New England State Public Policies for Renewable Resources and Carbon Emissions Reduction

NEPOOL Participants Committee Summer Meeting

June 22, 2016

Context

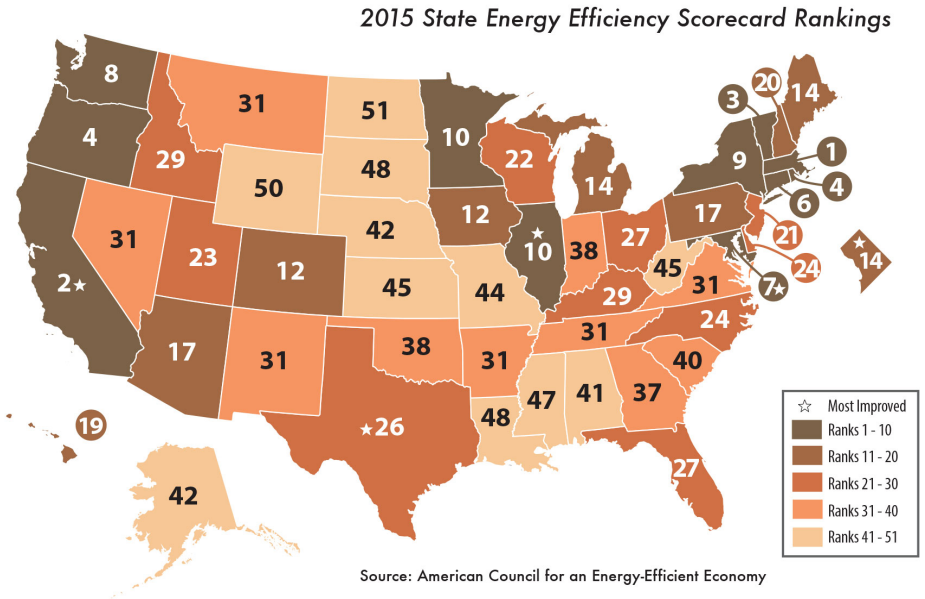
- This presentation is not an exhaustive list of every requirement of every states' energy and environmental laws
- This presentation provides high-level, generally indicative information about current energy and environmental laws that influence the regional power system

Overview

- Public Policies
  - Energy Efficiency
  - Renewable Resources
  - Carbon Dioxide Emissions Reduction
- Programs and Mechanisms to Support Public Policies
  - System Benefits Charge
  - Renewable Portfolio Standard
  - Net Metering
  - Long-Term Contracting
  - Regional Greenhouse Gas Initiative (RGGI)
  - Other Initiatives

