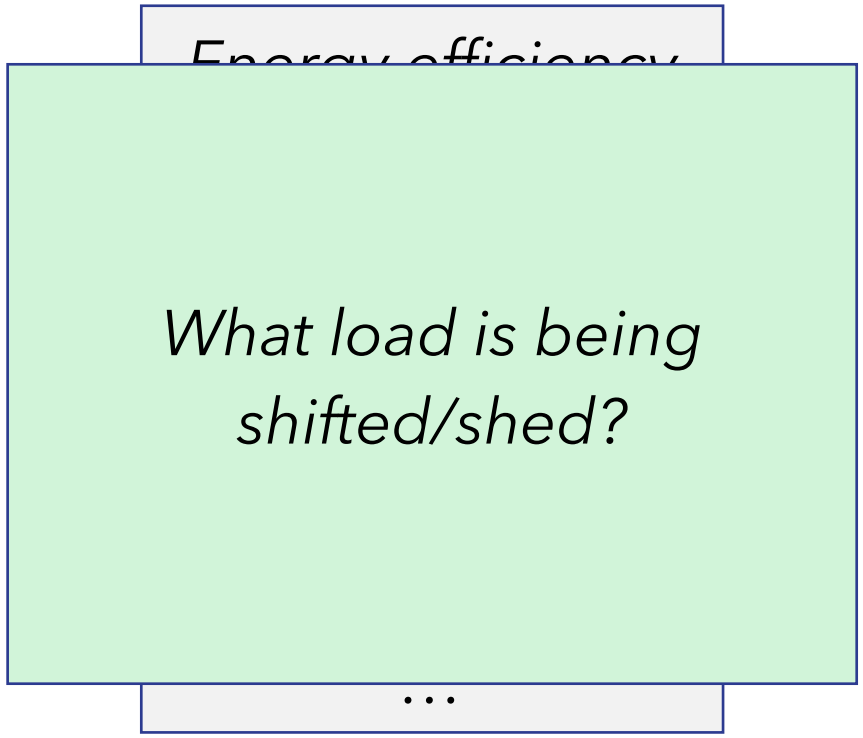
Managed growth spreads costs over more kWh

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

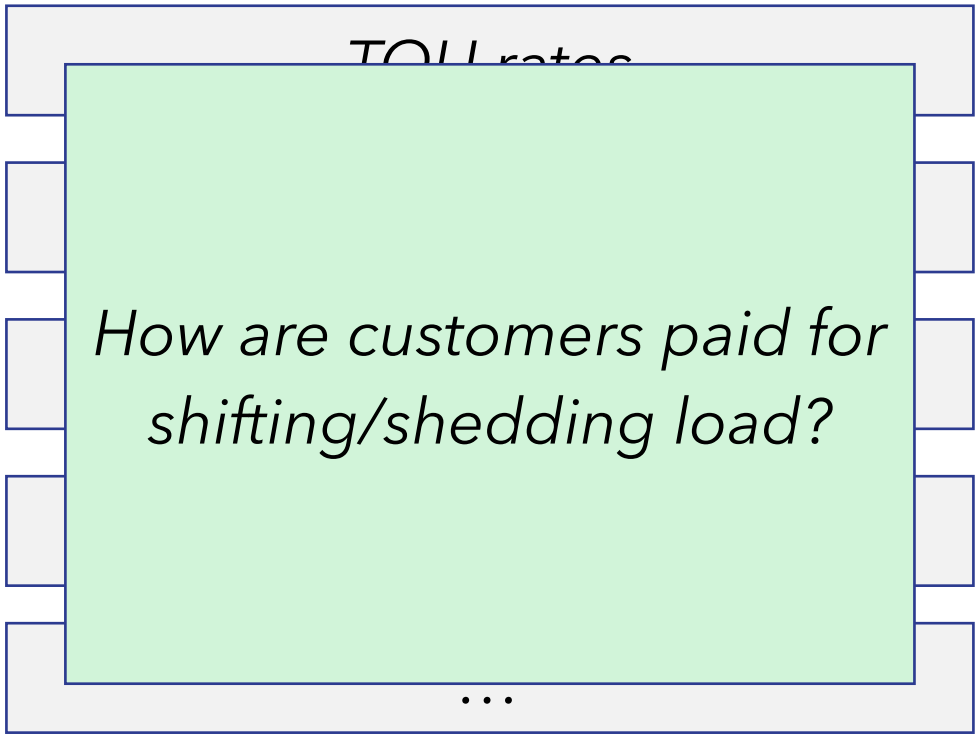
Load management measures	*Load management incentives*
Energy efficiency	*TOU rates*
EVs	*CPP*
Batteries	*Demand response*
Smart thermostats	*Managed charging programs*
…	…

