

Distributed Generation: Renewable Energy Development in Rhode Island

Senate Environment & Agriculture Committee
Wednesday, February 12, 2014

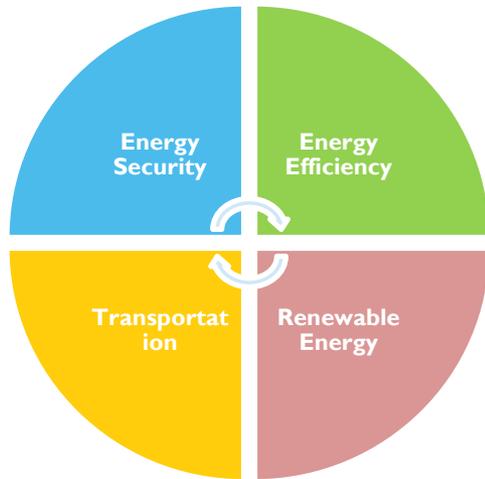


STATE OF RHODE ISLAND

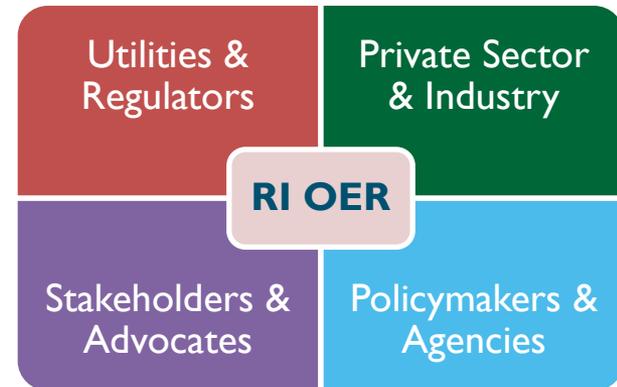
**OFFICE OF
ENERGY RESOURCES**

Rhode Island Office of Energy Resources

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



The OER is the lead state agency on energy policy and programmatic matters



The OER works closely with diverse partners to advance Rhode Island as a national leader in the new clean energy economy

Briefing

- **Distributed Generation & the RI DG Law**
- **DG in the Context of Rhode Island's State Energy Plan**
- **DG Program Performance: 2011 – today**
- **Questions**

Distributed Generation

‘Distributed generation’ refers to small facilities that generate electricity using renewable resources



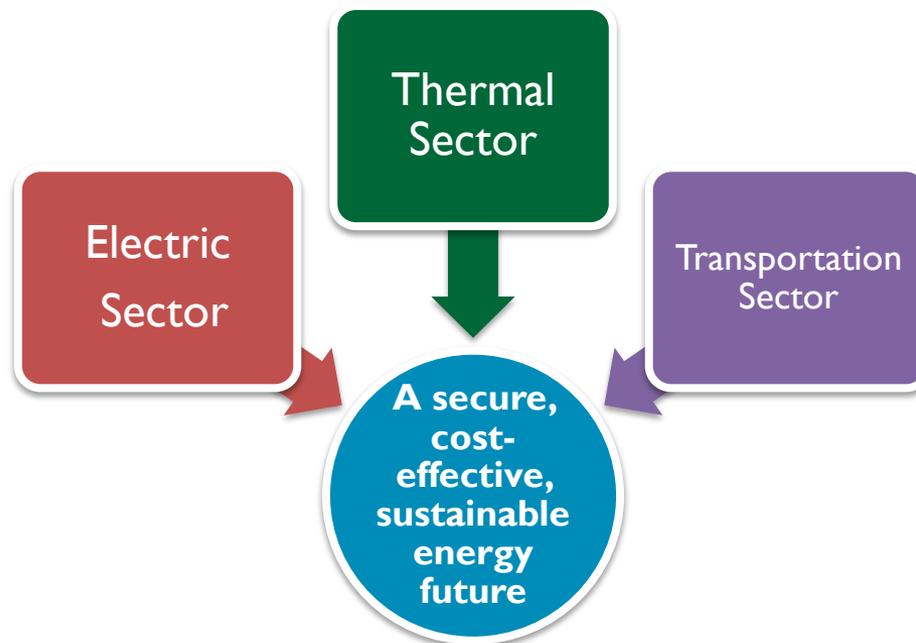
Distributed Generation Program

- **Legislation passed in 2011 (§ 39-26.2)**
- **Goals:**
 - Establish a pilot program to expand the renewable energy market in RI
 - Create local jobs
 - Keep energy investments in-state
 - Diversify RI's electrical energy portfolio



Unveiling of a 2.34 MW solar system at Quonset Business Park. It is the largest rooftop solar system in New England.

