



Act on Climate

Climate-Buildings Workshop

Technical questions about zoom: email
Matthew.Moretta.CTR@energy.ri.gov

We will get started shortly!

Green Buildings Advisory Committee

RIEC⁴



Act on Climate Climate-Buildings Workshop

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Act on Climate

Climate-Buildings
Workshop

August 24, 2022

Green Buildings Advisory Committee

RIEC⁴

Act on Climate Mandates

The Executive Climate Change Coordinating Council (EC4) coordinates climate change efforts across state agencies, including:

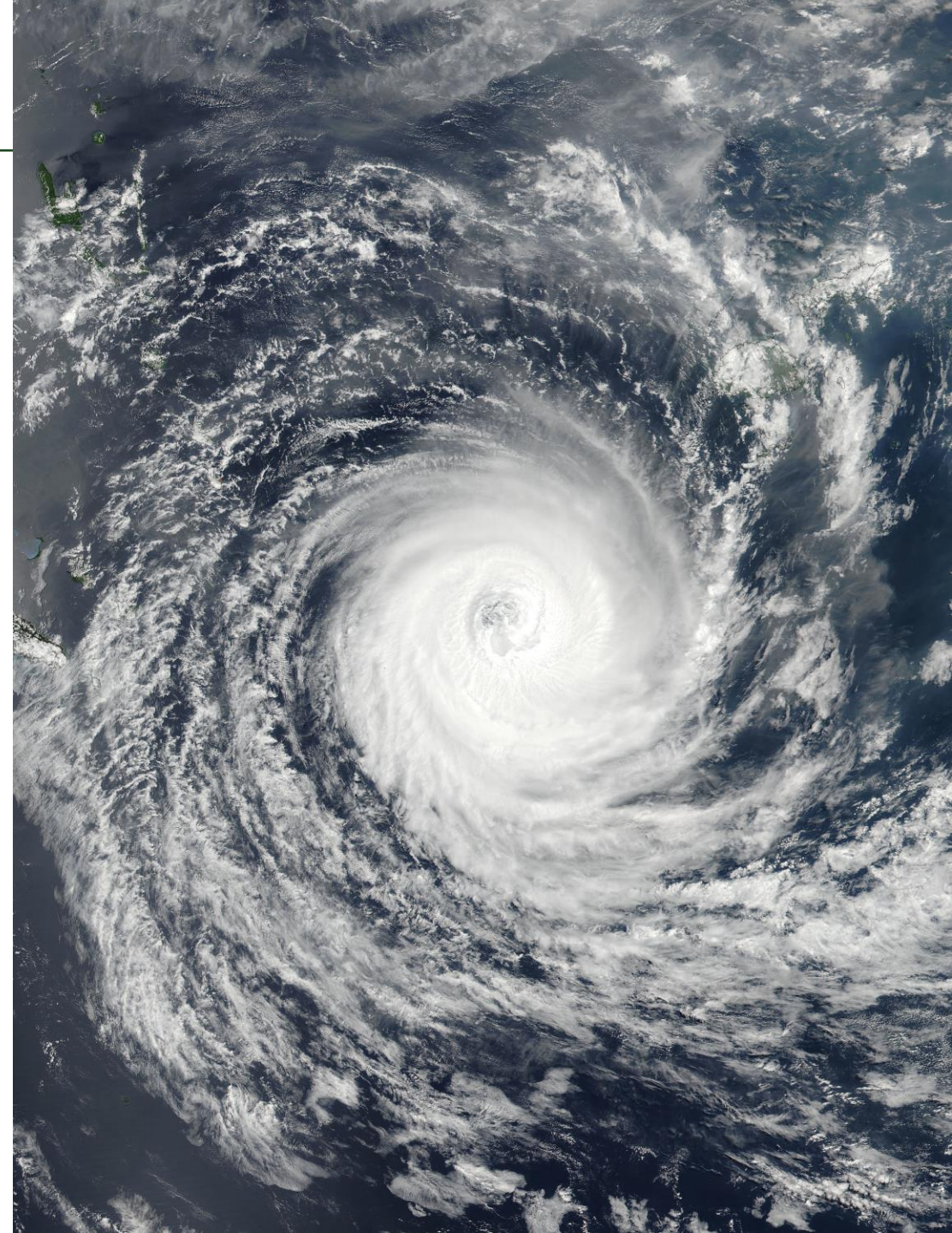
- Advance the state's understanding of the effects on climate change including infrastructure
- Identify strategies to prepare for these effects and communicate them to Rhode Islanders

The 2021 Act on Climate establishes economy-wide emissions reduction mandates of:

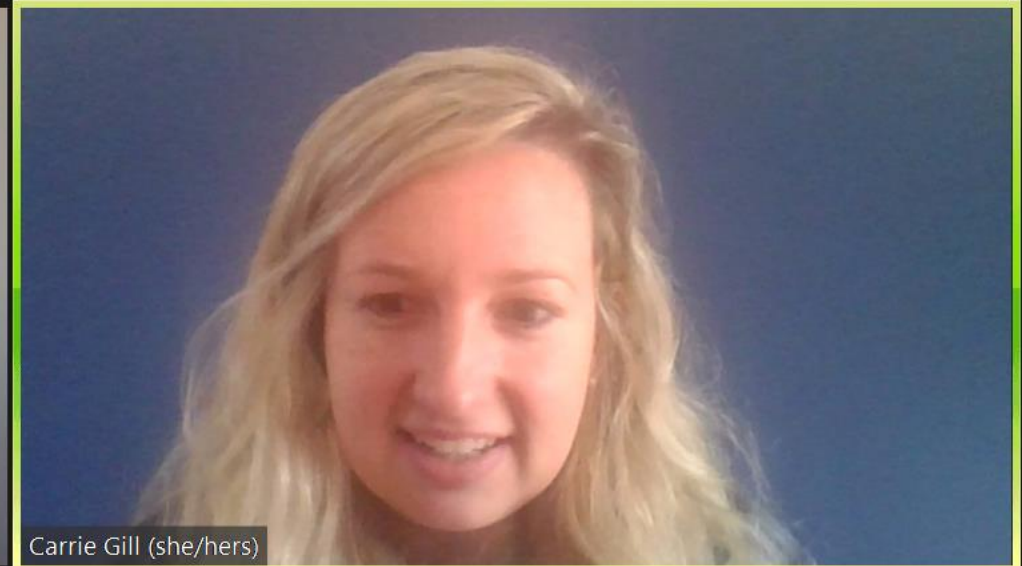
- 10% below 1990 levels by 2020
- 45% below 1990 levels by 2030
- 80% below 1990 levels by 2040
- Net-zero emissions by 2050

Panel Discussion

1. How do buildings contribute to emissions?
2. How will climate change impact buildings?
3. How does a changing climate change what we need from buildings?



How to Participate



Mute



Stop Video



Participants



Chat



Share Screen



Record

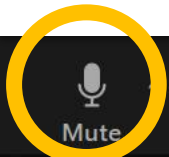
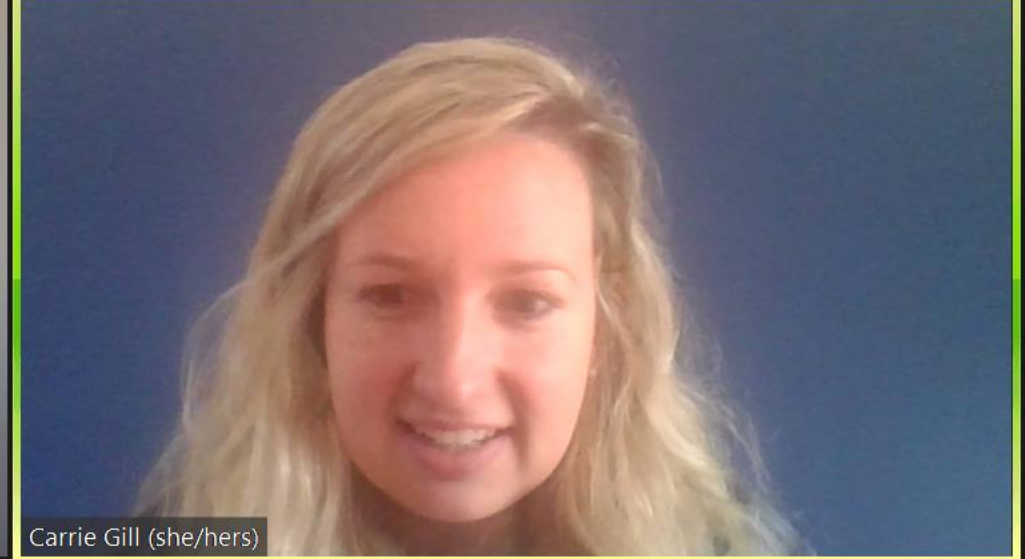


Reactions

Leave

How to Participate

- **Unmute** yourself using the icon at the bottom right of the screen and speak your question or comment.



