

EC4 GHG Emissions Reduction Plan

EC4 GHG Study Technical Committee Meeting,
November 18, 2016



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



RHODE ISLAND
DIVISION OF
PLANNING



Presentation Outline

- **Overview of Proposed Plan Structure**
 - Resilient Rhode Island & EC4
 - Sources of information
 - Purpose and scope
 - Overview of Plan Contents
- **Plan Review and Adoption**
 - Proposed process & schedule

Resilient Rhode Island & EC4

- Resilient Rhode Island Act charges EC4 with developing a plan to meet GHG reduction targets

“No later than December 31, 2016, submit to the governor and general assembly a plan that includes **strategies, programs, and actions** to meet targets for greenhouse gas emissions reductions as follows:

- (i) Ten percent (10%) below 1990 levels by 2020;
- (ii) Forty-five percent (45%) below 1990 levels by 2035;
- (iii) Eighty percent (80%) below 1990 levels by 2050;
- (iv) The plan shall also include **procedures and metrics for periodic measurement**, not less frequently than once every five (5) years, of progress necessary to meet these targets and for **evaluating the possibility of meeting higher targets** through cost-effective measures.”

Sources of Data and Analysis

- **EC4 commissioned a modeling study to inform plan development**
 - NESCAUM under contract to perform analysis
 - Managed by a State Project Team (DEM, OER, Planning, DOT)
 - Input from Technical Committee of subject matter experts
- **NESCAUM is in the process of completing GHG pathway modeling and data analysis**
- **Modeling results help provide data-driven direction for policy and implementation options**

Purpose and Scope of Plan

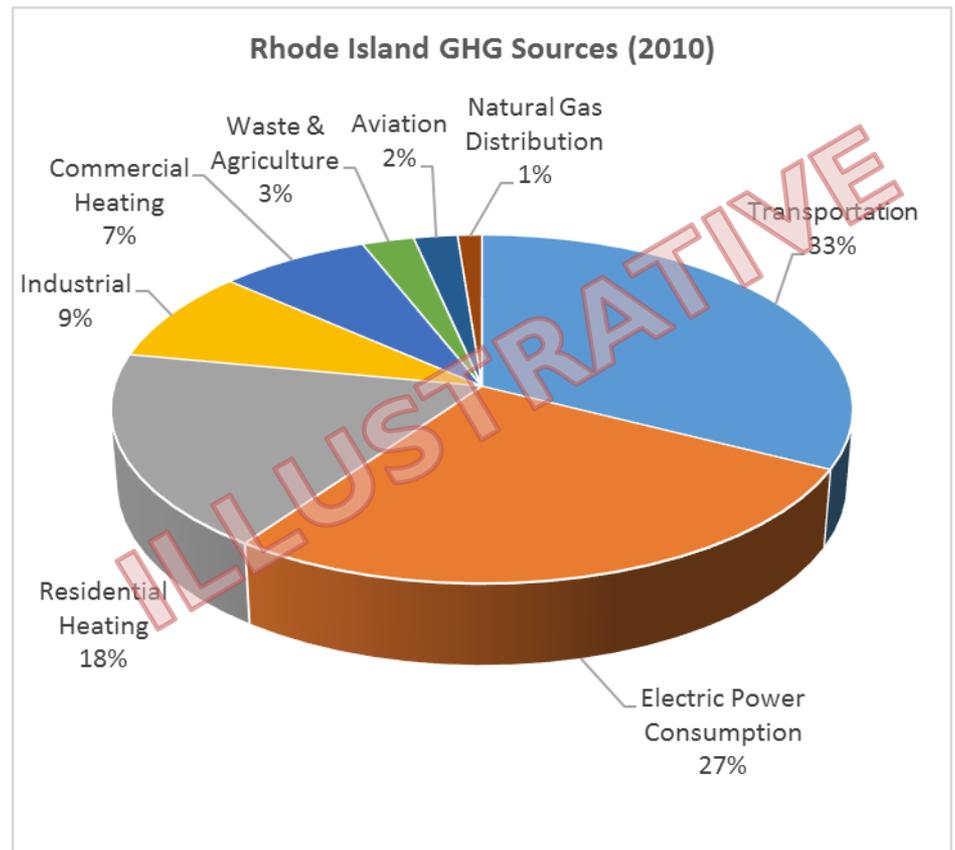
- **Per statute, serve as a reference for policymakers in the Administration and General Assembly**
 - Detailed policy design and implementation to be addressed in appropriate working groups, agency initiatives, and stakeholder collaborations
- **Address requirement of statute to examine pathways to meet GHG reduction targets on the basis of technical viability**
 - Cost/benefit analysis and macroeconomic impact evaluation are crucial to inform policy implementation that optimizes the economic, environmental, and health benefits to Rhode Island
 - Supplemental analyses will follow in 2017
- **Highlight actionable short- and medium-term opportunities in the context of long-term goals**

