

RI 2025 Climate Action Strategy and CCAP

Buildings Focus Area Meeting

March 27th, 2025

[bw] RESEARCH
PARTNERSHIP



Lighthouse Consulting
Group, Inc.

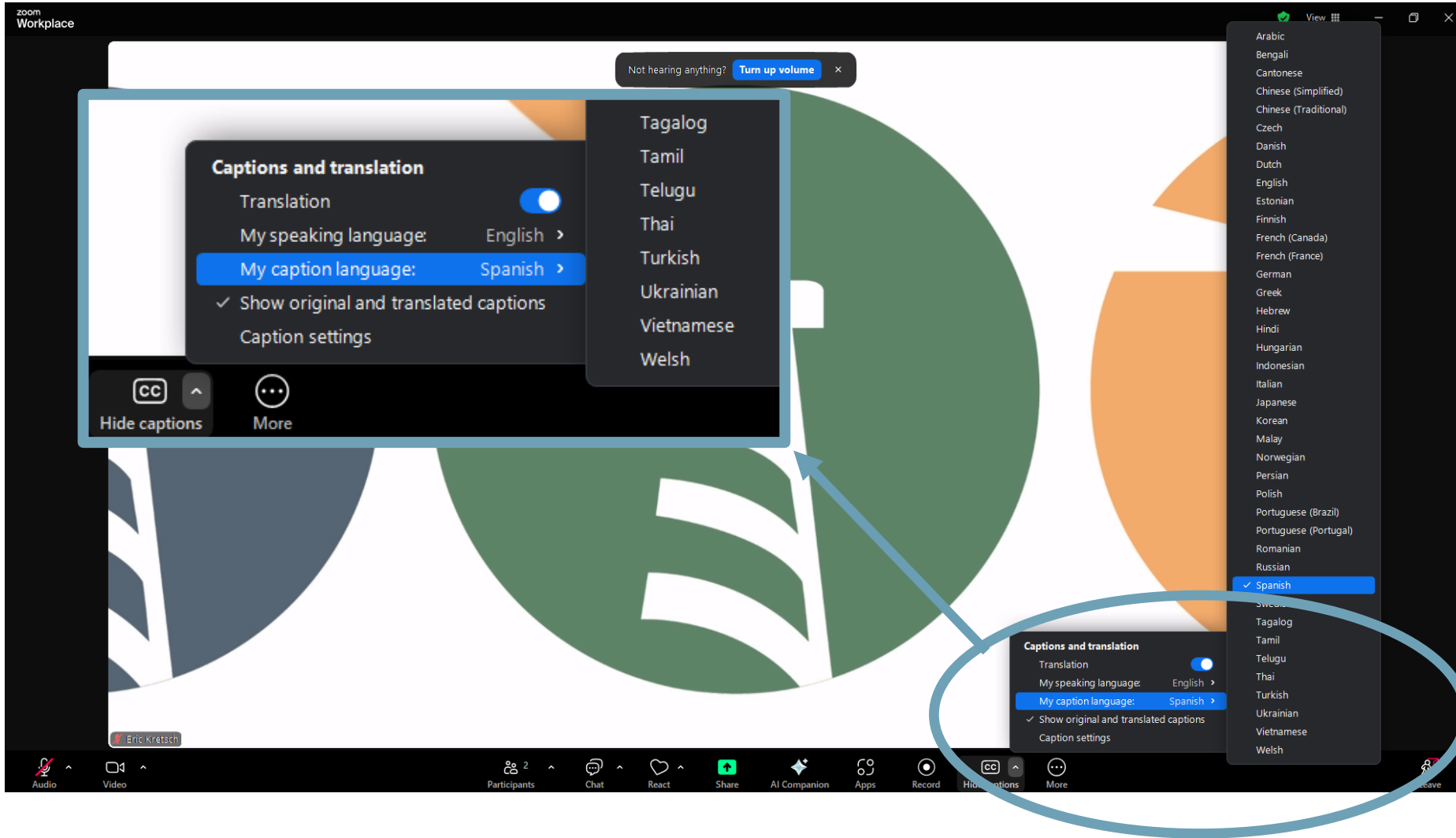


Energy+Environmental Economics

Chelsea Petrenko, E3
Molly Bertolacini, E3
Eric Kretsch, Lighthouse

Translated Closed Caption (CC) Available

Acceso a *subtítulos traducidos*



- + Click on Closed Caption “CC” icon
- + Set “Speaking Language”
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Para Español:

- + Haz clic en el icóno “CC” para los subtítulos
- + Haz clic en “My speaking language” y selecciona “Spanish”
- + Haz clic en “My caption language” y selecciona “Spanish”

Ground rules and guidelines to participation



+ This workshop is being recorded so we can accurately capture your comments. We do not intend to post this recording publicly.



+ Power off other electronics and mute yourself to limit distractions.



+ Make space and take space. Be mindful of how much airtime you take, but we encourage you to voice your support and concern.



+ There are multiple ways to participate:

- Raise your hand to be called on
- Use the chat feature
- Utilize the Survey Monkey Form, so that we capture all you have to say.



+ Thank you in advance for your participation.