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



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

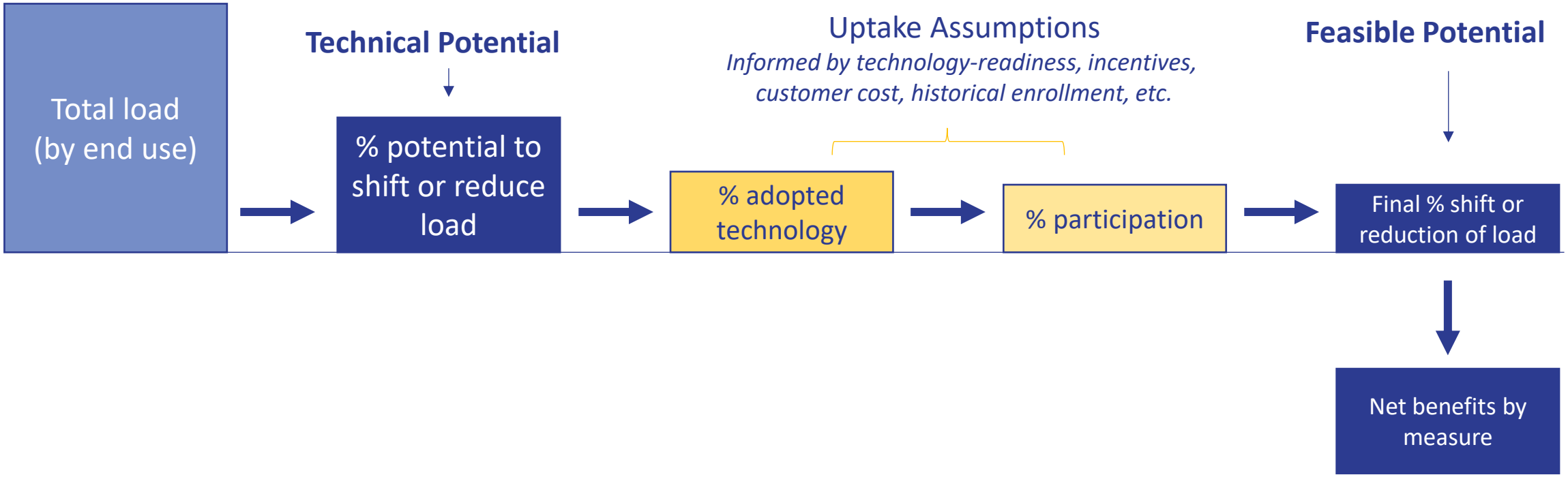
Stakeholder engagement

- 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