Overview of Plan Contents

- 1. GHG Sources and Projections**
 - Rhode Island's current GHG emissions profile, including major sources, and expected changes under business-as-usual future conditions
- 2. GHG Mitigation Pathways**
 - Major findings of EC4's modeling to determine technically-viable pathways towards meeting the GHG reduction targets
- 3. Policy and Implementation**
 - Policy and implementation options that could be pursued to achieved the GHG reduction targets
- 4. Monitoring Progress**
 - Procedures Rhode Island will take to monitor progress toward achieving the GHG targets

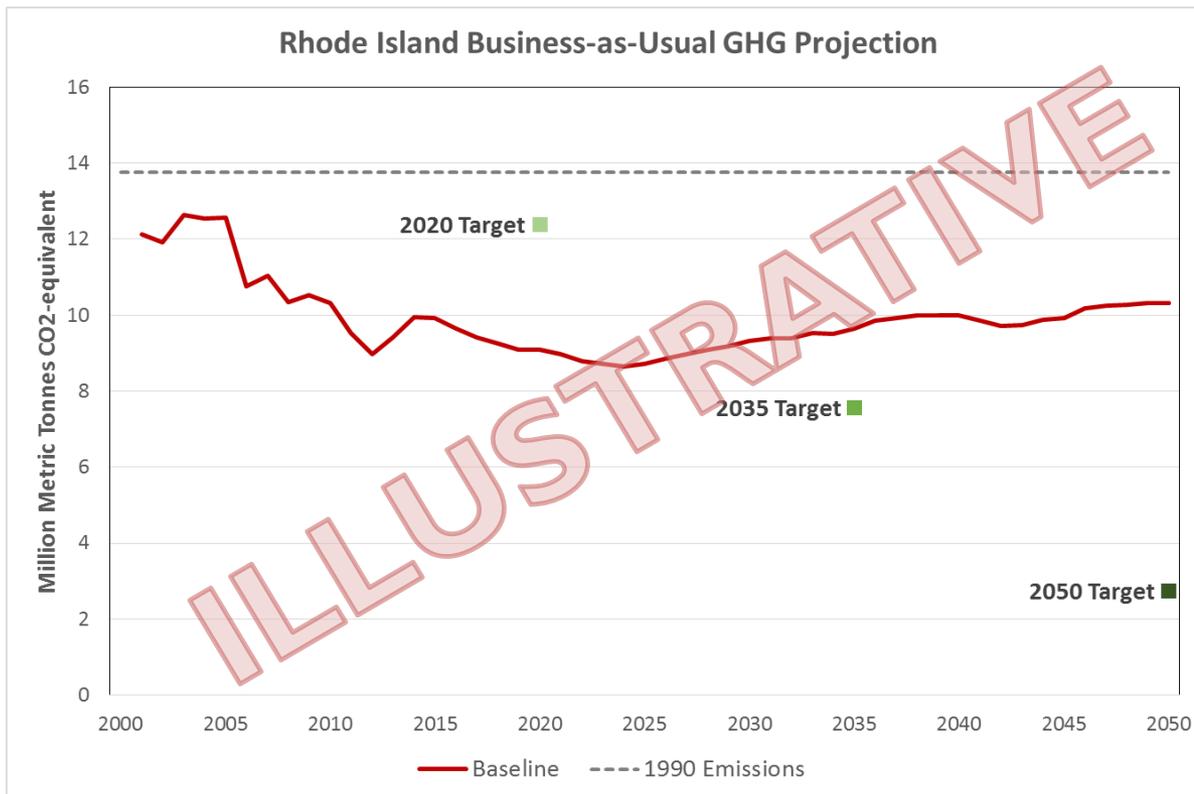
1. GHG Sources and Projections

- Major GHG sources in Rhode Island are, in order:
 - Transportation
 - Electric power consumption
 - Residential heating
 - Industrial sources
 - Commercial heating



1. GHG Sources and Projections

- Business-as-usual projections show that Rhode Island is anticipated to meet the 2020 GHG reduction target, but not the 2035 or 2050 targets



