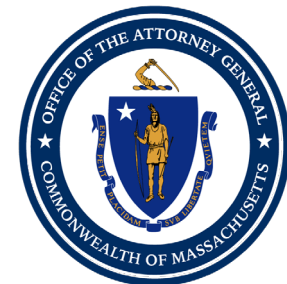
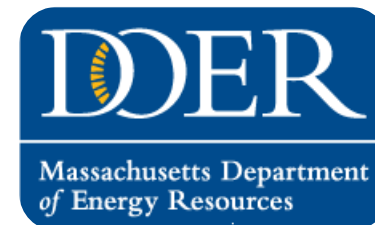


MASSACHUSETTS INTERAGENCY RATES WORKING GROUP

A Collaboration to Advance Near- and Long-Term Rate Designs that Align with the Commonwealth's Decarbonization Goals

NECPUC RETAIL DEMAND RESPONSE WORKING GROUP – JUNE 21, 2024



AGENDA

- I. Interagency Rates Working Group (IRWG) Background & Guiding Principles
- II. MA Context
- III. MA Rate Design Study
- IV. Landscape of Tools for Load Management & Role of Rates



IRWG: CONTEXT & PURPOSE

- Existing electric rates jeopardize the Commonwealth's clean energy goals as they remain a barrier to building and transportation electrification
- Massachusetts Interagency Rates Working Group (IRWG) was formed to **advance near- and long-term electric rate designs that align with the Commonwealth's decarbonization goals** by prioritizing the reduction of energy burden while incentivizing transportation and building electrification
 - Includes representatives from the Executive Office of Energy & Environmental Affairs (EEA), the Massachusetts Clean Energy Center (MassCEC), the Department of Energy Resources (DOER), and the Attorney General's Office (AGO)