Stop Video

Participants 4

Chat

Share Screen

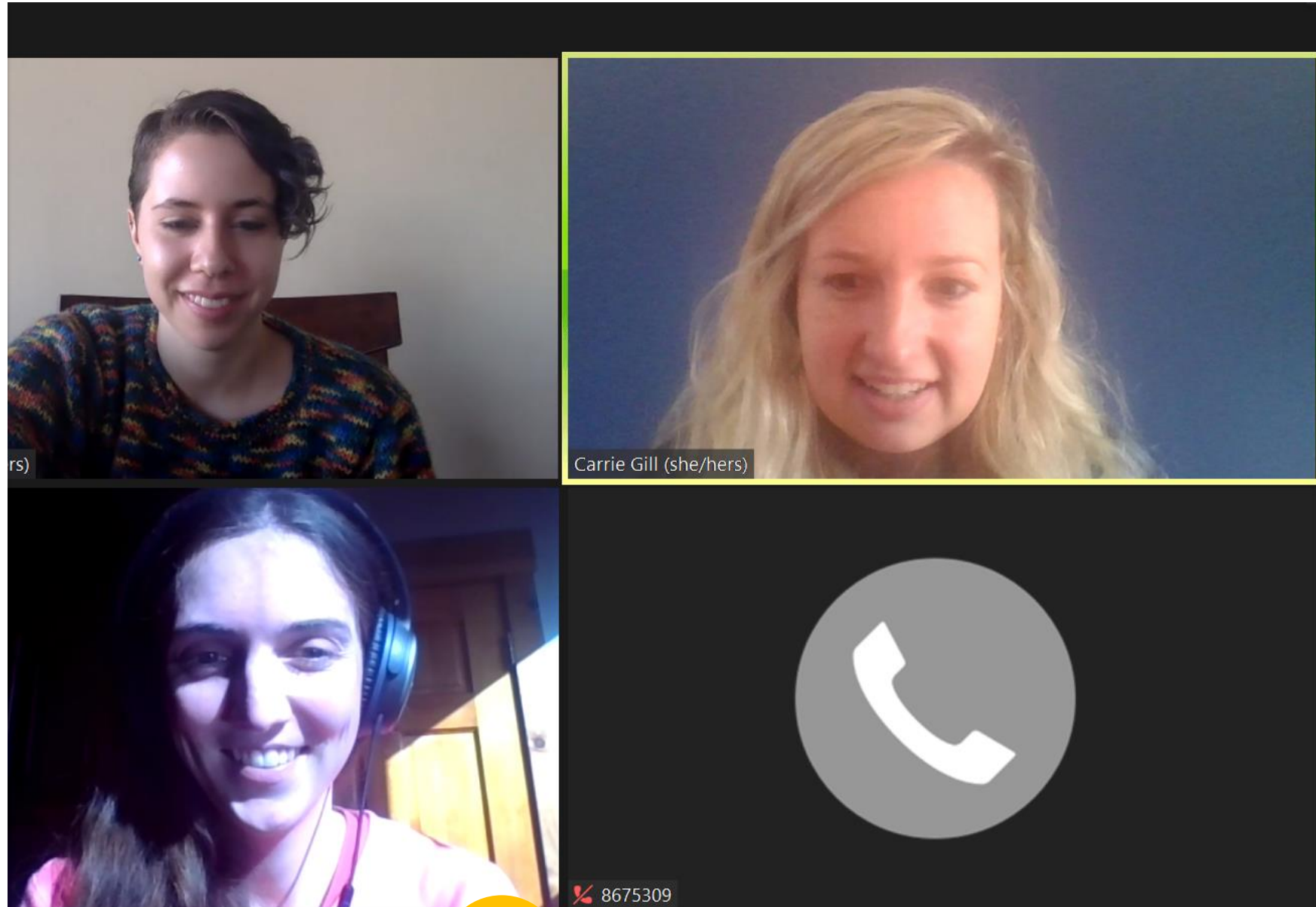
Record

Reactions

Leave

How to Participate

- Open the **chat box** by clicking on the icon at the bottom of your screen.
- Type your question or comment into chat.
- Type that you would like to speak in the chat.
- We will either read your comment or call on you to speak.



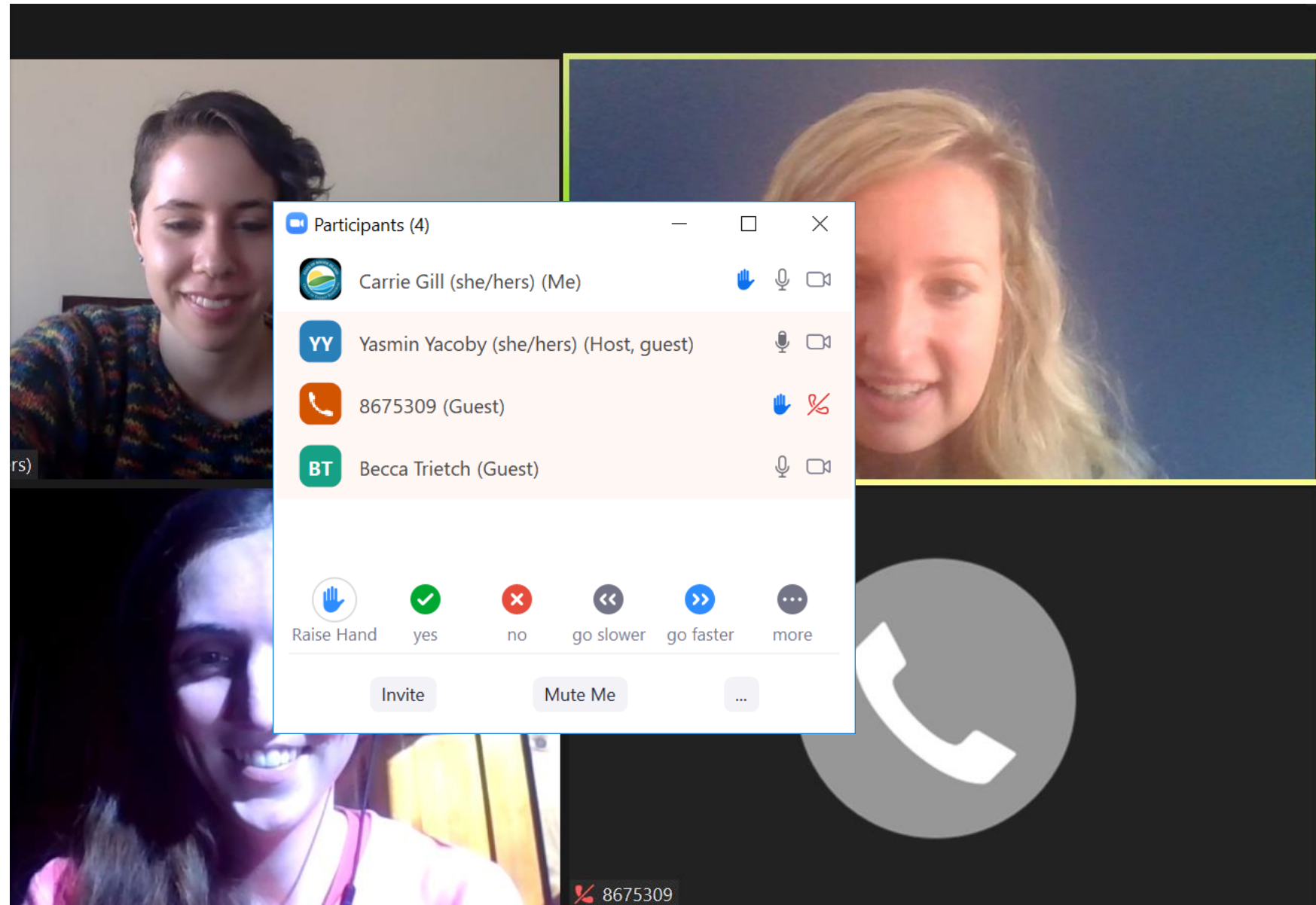
How to Participate

- Click the participants icon at the bottom of your screen then click the **raise hand** icon at the bottom left of the pop-up window to raise your hand.
- We will call on you to speak.