Energy Efficiency – the "first" fuel

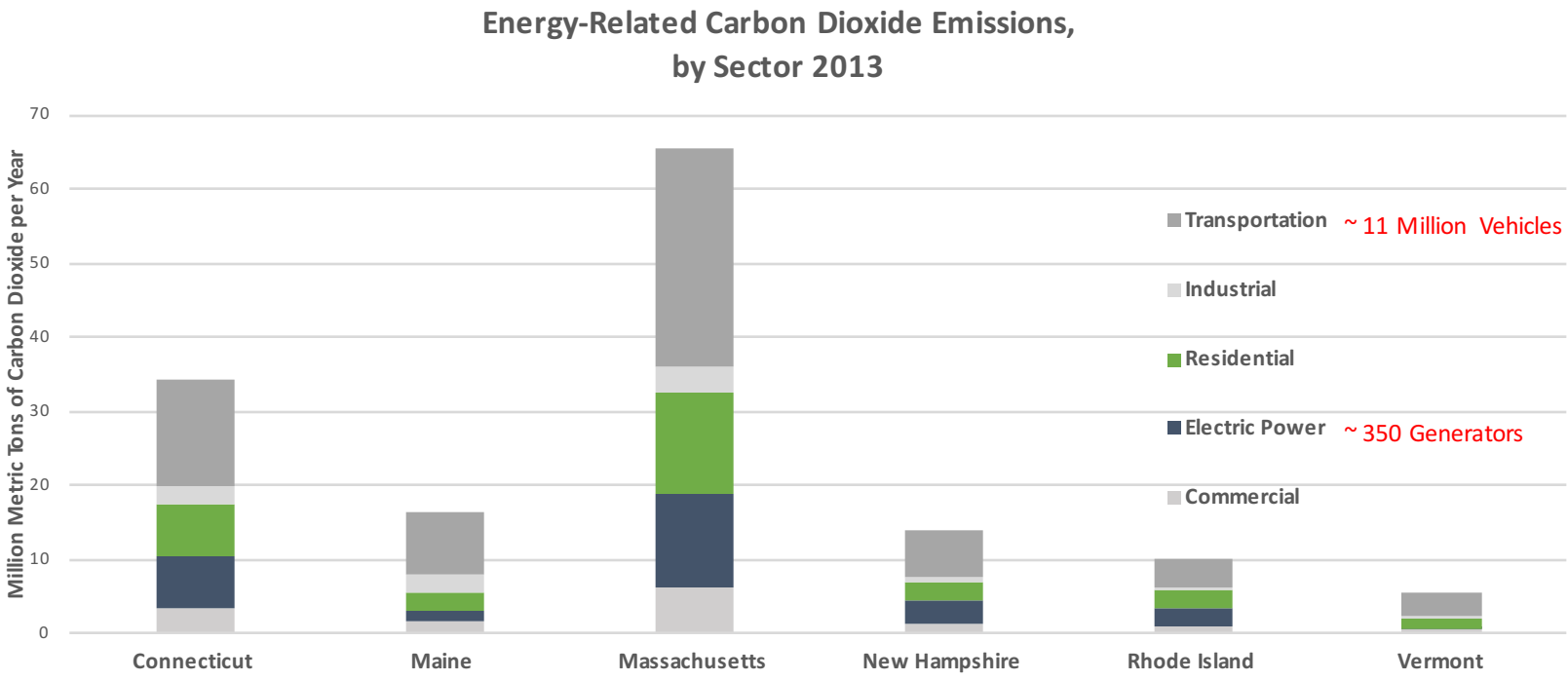
Installed measures (e.g., products, equipment, systems, services, practices and/or strategies) on end-use customer facilities that ***reduce the total amount of electrical energy needed, while delivering a comparable or improved level of end-use service***. Such measures include, but are not limited to, the installation of more energy efficient lighting, motors, refrigeration, HVAC equipment and control systems, envelope measures, operations and maintenance procedures, and industrial process equipment. – *ISO-NE Tariff §I.2.2.*



Renewable Resources

Common Technologies	State	Special Technologies or Restrictions
• Wind • Solar Photovoltaic (PV) • Small Hydro • Landfill Gas • Biomass (MA: subject to eligibility requirements) • Anaerobic Digestion • Geothermal • Solar Thermal • Ocean Thermal • Wave • Tidal	**Maine**	Municipal Solid Waste ("MSW") with recycling, cogeneration, "useful thermal energy"
	Massachusetts	Fuel cells with Renewable fuels, MSW
	Connecticut	Hydro <5 MW, sustainable biomass, MSW, fuel cells, energy efficiency and combined heat and power ("CHP"), large-scale hydro (only if shortfall in Class I resources, capped at 5% in 2020)
	Rhode Island	Fuel cells only with renewable fuels
	Vermont	Large Hydro
	New Hampshire	Geothermal, no fuel cells

Carbon Dioxide Emissions Reduction



Sources: U.S. Energy Information Administration, U.S. Department of Transportation, ISO New England

