

**RHODE ISLAND STATEWIDE PLANNING PROGRAM  
TECHNICAL COMMITTEE MEETING  
Friday, June 5, 2015  
Rhode Island Department of Administration  
One Capitol Hill, Providence, RI**

**DRAFT MINUTES**

**I. ATTENDANCE**

**1. Members Present**

Mr. Bob Azar, Chair	City of Providence
Mr. John Chambers	Fuss & O'Neill, Incorporated
Mr. Michael DeLuca, Vice Chair	Town of Narragansett
Mr. Thomas Kogut	RI Public Utilities Commission
Ms. Nicole LaFontaine	Town of North Kingstown
Ms. Nancy Letendre	Mason & Associates, Incorporated
Mr. Scott Millar	RI Department of Environmental Management
Mr. Jared Rhodes	RI Statewide Planning Program
Ms. Jennifer Siciliano	City of Woonsocket
Mr. Jeff Willis	RI Coastal Resources Management Council
Mr. Ronald Wolanski	Town of Middletown
Mr. Corey Bobba	Federal Highway Administration, Advisory Non-voting Member

**2. Members Absent**

Mr. Steve Devine	RI Department of Transportation
Ms. Ashley Hahn	Exeter Town Planner
Ms. Eliza Lawson	RI Department of Health
Mr. Arnold Robinson	Roger Williams University
Mr. Michael Walker	RI Commerce Corporation

**3. Staff Present**

Mr. Kevin Flynn	RI Division of Planning
Ms. Kimberly Crabill	RI Statewide Planning Program
Mr. Paul Gonsalves	RI Statewide Planning Program
Ms. Nancy Hess	RI Statewide Planning Program

**3. Guests Present**

Marion Gold	RI Office of Energy Resources
Dan Musher, Presenter	RI Office of Energy Resources

**II. AGENDA ITEMS**

**1. Call to Order**

Chairman Azar called the meeting to order at 9:02 a.m.

**2. Approval of May 1, 2015 Meeting Minutes – for action**

Chairman Azar asked for a motion to approve the meeting minutes of May 1, 2015. Mr. Wolanski moved to approve and the motion was seconded by Mr. Kogut. There was no further discussion. The following members voted aye Azar, Chambers, DeLuca, Kogut, LaFontaine, Letendre, Millar, Rhodes, Siciliano, Willis and Wolanski. There were no nay votes, abstentions or recusals.

**3. Public Comment on Agenda Items – for discussion**

There were none.

**4. FY 2016 Unified Transportation Planning Work Program – for action**

Chairman Azar took this item out of order and introduced Mr. Rhodes who provided an overview of the recently added section entitled Financial Resources as distributed with the committee meeting materials. Instances where the committee members engaged in discussion were as follows:

Mr. Azar asked if the amount of \$6.8 million assumed an extra year of funding. Mr. Rhodes responded that the \$6.8 million is what is needed for the coming year and that, in addition, the MPO has a contingency that could carry the program through to the next year should Federal funding not be made available.

Mr. DeLuca asked what the outlook was for the Federal Trust Fund. Mr. Bobba responded that the Fund is authorized through the end of July which is the point where it would go from the black into the red.

Mr. DeLuca next asked how that would affect the assumption of level funding. Mr. Rhodes responded the program would be fine due to the contingency that is kept.

Mr. Azar asked what the chances were that there would be some kind of movement at the Federal level. Mr. Bobba responded that the chances were good.

Mr. DeLuca asked if the funding situation was an active discussion item in congress right now. Mr. Bobba responded that that was the feedback he was getting.

Mr. DeLuca next asked if there was a projected timeline for resolution. Mr. Bobba responded that the deadline is July 31<sup>st</sup>.

There being no further discussion, the Chairman asked for a motion to recommend that the State Planning Council approve the Draft FY 2016 Work Program as submitted. Mr. Willis made the first motion and Mr. DeLuca along with Mr. Millar seconded the motion. There being no further discussion, the following members voted aye Azar, Chambers, DeLuca, Kogut, LaFontaine, Letendre, Millar, Rhodes, Siciliano, Willis and Wolanski. There were no nay votes, abstentions or recusals.

**5. Draft Rhode Island State Energy Plan (request to authorize public hearing) – for action**

Chairman Azar introduced Marion Gold and Danny Musher who delivered the attached power point presentation. Instances where members of the committee engaged in discussion were as follows.

Ms. Letendre asked how RI Natural Gas usage compared with the region. Mr. Musher responded that RI's usage was on par with the region.

Mr. Azar asked if the rest of our energy is derived from nuclear and coal sources. Mr. Musher and Mr. Kogut responded that we obtain energy from the following sources; natural gas at approximately 58 – 68%, nuclear power at approximately 20%, and the rest being coal, oil, and some hydro. Mr. Kogut also noted that our energy needs vary upon the season.

Mr. Azar asked about the policies which require National Grid to purchase power back from people who are generating it through solar systems. Mr. Musher responded that customers who use solar can get bill credits of up to 125% of their on-site use for distributing power back into the grid.

Mr. Azar also asked if we now buy energy at higher costs given the renewable projects that are coming forward. Mr. Musher responded that we do but that these prices have been cut in half over the last three years and will continue to go down over time.

Mr. Azar then asked why rate payers pick up these costs as opposed to the power plants that are benefiting from not having to generate as much power. Mr. Musher responded with input from Mr. Kogut that these projects are providing benefits that are ultimately felt to be in the public's best interest.

Mr. DeLuca expressed concern over potential hidden issues relative to property taxation and followed up by asking whether there is intent to mandate municipal support for the siting of renewable facilities. Mr. Musher stated that the draft plan does not mandate the acceptance of such facilities at the local level but again reiterated that it makes too much sense not to proceed with them given the larger societal long-term benefits.

Mr. DeLuca commented that the responses were good ones but that the plan should capture this discussion and better explain it to the public. Mr. Musher responded that there are more details in the area of policy strategies and the renewable energy sections of the plan. Mr. DeLuca responded that some of the information needs to be articulated and brought to the consumer so they can better understand the value and can have their questions answered.

Ms. Letendre supported Mr. DeLuca's concerns regarding the need for municipal planners to be able to explain the benefits to the public and consumer. Ms. Letendre asked how the benefits of renewable energy translates to the consumer. Mr. Musher responded that when you generate energy at your local site there is a benefit to a property owner and all rate payers because there is an avoided energy cost and an avoided capacity cost as less energy has to be drawn from the system. Ms. Letendre further responded that it seemed to be a benefit for the greater good but still does not translate into what the return on the individual property owner's investment would be.

Ms. Letendre then asked if it was fair to assume that individual residential electricity use could be expected to drop by 15% over time or for people to come off the grid altogether. Mr. Musher responded that he did not think that we would see whole sale defections off the grid.

Ms. Letendre asked what resource municipalities should use in drafting municipal siting guidelines? Mr. Musher responded that OER has staff working on these issues and those cities and towns should contact them. In addition, Mr. Flynn added references to the work already done by the Division of Planning relative to wind siting guidelines.

Ms. Letendre stated that the plan should have more direct language as to where municipalities can go to access appropriate technical assistance.

Mr. Millar referenced page 69 which lists two good strategies for reducing greenhouse gas emissions but wanted to know why the option of encouraging compact mixed use development wasn't listed as one of the strategies. Mr. Musher agreed that this could be a viable strategy to reduce greenhouse gas emissions.