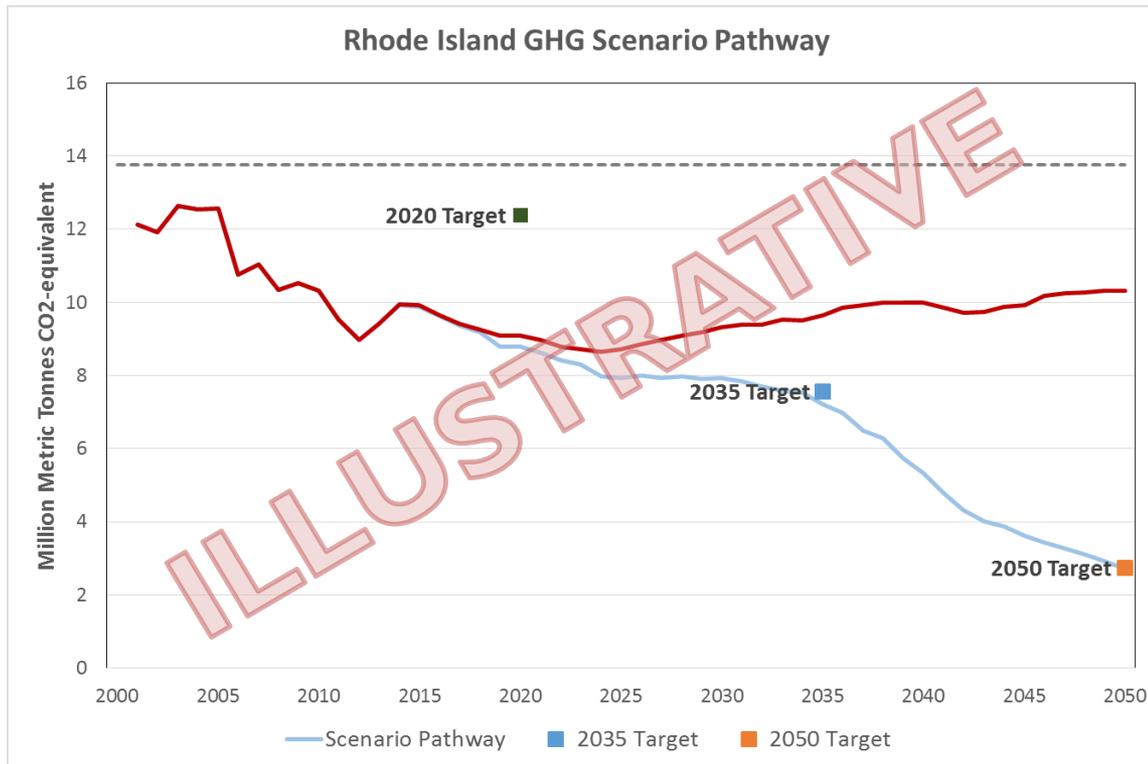
- Energy efficiency: In effect until 2024
- Regional power: Shift from oil and coal to gas and renewables
- Residential: Slight decrease in demand
- Commercial: Steady growth in demand
- Transportation: Largest growth in demand

2. GHG Mitigation Pathways

- **Scenario modeling considered the impact of aggressive deployment of GHG mitigation options on the state's future GHG emissions profile**
- **Modeling of scenario pathways shows that:**
 - Achieving the long-term GHG reduction targets would entail a wholesale transformation of energy production and use on both a state and regional level
 - However, Rhode Island is well-positioned in the near-term to achieve the 2020 target and build on the success of existing, effective policies to meet long-term objectives

2. GHG Mitigation Pathways

- Initial modeling results show that aggressive deployment of all mitigation options are needed to reach the targets



By 2050:

- All cost-effective electric, gas, and oil energy efficiency
- ~15% reduction in vehicle-miles-traveled
- ~97% zero carbon regional power mix
- ~80+% electrification of heating and light-duty transport
- ~30% transportation biodiesel and ~80% transportation cellulosic ethanol

3. Policy and Implementation

- **Recommend a mix of “strategies, programs, and actions” to meet the GHG reduction targets**
- **Per statute, serve as a reference for policymakers in the Administration and General Assembly**
 - Detailed policy design and implementation to be addressed in appropriate working groups, agency initiatives, and stakeholder collaborations
- **Three proposed categories of action:**
 - Build on State Success
 - Enable Markets and Communities
 - Leverage Regional Collaboration

Build on State Success

- **Rhode Island has an existing suite of effective policies to address most mitigation options**
 - Near & medium-term: Fill gaps to address untapped GHG source sectors
 - Long-term: Extend or expand current policies to reach 2035/2050 targets

Build on State Success

Mitigation Option	Applicable Existing Rhode Island Programs	Policy Options	Gaps and Considerations
1. Energy Efficiency	<ul style="list-style-type: none"> Least-Cost Procurement 	<ul style="list-style-type: none"> Extension beyond 2024 	<ul style="list-style-type: none"> Funding and access for heating oil and propane customers
2. VMT Reductions	<ul style="list-style-type: none"> Transit programs (e.g. RIPTA, commuter rail) Land Use 2025 	<ul style="list-style-type: none"> Align policies with goal of 15% VMT reduction by 2050 	<ul style="list-style-type: none">
3. Clean Energy (utility-scale renewable energy, distributed generation, clean energy imports)	<ul style="list-style-type: none"> Renewable Energy Standard Long-Term Contracting Standard for Renewable Energy Affordable Clean Energy Security Act Renewable Energy Growth Program Net Metering 	<ul style="list-style-type: none"> Align policies with ~97% clean regional grid by 2050 	<ul style="list-style-type: none"> Regional action necessary Costs and benefits differ by pathway (e.g. local versus regional, role of different technologies)