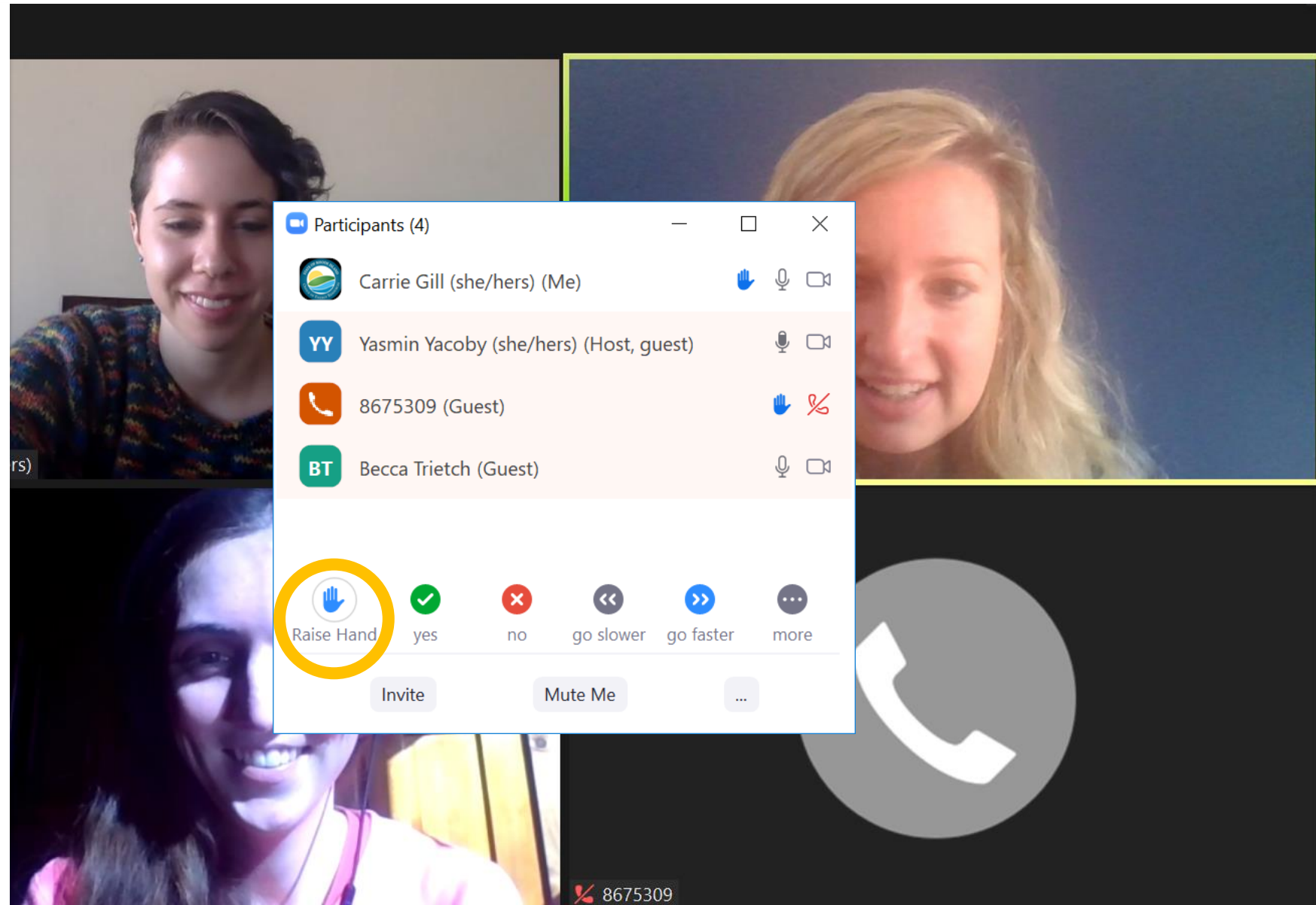
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How to Participate

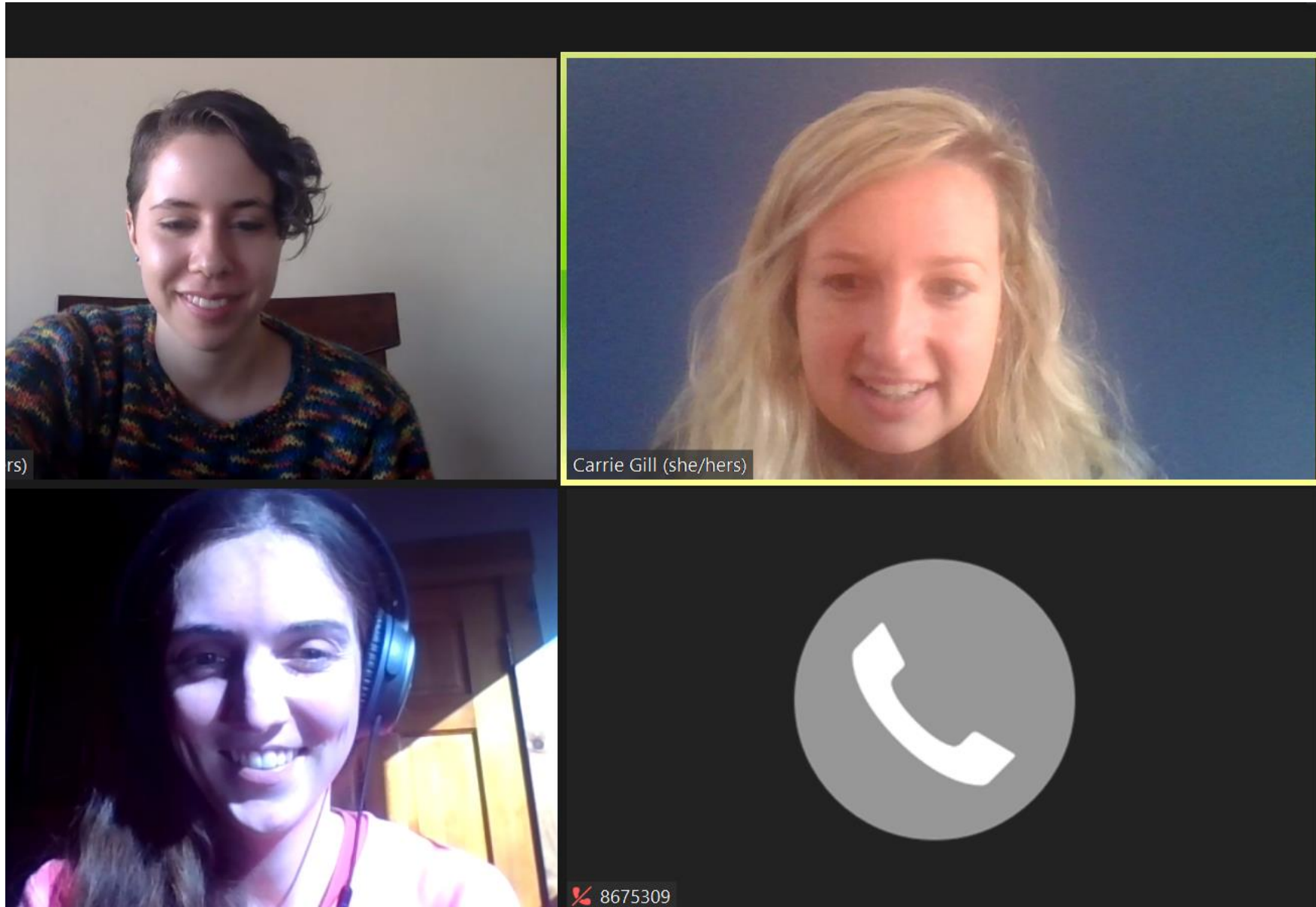
- Click the participants icon at the bottom of your screen then click the **raise hand** icon at the bottom left of the pop-up window to raise your hand.
- We will call on you to speak.