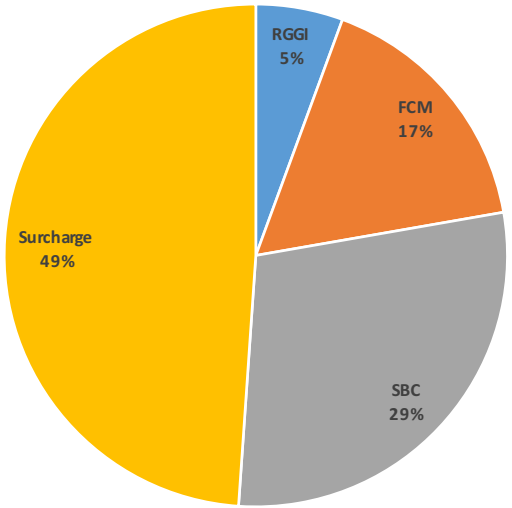
Carbon Dioxide Emissions Reduction

	Power Sector	Economy-Wide	Legal Authorities
Connecticut	Regional Greenhouse Gas Initiative (RGGI): 2.5% per year until 2020	10% below 1990 levels by 2020 80% below 2001 levels by 2050	Conn. Gen. Stat. §§ 22a-200a and 22a-200c
Maine		10% below 1990 levels by 2020	38 Me. Rev. Stat. ch. 3-A and 3-B
Massachusetts		25% below 1990 levels by 2020 80% below 1990 levels by 2050	Mass. Gen. Laws ch. 21A § 22 and ch. 21N § 3
New Hampshire		n/a	N.H. Rev. Stat. Ann. § 125:O
Rhode Island		10% below 1990 levels by 2020 45% below 1990 levels by 2035 80% below 1990 levels by 2050	R.I. Gen. Laws §§ 42-6.2-2, 42-17.12(19), 23-23, and 23-82
Vermont		40% below 1990 levels by 2030 80-95% below 1990 levels by 2050	30 V.S.A. § 255 2016 Comprehensive Energy Plan

Programs and Mechanisms to Support Public Policies

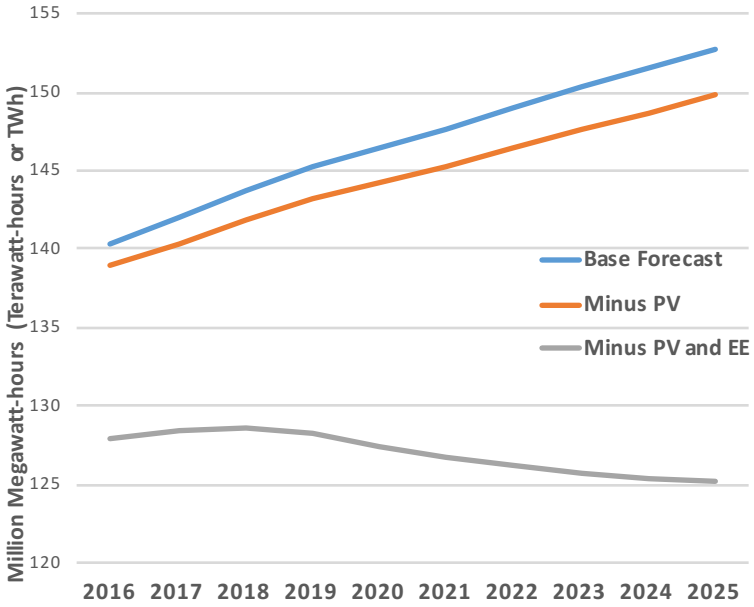
System Benefit Charge

Forecasted Average Annual Energy Efficiency Budgets, by Funding Source 2020-2025 ~ $1 Billion per Year New England Region Wide



Source: ISO-NE Energy Efficiency Forecast

Forecasted Annual Energy Demand, After Impact of Solar PV and Energy Efficiency New England Region Wide

