Massachusetts Grid Services & DER Compensation Study

Workshop 4

June 10, 2025

MASSACHUSETTS CLEAN ENERGY CENTER®

In Partnership With

EVERSOURCE

Unitil

nationalgrid

RMI

Energy+Environmental Economics

Welcome and Check -In

- **Please use the rename function to add your affiliation after your name – eg. "Brett Webster, RMI"**

- **Check-in question (please put your response in the chat):**
  - *Today we're discussing roadmaps to the future - What are 1-2 words to describe your vision of a Massachusetts energy future in 2035? In 2050?*

Disclaimer Prior to Recording

- This workshop will be recorded to ensure transparency in this process and provide participants or those unable to attend the opportunity to refer back to the workshop at a later date.
- This recording and the slides presented will be posted publicly on the MassCEC website at the link below.
  - https://www.masscec.com/grid-modernization-and-infrastructure-planning/grid-services-study
- If you are not comfortable being recorded, you may mute your video and microphones now.
  - Once the time dedicated to the primary content of this meeting has concluded, the recording will be ended.
- In order to facilitate free and open discussion during the workshop, it should be understood that statements made, positions taken, and information provided by the participants are part of an evolving and collaborative effort to encourage discussion and develop effective solutions to the challenges presented. As such, except as set forth below, these perspectives and materials should not be used by or against participants or presenters in any litigation, including administrative proceedings before federal, state, or local governmental authorities.
- This prohibition does not prevent any participant from using its own statements, positions, or information provided in any subsequent litigation, provided that such use contains no reference or indication that these materials were made and presented in the workshops.

Objectives for the Massachusetts Grid Services Study

1. Develop an initial methodology for calculating location-specific distribution grid services value that may be provided by flexible Distributed Energy Resources (DERs) in Massachusetts
2. Explore potential compensation frameworks specific to this grid services value – balancing policy objectives and avoiding overlap or double-counting with other available benefits/incentives
3. Integrate equity and environmental justice impacts in both valuation and compensation for grid services
4. Create a roadmap to guide both near and long-term development of grid services programs for DERs
5. *Provide opportunities to incorporate stakeholder input!*

Recap – Topics from Workshop 1 - 3

Workshop 1

Building understanding and a vision for the role of DERs and grid services in MA

- Motivations, goals, and intended approach for establishing grid services compensation mechanisms
- Role of stakeholder engagement in this study
- Initial feedback on study goals and approach

Workshop 2

- Approaches to valuing distribution grid services
- Introduction to compensation structures
- Feedback Areas: Valuation methods; Compensation structures; Considerations for implementation and reducing barriers to access from an equity standpoint

Workshop 3

- Summary of engagement to date and feedback from equity and EJ focus groups
- Context and priority objectives for compensation offerings
- Components of compensation
- Feedback Area: Priorities and preferences for compensation structures

Recordings and materials from all workshops can be found on the MassCEC Grid Services Study webpage

Workshop 4 Objectives

1. Provide a deeper understanding of core policy considerations for implementing grid services offerings
2. Share and receive feedback on a long-term vision for grid services in Massachusetts
3. Discuss near-term objectives that will:
   a) Set Massachusetts on a path to achieve long-term goals for grid services, and b) Allow participants and other stakeholders to share feedback
4. Communicate expected implementation timeframes and phases to follow this study

Agenda

1:00 - 1:10	1.	**Welcome and Check-in**
1:10 – 1:25	2.	**Introduction to Grid Services - The Study so Far**
		• Recap of prior workshops and objectives
1:25 – 1:55	3.	**Grid Services Implementation**
		• Policy considerations
		• Vision for Grid Services
		• Near-term objectives and Long-term Recommendations
1:55 - 2:20		***Clarifying questions, Breakout room poll, and short break***
2:20 – 3:20	4.	**Breakout Rooms**
3:20 – 3:30	5.	**Reflections and Next Steps**

Workshop Participation Guidelines

- Please mute yourself when not speaking
- We suggest minimizing distractions by silencing or turning off cell phones during the workshop
- Please post questions in chat as we go along, or use the raise hand function for any questions during the Q&A breaks
- Please identify yourself when speaking or commenting in the chat, including the organization or community you represent if applicable

Workshop Resources and Communication

- **Future meeting announcements will be sent by email to the workshop mailing list**
  - If you are not on the list and would like to be added, please sign up here
- **Workshop session slides and recordings will be made available on the MassCEC website:**
  - https://www.masscec.com/grid-modernization-and-infrastructure-planning/grid-services-study
  - This site also contains general information about the study and a primer for this workshop series
- **Please share any questions or feedback after the meeting with:**
  - Grid@masscec.com
  - Andrew.Solfest@ethree.com
  - Bwebster@rmi.org

The Grid Services Study so far

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Collaborative Study Partners:

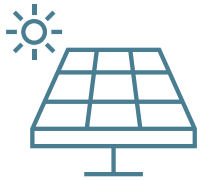
+ **Study is led & funded by MassCEC's Net Zero Grid team**

+ **MA state agencies:**
  - Department of Energy Resources (DOER)
  - Attorney General's Office (AGO), Office of the Ratepayer Advocate

+ **Investor-owned MA electric distribution companies (EDCs):**
  - Eversource
  - Unitil
  - National Grid

+ **Consultants:**
  - Rocky Mountain Institute (RMI)
  - Energy and Environmental Economics (E3)

Workshop Context – What are DERs?