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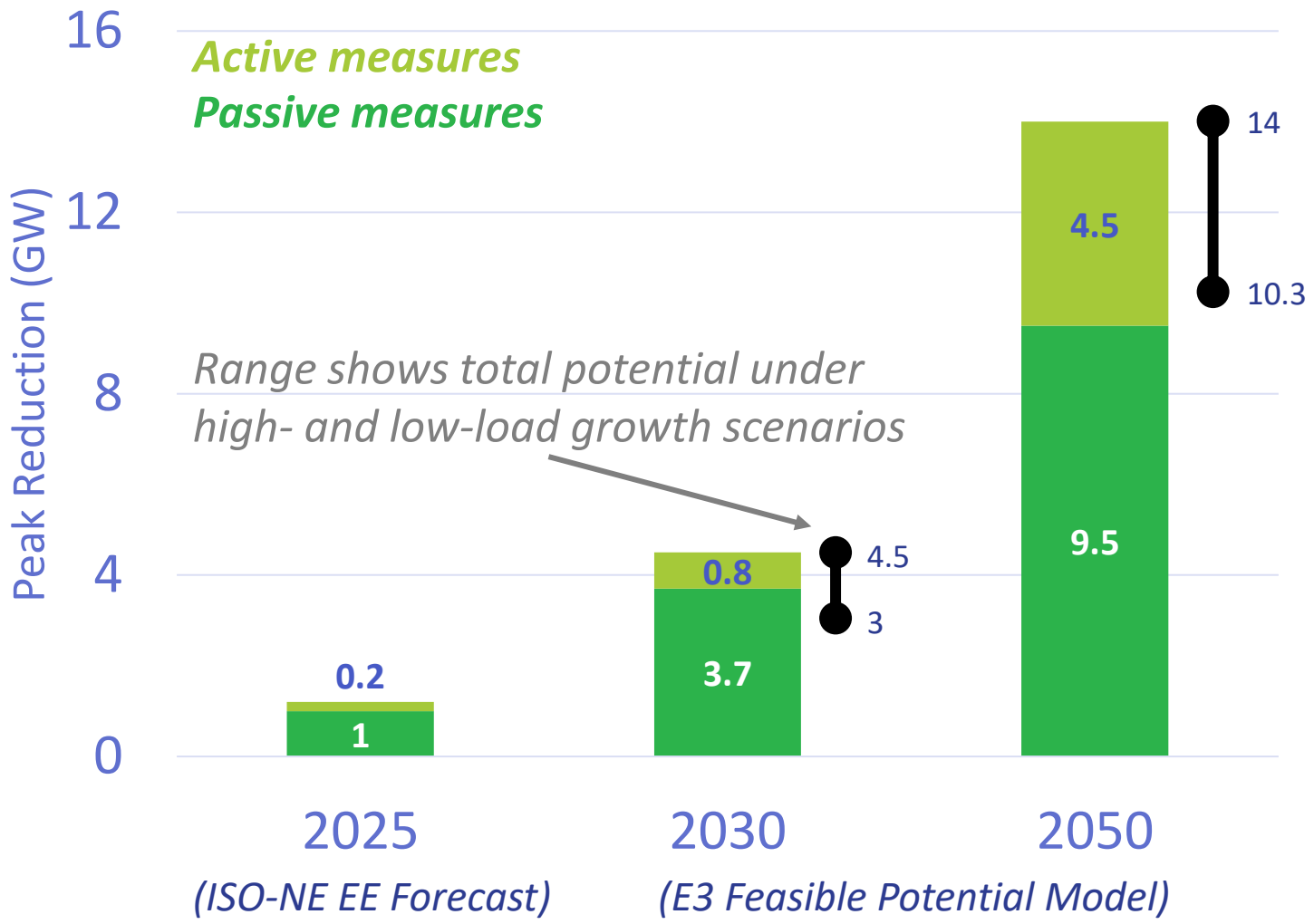
Finding 1: EE, EVs, BTM storage, and heating flexibility can feasibly reduce peak by 4.5 GW in 2030 and 14 GW in 2050 (in MA)