Build on State Success

Mitigation Option	Applicable Existing Rhode Island Programs	Policy Options	Gaps and Considerations
4. Electric Heat	<ul style="list-style-type: none"> Least-Cost Procurement 	<ul style="list-style-type: none"> Extension beyond 2024 Align with ~80% electric heat by 2050 	<ul style="list-style-type: none"> Further policy guidance needed to allow electrification of heating under LCP
5. Biofuel Heat	<ul style="list-style-type: none"> Biodiesel Heating Oil Act of 2013 	<ul style="list-style-type: none"> Increase state bioblend standard 	<ul style="list-style-type: none"> Lifecycle emissions Equipment performance
6. Electric Vehicles	<ul style="list-style-type: none"> State investments in charging stations, initial EV rebate program, ZEV Working Group 	<ul style="list-style-type: none"> Align vehicle and charging initiatives with 80% EVVMTs by 2050 	
7. Transportation Biofuels	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Transportation bioblend requirement 	<ul style="list-style-type: none"> Lifecycle emissions Equipment performance

Build on State Success

- **Other Mitigation Options:**
- **Natural Gas Leaks**
 - Continuation of National Grid’s gas infrastructure repair and replacement program to address fugitive methane leaks in the state’s gas distribution system.
- **Energy Storage**
 - Pursuit of policies to promote energy storage, which can provide many types of system benefits, including integrating clean energy resources in a more cost-effective manner
- **Forestry and Agriculture**
 - Pursuit of policies and land use decision making tools to enhance the amount of carbon being captured and stored in agricultural and forested lands and other natural systems
- **Solid Waste Diversion**

Enable Markets and Communities

- **In addition to technology-specific incentive programs and mandates, complementary focus areas would help spur progress toward GHG targets**
 - Many of these areas span multiple sectors and technologies, and help address fundamental market barriers to enable the success of mitigation efforts
- **Grow Clean Economy Jobs**
 - Foster nascent local clean energy industries, provide workforce training, assist incumbent fossil fuel industries with resources to excel in clean energy marketplace, emphasize and promote innovation
- **Empower Citizens and Communities**
 - Provide municipalities with technical assistance to implement solutions
 - Promote customer awareness, education and confidence in new products
 - Ensure availability of financing options to facilitate technology adoption
- **Foster a More Dynamic Utility Regulatory Model**
 - GHG reductions necessitate integration of renewables and electrification of heating and transport, which impacts utility planning, operations, and investment
 - Pursue thoughtful changes to utility planning, business models, performance incentives, and rate design
- **Lead by Example**
 - Build on Governor's commitment to have state agencies lead by example in energy efficiency and clean energy

Leverage Regional Collaboration

- **Rhode Island's energy system is closely integrated with that of New England as a whole**
 - Consumption-based approach means reductions depend on grid decarbonization outside just Rhode Island
 - Opportunity for larger and potentially more cost-effective emissions reductions
- **Regional Greenhouse Gas Initiative (RGGI)**
 - Continue participating and advocate for long-term changes to regional cap consistent with achieving GHG targets
- **Transportation and Climate Initiative (TCI)**
 - Seek regional solutions for addressing transportation GHG emissions consistent with Resilient Rhode Island targets
- **Other Regional Work**
 - Muster scale and unite adjacent markets through coordinated regional action in potential areas such as clean energy procurement, carbon pricing, and appliance/vehicle standards

4. Monitoring Progress

- Recommend “procedures and metrics for periodic measurement, not less frequently than once every five (5) years, of progress necessary to meet [GHG reduction] targets and for evaluating the possibility of meeting higher targets through cost-effective measures”
- Provide a schedule of GHG reductions based on the statutory targets
- DEM develops a triennial GHG emissions inventory and compares to GHG reduction schedule
- Propose mechanism for evaluating the possibility of meeting higher targets through cost-effective measures

Process: Plan Review & Adoption

- **November 9, 2016: EC4 Meeting**
 - Briefing on preliminary findings and process for plan review and adoption
- **November 18, 2016: Meeting of the GHG Study Technical Committee**
 - Presentation of updated modeling results, and review of contents of plan
 - Input from on presentation materials **due by December 1, 2016**
- **December 7, 2016: Via Email**
 - Draft of plan circulated to EC4 members for review
- **December 14, 2016: EC4 Meeting**
 - Presentation of draft plan
 - Input from on draft plan **due by December 19, 2016**
- **December 21, 2016: EC4 Meeting**
 - Vote on adopting the plan

Questions?

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