Distributed energy resources (DERs) are technologies connected to the distribution grid which can generate electricity or reduce or shift grid loads.

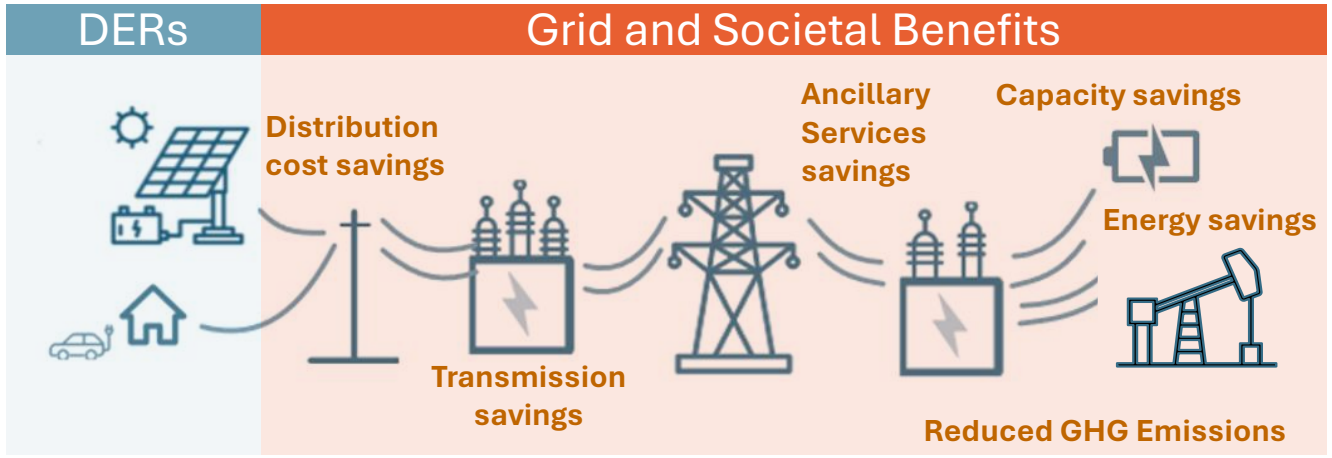
DERs include energy efficiency, demand response, distributed solar PV, distributed energy storage, and electrification loads such as from EV and heat pumps.

DERs can provide a range of services to the electric grid, including generating, storing, and modulating the use of electricity, among others. DER grid services can play a critical role in meeting local demand, easing localized constraints, and improving reliability.

DERs can perform a variety of valuable functions for the electric grid, referred to as grid services

+ **DERs frequently benefit the grid by:**
  - Generating carbon-free electricity
  - Reducing customer electricity loads
  - Shifting customer loads to times when the grid is less constrained

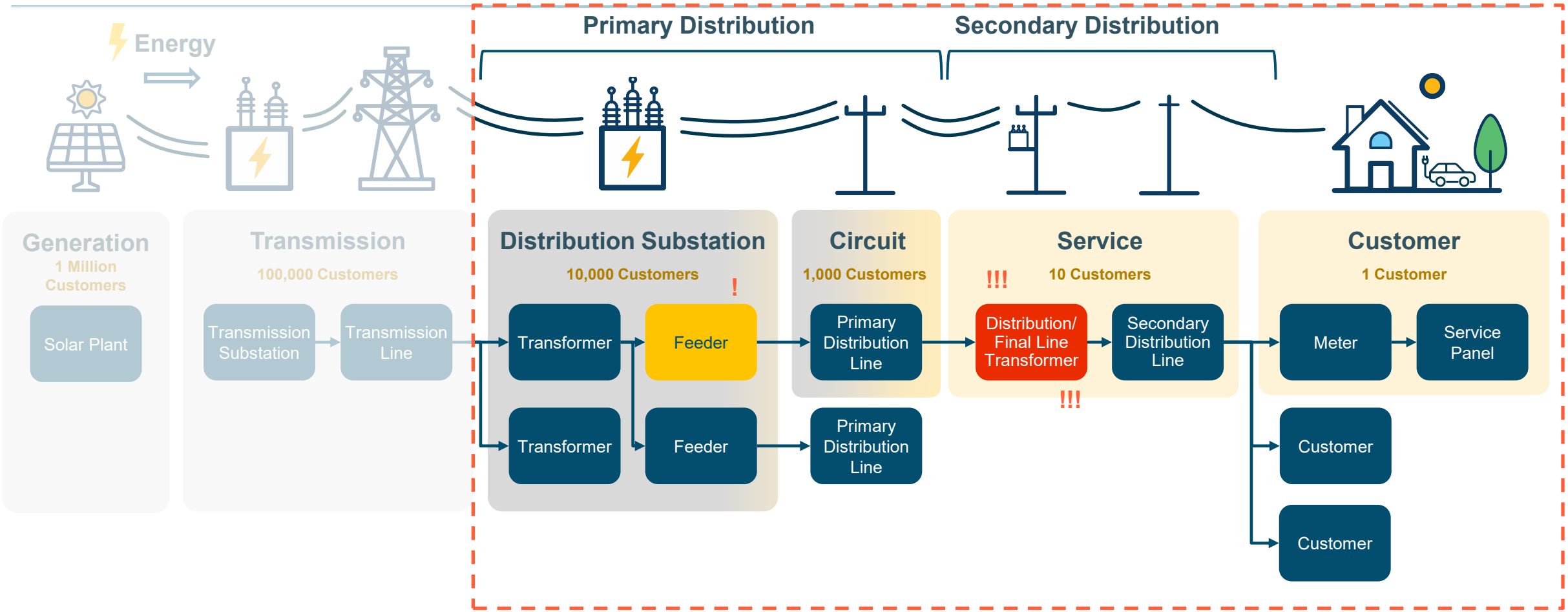
These benefits reduce costs for electric grid operators; resulting savings can be passed on to ratepayers