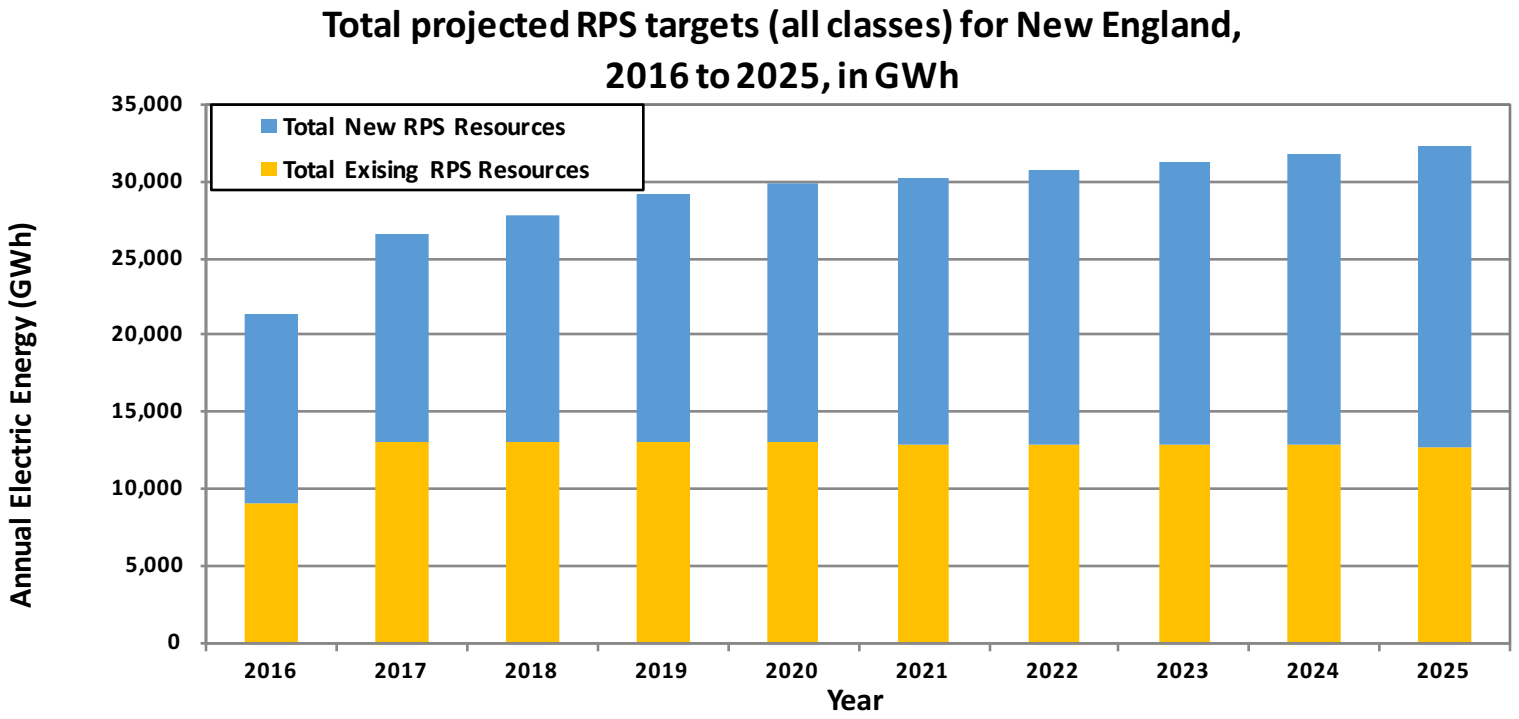


Source: ISO-NE Capacity Energy Loads and Transmission Report

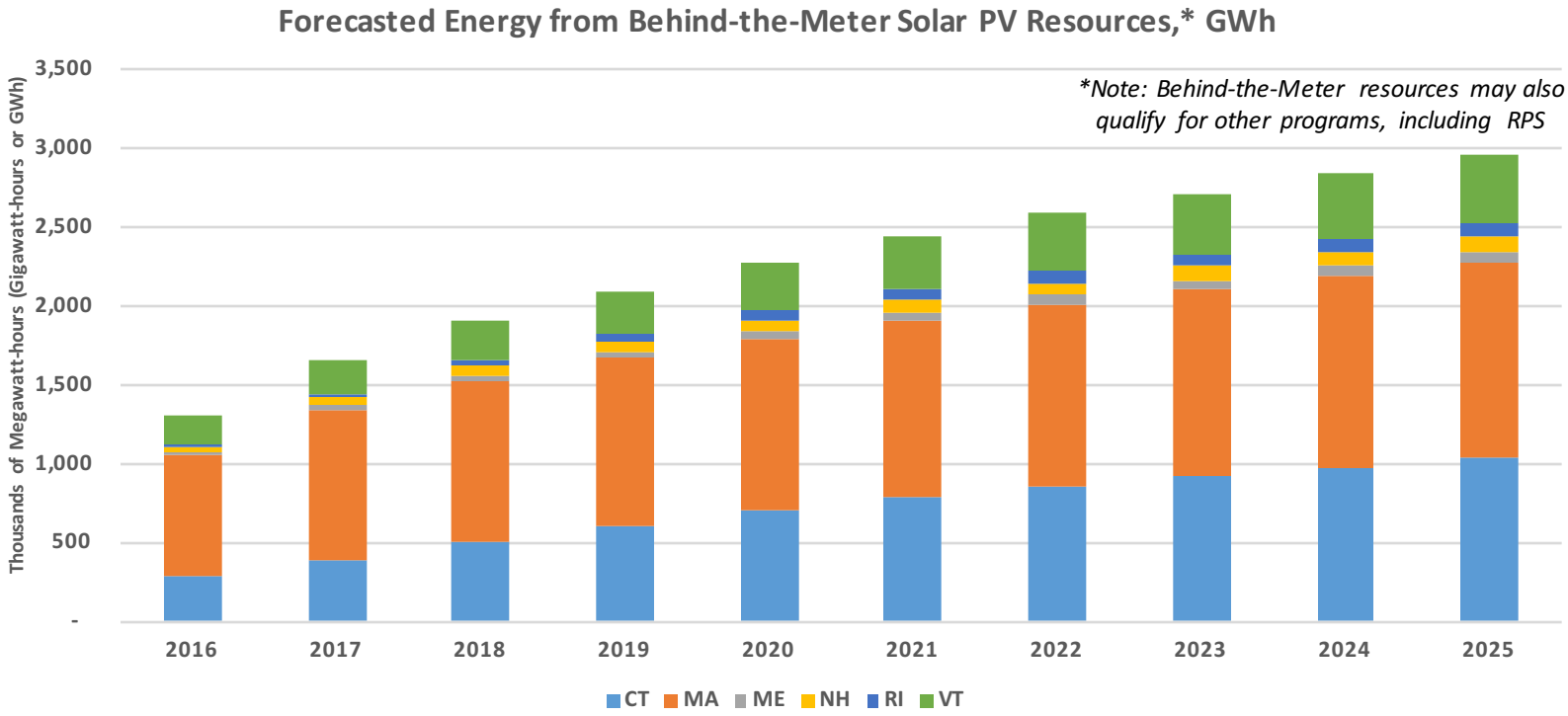
Renewable Portfolio Standard

		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Connecticut											
	Class I	14.0%	15.5%	17.0%	19.5%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
	Class II	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
	Class III	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Maine											
	Class I	9.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
	Class II	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Massachusetts											
	Class I	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%
	Class IIa	2.5%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
	Class IIb	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
New Hampshire											
	Class I	6.9%	7.8%	8.7%	9.6%	10.5%	11.4%	12.3%	13.2%	14.1%	15.0%
	Class II	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
	Class III	0.5%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
	Class IV	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Rhode Island											
	Existing	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	New	8.0%	9.5%	11.0%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Vermont											
	Standard	n/a	54.0%	53.4%	52.8%	56.2%	55.6%	55.0%	58.4%	57.8%	57.2%
	Distributed Gen.	n/a	1.0%	1.6%	2.2%	2.8%	3.4%	4.0%	4.6%	5.2%	5.8%

