

2020 Rhode Island Greenhouse Gas Emissions Inventory

*Rhode Island Executive Climate Change Coordinating Council Meeting
November 7, 2023*



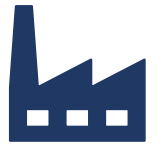
DEM
RHODE ISLAND

Agenda



- Background
- 2021 Act on Climate
- Overview of 2020's Emissions
- Effects of the COVID-19 Pandemic
- Short-Term Emissions Trends
- Long-Term Emissions Trends
- Methodology Improvements
- Next Steps
- Questions & Answers

Background



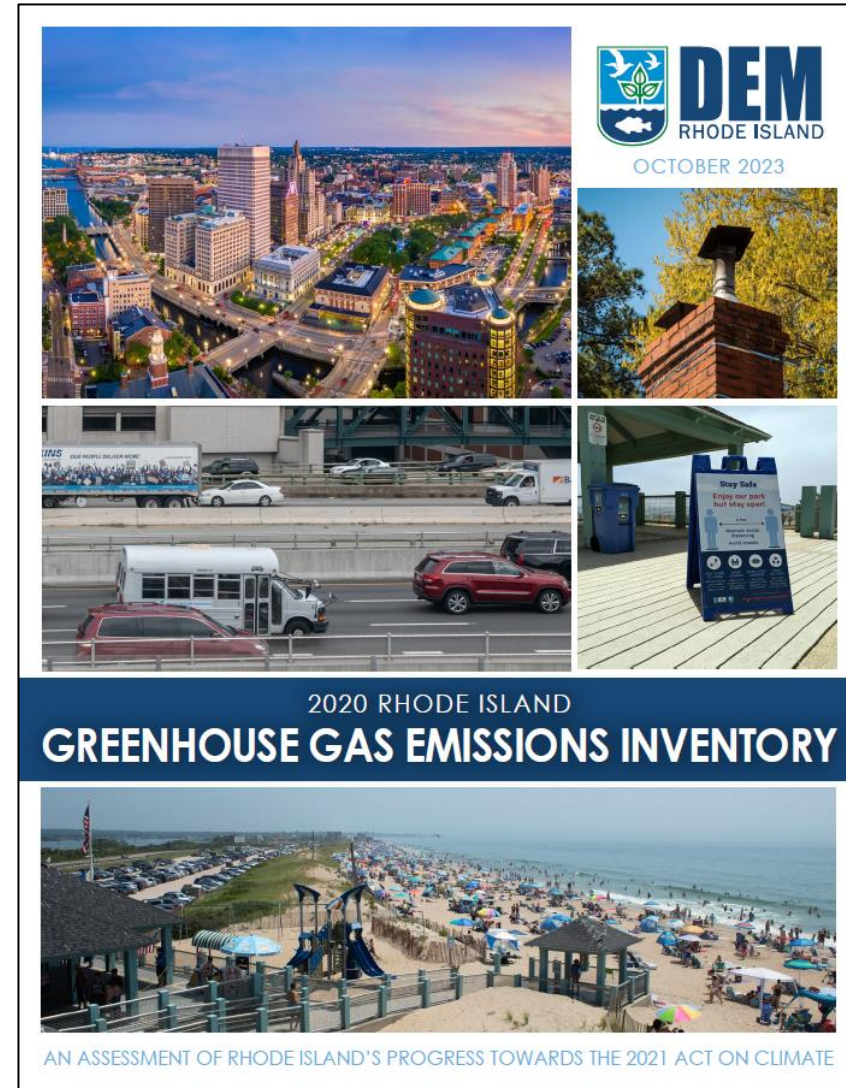
Assesses Climate-Warming Emissions from Rhode Island



