RIDEM GHG Inventory

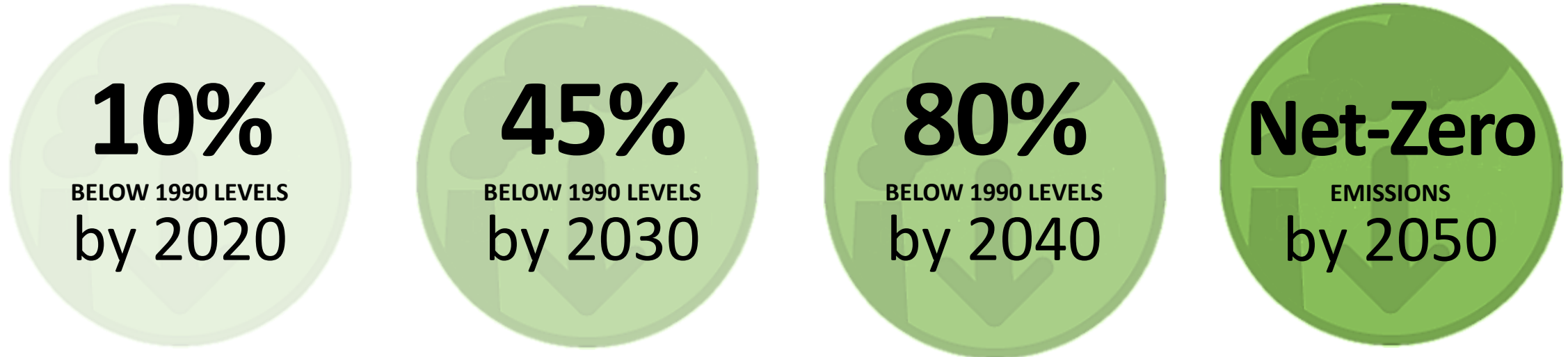March 10, 2023

Elizabeth Stone, RIDEM

2021 Act on Climate

The Act on Climate's greenhouse gas emission reduction mandates:

10% BELOW 1990 LEVELS by 2020

45% BELOW 1990 LEVELS by 2030

80% BELOW 1990 LEVELS by 2040

Net-Zero EMISSIONS by 2050

*DEM's annual GHG emissions inventory serves as the **primary scientific tool** for evaluating progress with the Act on Climate*
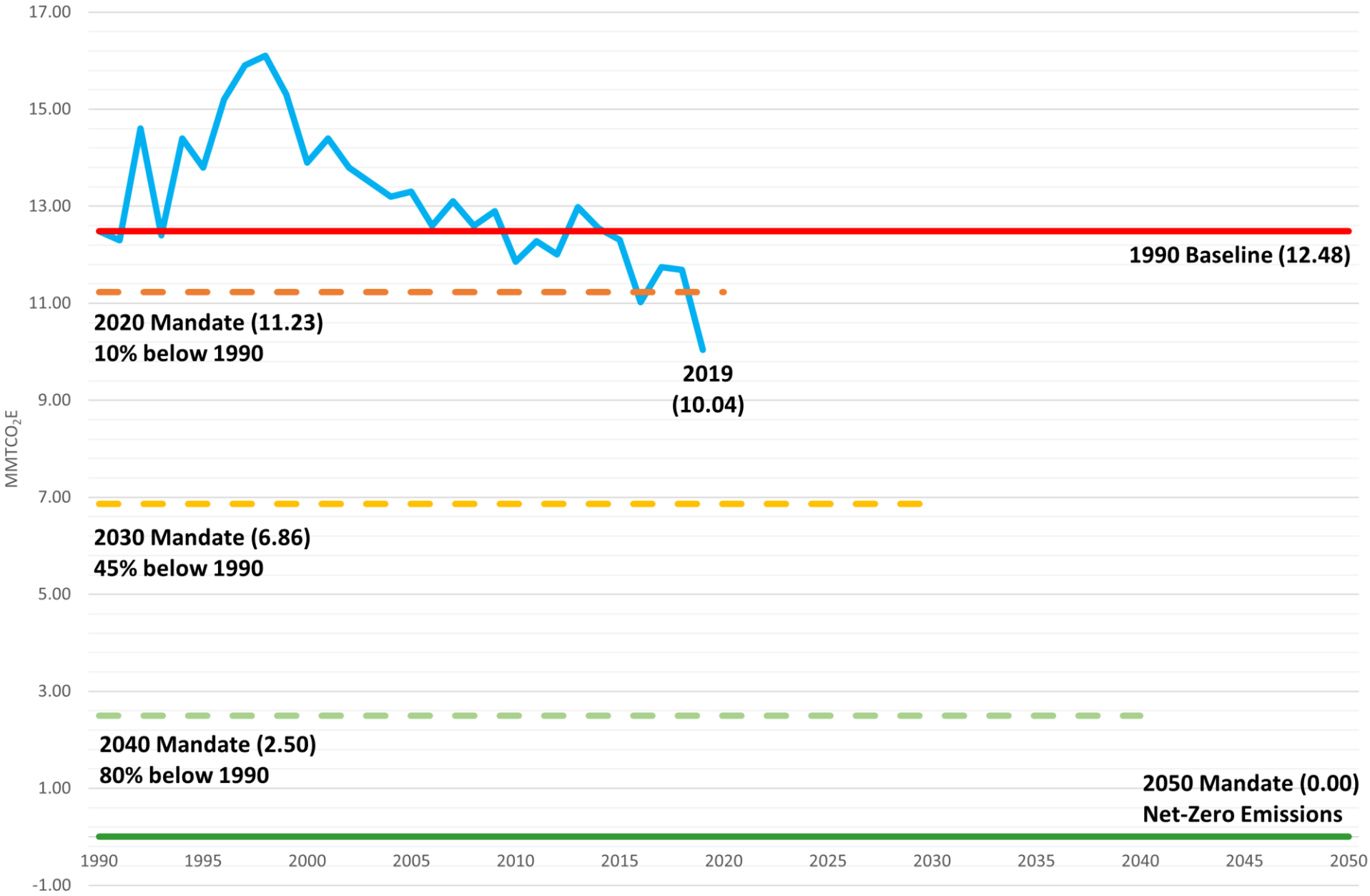
GHG Emissions Inventory History