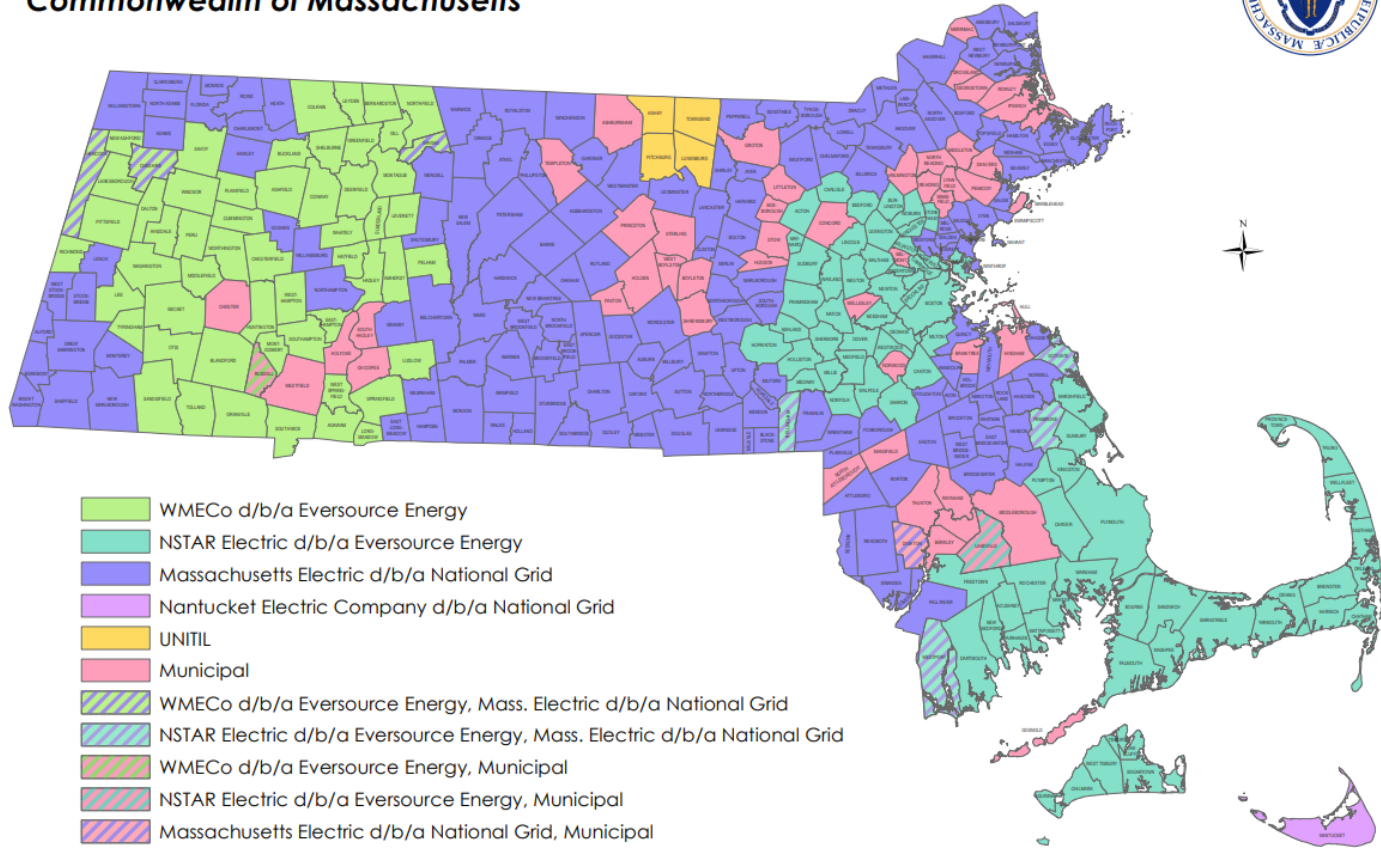
RATE DESIGN PRIORITIES

- **Reduce Energy Burden and Support Electrification** using new rate structures that will promote energy affordability and incentivize transportation and building electrification
 - Minimize or mitigate barriers for ratepayers to electrify end-uses
 - Create rate design features targeted to reducing the energy burden for ratepayers, particularly for low- and moderate-income ratepayers and vulnerable populations
- **Increase Distributed Energy Resources (DER) Opportunities and Penetration** to advance decarbonization and electrification
 - Promote DER and equitably allocate costs (e.g., the costs of interconnection, incentive programs, etc.) through rate design
- **Integrate Distribution System Planning** into the utility's business-as-usual operations and investments
 - Pursue least-cost distribution system upgrades that accommodate transportation and building electrification and other new loads
- **Promote Operational Efficiency** to facilitate the transition to a distributed grid
 - Utilize price signals to achieve effective load management, including peak demand reduction
 - Improve grid reliability, communications, and resiliency



WHO CONTROLS THE GRID IN MASSACHUSETTS?

Electricity Providers by Municipality Commonwealth of Massachusetts



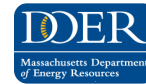
Source: Massachusetts Department of Public Utilities, September 2015

Investor-owned utilities

National Grid, Eversource, Unitil
~90 percent of statewide load
AMI being rolled out (~2028)

Municipal Light Plants (MLPs)

41 total across the state
~10 percent of statewide load
Many have AMI



RATE DESIGN STUDY: SCOPE OF WORK

I. Electric Rates Assessment

- Status of current electric rates in MA
- Existing legal, policy, and regulatory parameters
- Alternative rate structures offered in other jurisdictions

II. Near-Term Rates Strategy (up to 5 yrs)

- Identify existing rate option barriers
- Propose alternative rate offering(s) that can be utilized during / prior to full AMI implementation

III. Long-Term Ratemaking Study (5-10 yrs)

- Address regulatory/ratemaking mechanisms
- Recommend AMI-enabled rate designs
- Consider long-term energy affordability

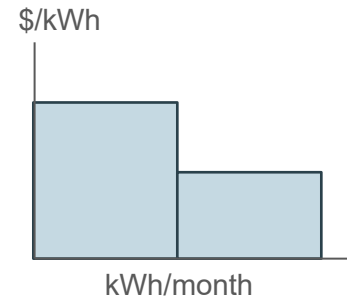


Example 1: Lowering volumetric charges

Lower volumetric rates

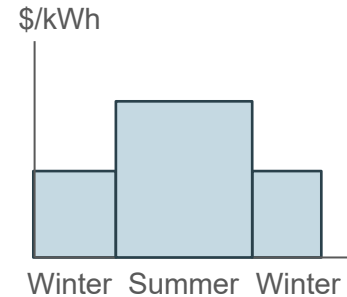
Need to recover missing revenue elsewhere

Charge less per-kWh for high usage (Declining block rates)



