

Dr. Dwayne Breger who is the Manager of the Renewable Energy and Climate Change Group at the Massachusetts Division of Energy Resources. His organization implements energy policies that ensure an adequate supply of reliable, affordable and clean energy for the businesses and residents of Massachusetts. His group is responsible for the implementation of the state's Renewable Energy Portfolio Standard.

Dr. Breger has focused particular efforts on biomass energy development. He works closely with the state Department of Conservation and Recreation and UMass Amherst on the U.S. DOE supported Massachusetts Sustainable Forest Bioenergy Initiative, and with the Northeast Regional Biomass Program through which he convenes the MA Biomass Energy Working Group. Through 2006, he served on the Board of the Biomass Energy Resource Center in Vermont.

He also serves as a member of the Staff Working Group of the Northeast Regional Greenhouse Gas Initiative, a ten-state carbon cap and trade program to begin in 2009. Prior to his current position, he was a member of the faculty of Lafayette College in Pennsylvania, a research associate at UMass Amherst, and a U.S. participant for the U.S. DOE in the International Energy Agency. He has been actively engaged with renewable energy for over 25 years. He holds a BS in Engineering from Swarthmore College, an MS in Technology and Policy from MIT, and a PhD in Resource Economics from UMass Amherst. Please welcome Dwayne Breger.....

The Role of Biomass in Serving Renewable Energy Portfolio Standards (RPS) in New England

The Northeast Forest Bioproducts Puzzle
A Strategic Planning Session
Forest Products Society – Northeast Section
UMaine – Forest Bioproducts Research Initiative

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What is an RPS Program?

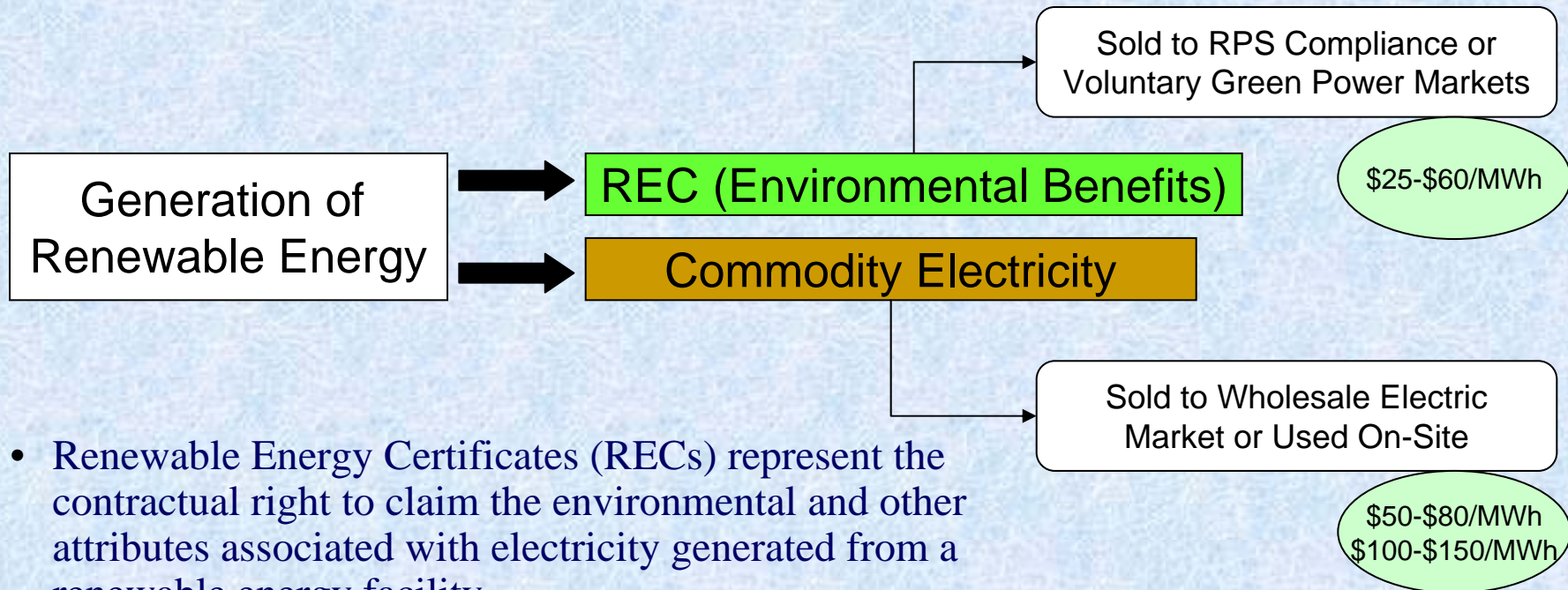
- RPS Programs establish, by policy, a market demand for renewable energy.
- Generally, programs require electricity suppliers to provide customers with a small but increasing amount of qualified renewable energy.
- Qualified RE generators generate and sell Renewable Energy Certificates (RECs) to electricity suppliers to meet their requirements.