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

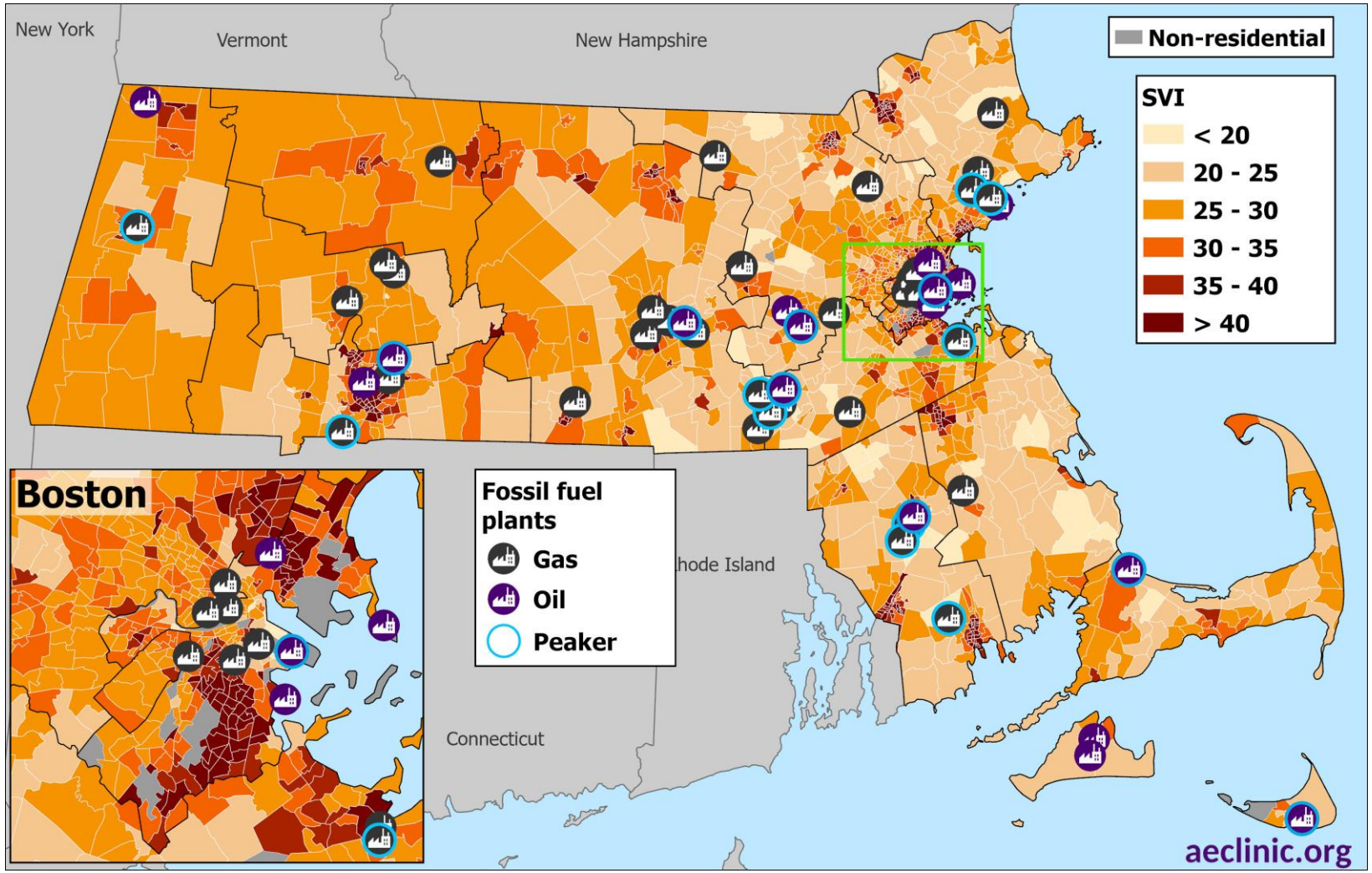
This requires:

- 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.

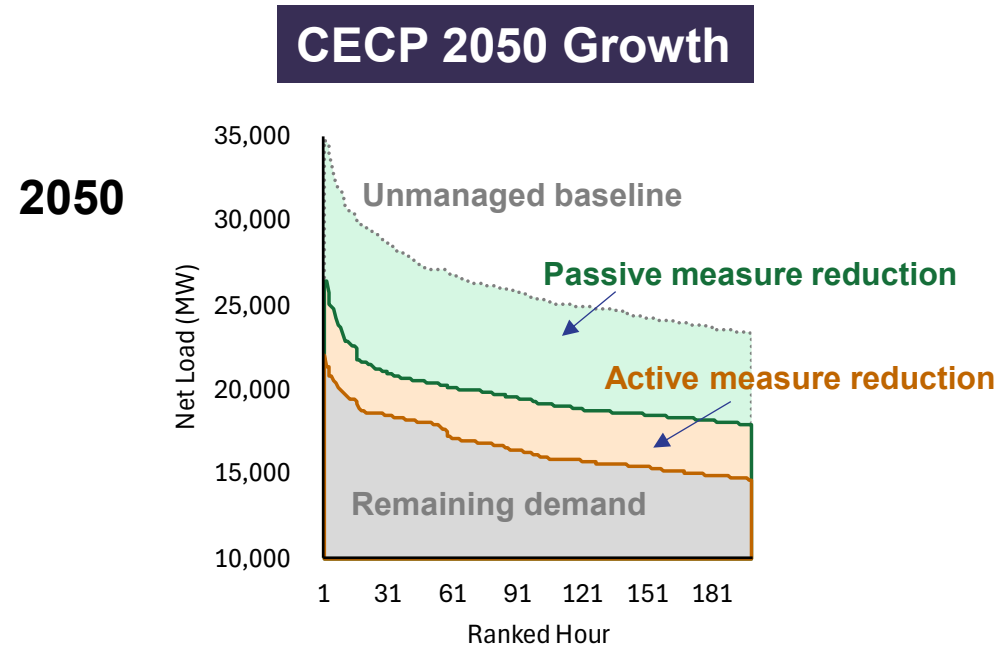
1: Sustain Massachusetts' lead on energy efficiency