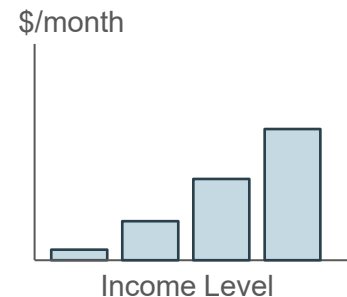
Costs that do not depend on usage already recovered by first X kWh

Differentiate summer vs winter charges (Seasonal rate)



Many system costs determined by peak usage during summer months (in near-term)

Increase fixed charges



Income graduation can mitigate affordability concerns with fixed charges

Note: These elements are not mutually exclusive, and could apply to all customers or to **technology-specific** rates for EV and/or heat pump owners

Example “heat pump” rate:

Central Maine Power: Raise fixed cost (\$22/mo to \$38/mo) and reduce winter-time volumetric rates when electric heating consumption is highest

- May through October: \$0.14 / kWh
- November through April: \$0.004 / kWh (a 97% lower volumetric rate)

Example 2 (longer term): Using time-varying rates (TVR) to better align rates with costs

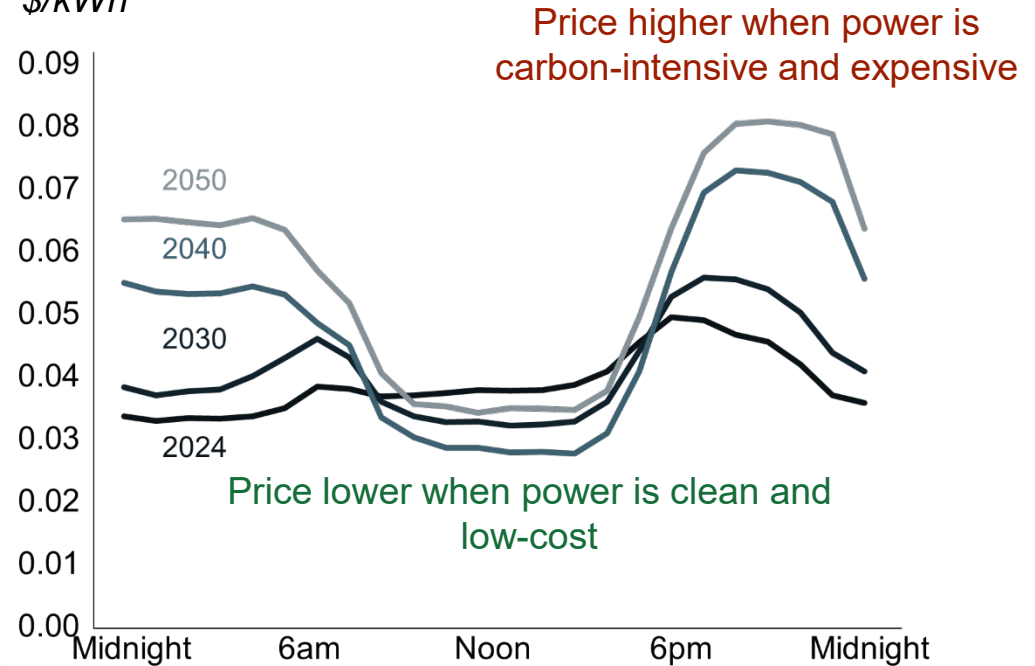
- + TVR aligns customer and utility costs, providing price signal to shift and/or reduce consumption away from key hours of constrained supply
 - Requires advanced metering infrastructure (AMI) to track hourly usage, widespread deployment expected by 2027-2028
- + For example, Hawaiian Electric “Shift and Save” volumetric rates follow a 1:2:3 ratio