Objectives

- Decrease pollution from fossil fuels
- Reduce dependence on imported fuels
- Increase fuel diversity
- Hedge against volatile fossil fuel markets
- Dampen electricity market clearing prices
- Promote economic development



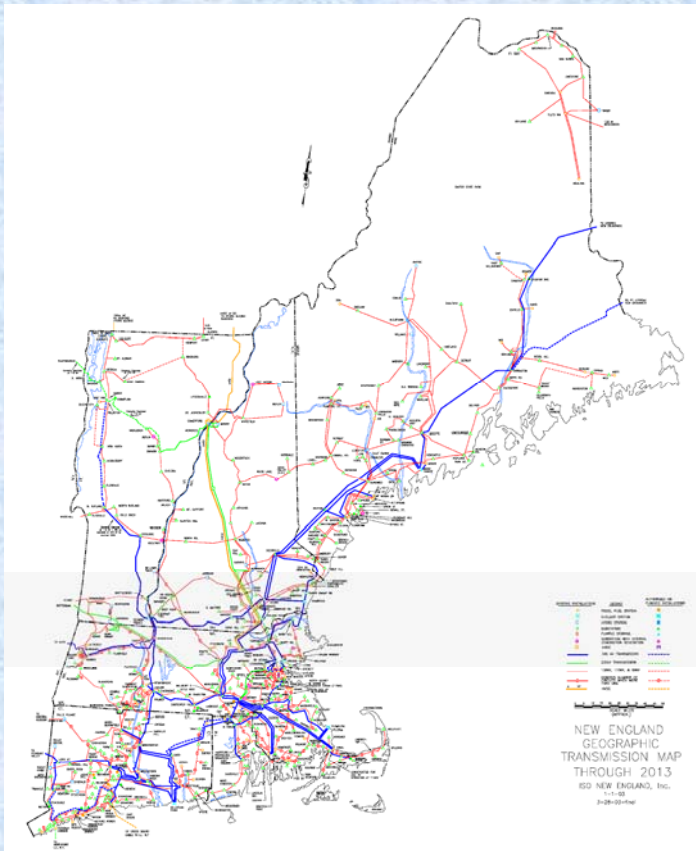
What are RECs?



- Renewable Energy Certificates (RECs) represent the contractual right to claim the environmental and other attributes associated with electricity generated from a renewable energy facility
- May be traded independently of energy markets
- RECs are electronically tracked and traded (NE-Generation Information System)