Agenda

+ Welcome and introductions

+ Policy background and summary

+ Project overview and status

- Project goals and status
- What we've heard thus far
- Equity framework
- Inputs and assumptions

+ Overview of modeling approach

+ Buildings sector deep dive

- Emissions and pillars of decarbonization
- Breakout session #1 – Opportunities and barriers
- Breakout session #2 – Buildings decarbonization strategies

+ Next steps and wrap up

Introductions



Energy and Environmental Economics (E3)



Tory Clark
Project Partner



Chelsea Petrenko
Project Lead



Molly Bertolacini
Project Manager



Nathaniel Kinsman
University of RI Energy Fellow



Lighthouse Consulting Group



Eric Kretsch
Sr. Associate Facilitator



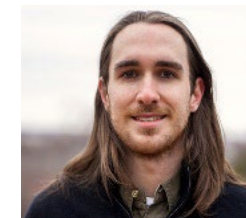
Kyle McElroy
Facilitator



BW Research Partnership



Cai Steger
Project Manager



Mitch Schirch
Modeling Specialist

Project Goals

The overarching goal of this project is to create the RI Comprehensive Climate Action Plan (CCAP) for the Climate Pollution Reduction Grant (CPRG) program and the RI 2025 Climate Action Strategy as part of RI's Act on Climate

+ The RI CCAP and RI 2025 Climate Action Strategy will consist of:

- Robust stakeholder engagement
- GHG reduction measures modeling and sector-specific GHG target development
- Policy, technology and cost analyses
- Macroeconomic, workforce, climate resilience, and benefits analysis

+ Key elements of each plan will include:

- Energy efficiency in buildings and transportation
- Transition away from fossil fuel
- Transition to renewable electric power
- The removal of carbon from the air through land use and forest conservation
- A just transition for workers
- Considerations for energy affordability
- Benefits to environmental justice and low-income and disadvantaged communities (LIDAC)



All Topic Areas for Engagement

How will climate mitigation efforts affect jobs, workforce and businesses? How can RI ensure a just transition as the economy decarbonizes?

Workforce*



What are the most effective strategies to ensure the communities most affected by climate change benefit from GHG reduction measures?

EJ, equitable transition*



How does decarbonization in RI affect the electric sector? What role do electric and gas utilities play in reducing emissions?

Energy



Which subsectors are the biggest contributors to RI's emissions? What strategies should be prioritized to reduce transportation emissions?

Transportation



What is the role of municipalities in decarbonizing RI's economy?

Municipalities



What pathways for reducing building related emissions should be prioritized?

Buildings



Today's Focus

How will climate mitigation efforts affect jobs, workforce and businesses? How can RI ensure a just transition as the economy decarbonizes?