+ **DERs can also provide societal benefits in the form of 'Non-Rate Impacts', such as reduced emissions of greenhouse gases or other pollutants harmful to human health**

This study focuses specifically on *distribution* grid services, with the goal of establishing a framework for valuing these services and laying out a roadmap for how we can capture and compensate those benefits

Distribution grid services address highly location-specific needs



Driving questions for this study

+ **What are the benefits that DERs can provide to the distribution grid?**
+ **How can DERs providing grid services contribute to a more equitable energy system?**
+ **How do we quantify the different types of benefits?**
  - How can we incorporate non-monetizable benefits?
+ **What determines where on the grid these benefits appear and what value they provide?**
  - How may these benefits impact Environmental Justice populations differently and specifically?
+ **What will utilities need to do to realize these benefits?**
+ **How should we go about compensating these benefits?**
  - What does a feasible near-term implementation plan look like to begin exploring this value?
  - How should the approach to valuation and compensation evolve over time?

Study work products

Valuation Framework

- Incorporate distribution grid services and non-rate impacts
- Must be applicable statewide and include consideration for EJ communities

Compensation Mechanism Assessment

- Evaluate components or levers for building compensation offerings
- Determine criteria for evaluating and selecting from offerings

Near Term Implementation Plan

- Outline early-stage objectives and information needed to support the long-term vision
- Identify specific actions to stand up initial grid services offerings

Today's focus

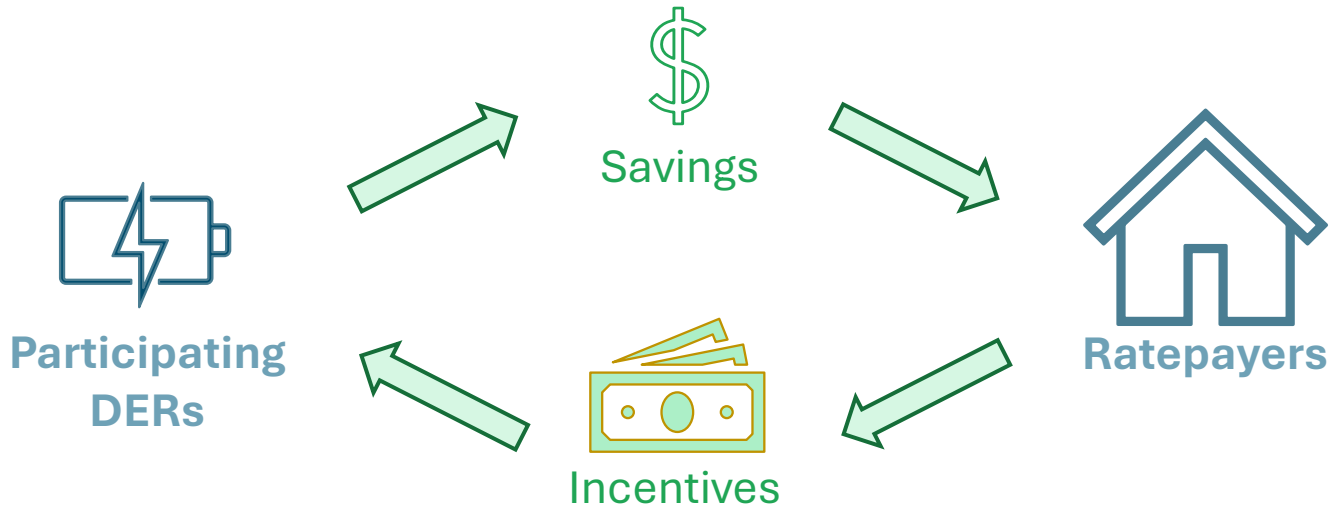
Long Term Implementation Plan

- Address challenges and opportunities in scaling grid services offerings
- Provide recommendations for continued process and program evolution