Example TVR rate

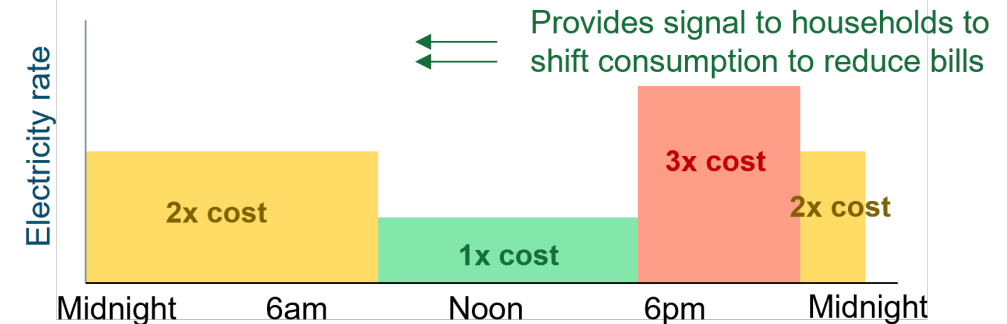
Hawaiian Electric: three blocks of time-varying costs to incentivize load shifting and peak

- **1x costs during daytime**, when generation costs and emissions are lowest due to high penetration of solar
- **2x costs overnight**, when electricity generation relies on fossil fuels, i.e. more expensive and emissions-intensive than daytime
- **3x costs during evening peak**, i.e. period of maximum grid stress and emissions intensity

2021 MA Average daily wholesale electric supply cost*
\$/kWh

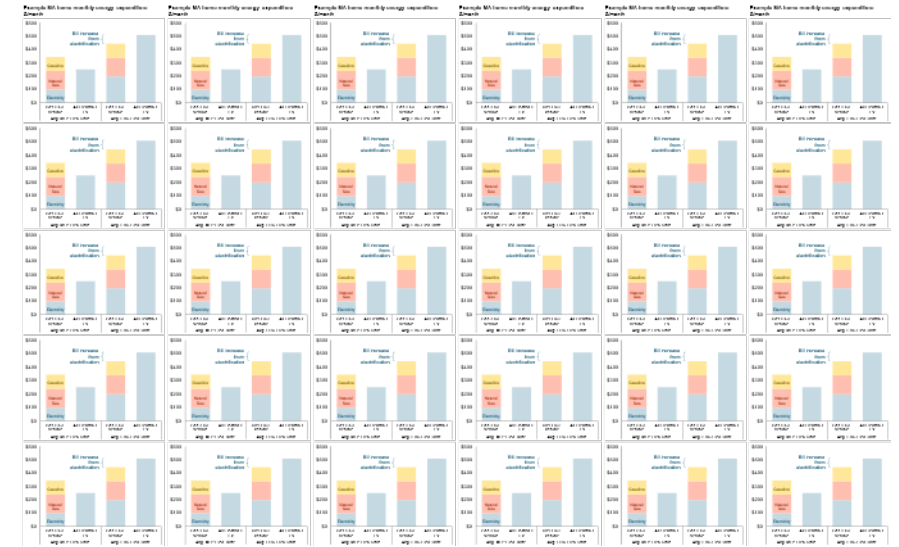


Hawaiian Electric “Shift and Save” rate

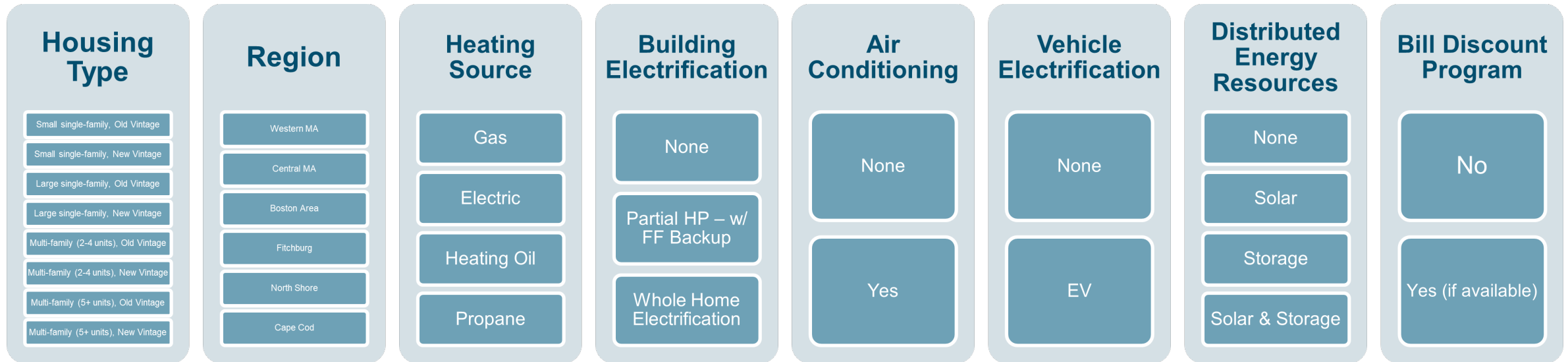


Understanding energy affordability impacts across a variety of customers is crucial to exploring different rate designs