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

- **New Buildings**
- **Existing Buildings**
- **Advanced heating (ground source heat pumps)**

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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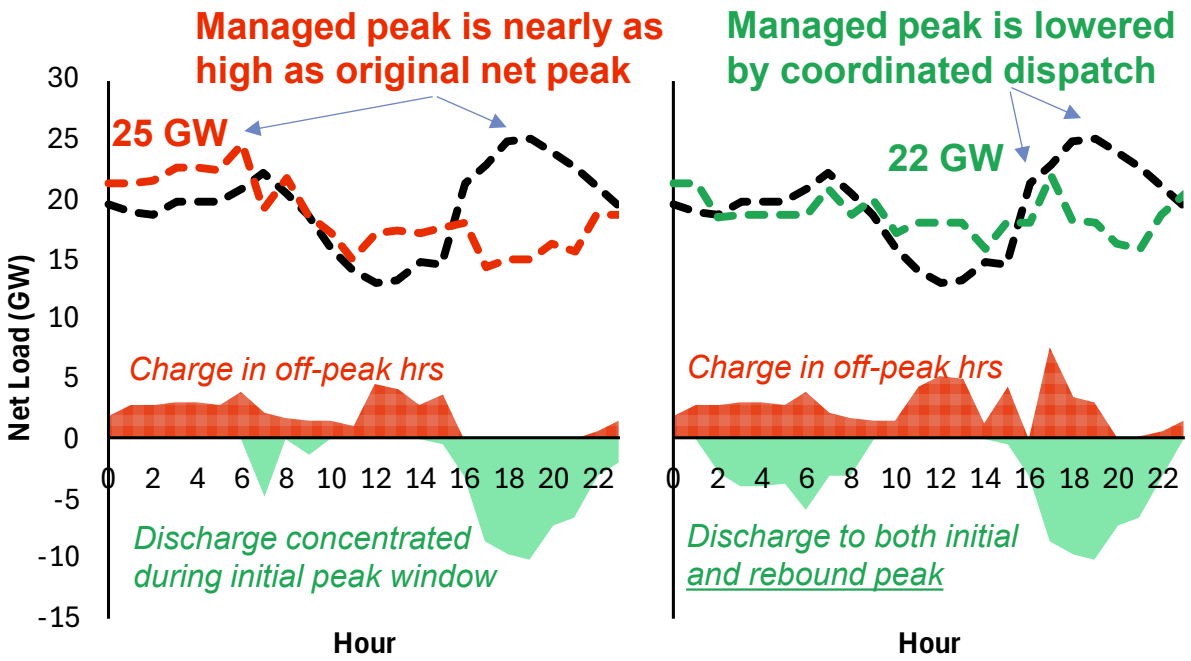
2: Scale EV load management as a no-regrets strategy

Invest in both managed charging (V1G) & vehicle-to-everything (V2X). Use active management to maximize benefits and minimize distribution grid impact.

- **V1G**
- **V2X**
- **Active management**

Key technical finding:
50-300 MW by 2030, 2.5-6.5 GW by 2050**
*From **active** EV load management*