Mr. Millar followed up by stating that there should be a revision of strategy 6 on page 71 as follows:

- Adopt property tax and zoning policies that promote “smart growth”
- Support efforts to reduce vehicle miles traveled (VMTs) by implementing policies that encourage sustainable development practices. Utilize tools such as zoning regulations that encourage compact mixed use development. Consult existing long-term plans in Rhode Island that provide guidance for municipalities in this area including Transportation 2035 and the Rhode Island State Land Use Policies and Plan: Land Use 2025. Also consider DEM's 2015 publication entitled Village Guidance: Tools and Techniques for Rhode Island Communities.

Mr. Kogut next commented that the plan embraces least cost procurement (energy efficiency) without addressing when a practical ceiling for that spending may be met, especially for existing programs to promote energy efficiency for gas and electric service. He noted that the plan refers to an effort to expand least cost procurement to deliverable fuels. Mr. Musher responded that there will always be a principal of least cost procurement and saving opportunities will change as technologies mature but there is no need for a “practical ceiling” because that function is already built into the program.

Mr. Kogut asked whether the draft plan prescribed any specific expansion of the ceilings and goals for Distributed Generation (DG), and the Renewable Energy Standard (RES) which are currently set by statute. Mr. Musher responded that the plan sets high-level goal posts: it indicates we will likely have to have at least a 40% Renewable Energy Standard by 2035 and ~500 MW distributed generation by 2035. Neither of these expansions of the RES or DG program would necessarily need to be implemented legislatively before 2019, given the existing programs. The plan creates a framework for discussion about how these programs might be expanded and identifies what additional analysis/research might be needed.

Mr. Kogut suggested that there is a gap in the plan in that it does not address social equity relating to energy efficiency programs that are currently largely unavailable to low and moderate income renters. Mr. Musher agreed and noted that this is an issue being addressed by the consortium developing proposed energy efficiency programming.

Mr. Kogut in conclusion complimented Mr. Musher on avoiding the prescriptive approach to writing the plan because it fully recognizes the volatility of what we are facing. Cost effectiveness is a moving target and will always be a moving target. It points in a rational direction and is a good discussion document.

Mr. Musher reiterated that he would rather not see a plan that mandates specific actions at the local level but rather provides flexibility.

Ms. Letendre referred to the “lead by example” content and suggested that additional strategies relative to public education be added into the plan. Mr. Musher questioned who should be responsible for such efforts. Ms. Letendre responded that she thought this would be an appropriate role for the State agencies and Cities and Towns.

Mr. DeLuca commented that he thinks municipalities can do it but will need to be supported in putting together educational information that is at a consumer level. Mr. Musher referenced OER's municipal energy working group and that it might be a good venue for refining this issue.

Mr. Willis requested confirmation that the wind section is related to terrestrial operations only and questioned whether the plan addressed off-shore wind development. Mr. Musher responded that this plan recommends implementing the Deep Water Project and confirmed that the plan does not otherwise speak to additional offshore opportunities.

Mr. Willis commented that the plan should say more about the state's position on off-shore development.

There being no further discussion, Mr. DeLuca made a motion to forward the document to the State Planning Council for the purpose of authorizing a public hearing. The motion was seconded by Ms. Letendre. There being no further discussion, the following members voted aye Azar, Chambers, DeLuca, Kogut, LaFontaine, Letendre, Millar, Rhodes, Siciliano, Willis and Wolanski. There were no nay votes, abstentions or recusals.

**6. Associate Director's Report - for discussion**

Mr. Flynn addressed the following items under the Associate Director's report:

- Legislative updates
- House Finance Committee – Presentation on RhodeMap RI
- Status of the drafting of the State's Regional Analysis of Impediments
- The State Planning Council's adoption of the Solid Waste Plan
- Cancellation of the planned Freight Plan Public Workshop
- Reorganization of Office of Housing Community Development under the Secretary of Commerce's Office

**7. Other Business – for discussion**

There was none.

**8. Adjourn**

Chairman Azar called for a motion to adjourn. Committee member DeLuca motioned to adjourn. The motion was seconded by Committee member Letendre. There was no further discussion. The following members voted aye Azar, Chambers, DeLuca, Kogut, LaFontaine, Letendre, Millar, Rhodes, Siciliano, Willis and Wolanski. There were no nay votes, abstentions or recusals. The meeting adjourned at 11:16 A.M.

Respectfully Submitted,

Jared L. Rhodes, II  
Secretary



# Rhode Island State Energy Plan (RISEP)

State Planning Council Technical Committee

June 5, 2015

***“Leading Rhode Island to a secure,  
cost-effective, and sustainable energy future.”***

# Rhode Island State Energy Plan

- **The Rhode Island State Energy Plan (RISEP) is a long-range energy planning and policy document**
  - Statute requires five-year revisions; last update was in 2002
  - In 2013-14, OER worked with a twenty-member Advisory Council, stakeholder groups, and a consultant team to complete a 10-year update
  - The planning horizon goes out to 2035

# RISEP Stakeholders

## Project Team

- **Office of Energy Resources (OER)** - Project Management & Report Authorship
- **Division of Planning (DOP)** - Guidance on State Guide Plan Integration

## Consultant Team

- **ENE (Environment Northeast)** - Business-as-Usual Forecast
- **Navigant Consulting** - Scenario Modeling

## Advisory Council

- Twenty members with subject matter expertise in energy
- Representatives from policy-making bodies, regulatory bodies, utility providers, energy users, municipalities, environmental advocacy groups, and industry

## Implementation Group

- Stakeholders with subject matter expertise in each energy sector: electricity, thermal, and transportation

# RISEP Advisory Council

- **Twenty members with subject matter expertise in energy:**
  - policy makers
  - regulatory bodies
  - utility providers
  - energy users
  - municipalities
  - environmental advocacy groups
  - industry

<b>Advisory Council Member</b>	<b>Affiliation</b>
1. <b>Abigail Anthony</b>	<i>Acadia Center<sup>1</sup></i>
2. <b>Anthony Paolantonio</b>	<i>House Policy Office</i>
3. <b>Bill Ferguson</b>	<i>The Energy Council of Rhode Island (TEC-RI)</i>
4. <b>Ben Swanson<sup>2</sup></b>	<i>RGS Energy</i>
5. <b>Cynthia Wilson-Frias<sup>3</sup></b>	<i>RI Public Utilities Commission (RIPUC)</i>
6. <b>Doug McVay</b>	<i>RI Department of Environmental Management (RIDEM)</i>
7. <b>Ian Springsteel</b>	<i>National Grid</i>
8. <b>Jack Leyden</b>	<i>RI Building Code Commission (RIBCC)</i>
9. <b>Jeff Broadhead</b>	<i>Washington County Regional Planning Council (WCRPC)</i>
10. <b>Jerry Elmer</b>	<i>CLF (Conservation Law Foundation)</i>
11. <b>John Gilbrook</b>	<i>National Grid</i>
12. <b>Jon Hagopian</b>	<i>RI Division of Public Utilities and Carriers (RIDPUC)</i>
13. <b>Julian Dash</b>	<i>Clean Energy Development LLC</i>
14. <b>Julie Gill</b>	<i>Oil Heat Institute</i>
15. <b>Kenneth Payne</b>	<i>RI Agricultural Partnership</i>
16. <b>Larry Chretien<sup>4</sup></b>	<i>People's Power &amp; Light (PP&amp;L)</i>
17. <b>Linda George</b>	<i>Senate Policy Office</i>
18. <b>Melissa Long</b>	<i>RI Department of Transportation (RIDOT)</i>
19. <b>Robert Tormey</b>	<i>NERC Solar</i>
20. <b>Sheila Dormody</b>	<i>City of Providence Office of Sustainability</i>

