

# Renewable Portfolio Standard Renewable Energy Credits: Creating Markets for Clean Power

NCSL Legislative Wind Institute

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# Introduction

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## Regulatory Assistance Project

RAP is a non-profit organization, formed in 1992, that provides workshops and education assistance to state government officials on electric utility regulation. RAP is funded by the Energy Foundation and the US DOE.

Richard Sedano was Commissioner of the Vermont Department of Public Service, 1991-2001, and presently serves on the Montpelier Planning Commission



# What are states trying to do?

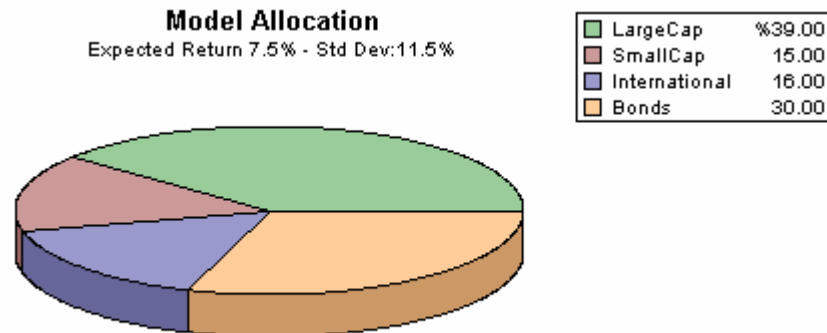
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- Cleaner Power Generation
- Diversify Power Supply (manage risk better)
  - ❖ Fuel costs, environmental regulation, ???
- Promote Local Clean Power Industry
- Promote More “Controllable” Supplies
- Drive Down Scale Costs of New Supplies
- Use Market Forces for Economic Efficiency
- Deal with market and utility barriers/reluctance

# What is an RPS?

## ➤ Renewable Portfolio Standard

❖ Think of an investment portfolio pie chart

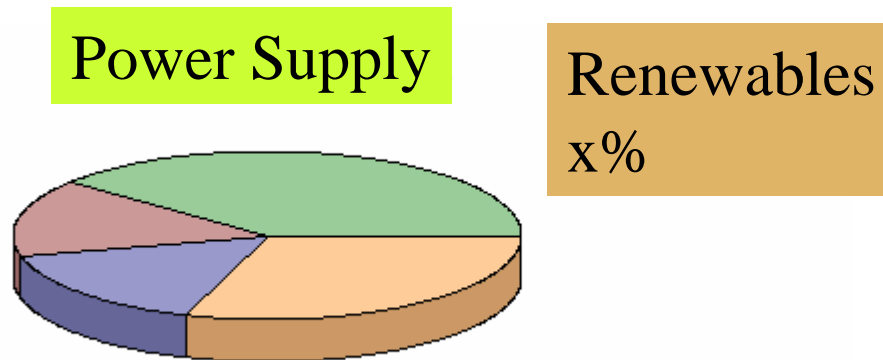


From [www.Quicken.com](http://www.Quicken.com)

❖ Maximize expected return with a given acceptable risk

# Portfolio Std. Serves Regulation and Markets

- Carve out a niche for preferred power
  - ❖ Size should take note of supply potential
- Competition decides best resources
- All consumers share responsibility





# RPS Issues

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- Definition
  - ❖ Not necessarily intuitive
  - ❖ What systems, fuels does state favor?
  - ❖ Tiers and set asides
  - ❖ Customer side resources
- Lead time
  - ❖ Early compliance
- Ramp up
- Alternative Compliance
- Link to load growth
- New only?
  - ❖ Status of existing
- Relook in the future
- Mind neighbors
  - ❖ Commerce Clause
- Cost
- Credits vs. Power
  - ❖ Link to local eco devo

# CT, RI and MA

## Renewable Portfolio Standard Requirements

	Connecticut		Rhode Island		Massachusetts
	Class I	+ Class I or II	New	+ New or Existing	New Renewables
At end of year					
2003					1.0%
2004	1.0%	3.0%			1.5%
2005	1.5%	3.0%			2.0%
2006	2.0%	3.0%			2.5%
2007	3.5%	3.0%	1.0%	2.0%	3.0%
2008	5.0%	3.0%	1.5%	2.0%	3.5%
2009	6.0%	3.0%	2.0%	2.0%	4.0%
2010	7.0%	3.0%	2.5%	2.0%	5.0%*

Sources: State statutes: CT, Public Act No. 03-135 (Substitute SB 733 of 2003); MA, M.G.L. Ch. 25A, Section 11 (Chapter 164 of the Acts of 1997); RI, G.L. Title 39 Chapter 26 Section 4 (2004-H7375 SubA).