Workforce*



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Municipalities

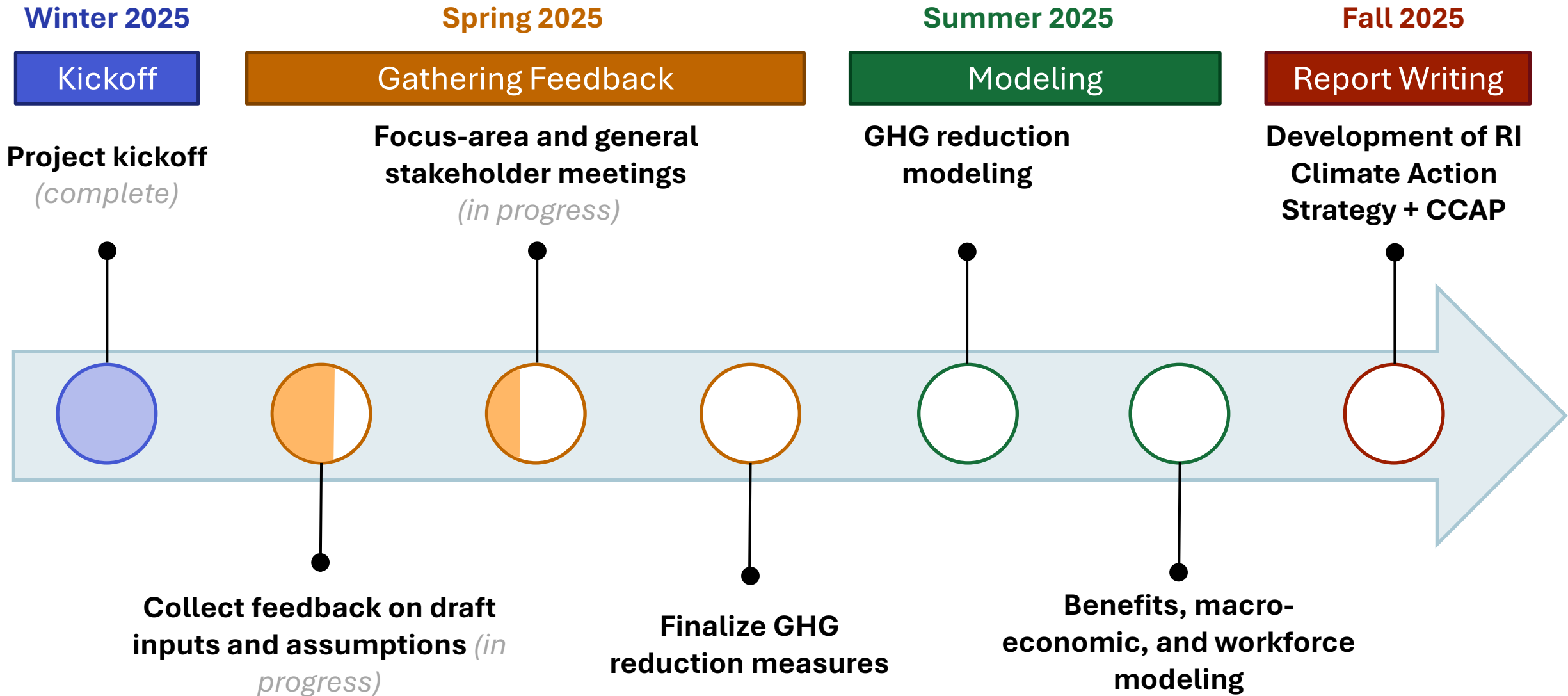


What pathways for reducing building related emissions should be prioritized?

Buildings



Project Status and Timeline



Incorporating Feedback from 1/9 Kickoff Meeting

What we heard so far...

- + Stakeholders require sufficient notice for scheduled meetings and time to review materials
- + Importance of education in the plan
- + Equity must be integrated throughout the entirety of the plan, not just in the environmental justice section
- + The importance of distinguishing between workforce development and worker impacts
- + The need to include businesses in the planning process

Key changes incorporated into process...

- + Providing “save-the-dates” for all Action Plan Development stage stakeholder meetings
- + Exploring how to integrate the topic of education into the RI Climate Action Strategy
- + Building a framework for integrating equity throughout the entirety of the plan
- + Leading conversations about RI worker impacts with interested groups, in addition to the workforce stakeholder meeting
- + Partnering with Commerce RI to integrate conversations with/about businesses

The Role of an Equitable Transition in the RI Climate Action Strategy

The Act on Climate dictates that the RI Climate Action Strategy (RI CAS) “shall include an equitable transition to climate compliance for environmental justice populations, redress past environmental and public health inequities, and include a process where the interests of and people from populations most vulnerable to the effects of climate change and at risk of pollution, displacement, energy burden, and cost influence such plan.”



Prioritize GHG Reduction Strategies that Advance Equity and Environmental Justice








Collaborate with Communities Most Impacted by Climate Change and Policies



Consider Decarbonization Cobenefits (e.g., Workforce Development and Climate Resilience)

Major Greenhouse Gas (GHG) Modeling Inputs and Assumptions in the Buildings Sector*

Input		Current Source – <i>some subject to change based on stakeholder input</i>
	Housing Units in Rhode Island	NREL ResStock Building Simulation for Rhode Island
	Growth of Housing Stock in RI	RI Division of Statewide Planning
	Device Costs and Efficiencies	Investigation Into the Future of the Regulated Gas Distribution Business in Rhode Island Technical Analysis Report, Energy Information Administration (EIA) Updated Buildings Sector Appliance and Equipment Costs and Efficiency Appendix C
	Annual Energy Used per Household	EIA National Energy Modeling System (NEMS) and EIA Residential Energy Consumption Survey (RECS)
	Commercial Square Footage	EIA Commercial Buildings Energy Consumption Survey (CBECS) and EIA State Energy Data System (SEDS)

Key Takeaways from SmartComment Feedback on Buildings

Inputs and Assumptions

Common Feedback and Questions	Initial Response and Next Steps
<p>Several commenters asked whether E3 will be assuming that air conditioning will increase over time, primarily due to warmer weather from climate change</p>	<p>Yes, E3 will assume increased air conditioning over time, both usage per AC unit and number of units</p>
<p>Many respondents had questions on heating, ventilation, and air conditioning (HVAC) costs</p>	<p>E3 is still working through the comments, but will make adjustments for some costs based on the feedback. For others, E3 will provide more background documentation for how costs were determined. E3 is also working with the state to leverage recent RI-specific heat pump cost data from the Clean Heat RI program.</p>

Questions?



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Overview of Modeling Approach