Recap: This study values three types of Grid Services

1. **Deferral Value**
   - DERs can provide additional capacity that can enable utilities to delay investments in traditional solutions, reducing costs for customers
   - Deferral also offers additional **Optionality** value, allowing planners to wait and see how system needs develop before committing to long-term investments – making any investments more efficient
2. **Bridge-to-Wires Value**
   - DERs can help meet near-term capacity needs while longer-term infrastructure solutions are under construction
   - This can avoid costs for alternate interim solutions or reduce operational risks to the electric system (e.g. over-straining equipment or preventing outages in the most extreme scenarios)
3. **Additional Value for Environmental Justice Communities, including Non-Rate Impacts**
   - DERs may reduce costs or harms borne by Environmental Justice (EJ) populations which do not show up in utility rates
   - Recognizing non-rate impacts specific to EJ populations also provides an avenue to improve equity in compensation
   - Those impacts, such as reliability and or air quality concerns, can be directly quantified for bridge-to-wires scenarios or reflected by a % compensation adder for deferral

Valuation provides a North Star for determining compensation

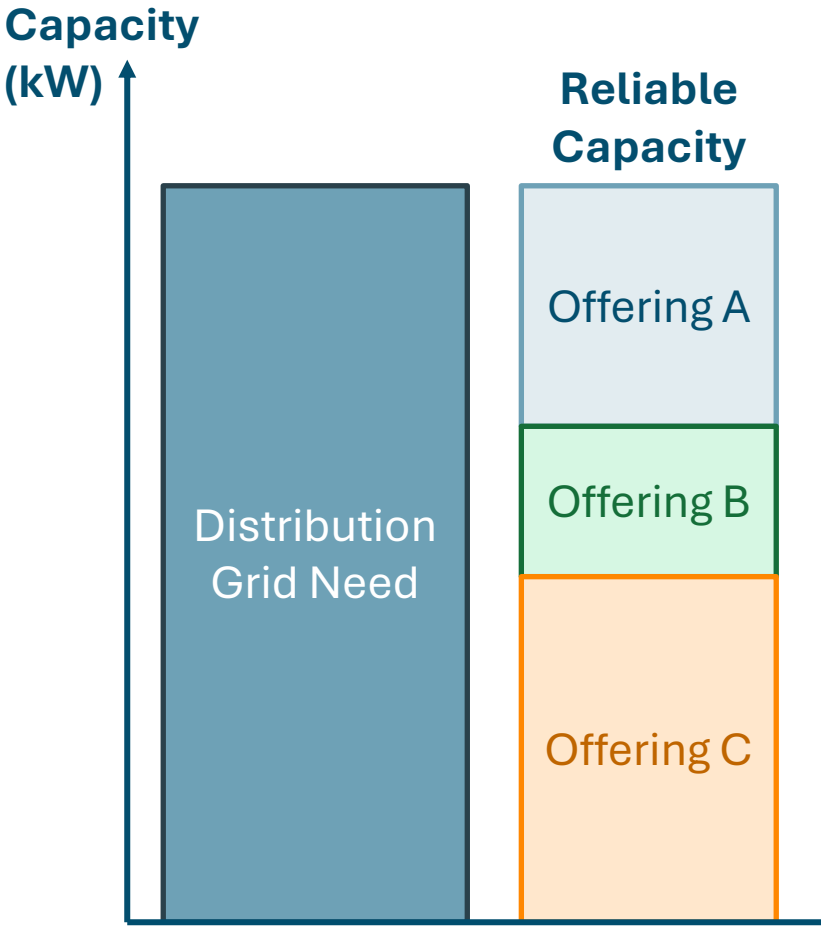


- **Ratepayers will benefit from grid services through reduced electric infrastructure costs and rates over time, and pay for these benefits through incentive payments**
- **Quantifying value provided by a resource can provide help determine the *maximum* funding available to support said resource. This can ensure impacts on ratepayers are positive or net neutral**
- **While compensation does not need to equal the value provided, this should be a conscious decision**

Equity should always be considered here, as excess costs for program incentives can increase energy burdens for all ratepayers, with greater burden for low-income ratepayers. Even programs targeting participation by low-income customers typically have some share of individuals unable to participate.

Utilities may provide a variety of grid services offerings to address needs and appeal to a wide range of customers

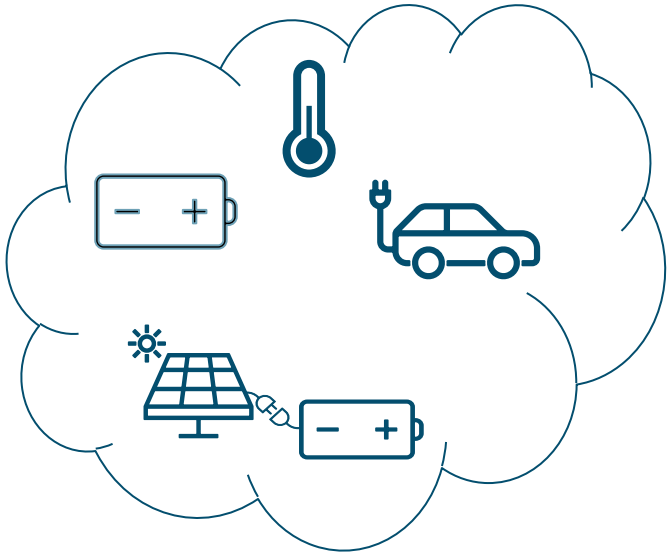
Utility Planner's Perspective



Customer's Perspective

Customer/ DER Type	Grid Services Offerings
Residential	Offering A
Residential	Offering B
Commercial & Industrial	Offering B
Front of the Meter	Offering C