30 Years of Data!

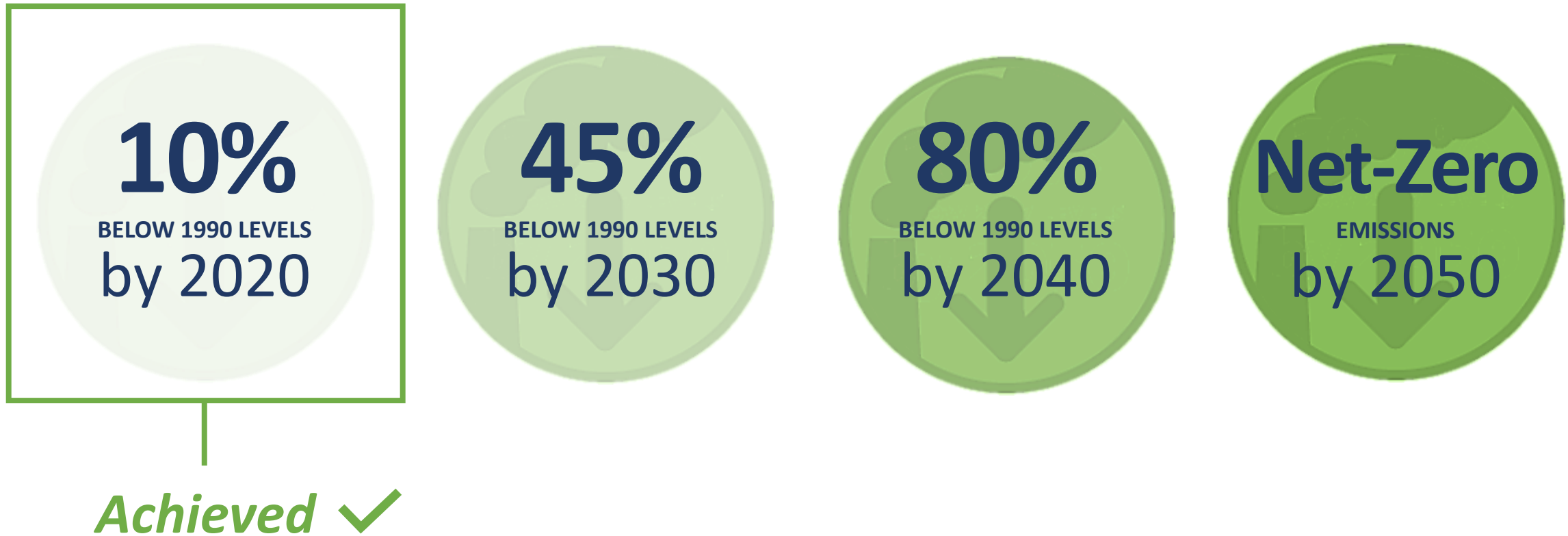


Primary Scientific Metric for the 2021 Act on Climate

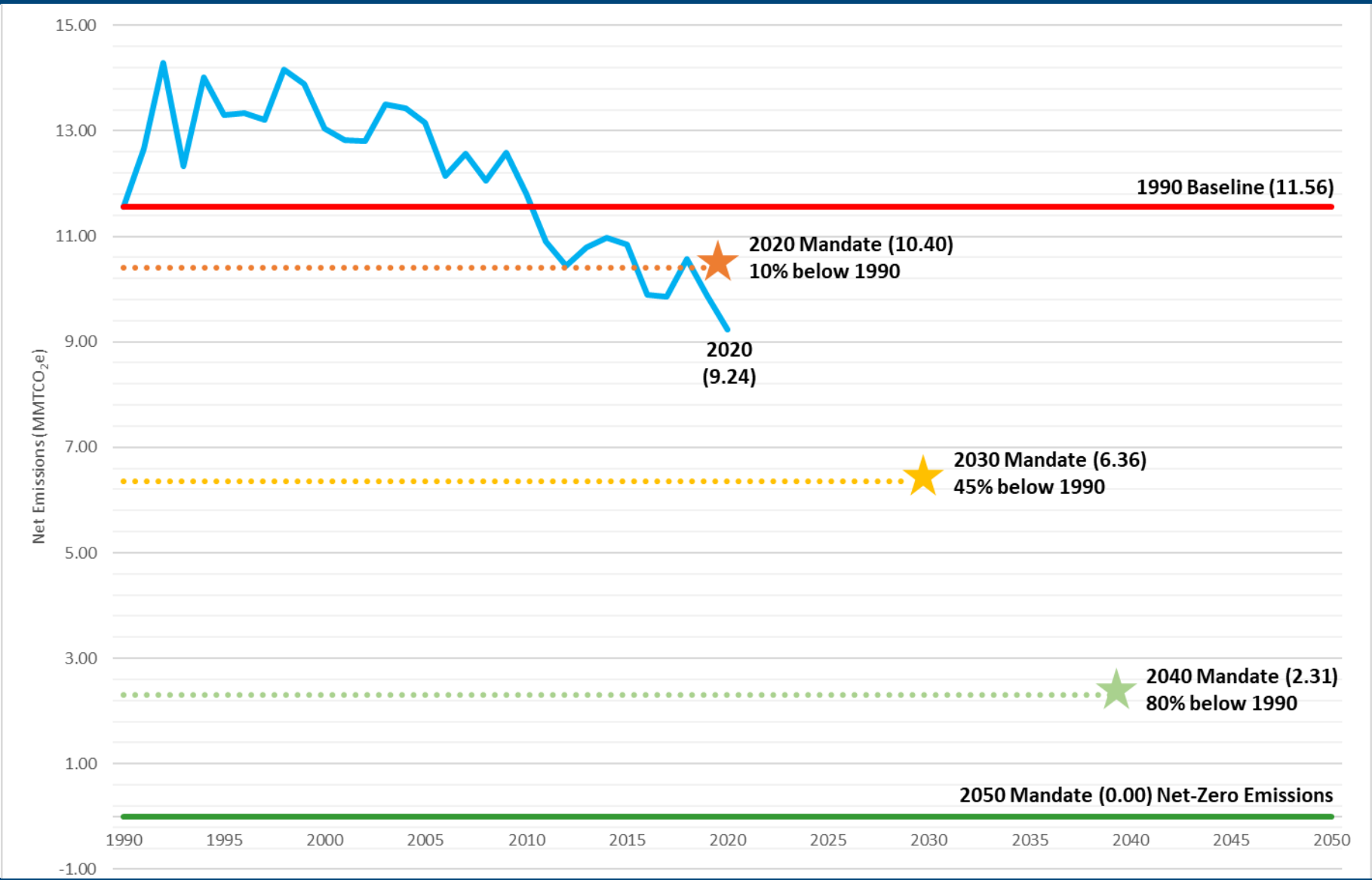


2021 Act on Climate

The Act on Climate's greenhouse gas emissions reductions mandates:

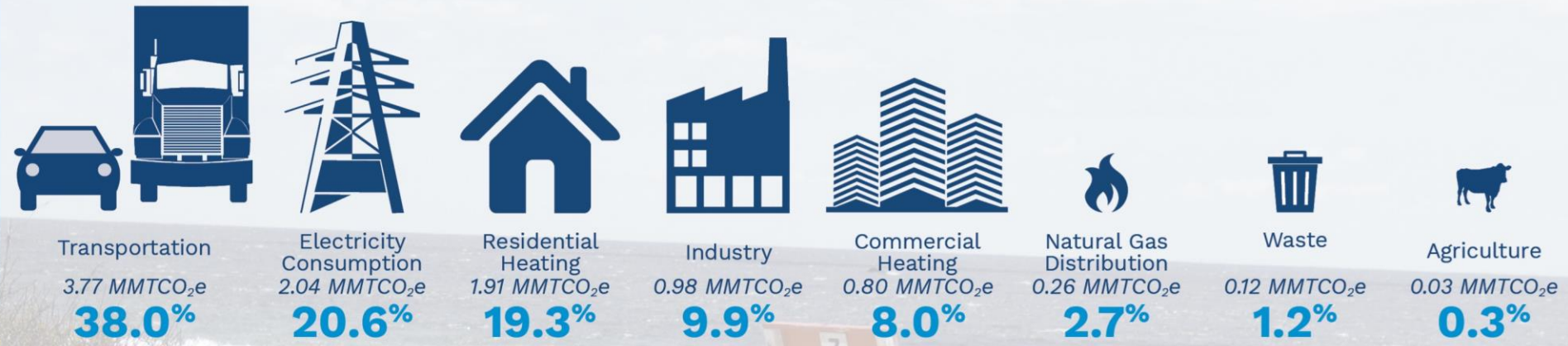


1990-2020 RI GHG Emissions



Overview of 2020 Emissions

Gross GHG Emissions by Economic Sector in 2020



2020 Net GHG Emissions

9.24*
million metric tons of CO₂e

*Net emissions equal the sum of gross emissions and removals. Sector totals may not align with net total due to rounding.