DG in Context of Energy Plan



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

Rhode Island Energy Use Today

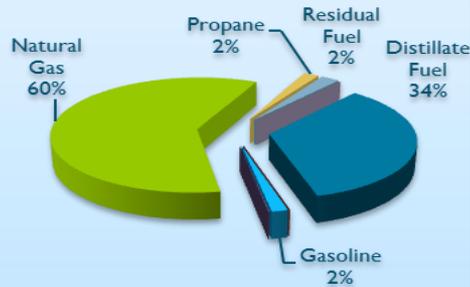


Electric

72 Trillion BTU

\$1.1 Million/Year

2.9 Million Tons CO₂

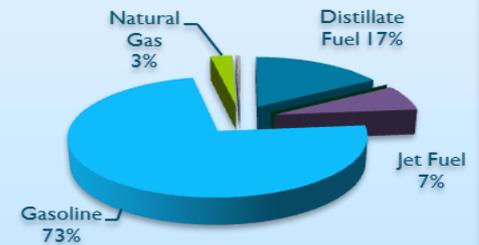


Thermal

63 Trillion BTU

\$1.1 Million/Year

3.9 Million Tons CO₂



Transportation

64 Trillion BTU

\$1.4 Million/Year

4.5 Million Tons CO₂

RI spends ~\$3.6 billion annually on ~200 trillion BTU of energy, emitting 11 million tons of CO₂

Modeling the Future

The State Energy Plan team modeled three energy future scenarios to see if RI can do better

Scenario 1 (Security)

- Prioritizes energy security through fuel diversification and grid modernization

Scenario 2 (Cost-Effectiveness)

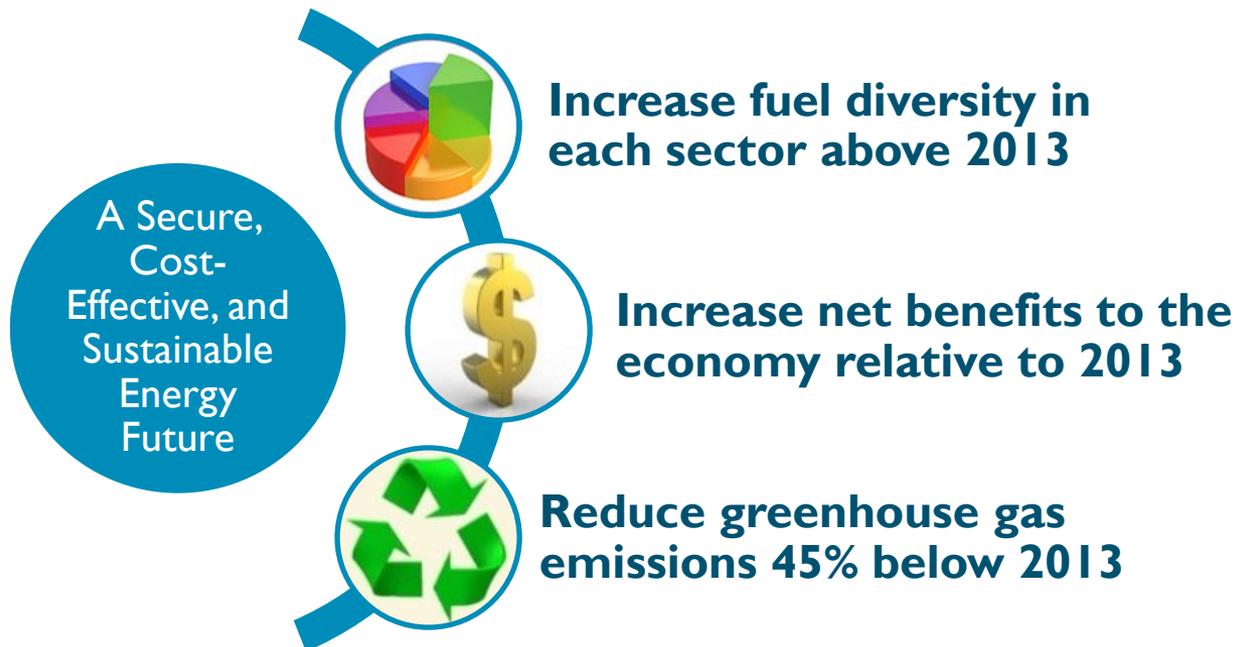
- Prioritizes cost-effectiveness and economic development while hitting key targets for GHG reduction

Scenario 3 (Sustainability)

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

Rhode Island's Energy Future

The preliminary results show Rhode Island can reduce GHG by 45% by 2035 while increasing net economic benefits and increasing fuel diversity...