New England is Connected as One Regional Electric Grid



ISO-NE Interconnections

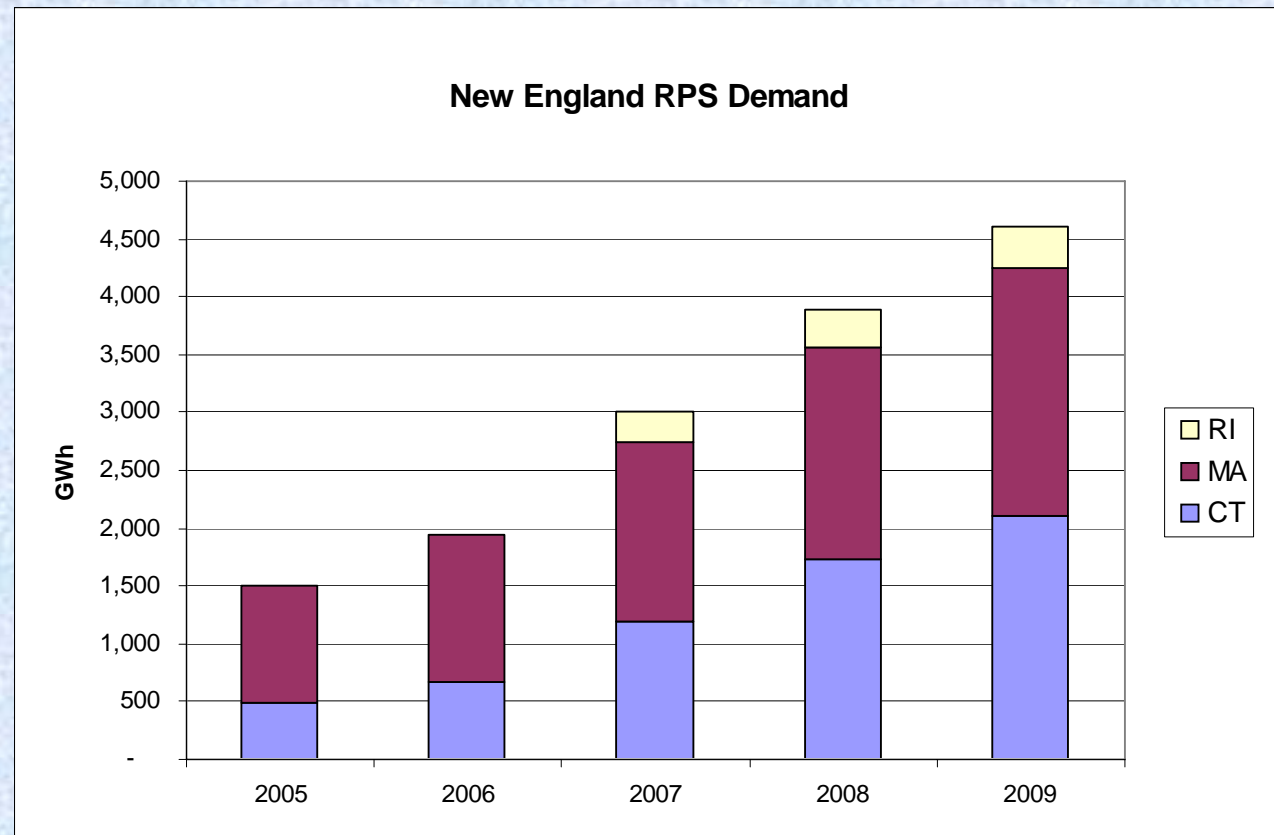
New York, Québec, New Brunswick

RPS objectives are well served by RE generation from through New England, or imported through interconnections.



Growth of RPS Demand in New England

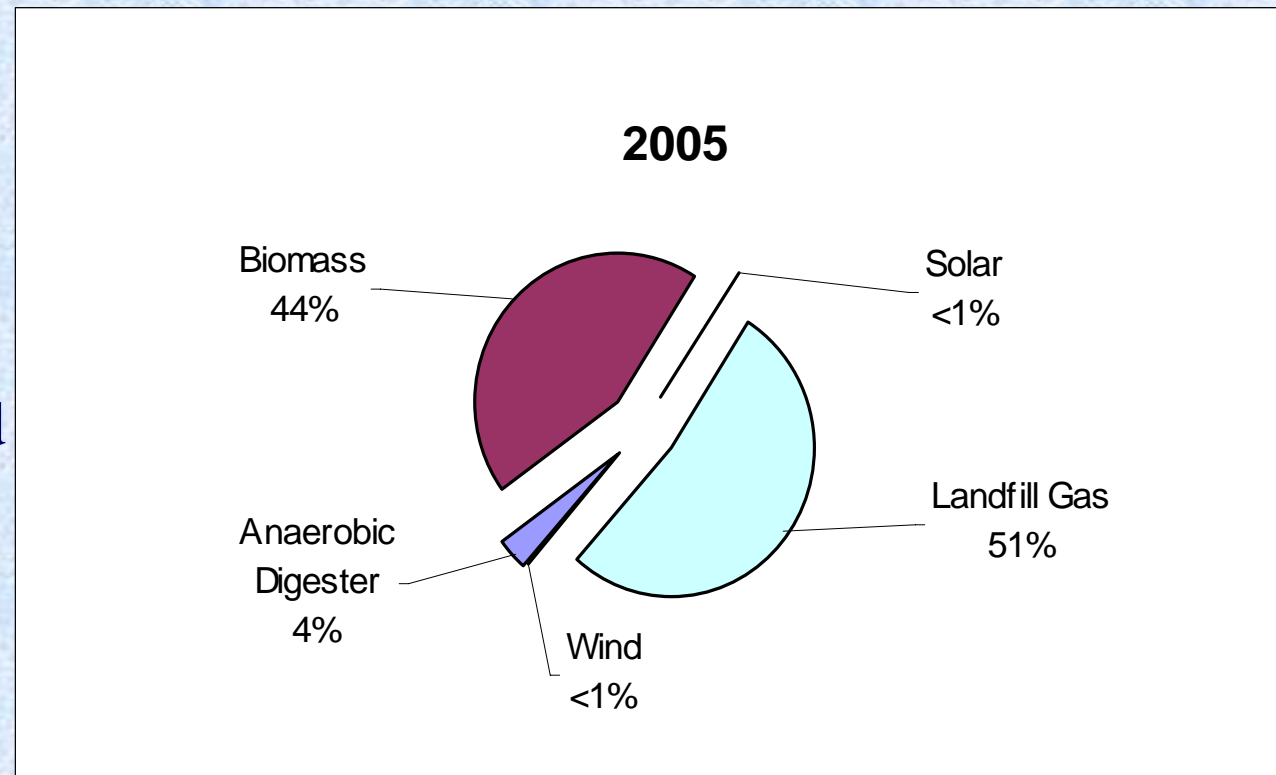
MA, CT, and RI all contribute to the region's demand for new Renewable Energy