How to Participate

If you're calling in on the phone:

- Unmute yourself from your phone options and speak your question or comment.
- **Hit *6 to unmute** yourself and speak your question or comment.
- **Hit *9 to raise hand** and we will call on you to speak.



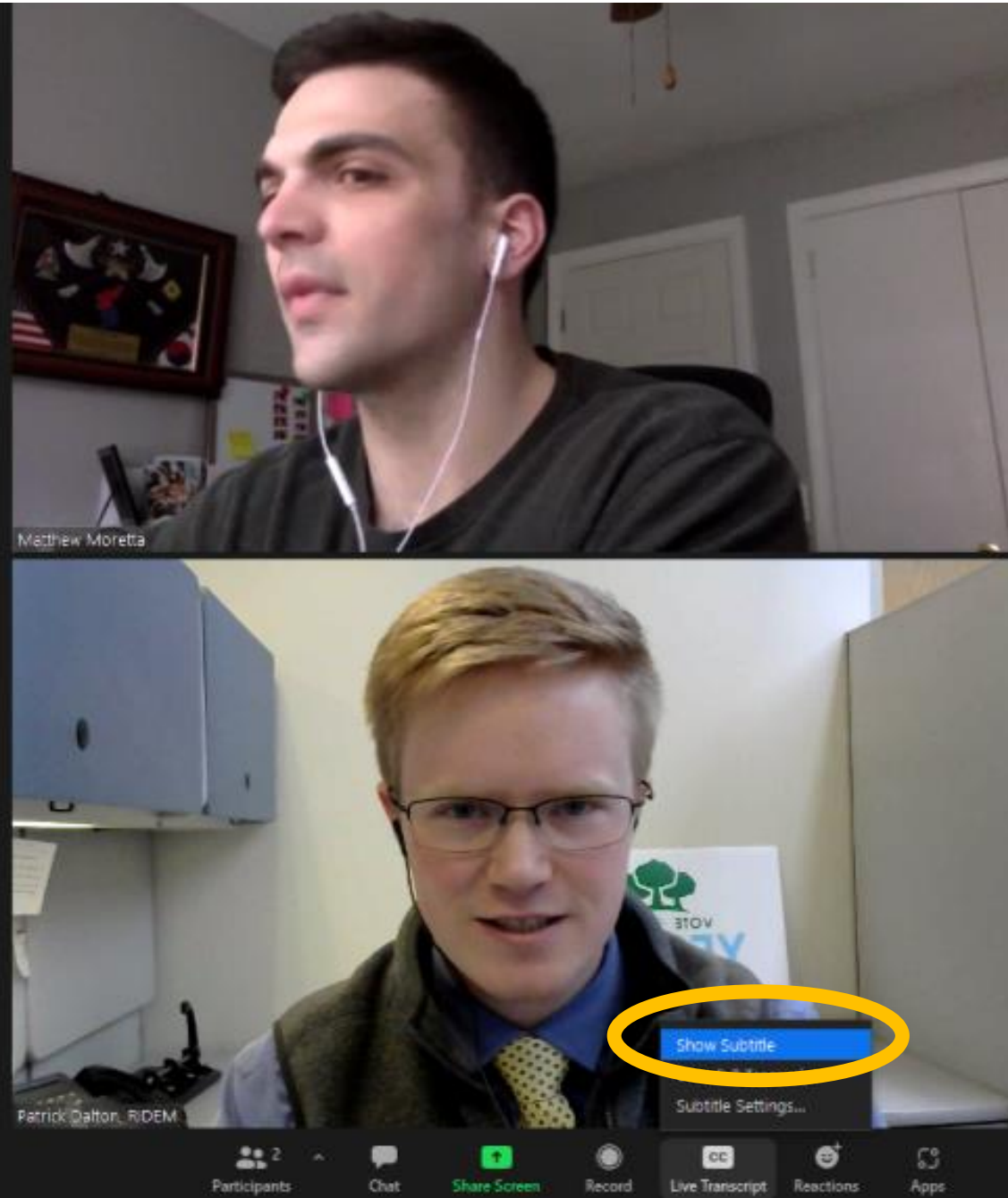
How to Participate

- To see live captioning, click the '**Live Transcript**' icon and then select 'Show Subtitle'
- You can also change the subtitle settings from this menu.



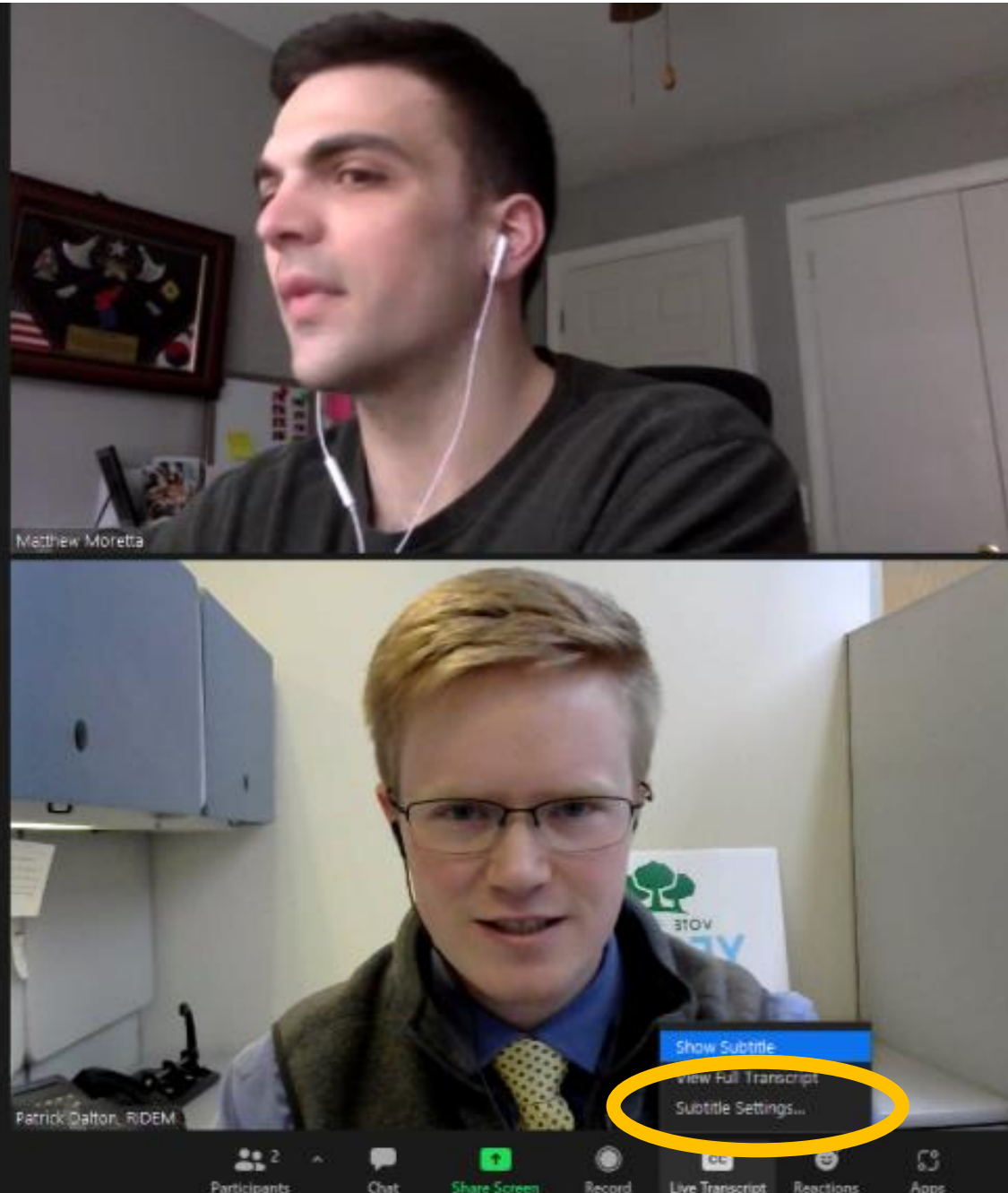
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How to Participate