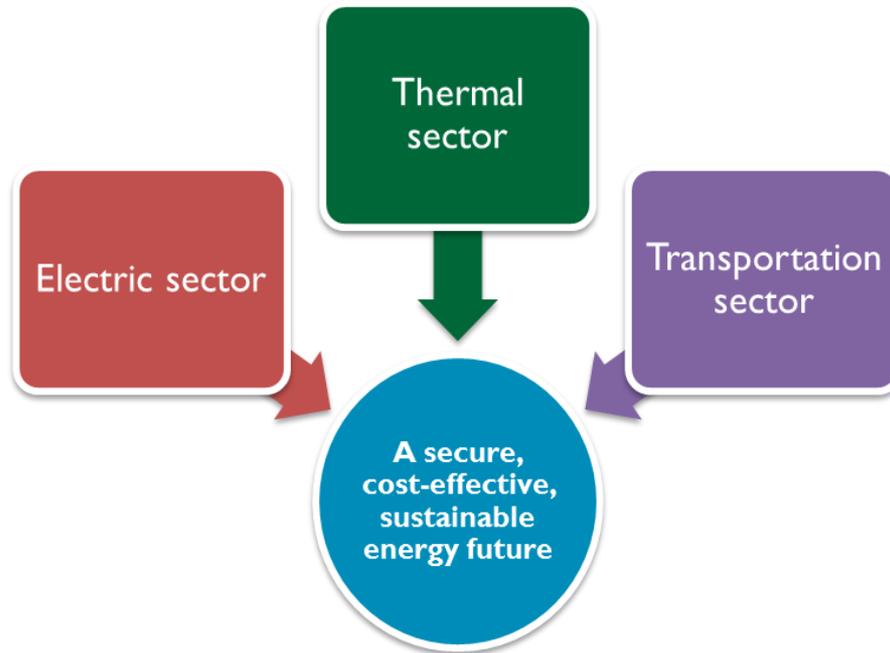
# Philosophy of Approach

- No crystal ball can predict the future
- Directional approach to reflect uncertainties with forecasting a dynamic energy systems
- Scenario modeling sought to understand order-of-magnitude impacts and sensitivities
- Goals and performance measure targets are quantitative at a high level
- Policies and strategies are comprehensive but require further study in order to develop policy and program designs

# Contents of the Plan

- **Introduction and Vision**
- **Part 1: Overview of Energy in Rhode Island**
- **Part 2: Goals and Performance Measure Targets**
- **Part 3: Policies and Strategies**
  
- **Appendix A: Rhode Island Energy Laws**
- **Appendix B: A Portfolio of Strategies**
  
- **Technical Report #1: Business-as-Usual Forecast (ENE)**
- **Technical Report #2: Scenario Modeling (Navigant Consulting)**

# Introduction and Vision



*In 2035, Rhode Island provides energy services across all sectors—**electricity, thermal, and transportation**—using a **secure, cost-effective, and sustainable** energy system.*

# Contents of the Plan

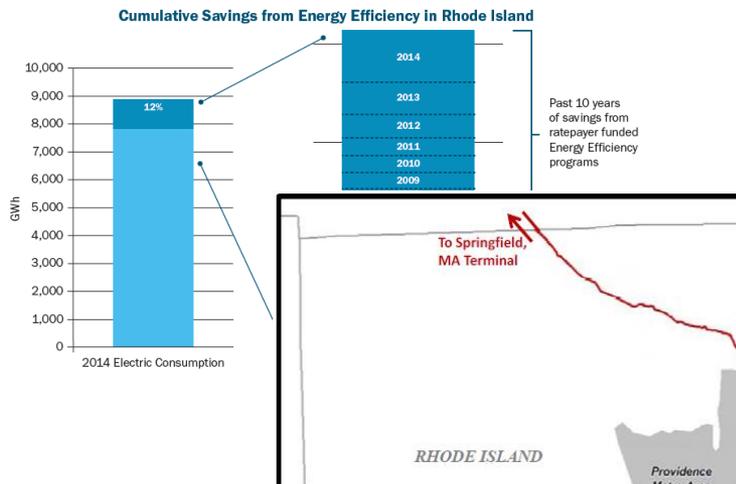
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# Part 1: Overview of Energy in Rhode Island

- This section presents information on energy usage in Rhode Island—the types, amount, cost, and environmental effects of major fuels and energy resources used in all sectors of Rhode Island’s economy
- The section also summarizes the major components of Rhode Island’s existing policy framework for addressing energy issues

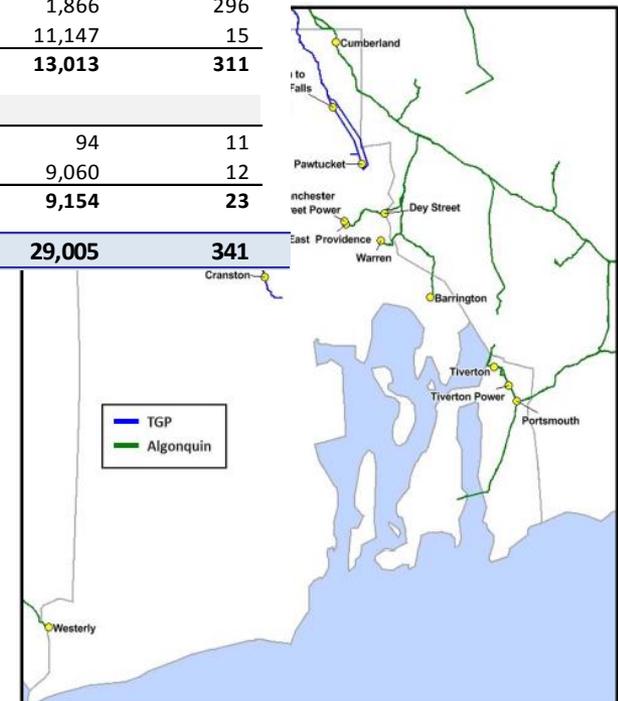
# Part 1: Overview of Energy in Rhode Island

## Energy Supply and Infrastructure Assets



Technology	Capacity (kW)	# of Systems
<b>Small Hydro</b>		
All sizes	6,656	7
<b>Solar Photovoltaic</b>		
50 kW & under	1,866	296
>50 kW	11,147	15
	<b>13,013</b>	<b>311</b>
<b>Wind</b>		
50 kW & under	94	11
>50 kW	9,060	12
	<b>9,154</b>	<b>23</b>
<b>Grand Total</b>	<b>29,005</b>	<b>341</b>

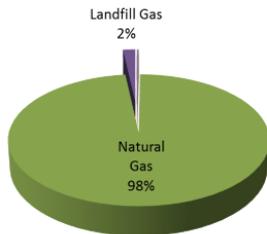
Power Plant	Nameplate Capacity (MW)	Primary Fuel	Dual Fuel Capability
Energy Rhode Island State Energy LP	596	Natural Gas	
Manchester Street	515	Natural Gas	Distillate Fuel Oil
Tiverton Power Plant	272.5	Natural Gas	
Ocean State Power	254.2	Natural Gas	Distillate Fuel Oil
Ocean State Power II	254.2	Natural Gas	Distillate Fuel Oil
Pawtucket Power Associates	68.8	Natural Gas	Distillate Fuel Oil
Rhode Island LFG Genco	33.4	Landfill Gas	
Toray Plastics	12.5	Natural Gas	
Central Power Plant	10.7	Distillate Fuel Oil, Natural Gas	
Rhode Island Hospital	10.4	Natural Gas	Residual Fuel Oil
Block Island	9.6	Distillate Fuel Oil	
Brown University Central Heating	3.2	Natural Gas	Residual Fuel Oil
<b>Total</b>	<b>2,041</b>		