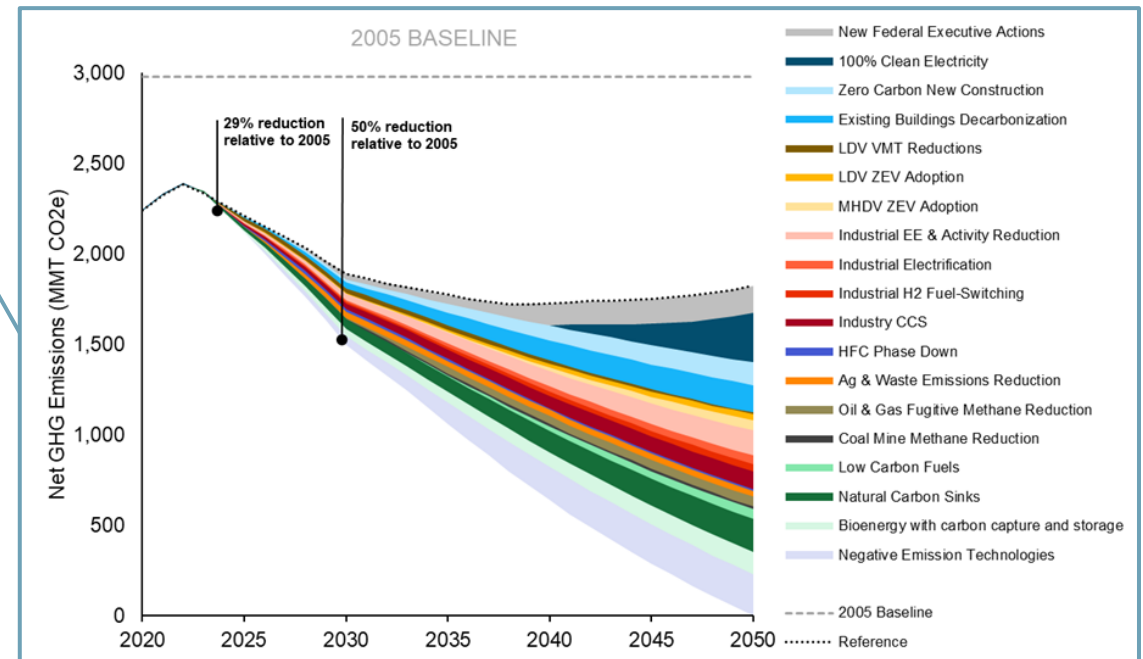


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RI Climate Action Strategy Analysis Components

- + List of strategies, programs, and actions to meet RI's economywide emissions reduction targets across all sectors, sources, and sinks
- + Estimated GHG reductions from specific strategies
- + Short-term and long-term emissions reduction projections and sectoral targets for at least two scenarios:
 - Current policy scenario
 - Plan implementation scenario
- + Analysis of decarbonization benefits, including benefits for low-income and disadvantaged communities (LIDAC), such as improved air quality and job creation
- + Analysis of authority to implement to determine the process and authority to implement the various GHG reduction strategies
- + Analysis of available funding to explore existing funding available to support GHG reduction strategies

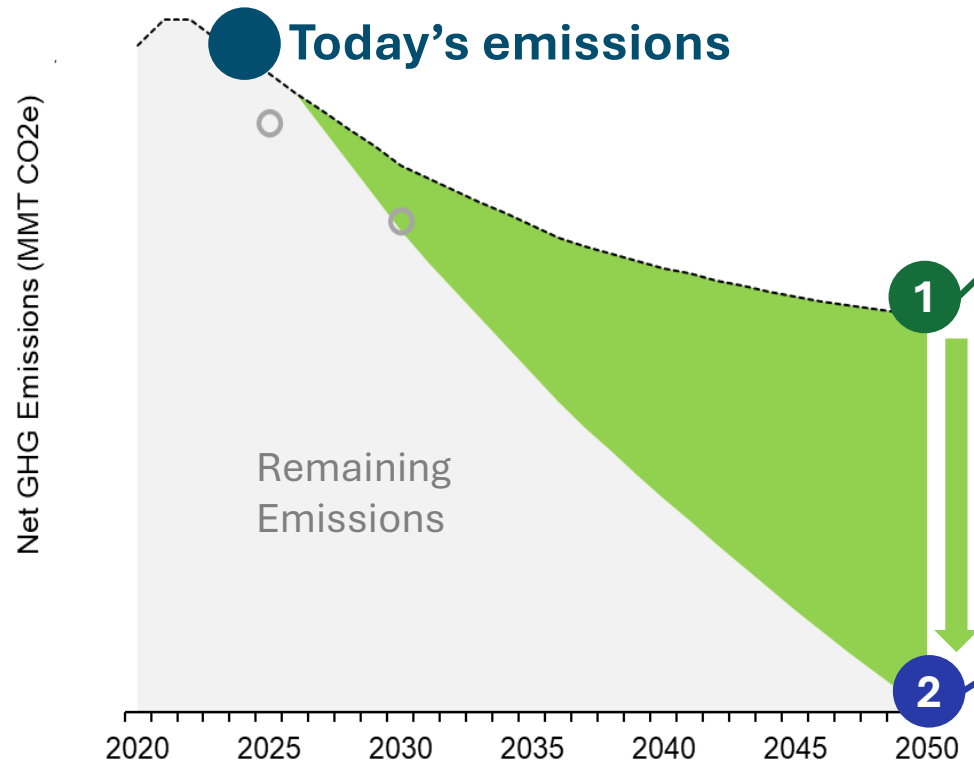
Example Emissions Reduction Projection by Strategy*



* GHG reduction strategies refer to discrete actions that reduce emissions, such as electric vehicle adoption, building electrification, etc.

GHG Emissions Reduction Scenarios in the RI Climate Action Strategy

Illustrative Decarbonization Pathway



1. Current Policy Scenario

Near-term and long-term projections of GHG emissions in the absence of RI Climate Action Strategy/CCAP strategies.



2. Plan Implementation Scenario

Near-term and long-term projections of GHG emissions in a scenario where the CCAP is fully implemented. This scenario includes the proposed GHG reduction strategies.



Questions?