- RI's 1st GHG emissions inventory completed by NESCAUM (2013)
  - Estimated 1990 baseline
  - Completed 2010 inventory
  - Projected 2020 emissions
  - Primary tool: EPA's State Inventory Tool (SIT)
    - *SIT is an interactive excel spreadsheet that calculates sector by sector GHG emissions*
    - *Users can pre-load default data or insert state-specific data*
- RIDEM's Office of Air Resources continues to estimate GHG emissions primarily using the SIT on an annual basis
- 3-year data delay with EPA's State Inventory Tool (SIT)
- GHG Emissions Inventory: http://www.dem.ri.gov/programs/air/ghg-emissions-inventory.php

1990-2019 Rhode Island Greenhouse Gas Emissions

2021 Act on Climate Mandates

1990 Baseline (12.48)

2020 Mandate (11.23)
10% below 1990

2019
(10.04)

2030 Mandate (6.86)
45% below 1990

2040 Mandate (2.50)
80% below 1990

2050 Mandate (0.00)
Net-Zero Emissions

MMTCO$_2$E

Quick Facts

1990-2019

Rhode Island Greenhouse Gas (GHG) Emissions Inventory

DEM RHODE ISLAND

Gross GHG Emissions by Economic Sector in 2019

Transportation	Residential Heating	Electricity Consumption	Industry	Commercial Heating	Waste	Natural Gas Distribution	Agriculture
4.29 MMTCO$_2$e	2.09 MMTCO$_2$e	2.05 MMTCO$_2$e	1.03 MMTCO$_2$e	0.94 MMTCO$_2$e	0.23 MMTCO$_2$e	0.14 MMTCO$_2$e	0.05 MMTCO$_2$e
39.7%	19.3%	18.9%	9.5%	8.7%	2.1%	1.3%	0.5%

2019 Net GHG Emissions

10.04

million metric tons of CO$_2$e

2019 Greenhouse Gas Removals

Land Use, Land Use Change & Forestry (LULUCF)

-0.78 MMTCO$_2$e

-7.2%

of gross GHG emissions offset by LULUCF

1990 - 2019 Change

Statewide Net GHG Reductions (1990-2019)

-19.6%

Lincoln Woods State Park

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Electricity Consumption Sector Methodology

- Up until Year 2016, the GHG emissions associated with Electricity Consumption sector were calculated with the SIT.

- RI methodology aligned with CT.

- The key difference between the SIT and our refined methodology is the accounting for Renewable Energy Certificates (RECs) purchased and sold by RI retail electricity sellers.

Manchester Street Power Station, Providence
Photo: RIDEM Office of Air Resources

Block Island Wind Farm, New Shoreham
Photo: Rhode Island Seagrant

Residential Heating Sector Methodology

- Rely on SIT to estimate GHG emissions.

- SIT tool data is populated by the U.S Energy Information Administration (EIA).

  o *Example: In RI, RIE provides natural gas consumption data to EIA.*

- CO_2 emissions from fossil fuel combustion are calculated by multiplying energy consumption by the emission factors for each fuel (natural gas, distillate fuel, kerosene, LPG).

Winter in Providence, RI
Photo: The Providence Journal

A few points relative to today's conversation...

1. The US Energy Information Administration (EIA) *estimates* (<u>not</u> direct reporting) how much distillate fuel oil is consumed in RI; that data feeds right into the SIT as used by DEM to complete annual GHG inventories.
2. This estimate does not account for biodiesel pursuant to RI's biodiesel law... we would like it to in the future!
3. As RI's primary gas supplier, RI Energy reports fuel use for residential/commercial/industrial customers to EIA, which feeds directly into SIT. RIE also provides fuel usage to EPA's **F**acility **L**evel **I**nformation on **G**reen**h**ouse Gases **T**ool (FLIGHT). EPA estimates natural gas distribution emissions in FLIGHT, which DEM incorporates into the inventory.

Providence Skyline

Thank you...

Questions?

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Want to be added to the RIEC4 Listserv?
Please send an email to
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