# Part 1: Overview of Energy in Rhode Island

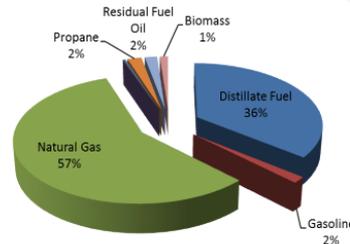
- Energy Use and Historical Trends

## Electricity



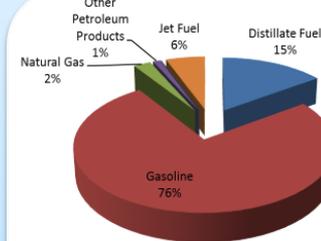
63 Trillion BTUs  
\$1.1 billion / year  
2.9 million tons CO<sub>2</sub>

## Thermal



63 Trillion BTUs  
\$1.1 billion / year  
3.9 million tons CO<sub>2</sub>

## Transportation



64 Trillion BTUs  
\$1.4 billion / year  
4.5 million tons CO<sub>2</sub>

*In 2010, RI spent \$3.6 billion on 190 trillion BTU of energy, emitting 11 million tons of CO<sub>2</sub>*

# Part 1: Overview of Energy in Rhode Island

- **Current Policy Framework**

- Major legislation: During the two decades following restructuring, Rhode Island enacted subsequent major energy legislation addressing key areas of energy policy, primarily energy efficiency and renewable energy
- Governance structure: Public responsibilities for energy planning, management, and oversight in Rhode Island are distributed among an array of agencies, each with distinct powers, duties, and functions

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## Part 2: Goals & Performance Measure Targets

- This section sets measurable goals and performance measure targets for achieving an energy system that advances the human, economic, and environmental well-being of the people, communities, and natural resources of Rhode Island.
- The goals sketch a vision for an energy system that advances the human, economic, and environmental well-being of the people, communities, and natural resources of Rhode Island

# Part 2: Goals & Performance Measure Targets

- **RISEP Goals**



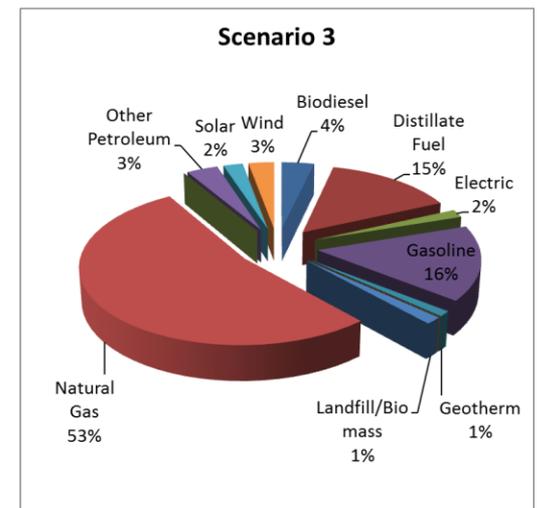
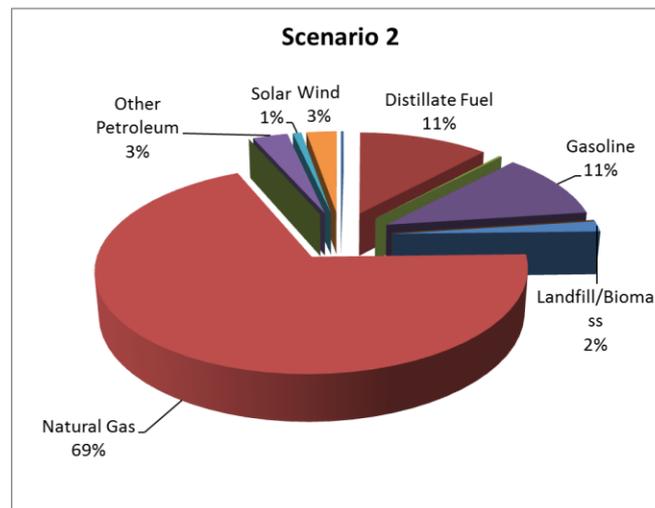
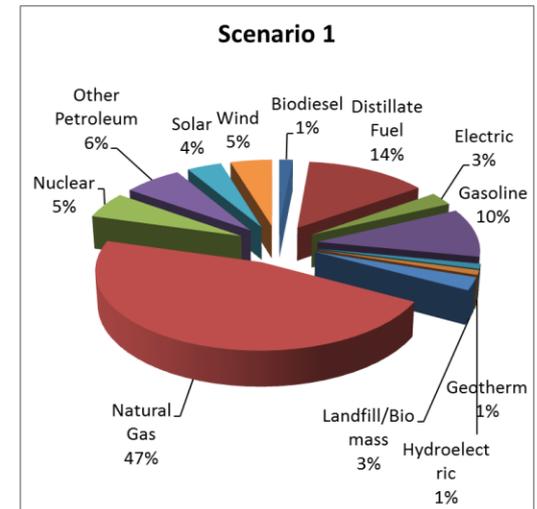
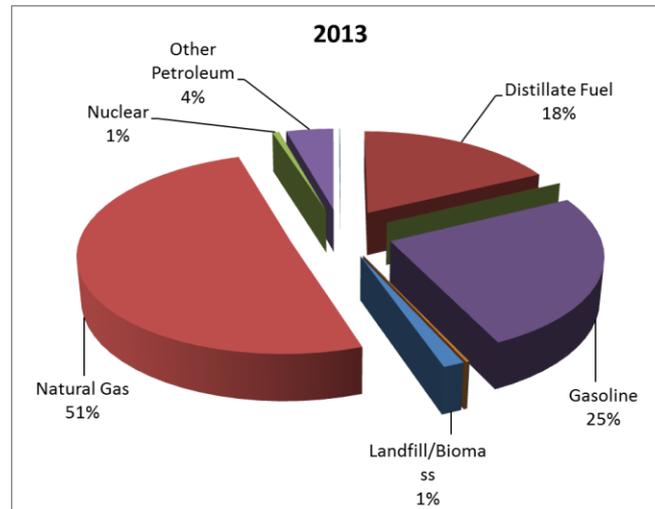
# Part 2: Goals & Performance Measure Targets

- **RISEP Performance Measure Targets**
  - Scenario modeling shows Rhode Island can:



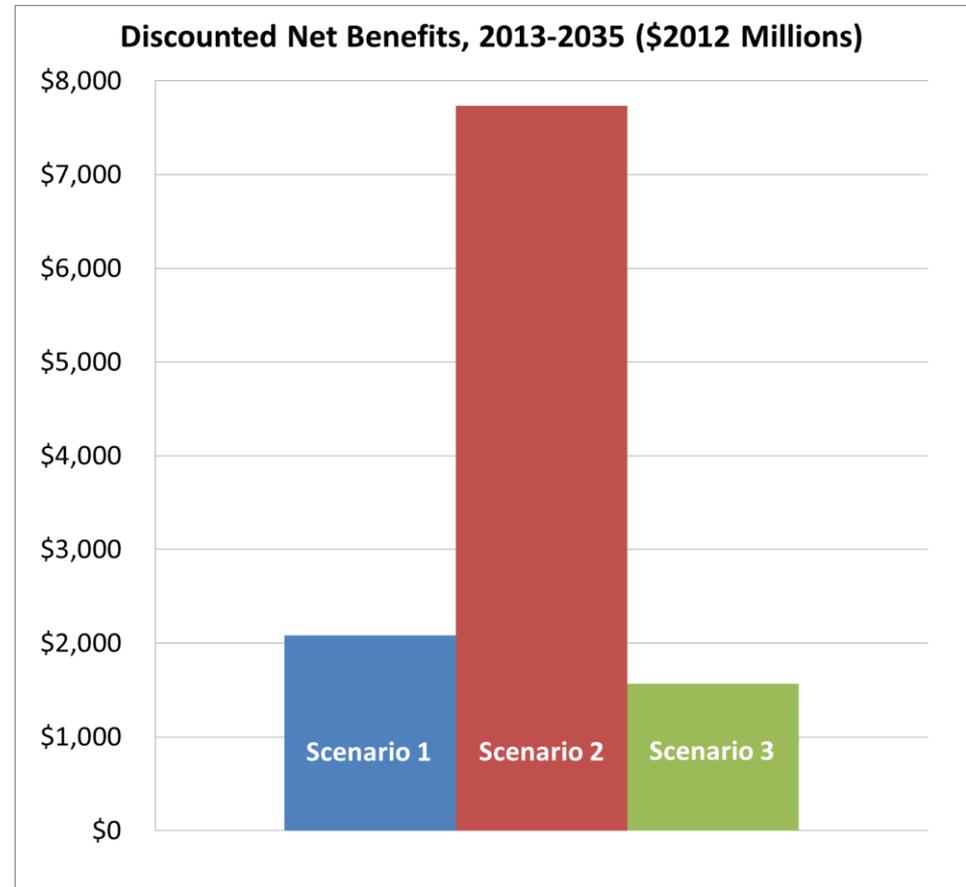
# Energy Security: Fuel Diversity

- Fuel diversity gains are achievable



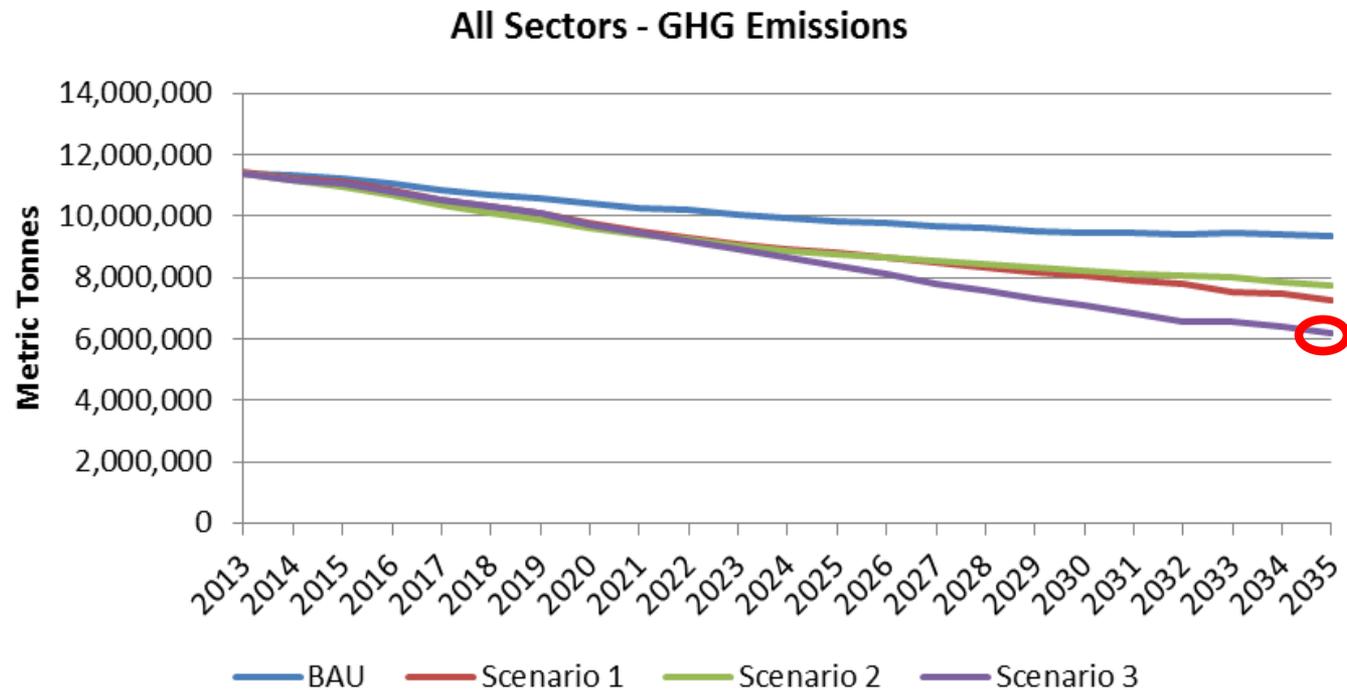
# Cost-Effectiveness: Net Benefits

- **Business-as-Usual is RI's most expensive path**
- **All scenarios are anticipated to provide economy-wide net benefits**
- **All scenarios are net positive first order job creation**



# Sustainability: GHG Reductions

- 45% GHG reductions below 1990 levels by 2035 are achievable



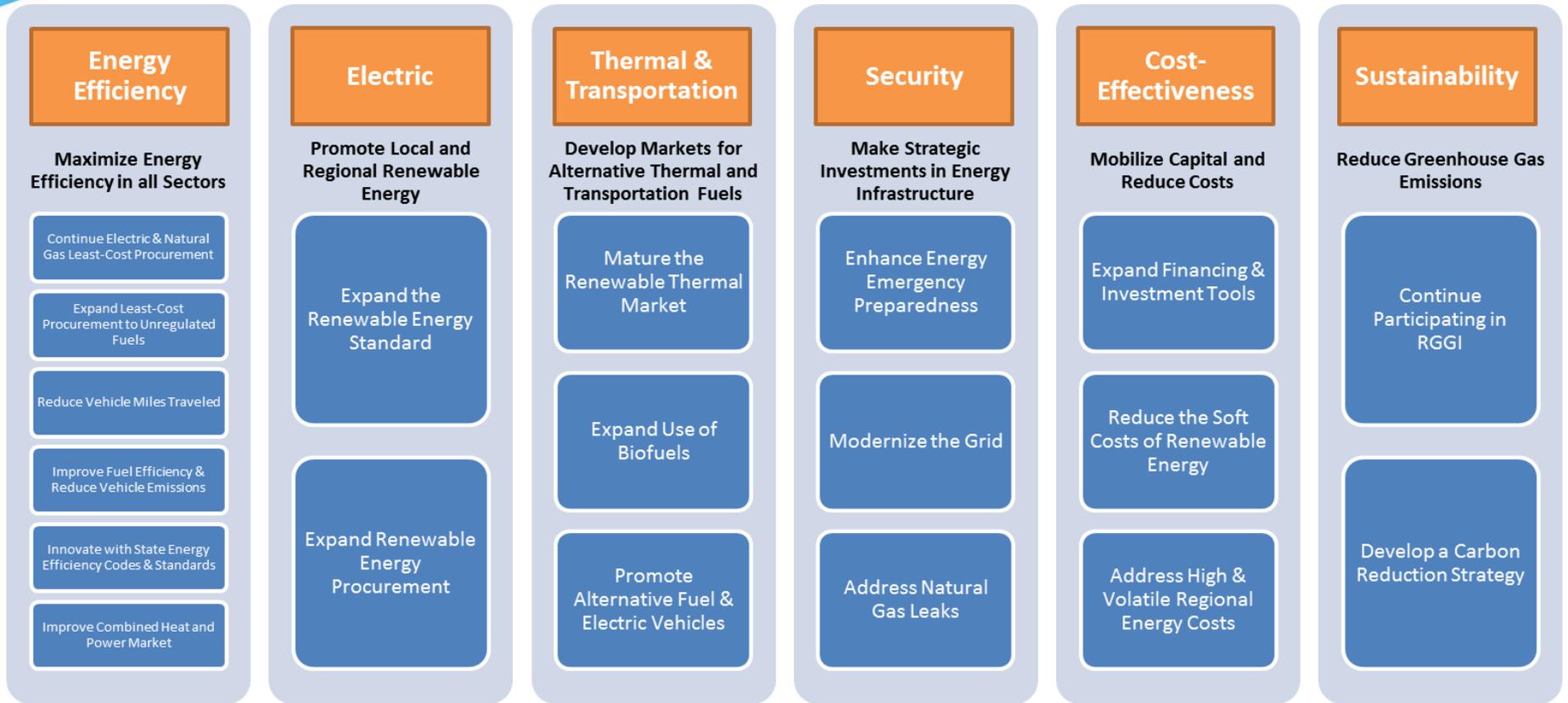
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# Part 3: Policies and Strategies