2020 Greenhouse Gas Removals

Land Use, Land Use Change & Forestry (LULUCF)



-0.68 MMTCO₂e

7.4%

of gross GHG emissions offset by LULUCF

1990 - 2020 Change

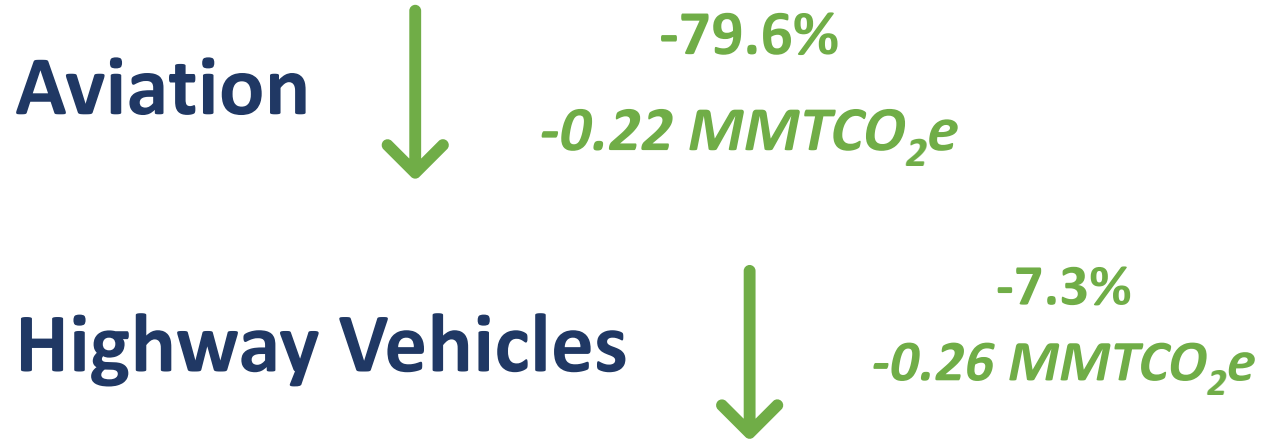


Statewide Net GHG Reductions

-20.1%

Short-Term Emission Trends

Emission Reduction Effects of the COVID-19 Pandemic:



Other Short-Term Emission Trends

Between 2019 and 2020...



Electricity Consumption Emissions **Increased 16.7%**

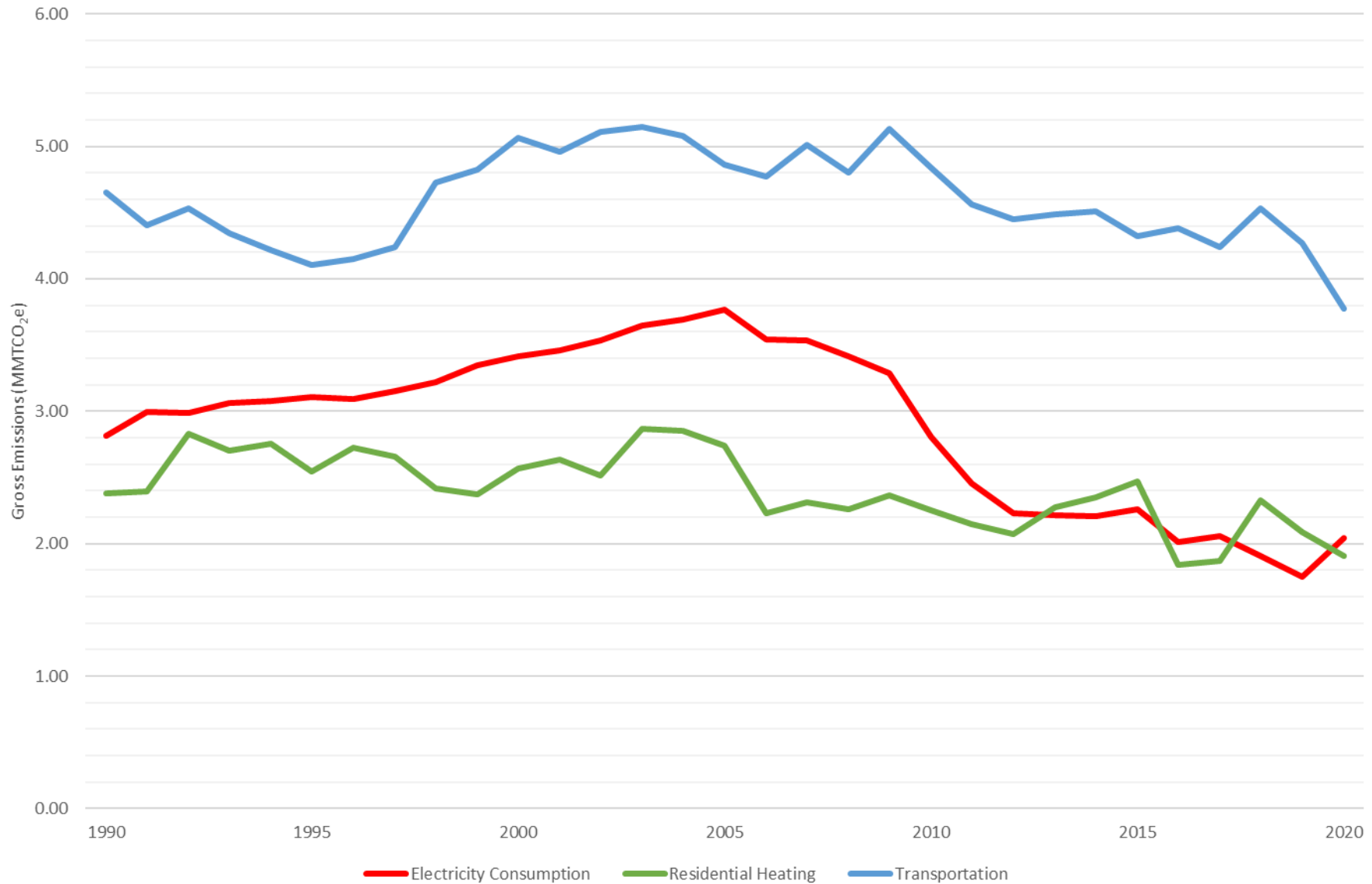
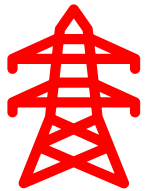
- *Closure of a nearby nuclear power plant, regional market forces.*