Renewable Portfolio Standard



Net Metering



Source: ISO New England Solar PV Forecast

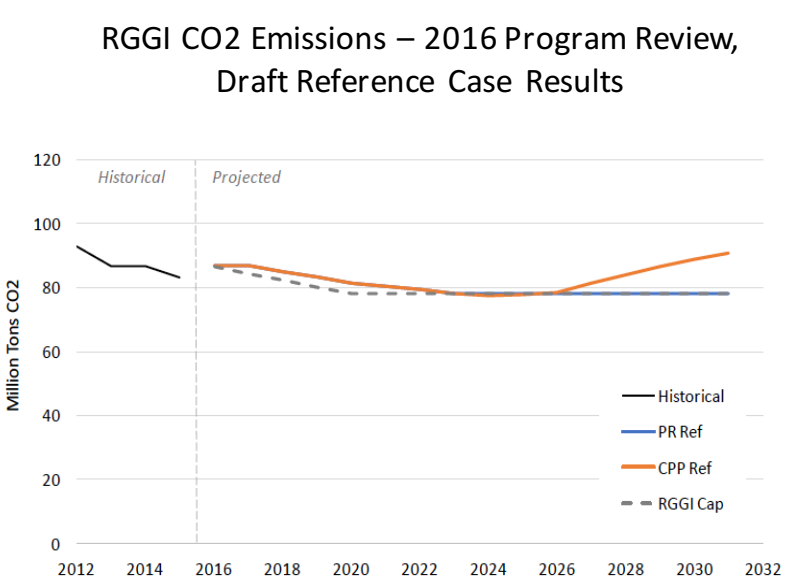
Long-Term Contracts

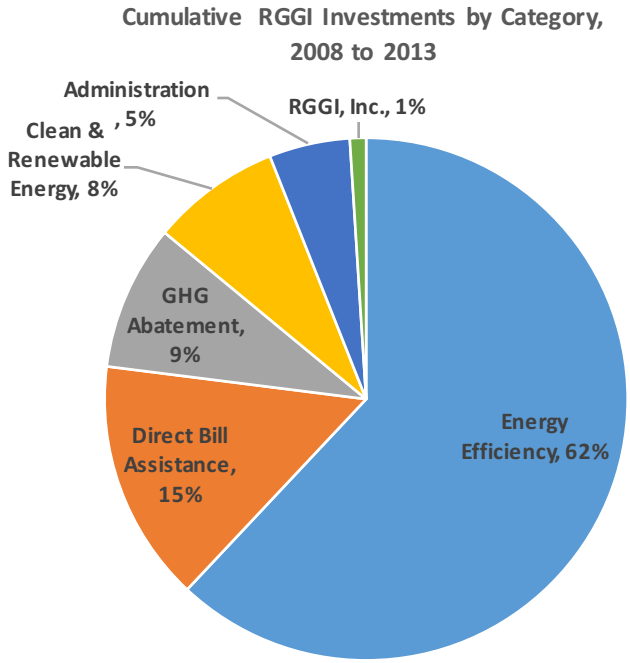
- Clean Energy Request for Proposals (RFP)
  - Entities from three of the New England States - Connecticut, Massachusetts, and Rhode Island - have jointly issued a Request for Proposals (RFP) from private developers of clean energy and transmission. The three States are leveraging their collective authority in a joint procurement to open the possibility of procuring large-scale projects that no one state could procure alone.

  - **Connecticut**
    - *2,750 GWh per year of Qualified Clean Energy under Section 1(c) of Public Act 15-107*
    - *1,375 GWh per year of Qualified Clean Energy under Section 7 of Public Act 13-303; and*
    - *125 GWh of Class I Qualified Clean Energy Under Section 6 of Public Act 13-303*
  - **Massachusetts**
    - *817 GWh per year of Class I Qualified Clean Energy under Section 83(a) of the Green Communities Act, as amended*
    - *Additional Qualified Clean Energy of an undefined amount, so long as bids for such are in the form of the Delivery Commitment Model, for contributing to achievement of the goals of the Massachusetts 2008 Global Warming Solutions Act (GWSA)*
  - **Rhode Island**
    - *Qualified Clean Energy of an undefined amount, sought by Narragansett only in the form of the Delivery Commitment Model, for contributing to the goals of Chapter 31 of Title 39 of the General Laws of Rhode Island, the Affordable Clean Energy Security Act ("Chapter 39-31")*

Note: Several states have already procured clean energy resources via long term contract under these and other existing state energy procurement authorities

Regional Greenhouse Gas Initiative (RGGI)





Source: www.RGGI.org

Other Initiatives

- Green Banks
  - Connecticut Green Bank
  - Rhode Island Infrastructure Bank
  - Vermont Economic Development Authority
- Grid Modernization
- Storage
  - Massachusetts Energy Storage Initiative
- Electric Vehicles
  - New England Governors – Eastern Canadian Premiers' 2014 Resolution: five percent (5%) fleet market share penetration of alternative fuel vehicles by 2020
  - Four New England States joined the 2013 State Zero-Emissions Vehicle Program Memorandum of Understanding:
    - Massachusetts: 300,000 by 2025
    - Rhode Island: 43,000 by 2025
    - Vermont: 18,000 by 2025