Potentially Participating DERs



**Selection of eligible DERs is a non-exhaustive sample for illustration only*

Timeline of Grid Services Study

Study Timeline

Fall 2024
Study begins

Ongoing engagement

Today
Workshop 4

Ongoing engagement

Late Summer 2025
Study published

And Beyond
Grid services work continues outside of this specific coalition of partners

Engagement Channels

4 Public Workshops
December 2024 through Today

EJ Focus Groups
April 2025

Written Feedback
Ongoing

Possible further consultation with EJ and Community representatives
Not yet confirmed

Written Feedback
Ongoing, including surveys

Grid Services Implementation

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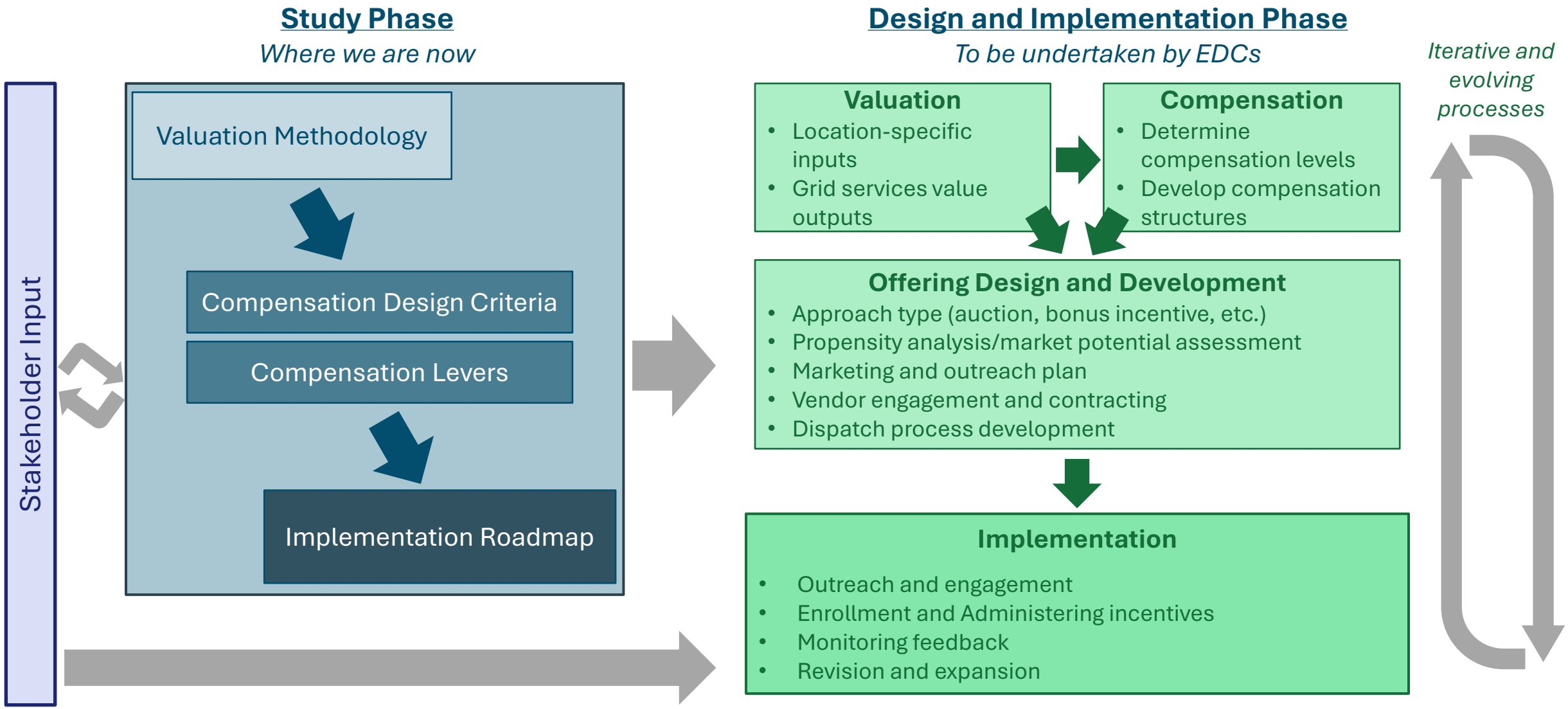
Bringing it all together



Grid Services Broader Implementation Timeline

Implementation Timeline

Late 2025 - 2026
EDCs test offerings in limited locations

2025 - 2029
Test increased use cases over time

Fall 2024 – Summer 2025: Study Phase
Build frameworks to guide EDC work

You Are Here

June 2025 – DPU Ruling on ESMPs

2025 - 2029: Bi-Annual ESMP Reports (Fall and Spring)
Updates and formal comments through utility bi-annual reporting process

2029: Public Filing
EDCs file updated plans with Department of Public Utilities

2030+ : Scaled Grid Services Programs
Grid services work continues

How can Grid Services benefit customers?
What do stakeholders think about the concept?