Residential Heating Emissions **Declined 8.5%**

- *2020 was the second warmest year on record in Rhode Island.*

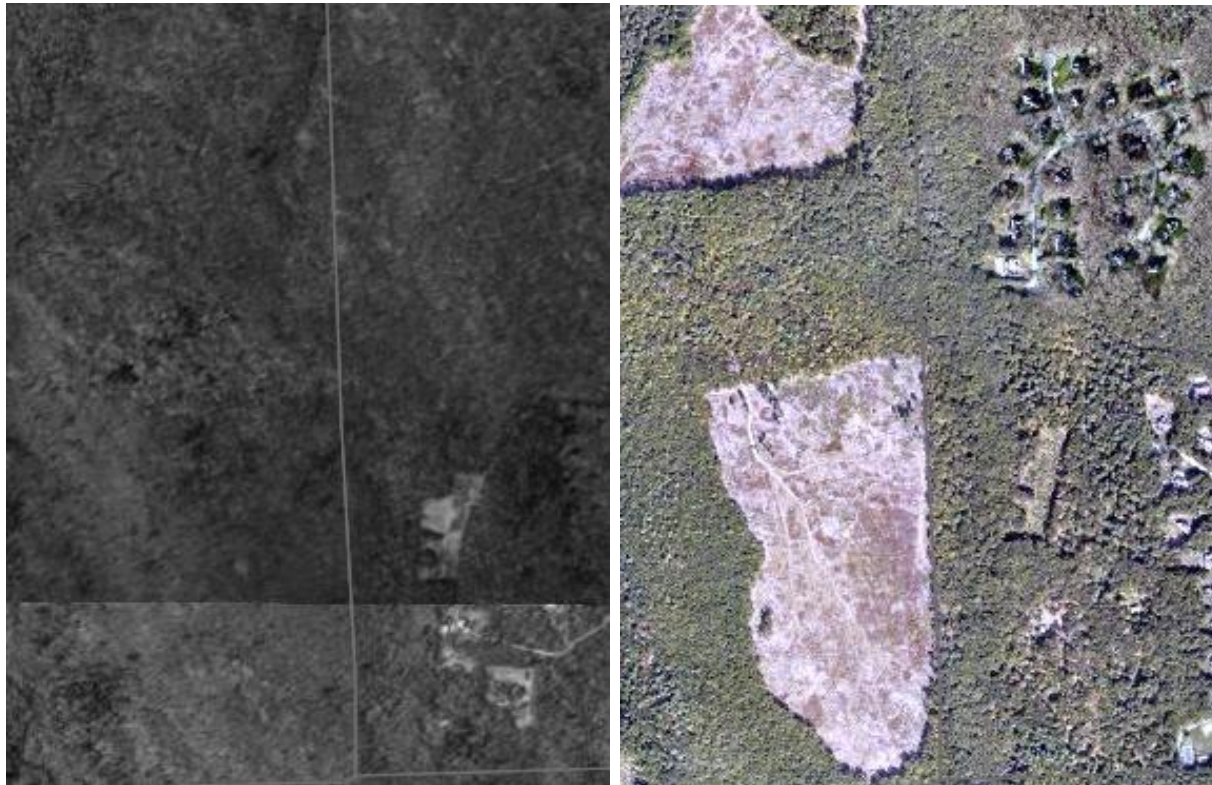
Long-Term Emission Trends



Other Long-Term Trends

1988

2020



Example: Forest Land Loss in Kent County

Rhode Island's Natural and Working Lands Have Declined Since 1990...