- **This section lays out a comprehensive implementation plan for meeting the Plan’s goals and performance measure targets**
- **The policies and strategies are meant to provide decision makers with a complete picture of the near- and long-term actions Rhode Island should consider in each sector of the economy—electric, thermal, and transportation**

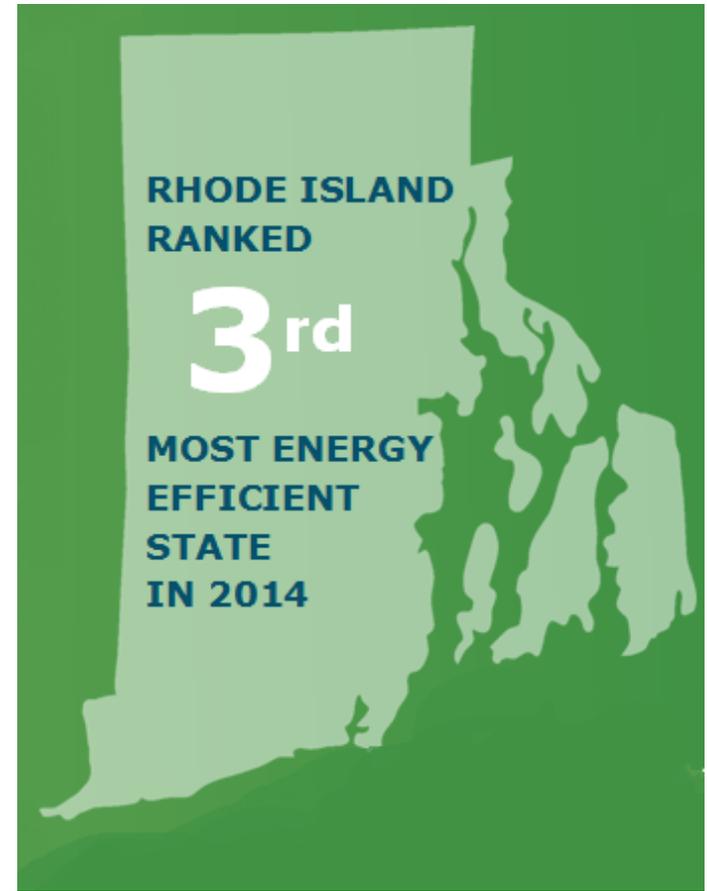
# Part 3: Policies and Strategies



Lead by Example

# Part 3: Policies and Strategies

- **Maximize Energy Efficiency in all Sectors**
  - Continue Electric & Natural Gas Least-Cost Procurement
  - Expand Least-Cost Procurement to Unregulated Fuels
  - Reduce Vehicle Miles Traveled
  - Improve Fuel Efficiency & Reduce Vehicle Emissions
  - Innovate with State Energy Efficiency Codes & Standards
  - Improve Combined Heat and Power Market



# Part 3: Policies and Strategies

- **Promote Local and Regional Renewable Energy**
  - Expand the Renewable Energy Standard
  - Expand Renewable Energy Procurement



# Part 3: Policies and Strategies

- **Develop Markets for Alternative Thermal and Transportation Fuels**
  - Mature the Renewable Thermal Market
  - Expand Use of Biofuels
  - Promote Alternative Fuel & Electric Vehicles



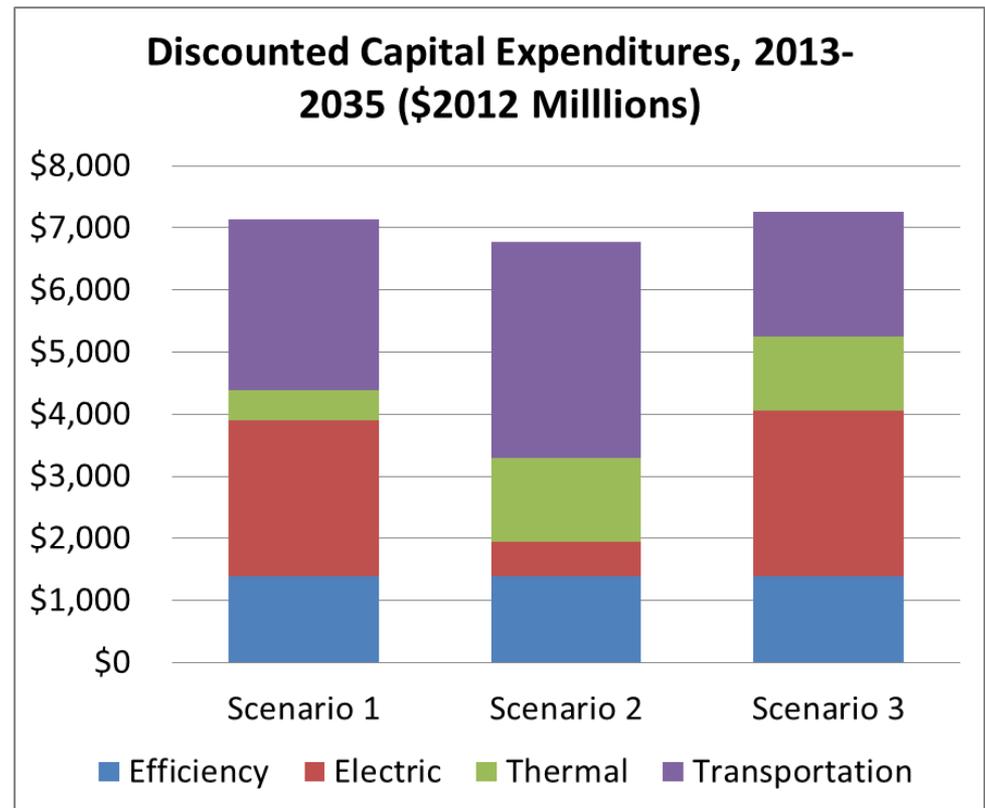
# Part 3: Policies and Strategies

- **Make Strategic Investments in Energy Infrastructure**
  - Enhance Energy Emergency Preparedness
  - Modernize the Grid
  - Address Natural Gas Leaks