Continued Investment in Local Resources is Critical...

- Local investments provide a pathway toward Rhode Island's clean energy future and spurs economic activity and job creation
- We must continue to maximize energy efficiency investments and expand local distributed renewable generation
- These opportunities have been tested and proven to be successful, providing new economic and energy saving opportunities within our own borders

DG Program 2011 - 2014

- 40 MW - nameplate capacity over four years
- Wind, solar, anaerobic digestion and small scale hydropower projects
- The DG Program represents approximately 0.02% of the state's peak electrical usage (RI's historical demand is 1,932 MWs)



Jamestown - Conanicut Marina installed a 128 kW solar system.

DG Program Mechanics

- Ceiling prices for each renewable technology
- Overseen by the DG Board, which is staffed by the OER
- Prices are approved by the PUC; reviewed and updated annually



Cranston - Gannon &
Scott Facility
405 kW solar system

DG Program Mechanics

- **Projects receive a fixed price, 15-year contract with National Grid – projects must be operational within 18 months (48 months for hydro)**
- **3 enrollments conducted/year; contracts awarded to the most cost effective projects (managed by Grid with oversight by OER and Board)**
- **OER/National Grid/DG Board & Stakeholders - strong partnership in implementing and executing the program**

DG Program Successes

- DG program has revived the renewable market in RI
- 29 executed DG contracts
- Broad support: National Grid, Municipalities, Environmental and Renewable Energy Organizations, Unions, General Contractors, RE Business and Electricians



**Middletown –
500 kW solar system**

Participation Across the State

- Projects proposed in 30 of our 39 municipalities since December 2011
- DG projects have been installed or planned for construction in 20 municipalities
- Overall, costs have steadily declined



Cox Communications installed 2 solar systems in Warwick and Portsmouth. Cox executives, members of Congress, National Grid and the General Assembly at a DG project ribbon cutting ceremony.

DG Project Activity

- **Cranston - Gannon and Scott metal recycling facility - 406 kW solar system**
- **North Kingstown - Quonset Development Corp - 500 kW anaerobic digestion facility - food scraps used to produce electricity & organic fertilizer byproduct is under development. The project plans to submit an application to the 2014 DG Program**



West Warwick – A 500 kW small scale hydropower project is under development. The project plans to submit an application to the 2014 DG Program.

Cost Trends

- **Solar costs have dropped by more than half:**
 - \$0.316/kwh to \$0.1479/kwh from 2011 to 2013
- **Wind: executed contracts coming in below \$0.15/kwh**
- **Further cost reductions anticipated as we work with neighboring states through the DOE SunShot program to reduce ‘soft costs’ throughout the region**

DG Project Activity

- North Kingstown - All American Foods, 331 kW solar system, Quonset Point
- North Smithfield – The Brickle Group, a Rhode Island manufacturer, 1.084 MW solar system
- Providence - Rising Sun Mills Apartments on Valley St, 150 kW solar system



East Providence – 3.71 MW solar system on closed landfill (largest solar installation in RI)

DG Project Activity

- **Richmond – 498 kW solar system**
- **North Kingstown – 500 kW solar system @ Quonset Business Park**
- **Town of Coventry - 1.5 MW wind turbine**



The Town of Coventry is installing a direct drive (non-gearbox) on municipal owned land.