- Please direct technical zoom **questions** to Matthew.Moretta. CTR@ energy.ri.gov



Patrick Dalton, RIDEM

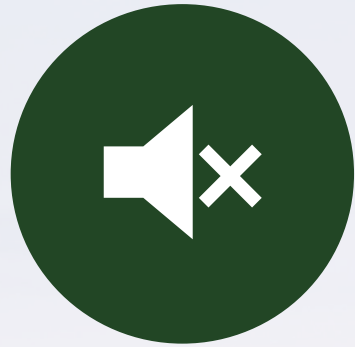


Leave

Housekeeping and Logistics



- This meeting is being **recorded** so we can be sure to capture your comments.
- We do not intend to post this recording publicly.



- Please **mute** your mic when not speaking.
- OER will monitor noise levels and mute folks who may have accidentally unmuted themselves.



- **Make space and take space**
- Each person will be allotted a maximum of 3 minutes to speak initially to ensure we are allowing everyone an opportunity to be heard



- We recognize there may be inherent **power dynamics** in this conversation.
- We **encourage** everyone to voice both support *and* concerns, and invite you to challenge our assumptions and our thinking.



- Thank you in advance for your good intentioned comments and questions and for your **respect** toward everyone present.
- Please refrain from interrupting or speaking over others – this will ensure we hear and understand all speakers.



Panel Discussion



Today's Panel



Steve Chybowski

Building Efficiency
Lead

Rhode Island Office
of Energy Resources



Nathan Cleveland

Energy Efficiency,
Lead by Example,
and Municipalities

Rhode Island Office
of Energy Resources



Dr. Joseph da Silva

School Construction
Coordinator, School
Building Authority

Rhode Island
Department of
Education



Jim Cambio

Building Code
Commissioner

Rhode Island
Department of
Business Regulation



Jon Erickson

Account Manager
CLEAResult

Quick Facts

1990-2018

Rhode Island Greenhouse Gas (GHG) Emissions Inventory



Gross GHG Emissions by Economic Sector in 2018



2018 Gross GHG Emissions

12.70
million metric tons of CO₂e

RI Greenhouse Gas Emissions 1990 v. 2018

SECTOR	CHANGE IN MMTCO ₂ E	PERCENT CHANGE	TREND
Transportation	-0.52	-10.4%	↓
Electricity Consumption	0.52	18.5%	↑
Residential Heating	-0.05	-2.0%	↓
Industrial Heating & Processes	0.38	46.5%	↑
Commercial Heating	-0.17	-14.8%	↓
Other	-0.24	-36.9%	↓
Total	0.22	1.8%	↑

1990 - 2018 Change



Statewide Net
GHG Accretions
(1990-2018)
1.8%

Beaverlail State Park, Jamestown. Photo: S. Petrarca

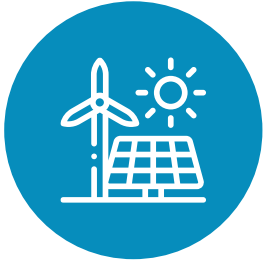


STATE OF RHODE ISLAND
**OFFICE OF
ENERGY RESOURCES**

Act on Climate Buildings Workshop

OER's Lead by
Example Program

Mission statement



The Rhode Island Office of Energy Resources' (OER) mission is to lead the state toward a **clean, affordable, reliable**, and **equitable** energy future.



OER develops policies and programs that respond to the state's evolving energy needs, while advancing **environmental sustainability, energy security**, and a vibrant **clean energy economy**.



OER is committed to working with public- and private-sector stakeholders to ensure that all Rhode Islanders have access to cost-effective, resilient, and sustainable energy solutions.

Origin and Goals of Lead by Example Program

- The Lead by Example (LBE) Program was established in 2015 by Executive Order of Gov. Gina Raimondo
- Directed the Office of Energy Resources (OER) to oversee and coordinate efforts at State Agencies to reduce energy consumption and GHG emissions
- Set several goals for LBE to achieve, including:
 - 100% of State electricity consumption from renewables by 2025
 - Reduce energy use at State facilities 10% below FY2014 levels by FY2019
 - Develop a stretch energy code
 - Support transportation electrification through deployment of EV charging stations
 - Invest in on-site renewable energy
 - Coordinate energy procurement for the State
- Act on Climate mandates only reinforce the importance of accelerating and expanding the work of LBE



Current Lead By Example Program Offerings

- Facility Energy Audits
- Municipal LED Streetlight Program
- State Agency LED Lighting Program
- Public School LED Lighting Accelerator
- Competitive Energy Supply Procurement (Electricity and Natural Gas)
- Renewable Energy Installations
- EV Charging Infrastructure Program
- Demand Response Program
- Public School Building Automation System Program
- Heat Pump Initiative



Program Highlight

Powers Building

- Utilizing energy audits and engaging with DCAMM staff, OER supported continued investments in the Powers Building over the past 5 years
- Investments include:
 - Rooftop solar
 - LED lighting
 - HVAC upgrade
 - Building Automation System
- As a result of these investments, in 2021 energy consumption for the building was **reduced by 43%** compared to 2017 and generated **savings of over \$300,000** annually!