Recent Contribution to MA RPS Compliance

Biomass and LFG are currently dominant resources.

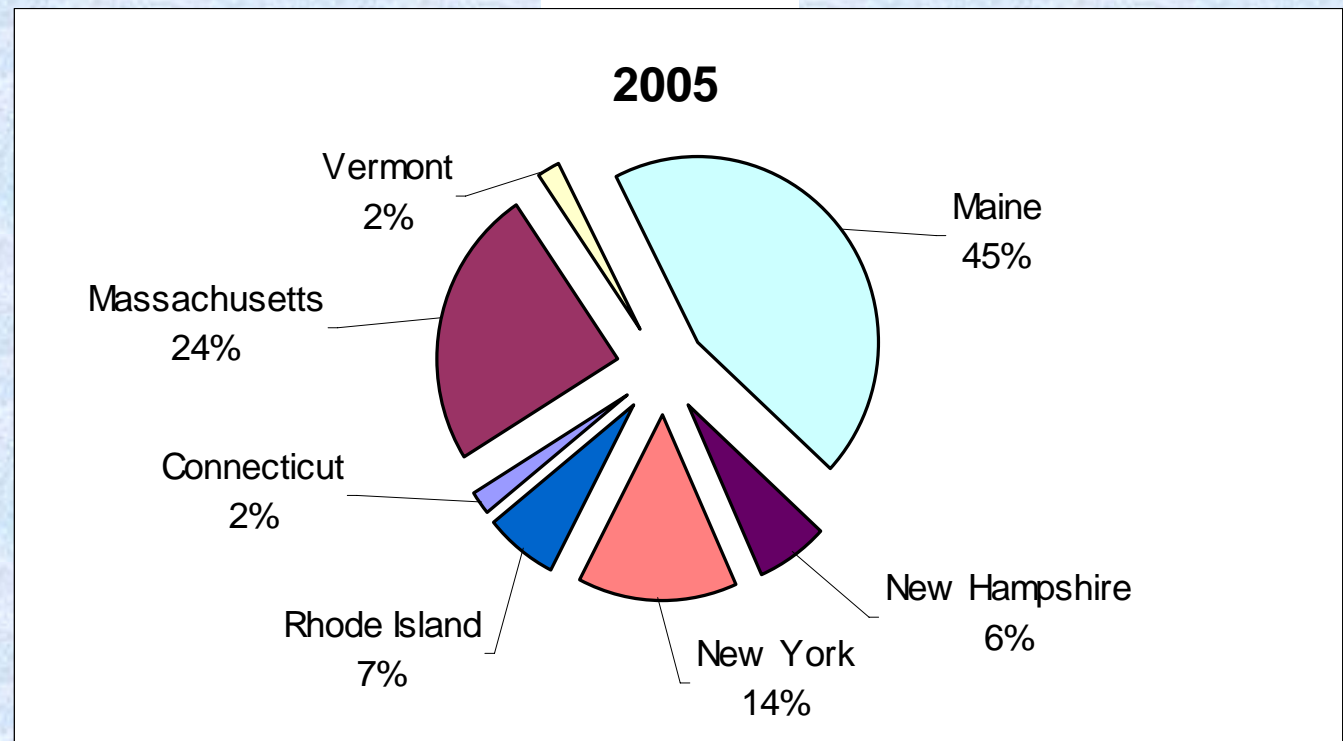
Biomass is expected to continue to increase, along with wind.