DG Project Activity

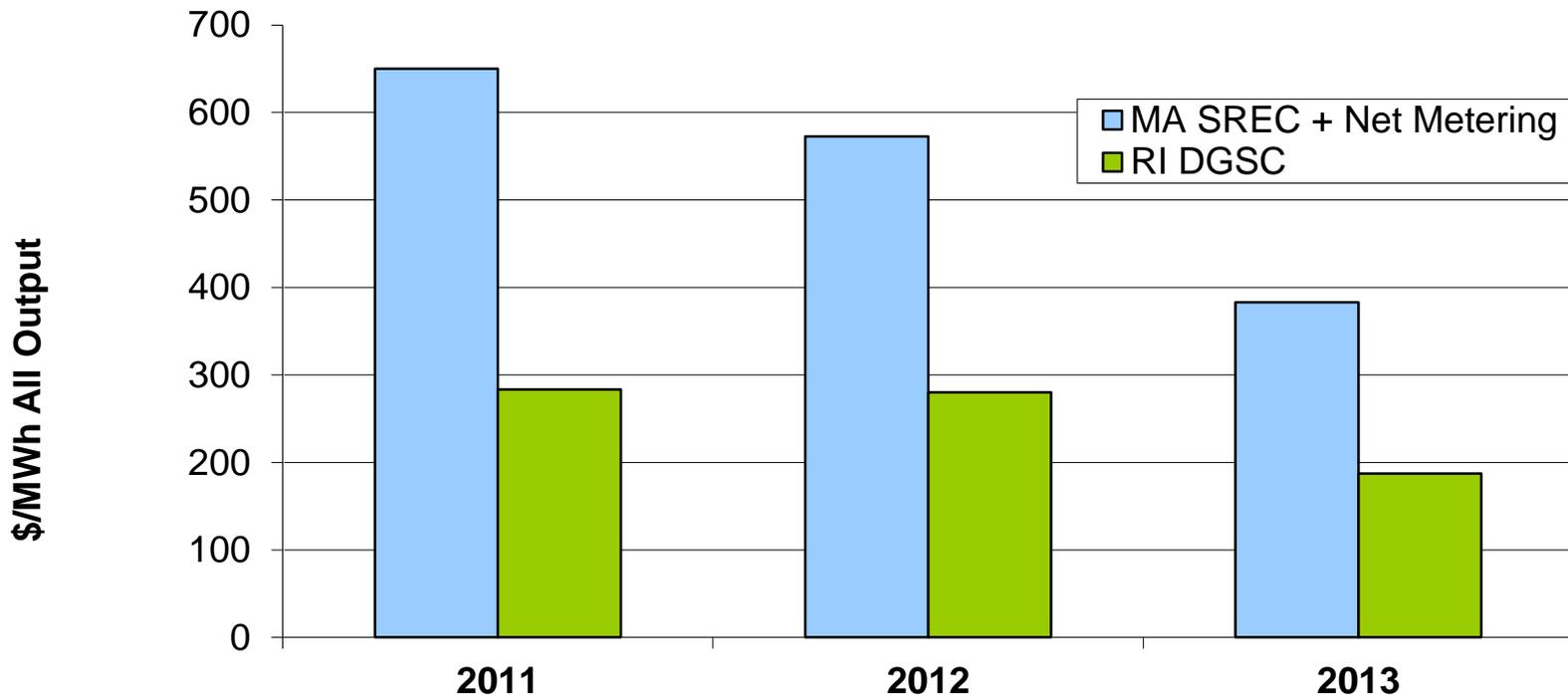
- **Middletown -
Newport Vineyards,
53 kW solar system**
- **West Warwick -
MetLife will be
installing a 1.298
MW solar system**
- **Johnston – 1.7 MW
solar system**



**West Greenwich – 2MW solar system
installed at farm land property**

MA to RI – Solar Price Comparisons

MA SREC vs RI DGSC Unit Costs



*All MA costs are average market prices plus G-1 rate net metering credits
All RI costs are actual DG Standard Contract rates as kW-weighted averages*

Economic & Environmental Impact Study

- **Brattle Group – conducting economic and environmental study of the DG program and expansion scenarios for future DG deployment**
- **The study will explore:**
 - Environmental benefits
 - Economic benefits (jobs, tax benefits, system reliability savings)
 - Ratepayer impacts (hedge against inflation and fuel price volatility, wholesale price suppression)



Cumberland - Contractors installing a 500 kW solar system

Synergies with Regional Initiatives

- **The State Energy Plan will also show that our clean energy future cannot be achieved by local development alone – we must think locally, but also act regionally!**
- **N.E. Governors Regional Energy Infrastructure Initiative**
 - Region’s energy officials are working to identify opportunities to expand infrastructure that facilitates the delivery of new, cost-effective clean energy supplies
 - Has the potential to diversify our energy supply portfolio, enhance system reliability, and improve our shared economic competitiveness
- **A robust statewide distributed generation program, coupled with regional action, represents a balanced approach for stakeholders and ratepayers, and will allow the Ocean State to achieve its long-term clean energy goals**

Questions?