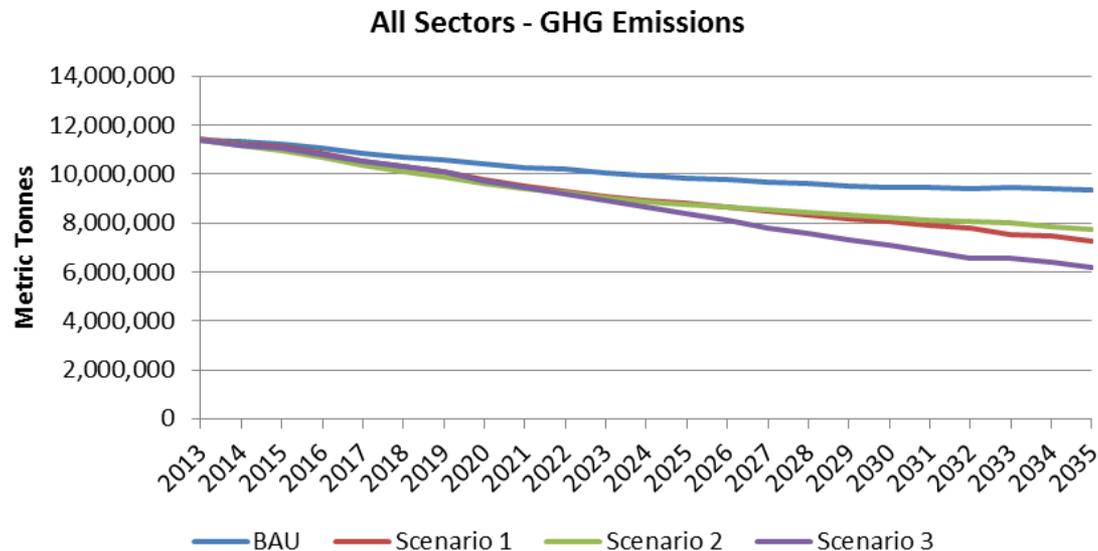
# Part 3: Policies and Strategies

- **Mobilize Capital and Reduce Costs**
  - Expand Financing & Investment Tools
  - Reduce the Soft Costs of Renewable Energy
  - Address High & Volatile Regional Energy Costs



# Part 3: Policies and Strategies

- **Reduce Greenhouse Gas Emissions**
  - Continue Participating in RGGI
  - Develop a Carbon Reduction Strategy



# Part 3: Policies and Strategies

- **Lead by Example**

- State

- Municipal

<b>Municipal Energy Sectors</b>	<b>Sample Implementation Actions</b>
Energy Efficiency and Buildings	Conduct a municipal <b>energy use baseline</b> and develop a <b>plan to reduce public sector energy</b> consumption
	Seek <b>Property Assessed Clean Energy (PACE)</b> designation for your city/town
Renewable Energy	Adopt zoning policies and <b>siting standards for renewable energy</b> projects
	Use an <b>expedited application and permit process</b> for renewable energy facilities
Transportation and Land Use	Replace end-of-life municipal-owned vehicles with <b>high fuel efficiency and/or electric vehicles</b>
	Adopt <b>property tax and zoning policies</b> that preserve open space and promote "smart growth"

# Thank You!

**Danny Musher**  
**Office of Energy Resources**  
[danny.musher@energy.ri.gov](mailto:danny.musher@energy.ri.gov)  
**401-574-9112**

# Supplemental Slides

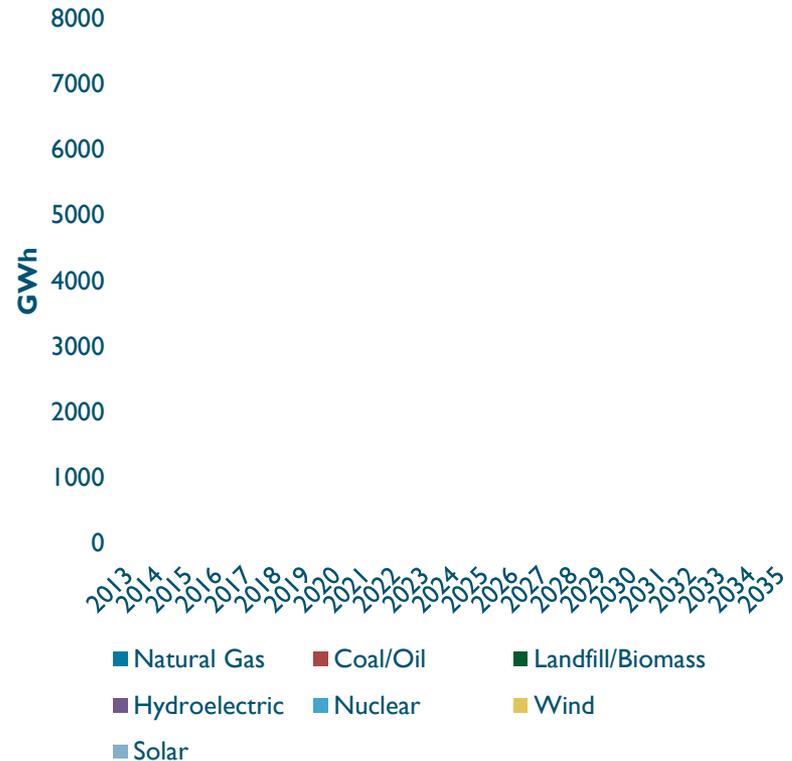
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# Business-as-Usual Forecast

- **Electric Demand Decreasing**
  - Least-Cost Procurement of all cost-effective electric energy efficiency
    - ~20% projected energy reductions
  - Regional Greenhouse Gas Initiative (RGGI)
    - ~20% projected electric GHG reductions
  
- **Renewable Energy Increasing**
  - Renewable Energy Procurement
    - 16% Renewable Energy Standard
    - >200 MW of wind & solar

RI Electric Demand  
Business As Usual (BAU)