Forest Carbon Sequestration declined 15.7% in the last 30 years

1990 Baseline Improvements



Updated **Global Warming Potentials**



Improved **Land Use, Land Use Change, and Forestry Reporting**

Will Apply Updates to the Baseline on a Required Basis in the Future

Global Warming Potentials

Global Warming Potentials (GWPs) evaluate:



How much heat a greenhouse gas traps



How long a greenhouse gas remains in the atmosphere

GWPs are expressed on either:



Global Warming Potentials



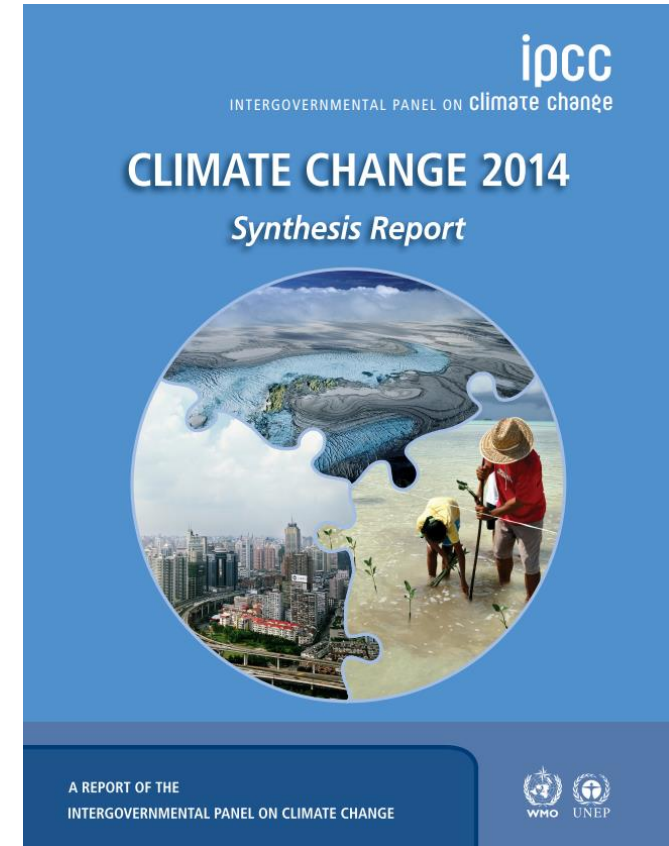
United Nations
Framework Convention on
Climate Change



**100-Year
AR5 GWPs**



**100-Year
AR5 GWPs**



To align with international and national best-practice, DEM upgraded the Rhode Island Greenhouse Gas Emissions Inventory to 100-year AR5 GWPs

Land Use, Land Use Change, & Forestry



Forest Land



Croplands



Grasslands



Wetlands



Settlements



“Other Land”

2019's Subsectors

- Forest Land
 - Forest Land Remaining Forest Land (Aboveground Biomass, Forest Fires)
- Croplands
 - Agricultural Soil Carbon Flux
- Grasslands
 - Agricultural Soil Carbon Flux
- Wetlands
 - Not Included
- Settlements
 - Settlements Remaining Settlements (Urban Trees, Settlement Soils, Yard Trimmings)

1990-2020's Subsectors (NEW)

- Forest Land
 - Forest Land Remaining Forest Land (Aboveground Biomass, Forest Fires)
 - Land Converted to Forest Land
- Croplands
 - Cropland Remaining Cropland
 - Land Converted to Cropland
- Grasslands
 - Grassland Remaining Grassland
 - Land Converted to Grassland
- Wetlands
 - Coastal Wetlands Remaining Coastal Wetlands
 - Land Converted to Coastal Wetlands
- Settlements
 - Settlements Remaining Settlements (Urban Trees, Settlement Soils, Yard Trimmings)
 - Land Converted to Settlements

Next Steps

- Turning Attention to 2021
- Looking at Reducing 3-Year Lag
- Researching 20-Year Global Warming Potentials
- *Rhode Island Greenhouse Gas Emissions Inventory:*
<https://dem.ri.gov/ghg-inventory>

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Questions and Answers



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