** 2050 EV potential includes both V1G and V2G/V2X



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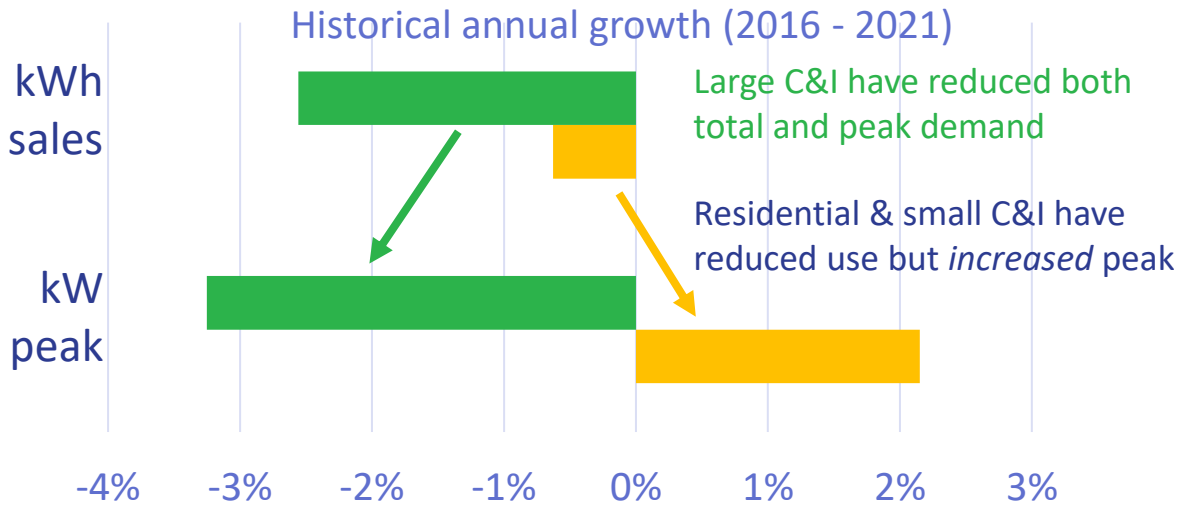
3: Pay customers for supporting the grid

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

- **Default seasonal TOU rates**
- **Technology-neutral peak pricing (CPP/DR), particularly for residential customers**

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



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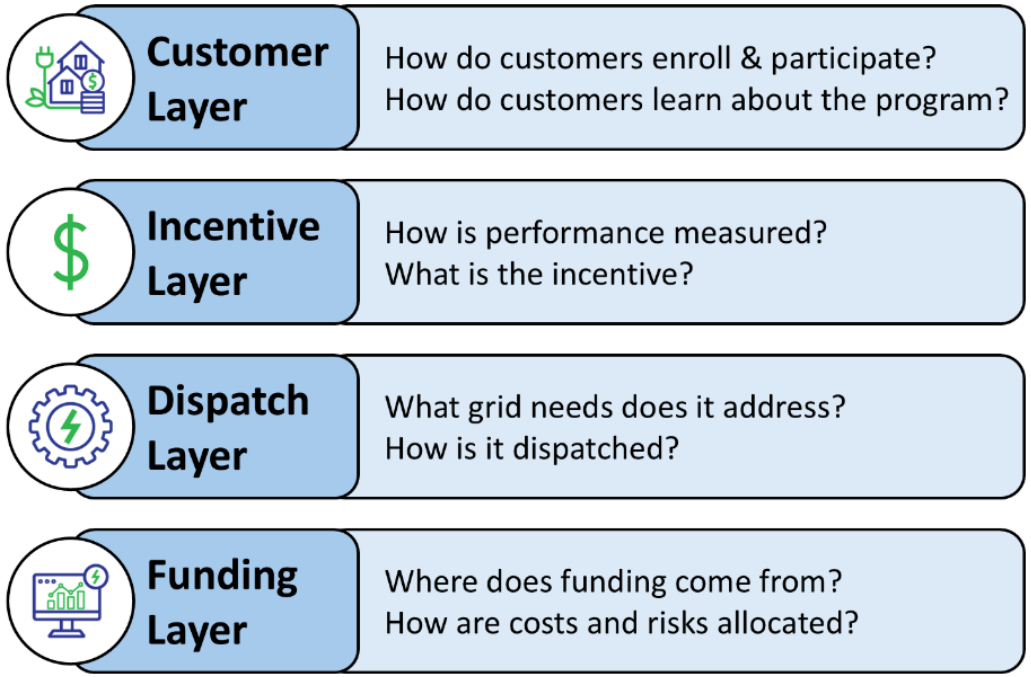
4: Support innovation in customer-centric aggregation

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

- **VPP-ready equipment**
- **Customer-centric innovation & aggregation**
- **Increase retail/wholesale coordination**