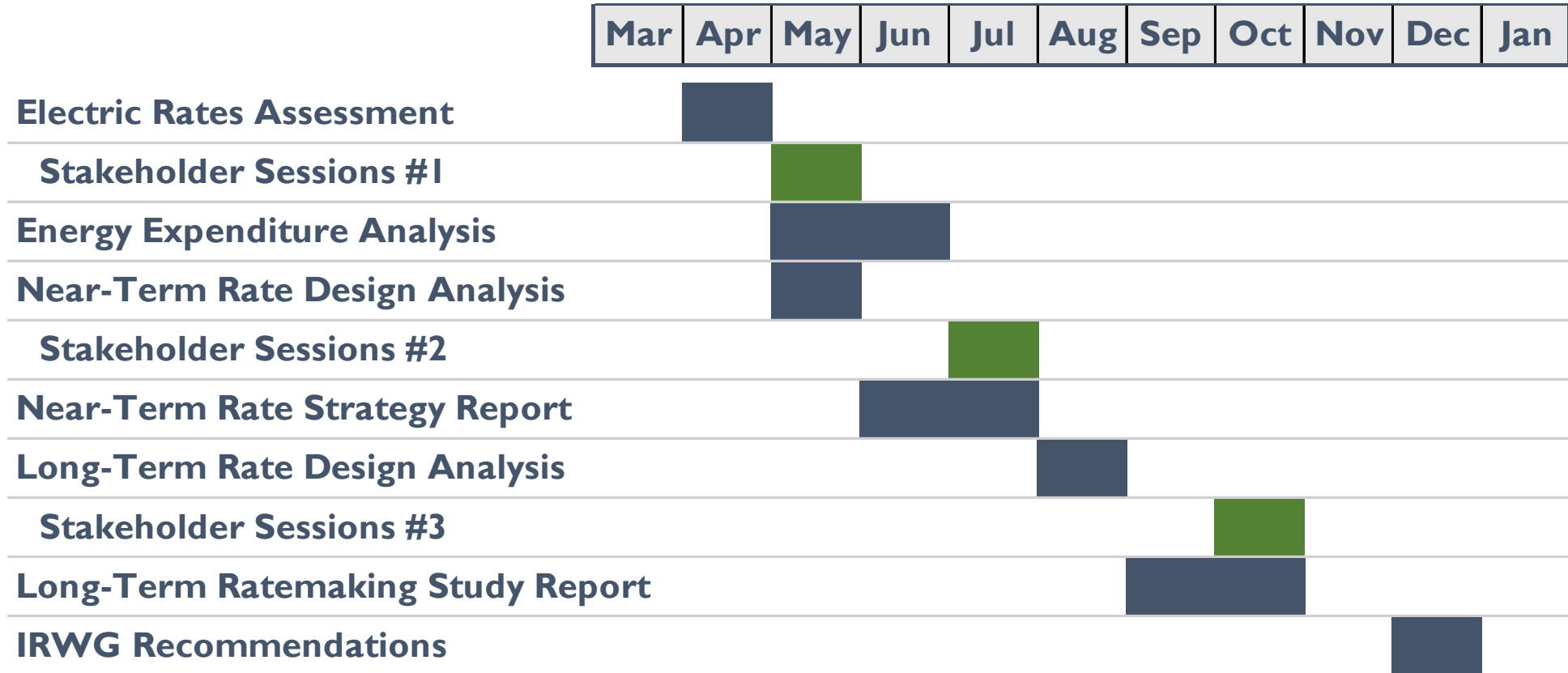
- + “Average” customer bill impacts obscure the range of customer experiences and the connections between impacts and key drivers
- + E3 will develop a household energy expenditure model (HEEM) to better understand impacts across a wide swath of residential customers