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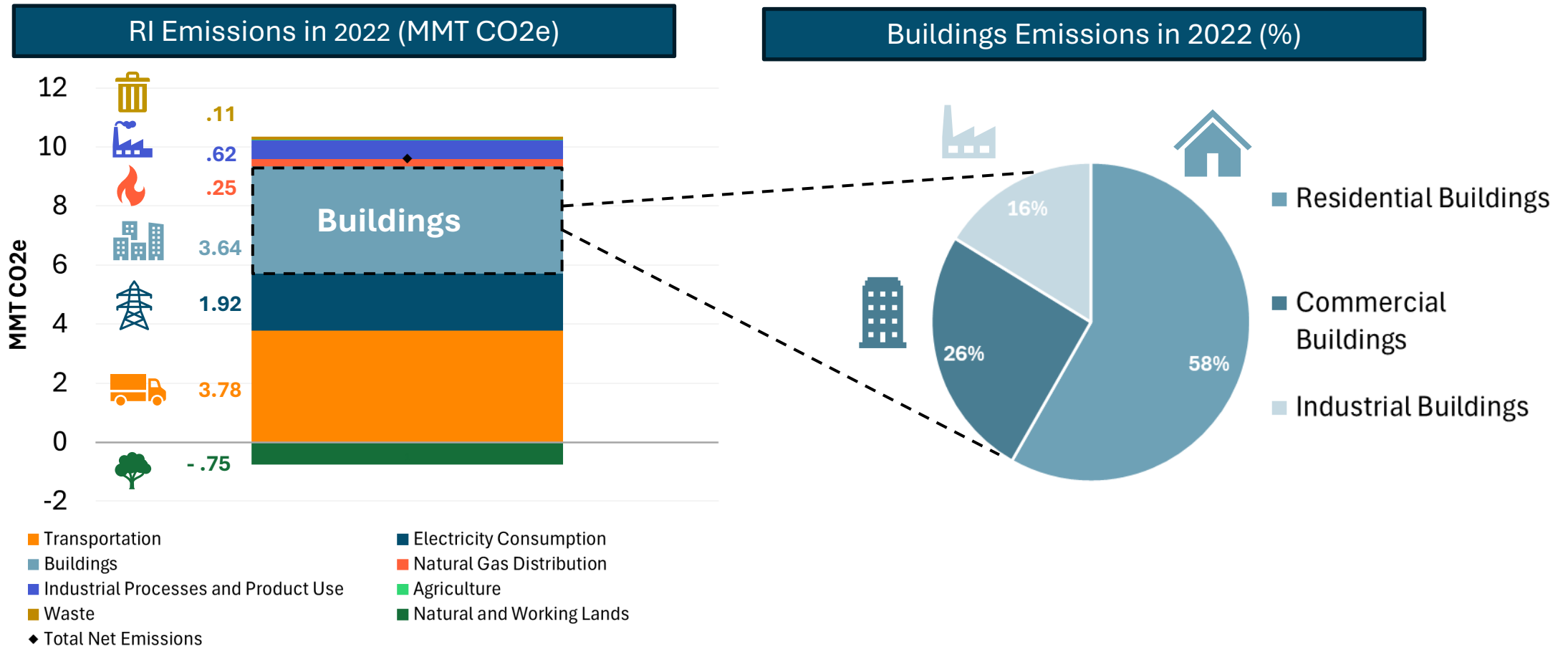
Buildings Sector



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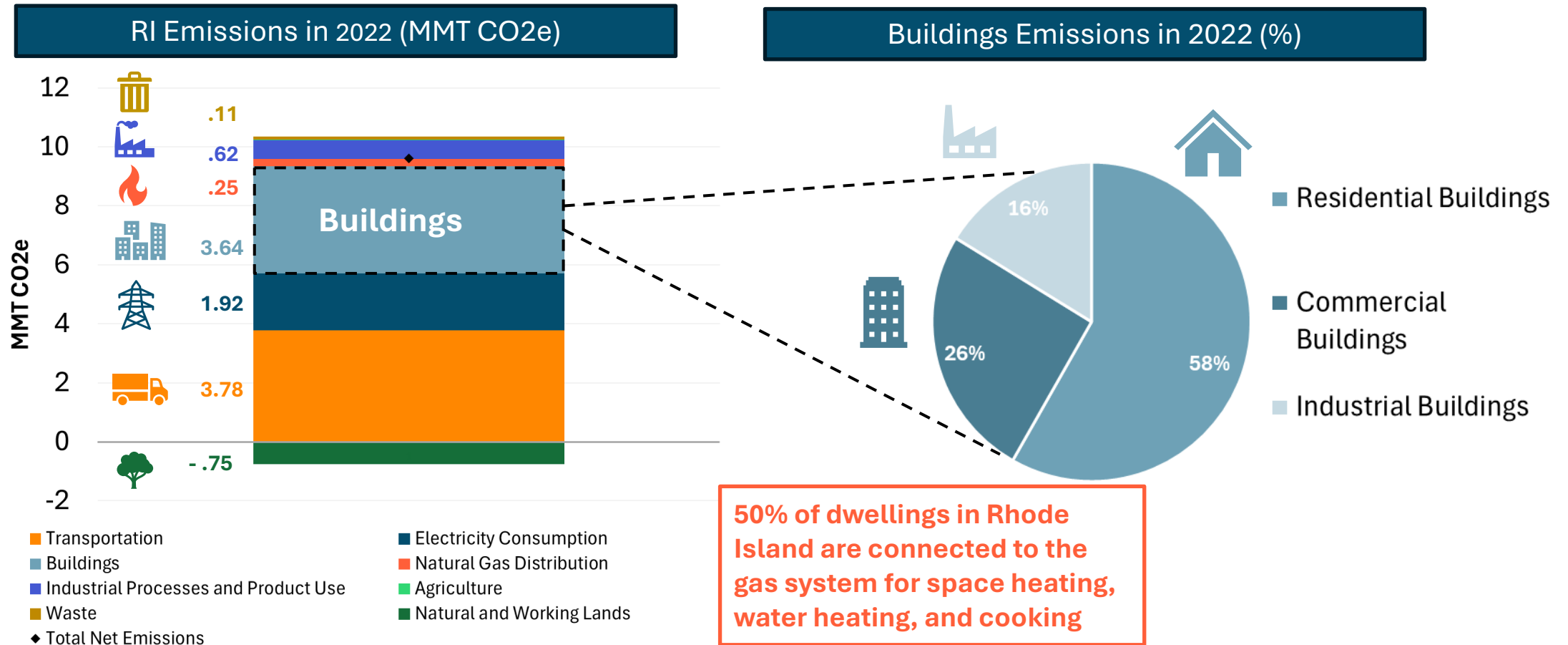
Buildings Emissions in RI