How did initial years of Grid Services go? What do scaled programs look like?

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Policy Considerations

Policy goals for implementation

Competing Policy Goals

Tie-Ins to Implementation

- In addition to incentive size and structure, education and a painless enrollment process will help drive participation
- The EDCs must have a clear and consistent process for determining value and setting compensation within appropriate bounds
- EDCs must be prepared to identify Deferral and Bridge-to-Wires locations and then modify their planning and operations after incorporating DERs

The broader lens of implementation means a wider range of tools to achieve these policy goals

Criteria	Supporting Implementation Steps
Creates Ratepayer Savings	• Ensure benefits provided exceed total program costs (including both incentives and administration)
Drives Participation	• Tailor a range of offerings to meet *participant* needs • Provide sufficient compensation to incentivize participation • Educate customers about programs and develop straightforward and painless processes for enrollment
Prioritizes Equity	• Minimizes negative impacts to non-participants • Reduces barriers to entry on an equity basis • Ensures value flows to EJ communities
Provides Dependable Impacts	• Tailor a range of offerings to meet identified *system* needs • Establish enrollment levels and participation requirements to achieve the necessary commitment and response
Easy to Implement	• Leverage existing programs and communication channels to ease education and implementation

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Vision for Grid Services

The utility / energy sector is early on the journey of using customer DERs to address local grid constraints

From Workshop 1 EDC Presentation

- **The EDCs envision a future** in which customer flexibility is further integrated into distribution network planning and operations as a complementary lever to physical distribution investments, maximizing the value of customer flexibility to reduce the costs of the clean energy transition
- In Massachusetts, **we have industry-leading *system-wide* EE and DR programs**, but **the collective industry is nascent on its journey to leverage customer flexibility for *local* distribution grid constraints**
- **A "walk before you run" approach** will enable EDCs and their customers to start capturing the benefits of DER providing local grid services while gathering best practices and insights to further develop programs over time
- **This Grid Services Study will provide critical input** to EDCs as we develop programs that provide compensation for customers that enroll their DERs to provide local grid services
  - **Statewide valuation frameworks** that provide guidance on how compensation should vary based on location, driven by the value of local grid needs
  - **Consistent guidelines** to inform program development (e.g., added value in EJ communities, coordination with existing non-locational DER compensation programs)
  - **Implementation roadmap** with guidance on short-term techniques to get started animating the market for flexibility and more advanced capabilities to build towards.

Grid Services offerings can act as a multitool for utilities in building and maintaining a cleaner, more affordable grid

Incorporate the full achievable potential of DERs in utility planning to optimize grid investments and reduce costs for all ratepayers

Integrate DER dispatch calls with utility operations to provide real-time system relief during stress events

Enable and accelerate electrification by alleviating local constraints

Reduce the need for other financially and/or environmentally costly short-term solutions

Advance equity by providing direct benefits to EJ populations, including compensation to support EJ ownership of DERs