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

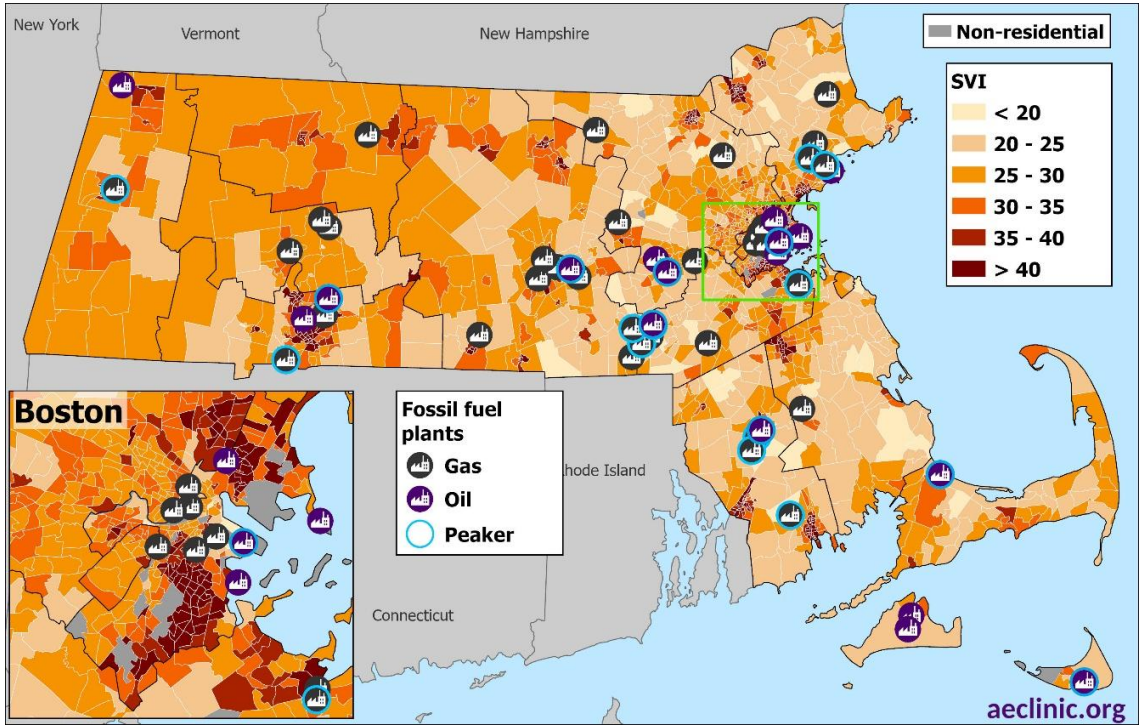


5: Ensure equitable access and distribution of benefits

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

- **Avoid cost shift**
- **Address barriers to participation (need for smart equipment, customer awareness and trust)**
- **Support equitable distribution of benefits**

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



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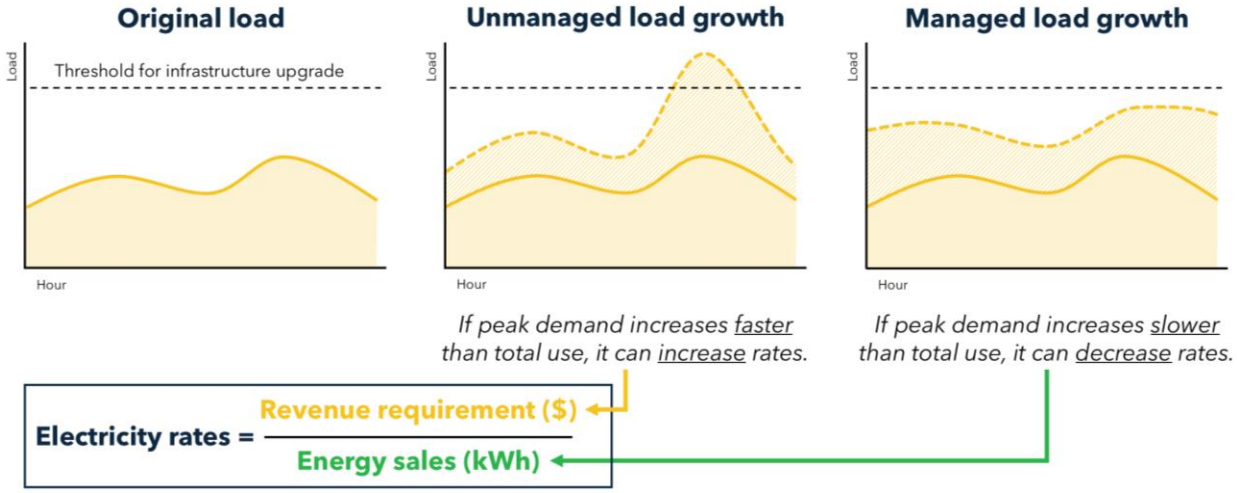
6: Align utility business models with load management

Design appropriate incentive mechanisms and regulatory frameworks.