\*Massachusetts may choose to forego the 2010 increase





# Variations

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- Clean Energy Portfolio Standard
  - ❖ Include non-renewable fuels and efficiency
  - ❖ Drives state policy in more complex way
- Integrated Resource Planning
  - ❖ Renewables as prudent power supply element
- A renewable goal



# How to Keep Score?

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- Traditional Way:
  - ❖ Owned generation
  - ❖ Contracts
  - ❖ Share of “system power”
- New Way
  - ❖ Tradable credits



# Renewable Energy Credits

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- Renewable Energy has a distinct attribute
- Separate the attribute from the commodity energy
  - ❖ Trade energy and attributes in separate markets
  - ❖ Need new market structure for attributes
    - ◆ Renewable Energy Credits defined
    - ◆ Electronic trading market to enable efficiency trading and prevent double counting, other fraud

# A Good Graphic Showing Separation (MN 2004 Renewables Workshop)

Production of  
Renewable Energy



**Environmental & Other Benefits  
(from displacement)**

**Commodity Electricity**

- *Certificates 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*

Center for



**RESOURCE SOLUTIONS**



# RECs Support Policy and Markets

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- Support RPS and variants
- Support Green Marketing
  - ❖ Utility claims
  - ❖ Competitor claims
- A way to demonstrate whose dollars support best renewable energy production
  - ❖ Without requiring production in a state



# Sources and Sinks

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- So you can have one state that has no resources have an RPS, and the utilities or load servers buy credits from generators in other states
- And another state can generate lots of credits for sale
  - ❖ This state cannot claim credits it sells – that would be misleading to the public



# New Markets for RECs: Enabled by Huge Database

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- New England Generation Information System
- PJM Generation Attributes Tracking System
- Wisconsin system (RECs only)
  - ❖ Upper Midwest states considering a system
- Western Renewable Energy Generation Information System (WREGIS) (RECs only)



# Administration

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- Certification of qualifying generators
- Certificates for each MWh of generation
- Review of compliance, enforcement
  - ❖ Direct access by regulators to relevant market data in NE GIS
- Evaluate overall performance, changes
  - ❖ Seams with surrounding markets, counting



# Supportive Policies

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- Clean Energy Funds
  - ❖ Deployment
  - ❖ Research and development
- Financing Support
- Sales Tax Relief
- Investment Tax Credit
- Technical Assistance



# Local Resources Have Local Value

**Renewable Generator Total Impact: Output (000's of 2001 Dollars)**

Year	Direct	Indirect	Induced	Total
2000 – 2004	166,875	31,833	148,437	347,146
2005-2010	2,133,717	-184,487	1,759,955	3,709,182
<b>Total</b>	2,300,592	-152,654	1,908,392	4,056,328

**Renewable Generator Total Impact: Employment (Job-years)**

Year	Direct	Indirect	Induced	Total
2000 – 2004	686.8	242.6	1,503.0	2,432.1
2005-2010	-2,775.9	-2,595.1	16,135.8	10,764.4
<b>Total</b>	-2,089.1	-2,352.5	17,638.8	13,196.5

**Renewable Generator Total Impact: Labor Income (000's of 2001 Dollars)**

Year	Direct	Indirect	Induced	Total
2000 – 2004	30,510	12,196	62,072	104,781
2005-2010	-374,563	-102,595	720,593	243,439
<b>Total</b>	-344,053	-90,399	782,665	348,220



# Environmental Effects

**Net Emissions Reductions due to Existing,  
Planned and Imputed Renewable Generation to  
meet Portfolio Standards, 2000-2010 (tons)**

	NO <sub>x</sub>	SO <sub>2</sub>	CO <sub>2</sub>
<b>2000-2010 Total</b>	5,603	8,532	9,163,126



# State Snapshots

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- MA: New resources only; Energy office in charge of administration, certification
- ME: No encouragement of new resources
- CT: did not apply to default service, corrected
- NY: Central acquisition of RECs by state
- PA: includes efficiency and waste coal in a tier
- NJ: a solar set aside, mid-course increase

# Renewable Electricity Standards

Nevada: 15% by 2013,  
solar 5% of annual

Minnesota: 19% by 2015\*

New York:  
24% by 2013

Maine: 30%  
by 2000

Iowa: 2% by 1999

Wisconsin:  
2.2% by 2011

MA: 4%  
by 2009

RI: 16%  
by 2019

CT: 10% by 2010

NJ: 6.5% by 2008

Maryland:  
7.5% by 2019

Washington D.C.:  
11% by 2022

Pennsylvania:  
8% by 2020

California:  
20% by 2017

Arizona: 1.1% by  
2007, 60% solar

New Mexico:  
10% by 2011

Texas:  
2.7% by 2009

Colorado: 10% by 2015

Hawaii: 20% by 2020

★ 18  
States  
+ D.C.

\*Includes requirements adopted in 1994 and 2003 for one utility, Xcel Energy.



# RPS Issues - Recap

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# Resources

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- UCS web site [http://ucsusa.org/clean\\_energy/renewable\\_energy/page.cfm?pageID=895](http://ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=895)
- Dsire web site <http://www.dsireusa.org/>
- CRS <http://www.resource-solutions.org/>
- [www.Nepoolgis.com](http://www.Nepoolgis.com)
- NAAG [http://www.naag.org/issues/pdf/Green\\_Marketing\\_guidelines.pdf](http://www.naag.org/issues/pdf/Green_Marketing_guidelines.pdf)
- NREL <http://www.nrel.gov/>
- Cost <http://www.mass.gov/doer/programs/renew/rps-docs/fca.pdf>
- Evaluation <http://www.mass.gov/doer/rps/annual.htm>



# Thanks for your attention

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❖ [rapsedano@aol.com](mailto:rapsedano@aol.com)

❖ <http://www.raponline.org>

❖ RAP Mission: *RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, assure system reliability, and allocate system benefits fairly to all customers.*