- + RI emitted 10.4 MMT CO₂e total greenhouse gas emissions in 2022, with the buildings sector contributing **35%**
- + Buildings emissions are primarily driven by fossil fuel combustion from space & water heating devices using natural gas and heating oil (84%), with the remainder coming from industrial fossil fuel combustion (16%)



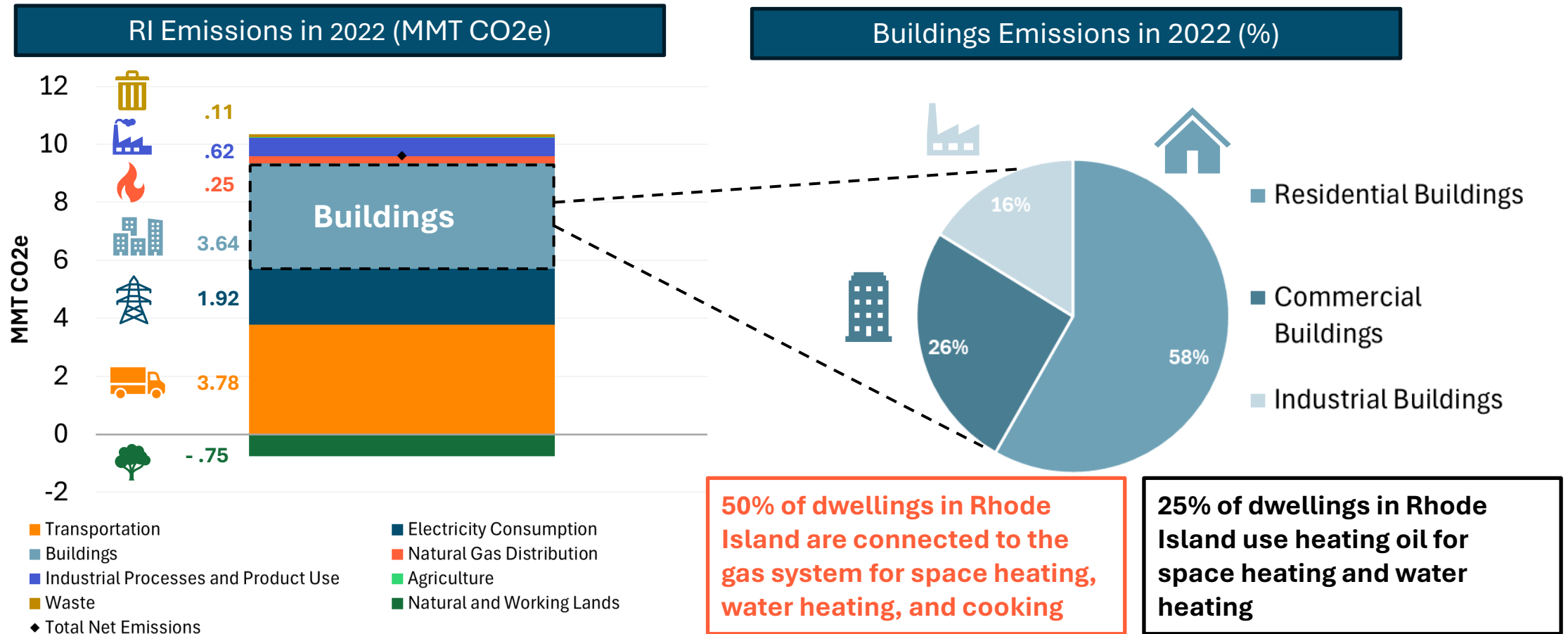
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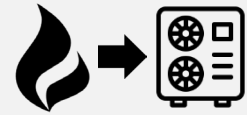