Contact information



Nathan Cleveland

*Program Services Officer
Rhode Island Office of Energy Resources*



www.energy.ri.gov/lead-example



Nathan.Cleveland@energy.ri.gov



www.energy.ri.gov



Dr. Joseph da Silva, NCARB, MESM

Coordinator,
School Building Authority



RIDE

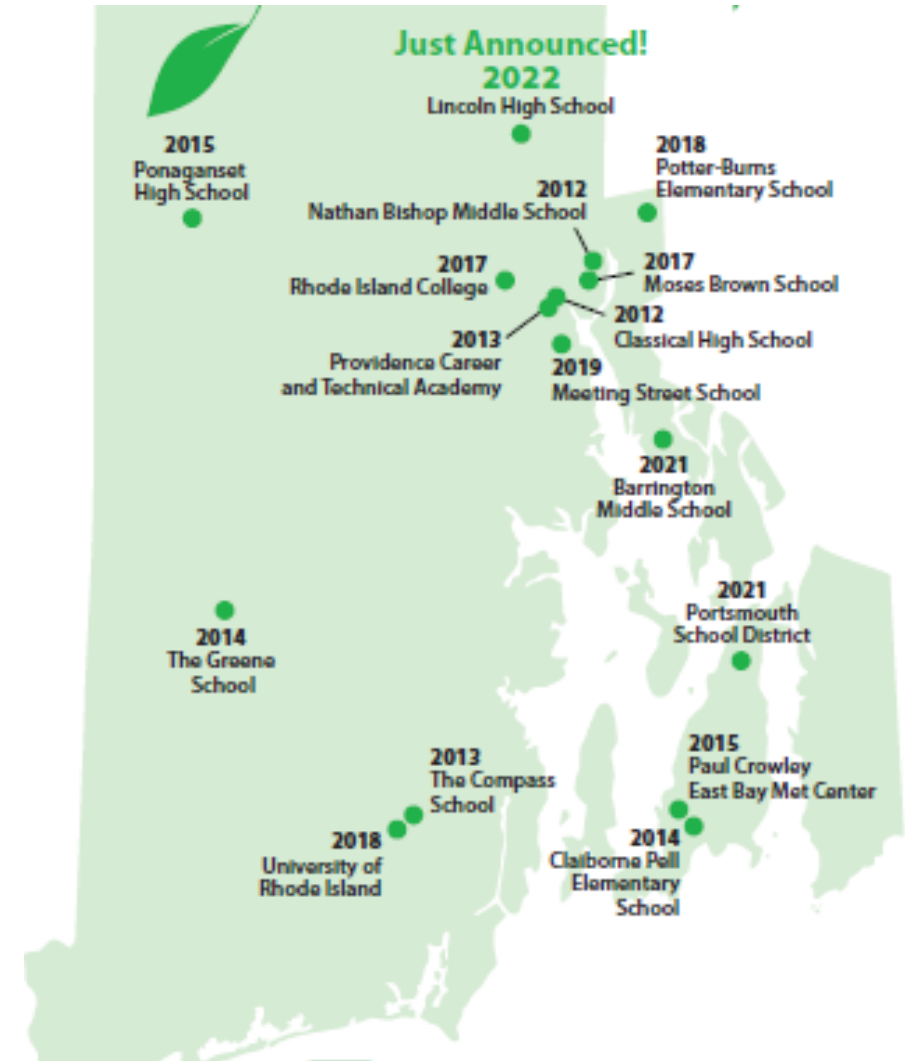
Rhode Island
Department
of Education

Rhode Island is Turning Green... One School at a Time

Ocean State Emerges as a National Leader on Climate-Friendly Education

Since 2007, Rhode Island has taken a two-fold approach to ensure our PreK-12 students learn in schools that are safe, clean and (increasingly) environment-friendly: regulations that ensure uniformity and equity in school construction and compliance with Northeast Collaborative for High Performance Schools Protocol (NECHPS) requirements to ensure projects are built green.

- As a result, Rhode Island public schools built or renovated over the last 15 years **use at least 30% less energy and 20% less water** than buildings designed to code and have **diverted at least 50% of construction waste** from landfills.
- Each year, more Rhode Island schools earn the **Green Ribbon School** award from the U.S. Department of Education. The competitive program honors schools, districts and postsecondary institutions that stand out in their efforts to **reduce environmental impact and costs; improve the health and wellness of students and staff; and provide effective sustainability education.**



WE'RE NUMBER ONE!

R.I. is in the **top spot** for Green Ribbon schools in the Northeast (and we hold the second spot nationwide).

Energy Efficiency and Resiliency: Sheridan Small Homes

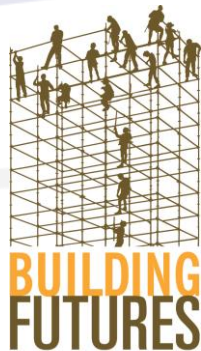
Jon Erickson: PHIUS+ CPHC, Builder and Verifier, HERS Rater, BPI
Building Analyst

SHERIDAN SMALL HOMES

35 sheridan street, providence, rhode island



PROVIDENCE THE CREATIVE CAPITAL



BKAD

CLEAResult®

In Process



Rhode Island Energy™
a PPL company



Passive House Principles



Rhode Island Energy™
a PPL company

1. ***Exceptional Air Tightness***

- Comprehensive mechanical ventilation

2. ***“Super” Insulated***

- Very good windows

3. ***Thermal Bridge Free***

- Continuous insulation

- ***Healthy***

- ***Resilient***

- ***Durable***

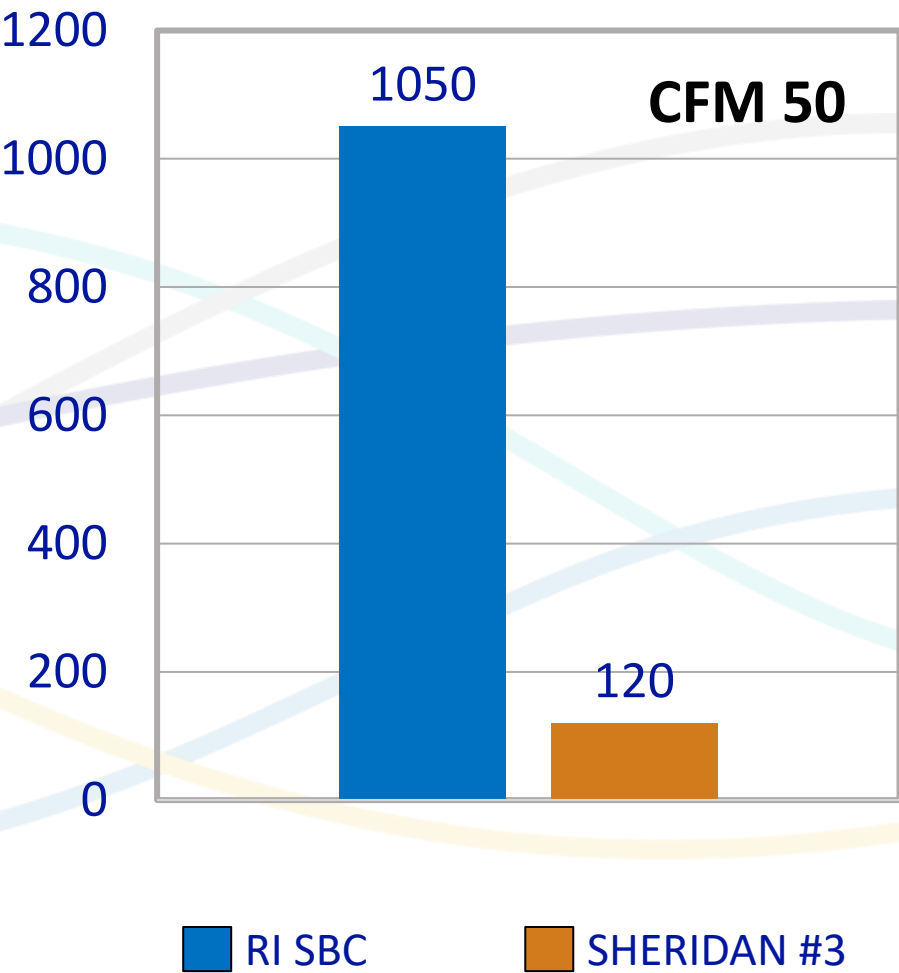
- ***Comfortable***

- ***Energy efficient***

Exceptional Air Tightness




Rhode Island Energy™
a PPL company



Insulation and Windows



 National Fenestration Rating Council® CERTIFIED	Zola European Windows	
	Reinforced Vinyl Frame Operable Window Triple Glazing - Argon/Air Filled - Low E ZWD-K-8-00022-00001 Pos. no 6	
ENERGY PERFORMANCE RATINGS		
U-Factor (U.S. I-P)	0.17	Solar Heat Gain Coefficient 0.31
ADDITIONAL PERFORMANCE RATINGS		
Visible Transmittance 0.47	---	
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</small>		

Improvement Over RI State Energy Code

Sheridan As Built

Heating / Cooling Annual Energy Consumption =

3,500,000 btu/year

Sheridan Built at RI state code minimums

Heating / Cooling Annual Energy Consumption =

35,700,000 btu/year

If built to state code minimums, the energy used in one year would heat/cool these homes as built for:

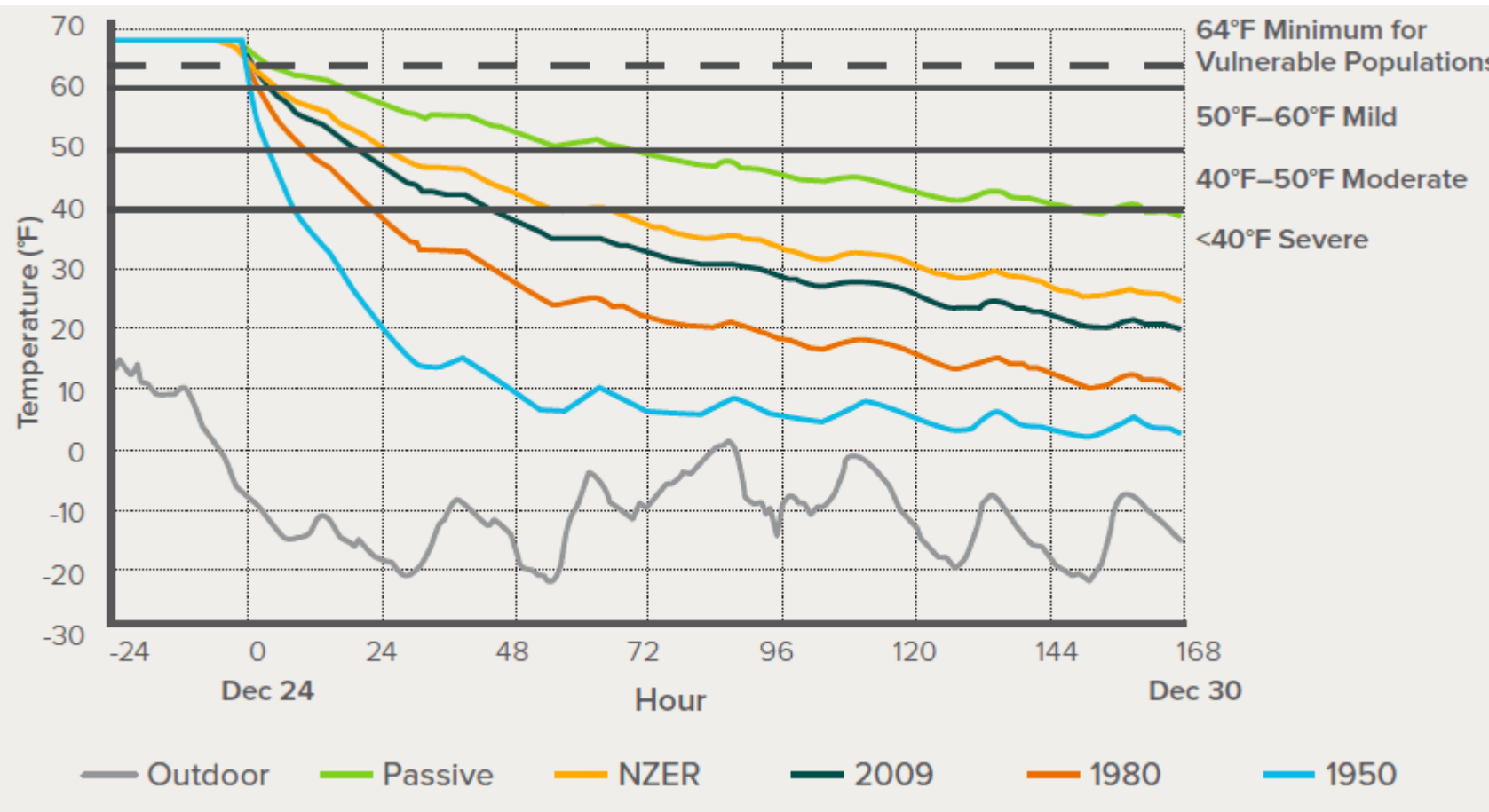
10.2 years

Resiliency

: an ability to recover from or adjust easily to misfortune or change



Rhode Island Energy™
a PPL company



2020 RMI Study

“homes with Passive House standard building envelopes and net-zero energy buildings maintained safe indoor temperatures for significantly longer than even code-compliant new buildings, lasting over six days before indoor temperatures fell below 40°F”

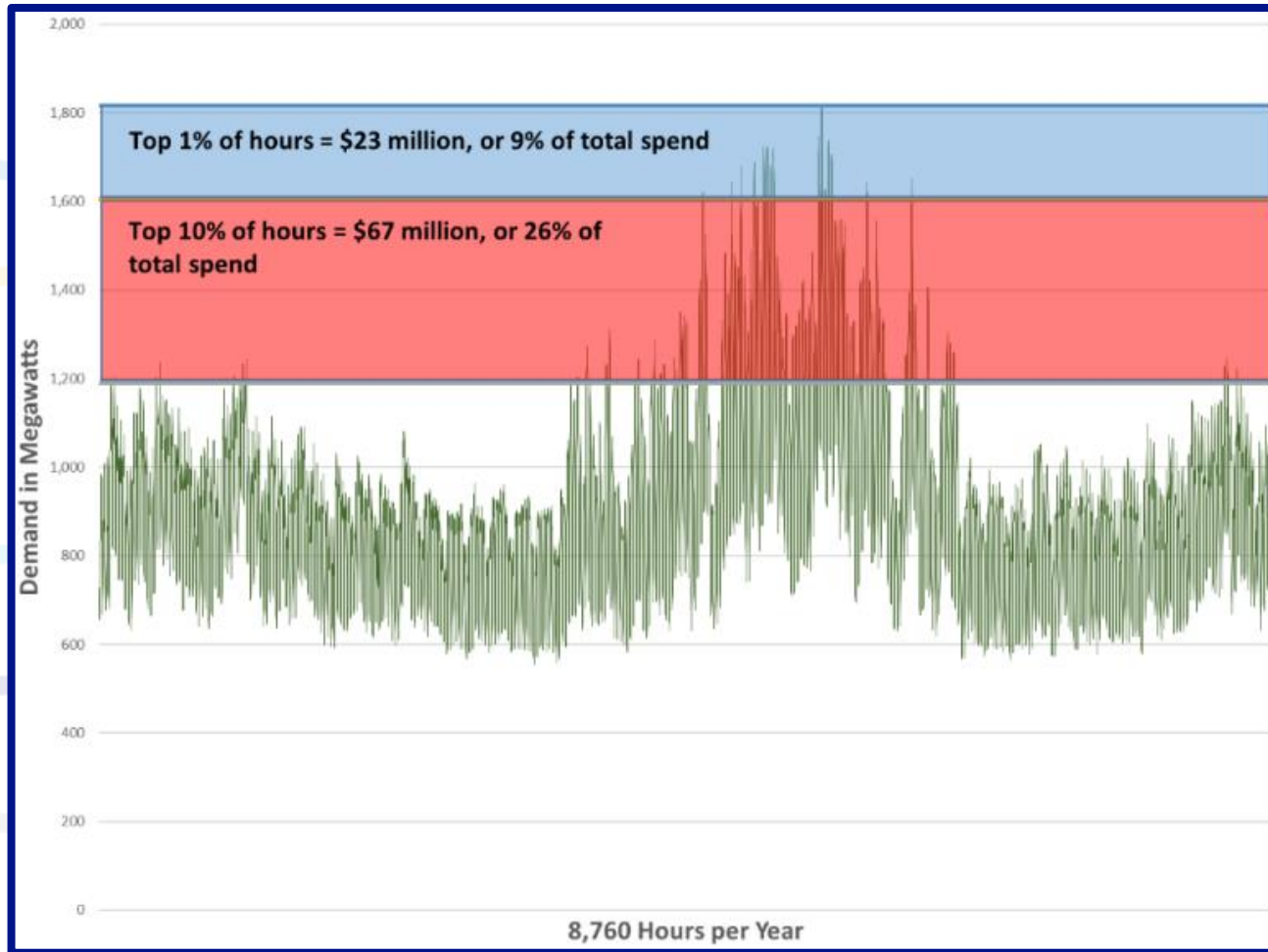
Electric Grid Impact

- Electrification
 - Increase in electric consumption
 - Shifts grid peak to winter
- Peaks are often met with expensive, high carbon-emitting resources

