



An Overview of the U.S. Renewable Energy Certificate Markets

Massachusetts Electric
Restructuring Roundtable
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Presentation Overview

- California
- Texas
- PJM
- NEPOOL: Massachusetts
 - Prices
 - Concerns
 - Supply & Demand
 - Perspectives
 - Solutions?



California: fast facts

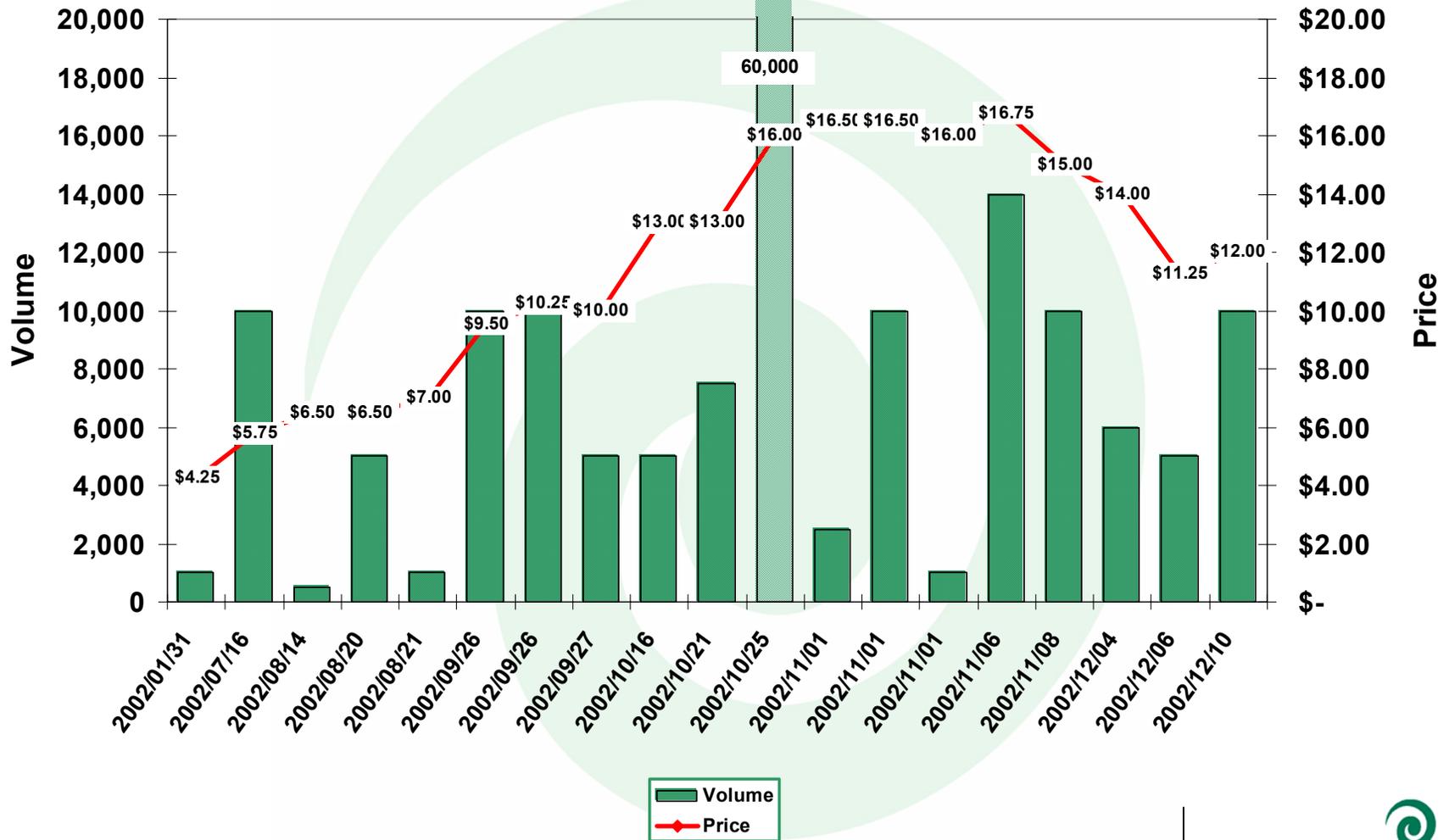
- RPS passed mid-September
- Mechanics haven't been specified yet—currently based on a bundled product, but might move to certificates?
- 20% by 2017; increase of ~1% a year
- SoCal Edison and PG&E have 80% of market
 - Already get ~12% from renewables; expected to hit 20% by 2012.
- SDG&E starting from 0%, but has already purchased some of their needs.