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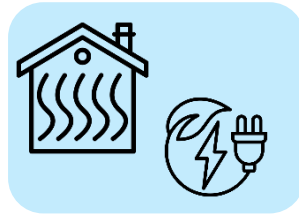


Building Decarbonization Pillars



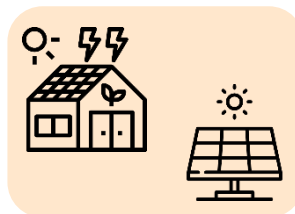
Electrify Buildings

- Replace gas and fuel oil-powered space and water heating equipment with **heat pumps**
- Replace fossil fuel – powered appliances with **all-electric appliances**
- Provide electric equipment **rebates** and incentives
- Pursue **rate design reform** to improve economics of heat pump adoption



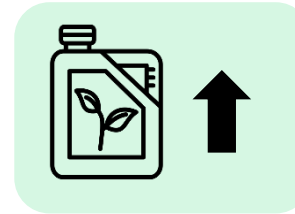
Energy Efficiency

- Improve building envelopes through **weatherization** of existing buildings
- Develop aggressive **building appliance standards**
- Develop **building performance standards** (BPS)
- Increase **grid interactivity** of appliances and equipment
- Enhance **behavioral conservation** through energy management systems



Renewable Energy in Buildings

- Install **solar PV** and/or **storage** at existing and new residential and commercial buildings
- Replace fossil fuel-powered water heating equipment with **solar hot water systems**
- Utilize **geothermal** technologies to heat and cool residential and commercial buildings



Increase the Use of Low-Carbon Fuels

- Increase the **blend of renewable fuels** in natural gas and heating oil delivered to homes and businesses
- Enforce **2021 Biofuel Heating Oil Act**, which will require 50% biofuel blend by 2030



Increase the Use of Low-Carbon Materials

- Increase the use of **low-carbon building materials** when constructing new buildings, such as recycled metals and low-carbon concrete
- For cooling, switch to **refrigerants with low global warming potential (GWP)**

Example strategies

RI's Recent Work in the Building Decarbonization Space

+ Future of the Regulated Gas Distribution Business

- The Future of Gas docket is led by the RI Public Utilities Commission (PUC) and **explores the future of RI's natural gas distribution system given the Act on Climate's emission reduction mandates**¹ (currently 50% of buildings in RI are connected to the natural gas system)
- Technical Analysis Report led by E3 was published in April 2024
- Policy report led by Apex Analytics and the RI PUC is forthcoming

+ Building Energy Benchmarking and Performance Standards

- On February 10th, 2025, the RI Office of Energy Resources released a report on building energy benchmarking and building performance standards (BPS)²
- The report outlines **approaches for implementing benchmarking and BPS in large public and private buildings**
- Governor McKee's proposed FY2026 Budget includes a new 'State Facilities Benchmarking and Performance Standards Program' (Article 3)³

+ Proposed Building Decarbonization Act of 2025

- In early 2025, RI Bill S0091 and H5493 were introduced⁴, which would **establish energy benchmarking and reporting for large buildings, BPS for municipal and state buildings, and require new construction to be electric-ready**

+ Proposed Rhode Island Clean Heat Standard Act

- In early 2025, RI Bill S0407 and H5167 were introduced⁵, which would **establish the RI Clean Heat Standard Act to reduce GHG emissions in the heating sector through tradeable clean heat credits**

Breakout Session #1: Opportunities for Decarbonizing the Buildings Sector in RI

Survey Form



<https://www.surveymonkey.com/r/RICASBuildingsSurvey>



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Questions

- + What are the greatest opportunities for building decarbonization in RI?**
- + ¿Cuáles son las mayores oportunidades para la descarbonización de edificios en Rhode Island?

- + How can building decarbonization advance equity in RI?**
- + ¿Cómo puede la descarbonización de edificios promover la equidad en Rhode Island?

- + What are the greatest barriers to building decarbonization in Rhode Island?**
- + ¿Cuáles son las mayores barreras para la descarbonización de edificios en Rhode Island?

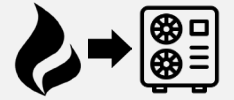
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Pillar: Electrify Buildings

What strategies/policies can help RI meet this decarbonization pillar?



Strategies Quantified in Current Policy Scenario

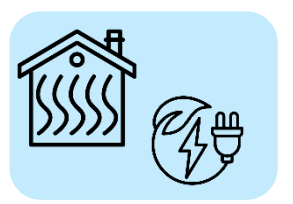
- Existing efficient equipment and heat pump adoption projections in RI are impacted by multiple existing policies, such as the:
 - Clean Heat RI
 - New England Heat Pump Accelerator initiative
 - Clean Heat Rhode Island Program
 - Inflation Reduction Act (IRA)
 - Lead by Example (LBE) Program

PCAP* and 2022 Climate Update Priority Strategies

- Hit target of **15% energy efficient electric heating by 2030**
- Increase residential and commercial heat pump adoption through **education and incentives**, such as the Clean Heat RI program
- Begin developing a **renewable thermal standard**
- Add **heat pumps to state facilities**
- Explore **non-pipe alternatives (NPA)** in RI by abandoning leak-prone gas pipes
- Look to the **Future of Gas Technical Analysis** (Docket 22-01-NG) for findings on the impact of decarbonization on the natural gas system, such as the impact of high levels of electrification
- Look to the OER report on **building benchmarking and performance standards** for approaches to decarbonize large buildings

Pillar: Increase Building Efficiency

What strategies/policies can help RI meet this decarbonization pillar?