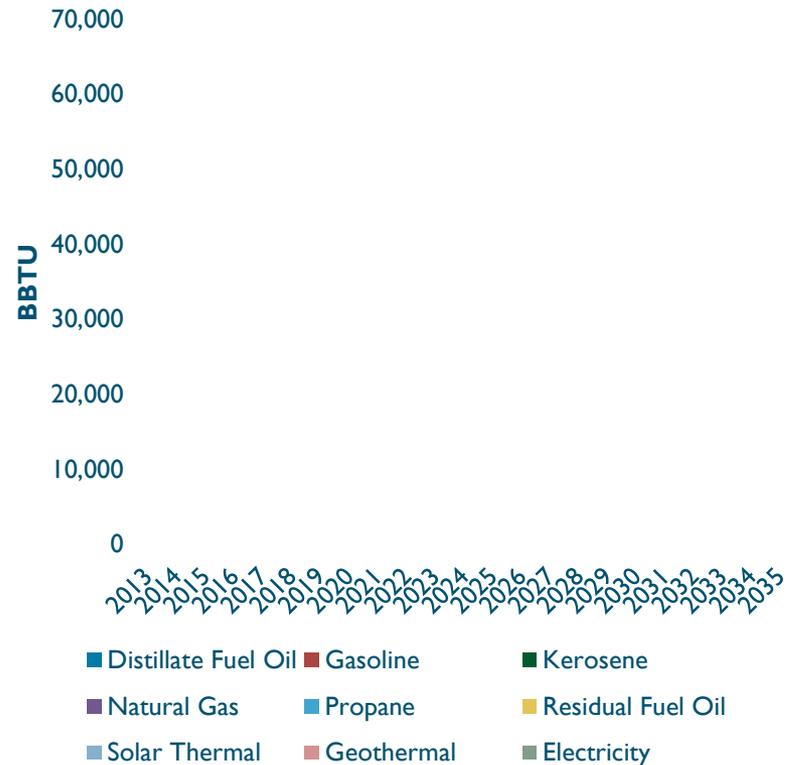


# Business-as-Usual Forecast

- **Thermal Demand Decreasing**

- Least-Cost Procurement of all cost-effective natural gas energy efficiency
  - ~20% projected energy reductions
- Biofuel Blends
  - 5% biofuel blend mandate

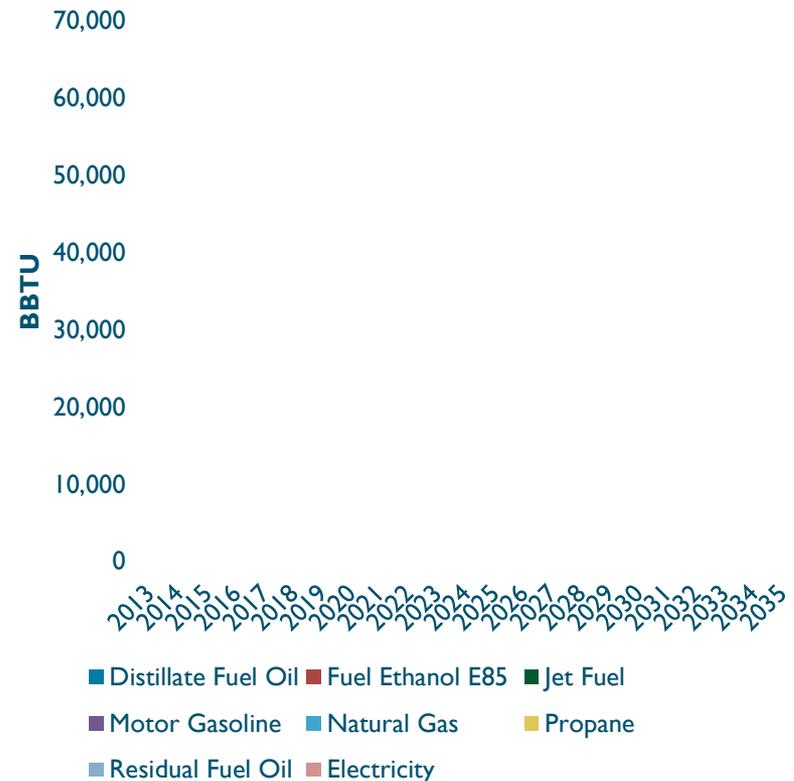
RI Thermal Demand  
Business As Usual (BAU)



# Business-as-Usual Forecast

- **Transportation Demand Decreasing**
  - Federal Corporate Average Fuel Economy (CAFE) Standards
    - >10% projected GHG reductions
    - 17% project decrease in gasoline consumption
  - Zero Emission Vehicle (ZEV) MOU
    - 3.3 million ZEVs in participating states

RI Transportation Demand Business As Usual (BAU)



# Contents of the Plan

- **Introduction and Vision**
- **Part 1: Overview of Energy in Rhode Island**
- **Part 2: Goals and Performance Measure Targets**
- **Part 3: Policies and Strategies**
  
- **Appendix A: Rhode Island Energy Laws**
- **Appendix B: A Portfolio of Strategies**
  
- **Technical Report #1: Business-as-Usual Forecast (ENE)**
- **Technical Report #2: Scenario Modeling (Navigant Consulting)**

# Scenario Modeling

- The RISEP scenario modeling analyzed the impacts of three unique alternative energy futures
- Three scenarios focused on each of the three RISEP themes energy security, cost-effectiveness, and sustainability
- Each scenario considered different changes to Rhode Island's demand and supply resource portfolio and evaluated resulting impacts

## Scenario 1 (Security)

- Prioritizes energy security through fuel diversification and grid modernization

## Scenario 2 (Cost-Effectiveness)

- Prioritizes cost-effectiveness and economic development while hitting key targets for GHG reduction

## Scenario 3 (Sustainability)

- Prioritizes the sustainability of Rhode Island's energy economy through the widespread deployment of renewables, thermal alternatives, and vehicle electrification

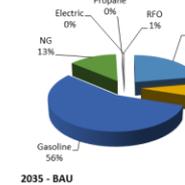
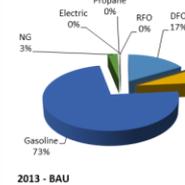
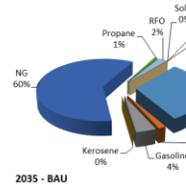
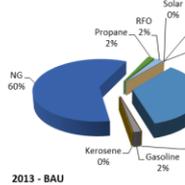
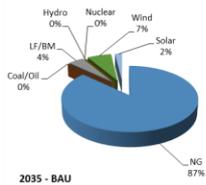
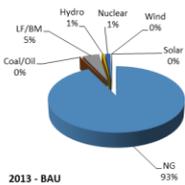
# Scenario Modeling

Electric sector: 2013 vs 2035

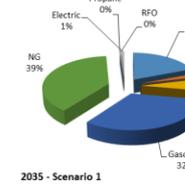
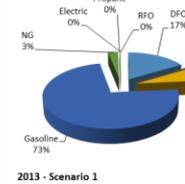
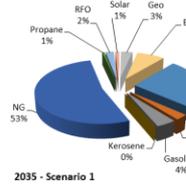
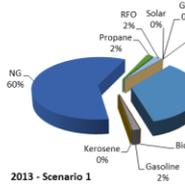
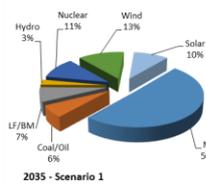
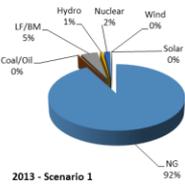
Thermal sector: 2013 vs 2035

Transportation sector: 2013 vs 2035

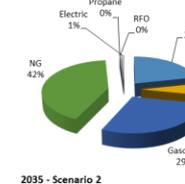
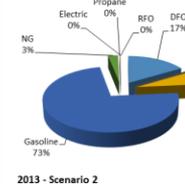
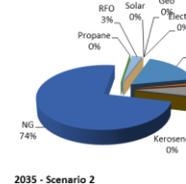
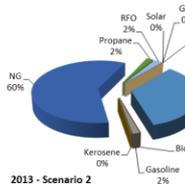
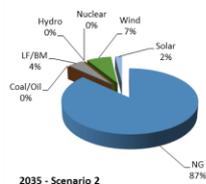
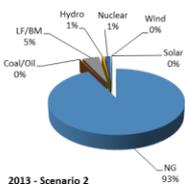
Business-as-usual



Scenario 1 (Security)



Scenario 2 (Cost-Effectiveness)



Scenario 3 (Sustainability)