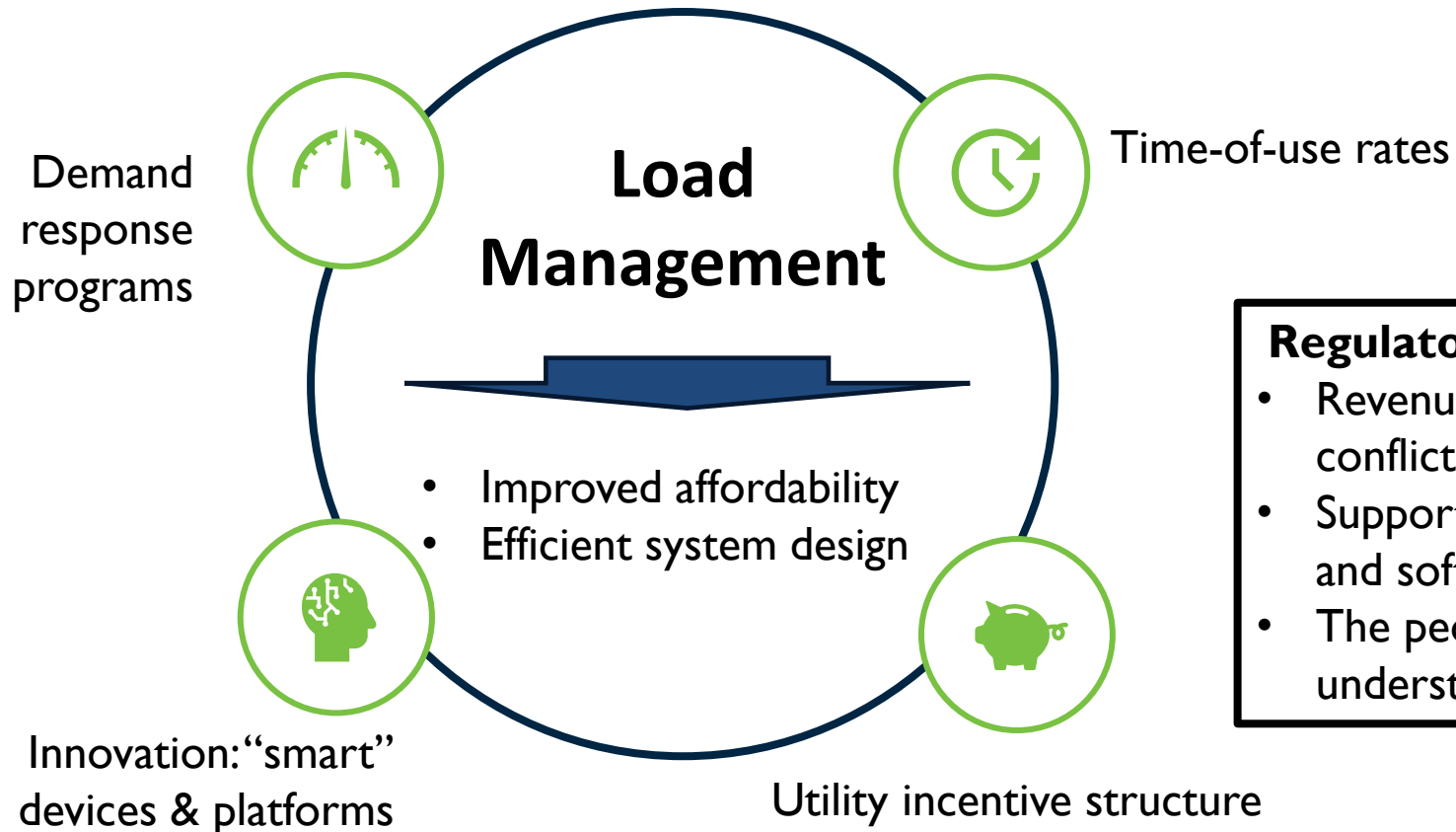
Proposed HEEM customer segmentation



EXPECTED TIMELINE



LOAD MANAGEMENT & ROLE OF RATES



Regulatory Ecosystem & Interactions will be Key

- Revenue stacking that can amplify objectives, or conflicting/competing signals that may undermine
- Support for the adoption & integration of hardware and software (by utilities and by end-users)
- The people side: Customer – equity, access & understandability; Utility – capacity building





THANK YOU!

Follow along, submit comments, & sign up for our email list:
<https://www.mass.gov/info-details/interagency-rates-working-group>

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