Strategies Quantified in Current Policy Scenario

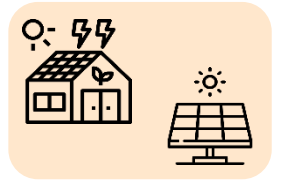
- Existing energy efficiency levels will be determined by current efficiency program implementation, such as **utility-administered efficiency programs**
- **Federal appliance efficiency standards**, such as the Federal Energy Conservation Standards for Consumer Furnaces which requires that all gas furnaces are 95% fuel efficient by 2029

PCAP* and 2022 Climate Update Priority Strategies

- Expand **existing weatherization, utility efficiency, and appliance efficiency standard programs**
- **Retrofit state buildings** and facilities
- Provide subsidies for **pre-weatherization** work
- Incentivize **demand response** for peak shaving
- Look to the OER report on **building benchmarking and performance standards** for approaches to decarbonize large buildings

Pillar: Renewable Energy in Buildings

What strategies/policies can help RI meet this decarbonization pillar?



Strategies Quantified in Current Policy Scenario

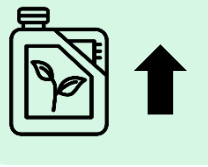
- N/A

PCAP* and 2022 Climate Update Priority Strategies

- Incentivize **battery storage** for residential and commercial customers for **peak shaving** through demand response
- **Incentivize solar on previously disturbed sites** and commercial facilities

Pillar: Increase the Use of Low-Carbon Fuels

What strategies/policies can help RI meet this decarbonization pillar?



Strategies Quantified in Current Policy Scenario

- **2021 Biofuel Heating Oil Act**, which requires that heating oil must be 50% biofuel by 2030

PCAP* and 2022 Climate Update Priority Strategies

- Enforce the **2021 Biofuel Heating Oil Act**
- Look to the **Future of Gas Technical Analysis** (Docket 22-01-NG) for findings on the impact of decarbonization on the natural gas system, such as the impact of higher reliance on renewable fuels
- Look to the OER report on **building benchmarking and performance standards** for approaches to decarbonize large buildings

Breakout Session #2: RI CAS Buildings Strategies

Survey Form



<https://www.surveymonkey.com/r/RICASBuildingsSurvey>



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Questions

- + Please provide feedback on the existing building decarbonization strategies under consideration, such as the strategies from the Priority Climate Action Plan (PCAP) and priority actions from the 2022 Climate Update.**
- + Proporcione comentarios sobre las estrategias de descarbonización de edificios existentes que se están considerando.
- + What strategies are missing and should be explored in the RI Climate Action Strategy?**
- + ¿Qué estrategias faltan y deberían explorarse en la Estrategia de Acción Climática de RI?

Report Out



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Wrap-up Question

- + **What strategies discussed today are most important to you?**
- + ¿Qué estrategias discutidas hoy son las más importantes para usted?

Survey Form



Wrap Up and Next Steps

- + E3 and RI will consider feedback from this session when developing the final list of strategies to include in the modeling
- + Please feel free to submit additional feedback on the buildings sector



<https://www.surveymonkey.com/r/RICASBuildingsSurvey>

- + RI, Lighthouse, and E3 will host additional engagement sessions through early May
- + E3 and BW will complete the quantitative GHG and workforce modeling over the summer

Upcoming Engagement Opportunities

+ General Stakeholder Meeting [In-person]

- 3/31/2025 6:00 pm - 8:00 pm
- Boys & Girls Clubs of Northern Rhode Island
Woonsocket Campus

+ Municipalities Focus Area Meeting

- 4/4/2025 11:00 am - 1:00 pm
- Virtual Zoom meeting

+ Workforce Focus Area Meeting

- 4/8/2025 11:00 am - 1:00 pm
- Virtual Zoom meeting

+ Energy Focus Area Meeting

- 4/15/2025 1:00 pm - 3:00 pm
- Virtual Zoom meeting

+ General Stakeholder Meeting [In-person]

- 4/17/2025 6:00 pm - 8:00 pm
- **Providence/Cranston**: Location TBD

+ General Stakeholder Meeting

- 4/29/2025 11:00 am - 1:00 pm
- Virtual Zoom meeting

+ General Stakeholder Meeting [In-person]

- 5/5/2025 6:00 pm - 8:00 PM
- **Newport**: Location TBD

Find the information for all upcoming events here: [HERE](#)

Staying in the Loop on the 2025 Strategy

Sign up to receive ongoing announcements about engagement on the RI 2025 Climate Action Strategy [HERE](#)



Sign up for updates!

Get the latest updates from the Executive Climate Change Coordinating Council (EC4) in your inbox.



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Thank You

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