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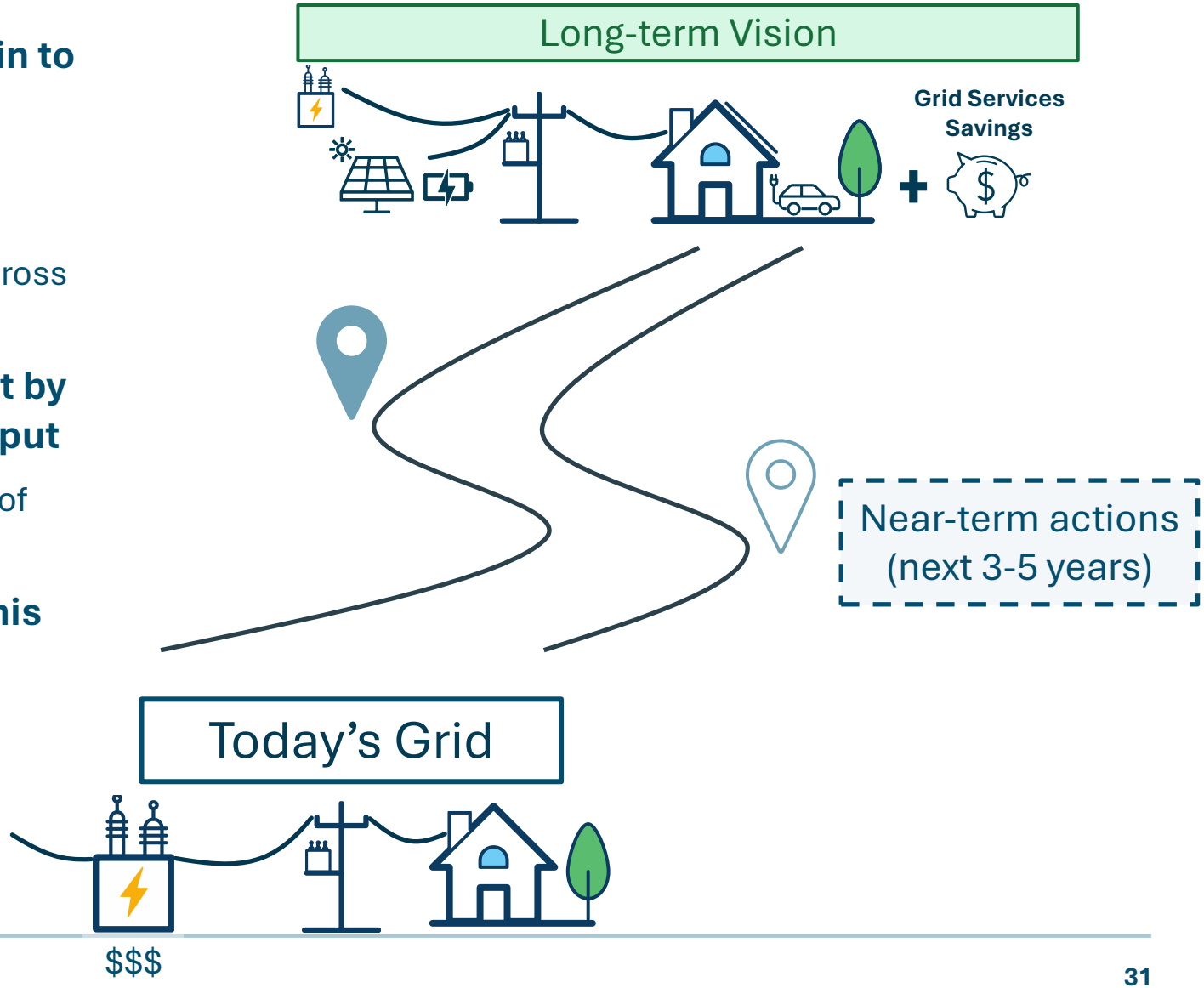
Near-Term Objectives

Actionable near-term objectives set us on the path to achieving long term ambitions

+ **As this study concludes, the EDCs will begin to test out grid services offerings**
  - Roll out timelines will vary, with National Grid targeting the first offerings this summer
  - Offerings may be intentionally differentiated across territories to explore a wider range of options
+ **These trial offerings will be informed in part by the results of this study and stakeholder input**
  - The trials in turn will serve as additional points of reference in pursuing the long-term vision
+ **Clear and attainable objectives can ease this near-term implementation and maximize benefits and learnings**



Near-term objectives prioritize gathering information and testing approaches to fulfill core goals

Test and refine grid services offerings & implementation approaches

Identify data and process requirements to take full advantage of Grid Services opportunities

Understand DER market capabilities, needs, and appetite for grid services offerings

Provide ratepayer savings via investment deferral

Mitigate system risks in Bridge-to-Wires scenarios

Specific actions underpin the range of objectives

Near-term Objectives

- Test and refine grid services offerings
- Identify data and process requirements
- Understand DER capabilities and needs
- Provide ratepayer savings
- Mitigate system risks

Supporting Actions

- Identify high-need areas of the distribution system and determine the value that DERs could provide in each
- Refresh and refine valuation inputs and methods at specified intervals
- Find and fill information gaps regarding system needs and availability of DERs in specific locations
- Develop compensation mechanisms incorporating stakeholder input and study findings
- Develop transparent processes for receiving and acting on stakeholder feedback
- Create channels to educate community members about Grid Services offerings and impacts

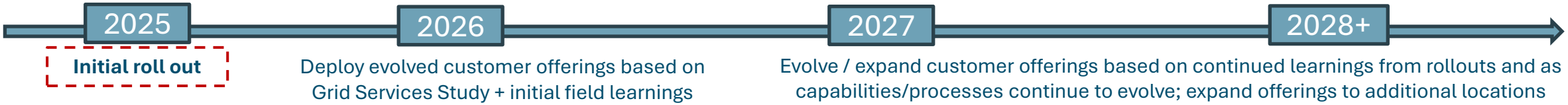
National Grid plans to test grid services offerings in summer 2025

- **Conditional on the DPU Order on ESMP Cost Recovery expected in June 2025, National Grid intends to roll out new local grid services offerings in 5 constrained locations during summer 2025.**
- **In those locations, National Grid will test two separate compensation approaches: a "locational bonus incentive" and a "market-based" approach.**[1]
  - **Locational bonus incentive approach:** Provide bonus incentives to customers and aggregators that stack on top of existing programs offered by National Grid (e.g., a "ConnectedSolutions+" would be available in select locations)
    - Eligible**:** Behind-the-meter (BTM) only (e.g., smart thermostats, BTM batteries, C&I demand response)
  - **Market-based approach:** Solicit bids from aggregators/flexibility service providers (FSPs) via competitions hosted on a market platform (e.g., auctions where National Grid provides opportunities for FSPs to bid in flexible capacity)[2]
    - Eligible: Front-of-the meter (FTM) DER owners and BTM aggregators