Recent Contribution to MA RPS Compliance

MA and ME are leading sites for RPS Generation

NH (Schiller) and imports from NY/CN have grown.



Biomass Units Qualified for MA RPS

Over 200 MW Qualified; of which about 130 MW are currently in operation

MA RPS Number	Plant - Unit	Name Plate Capacity MW	Vintage Generation, MWh
BM-1002-02	Washngtn - Indeck Jonesboro	27	7,884
BM-1003-02	Enfld ME - Indeck West Enfield	27	20,888
BM-1024-04	Deblois-Worcester Energy	25.85	3,126
BM-1026-04	Ware Cogen	8.6	
BM-1033-05	Iggy's Biodiesel CHP	0.045	
BM-1039-05	Greenville Steam Company	20	
BM-1043-06	Boralex Livermore Falls	40	
BM-1053-06	Schiller Station Unit 5	50	
BM-1048-06	Laidlaw Energy & Environmental, Inc.	5.5	



Comparison of Biomass Qualifications in New England RPS Programs

	MA	CT	RI	NH (begins 2008/2009)	ME (begins 2008)
Biomass Technology	Advanced Technology (exclusion to stoker technology now removed)				
Eligible Biomass Fuels	Wide range of clean biomass – solid, liquid, & gas.	Sustainable biomass	Same as MA		
C&D Eligibility	Under review	No	No	No (statewide ban on burning C&D)	
Emissions	Low emission requirement. Guideline specifies limits for NOx & PM.	Must meet NOx limit of 0.075 lbs/mmBtu	Compliant with current air permits.	Compliance w/ applicable standards	
Biomass Co-firing Eligibility	Yes. Unit must meet MassDEP emission limits for new, comparably-fueled units.		Yes, w/ fossil fuels (but not with C&D or other wastes)		
Vintage	Only incremental output of old unit (pre-1998) can qualify, if unit is advanced/low emissions.	Full output of old units can qualify provided other criteria are met.		Incremental output of older plants (pre-2006) if result of capital investments.	
Other RPS Classes		Class II includes trash-to-energy and non-Class I biomass.		Class III for pre-2006 biomass units 25 MW or less.	Older, 30% standard is still operative, includes some trash-to-energy.



SWOT Analysis - STRENGTHS

- RPS programs create a meaningful market incentive/subsidy for renewable energy.
- Biomass energy is a key contributor to the New England RPS programs and is beginning to be recognized as such.
- RPS programs have stimulated development of biomass generation with strict emissions standards and better public acceptance.
- RPS programs stimulates demand for low-valued wood fuel and supports forestry industry/rural economic development. States generally require good forest management practices.
- Multiple states in New England with RPS programs reduces market and political risk to generators.



SWOT Analysis - WEAKNESSES

- RPS programs do not serve needs of older biomass plants in New England (however NH Class III may fill this void, and retooling for low emissions may fulfill CT Class I requirements).
- RPS demand for biomass energy does not directly stimulate needed investment in biomass supply infrastructure, resulting in fuel procurement risk for developers.
- RPS does not support/subsidize opportunities for biofuels, biochemicals, or biomass thermal applications – district heating, school heating, etc.



SWOT Analysis - OPPORTUNITIES

- RPS provide low emissions biomass with equal status with wind/solar, and improved public understanding.
- RPS creates sustained continuous demand for low grade wood creating stable conditions for forestry investments and operations.
- RPS will stimulate emerging biomass technologies to serve distributed generation and CHP loads.
- Biomass role in RPS's have stimulated forest resources assessments
 - MA Sustainable Forest Bioenergy Initiative
 - Northern Forest Biomass Energy Initiative



SWOT Analysis - THREATS

- RPS programs create market conditions that are subject to whim of state legislators, creating political risk to REC demand/prices.
- RPS creates spot market for selling RECs and not long term revenue certainty needed for project financing. (Some states have instituted long term contracting opportunities through utility companies.)
- Large new biomass power plants impact rural communities (emissions, truck traffic) and create opportunities to burn other solid fuels (C&D, tires, trash) – creating threat to communities and public opposition.
- Woody biomass feedstocks will compete in various markets (power generation, biorefineries, cellulosic ethanol) creating price and supply uncertainties.



Questions / Discussion

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