- **Incentive mechanisms**
- **Integrated planning**
- **Regulatory sandbox**

Key policy principle:
Load growth is coming, managing it can increase throughput while decreasing peak, lowering rates.



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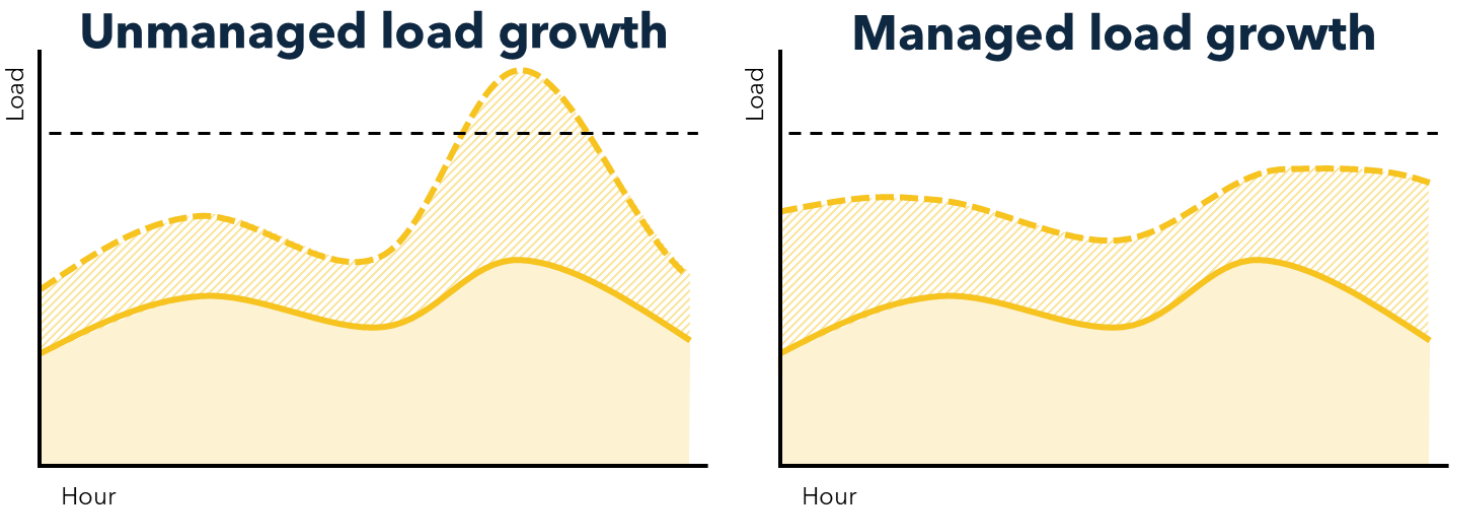
Next steps

- 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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Higher peak demand increases grid costs

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Managed growth spreads costs over more kWh

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(617) 626-7300

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

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Thank You!

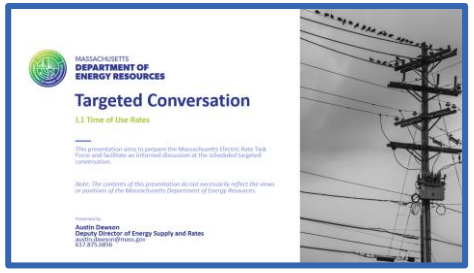
Next Steps

Targeted Conversation

November 19, 2025, 2-4pm

- Will serve as a deliberative space following related expert presentations to prompt informed discussion on policy questions and priorities

Illustrative Presentation



Optional Office Hours

November 17, 2025, 2-4pm

- Optional office hours for further conversation, serving as a structured opportunity to work towards common understandings and positions. We also encourage participants to have discussions amongst each other beside formal Task Force sessions
- Please reach out to **chris.connolly2@mass.gov** to request an invitation.