SUMMER 2025	Location	NWA Type	Programmatic Approach
	Millbury	Deferral	Market-based
	Nantucket	Bridge-to-Wires	Market-based + Locational Bonus Incentives
	North Foxboro	Bridge-to-Wires	Market-based + Locational Bonus Incentives
	West Charlton	Bridge-to-Wires	Market-based
	Whitins Pond	Deferral	Market-based

[1] Both approaches are described further on pp. 348-349 of National Grid's ESMP.

[2] For more information on summer 2025 market competitions, see the Piclo dashboard and National Grid's NWA website.



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Long-Term Recommendations

A successful roadmap will recommend ways in which offerings must be adaptable and self-correct to achieve our policy goals

Valuation

- **React to Changes in Value Over Time:** What should be the frequency of updates to the valuation of grid services?
- **Explore and Expand Value Streams:** Are there additional value streams that should be included future offerings? How can these be quantified and proven out?
- **Evaluate Cost Shifts:** How can we verify and ensure that the grid services offerings create ratepayer savings? Is the program unfairly advantaging or burdening customers?

Compensation

- **Refine Compensation Structure:** Is compensation providing sufficient signals in the right locations to alleviate local constraints?
- **Facilitate Participation:** Is compensation driving participation sufficient to meet program goals? Can compensation structures be improved to facilitate greater participation and DER deployment?
- **Deliver Value to EJ Populations:** Are compensation structures sharing benefits and facilitating participation in EJ populations?

Implementation

- **Monitor for Success:** How can we evaluate reliability of response? Are local grid constraints relieved? Is the program providing savings and enabling electrification?
- **Improve Education:** Is the program well understood? How can the EDCs inform customers on the benefits of grid services and participation?
- **Build Trust with Communities:** How can utilities and aggregators engage with communities in a supportive manner? How can they demonstrate that they are worthy of trust?

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Clarifying Questions?

Breakout Room Topics

- Reflecting on the proposed long-term vision and objectives
- Reflecting on the near-term actions presented
- Reflecting on the list of key components of a long-term roadmap
- Input on avenues for feedback during implementation

Breakout Room Poll

- **We will reserve 60 minutes for breakout rooms, to be followed by a share-out with the large group**
- **Each room will have a distinct emphasis on the type of customers or participants considered**
  - Breakout room 1: Residential offerings
  - Breakout room 2: Commercial and front-of-the-meter offerings
  - (Optional) Breakout room 3 and/or 4: Same focus as either room 1 or 2 depending on poll responses
- **We will open a poll with two choices**
- **Please do not fill out the poll if you are a teaming partner on the Study, or if you do not plan to stay for the breakouts**

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Breakout Room Poll

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Scheduled Break

Breakout Rooms Guidelines

- We will reserve 60 minutes for break-out rooms, to be followed by a share-out with the large group
- Breakouts are designed to gather your input on the vision for grid services and near and long-term objectives presented
- Facilitators and notetakers from MassCEC, E3, and RMI will be present in each room to guide the activities and discussion
- Breakout rooms will include a shared workspace that facilitators will share a link to
- Once the breakout rooms open, you'll need to self select into the room for the topic you expressed interest in, we may move folks around to help balance the numbers

Breakout Rooms

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Breakout Room Share-Outs

- Notetakers in each room will share 2-3 key themes discussed in their breakout room
  - If you have any additional comments to share with the whole group, please add them to the chat

Closing and Next Steps

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Final Workshop

+ **Workshop 1: December 2024**
  - Introduction to Study
+ **Workshop 2: March 3, 2025**
  - Detailed analytical approach to Grid Services valuation
  - Introduction of compensation mechanisms and implementation considerations
+ **Workshop 3: April 25, 2025**
  - Discussion and Feedback on potential Grid Services compensation mechanisms
+ **Workshop 4: June 10, 2025**
  - Long-term and Short-term Implementation: Objectives and Feedback
+ **Final Roadmap Report: August 2025**

Workshop Resources and Communication

- **Workshop session slides and recordings will be made available on the MassCEC website:**
  - https://www.masscec.com/grid-modernization-and-infrastructure-planning/grid-services-study
  - This site is the home for general information about the study, including stakeholder presentations and a primer for this workshop series
- **Stay tuned (and join the email list here) for the August release of the Final Roadmap Report and accompanying Grid Services valuation model**
- **Please share any questions or feedback after the meeting with:**
  - Grid@masscec.com
  - Andrew.Solfest@ethree.com
  - Bwebster@rmi.org
- **Let us know if you would prefer to share feedback in a 1-on-1 call or virtual meeting**

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Thank You

Video recording
will be ended now