Electric Grid Peak Loads



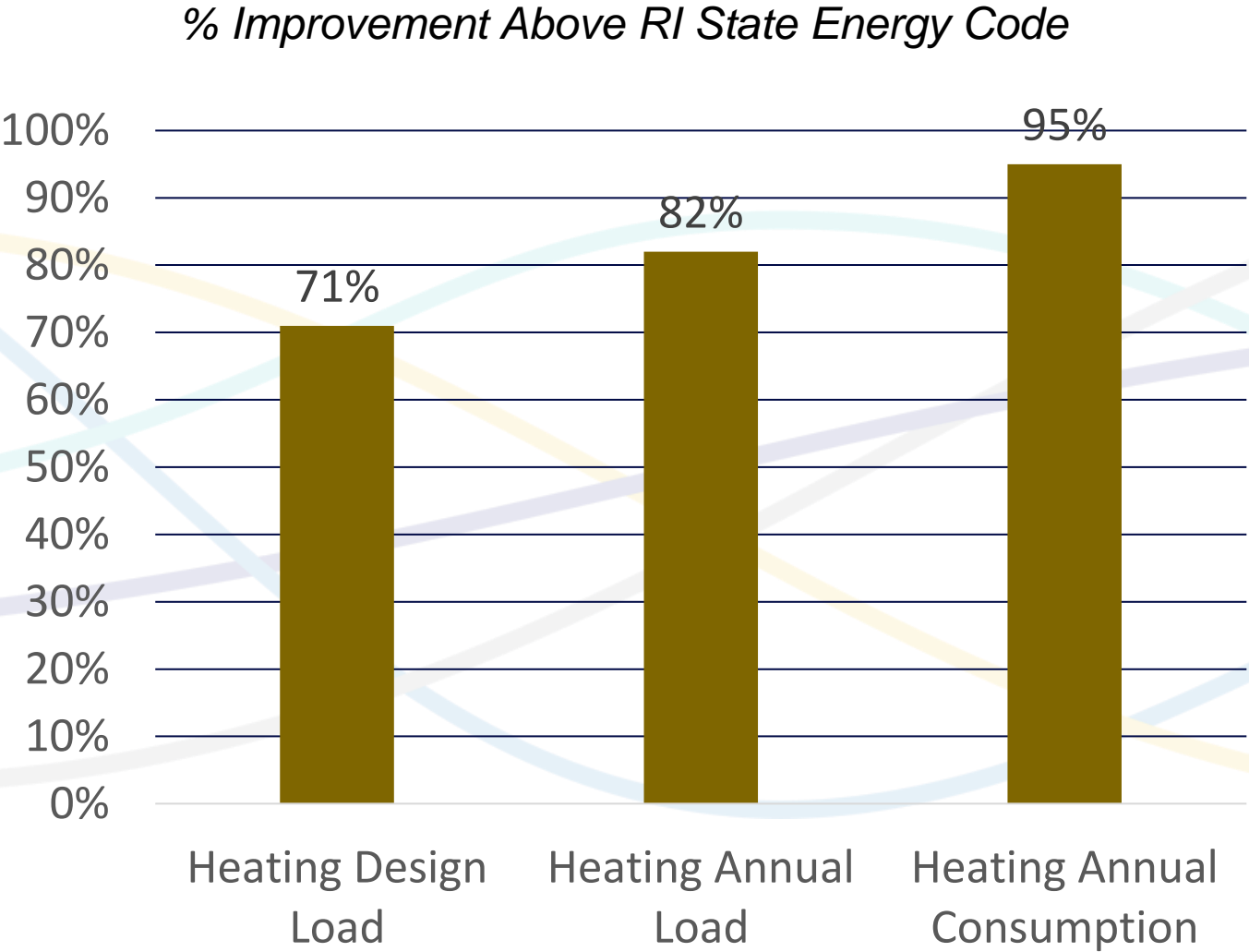
Rhode Island Energy™
a PPL company



“The top 1% of hours cost the state ratepayers around 9% of spending, at around \$23 million, while the top 10% of hours cost 26% of cost at \$67 million. To meet peak demand, our system currently invests in solutions that are more expensive than is necessary. We have the technological opportunity to shift the hours of demand and thereby reduce everyone’s utility bills?

- Rhode Island Power Sector Transformation Report Phase I

Energy Modeling Results



Thank You!

Jon Erickson
jon.erickson@clearresult.com
401-378-5997

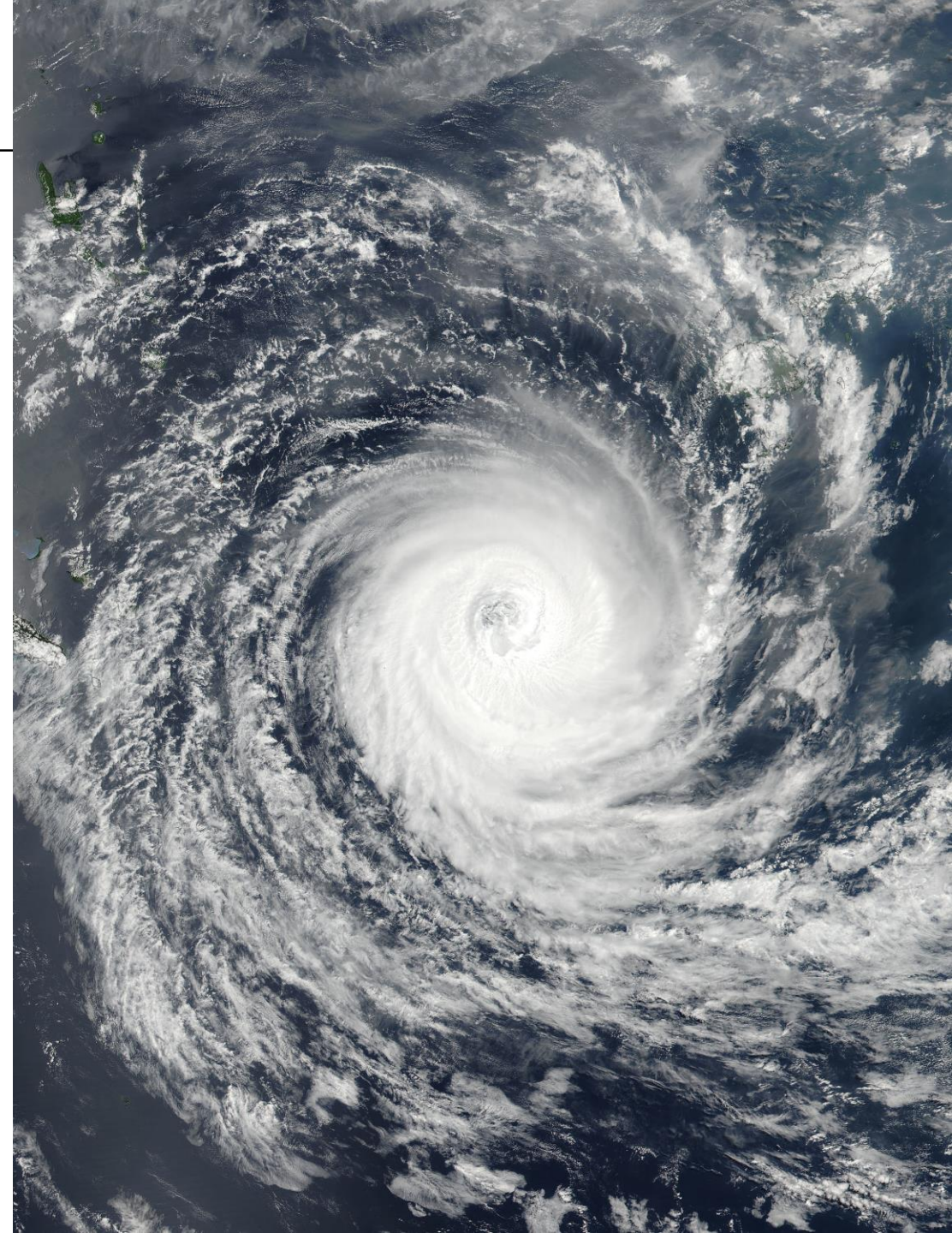
Next Steps

First, a quick poll!

September

- 9/13 EC4 Science & Technical Advisory Board Meeting (1:00PM @ RIDEM, Room 300)
- 9/22 EC4 Meeting (2:30PM @ Central Falls Landing in Cental Falls)

More info & comment form:
www.climatechange.ri.gov/aoc



Act on Climate

Thank you!

Comments may be submitted: www.climatechange.ri.gov/aoc

Check back for updated project materials: www.climatechange.ri.gov/aoc

All climate-related activities will be posted to the EC4 calendar: www.climatechange.ri.gov