Texas: fast facts

- Uses GIS system
- First in nation to trade
- Program success has been striking:
 - 400 MW mandated for 2002-3, but
 - 1000 MW already on line
- Market participants notably more willing to take risk
- Two key factors:
 - Certificates can be traded at any time
 - Certificates can be banked for 3 years

Texas REC Volumes and Prices





PJM: fast facts

- NJ Interim RPS mandates LSEs to source a percentage of their load from renewables:

	Class I	Class II
2002	0.5%	2.5%
2003	0.75%	2.5%

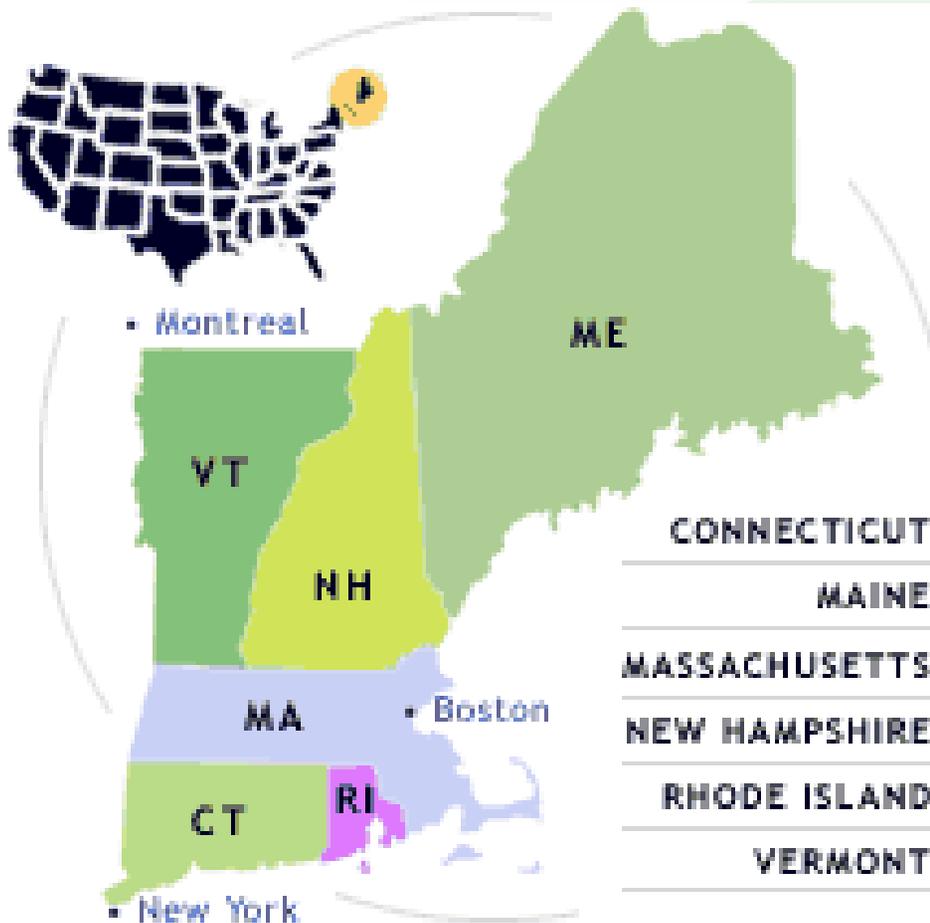
- Class I = “pure”—solar, wind, biomass, landfill
- Class II = small hydro (<30 MW), MSW
- Class I prices around **\$4**, Class II prices around **\$2.50**
- Officially, no trading of certificates yet
 - **GATS Working Group meets monthly**
 - **Certificate-based system by 2004?**
- However, **green-for-brown swaps** being done



New York: fast facts

- Environmental disclosure (labels)
- No RPS yet; under consideration?
 - Executive Order 111 mandates 20% renewable energy for state facilities by 2010.
 - NYPA issuing RFP for 50 MW of wind generation for 10-15 years
- No tradable certificates yet;
 - however, feasibility study underway
- Cost of importing power to NEPOOL?

NEPOOL



Mass. New Certificates:

- Prices
- Concerns
- Supply & Demand
- Perspectives
- Solutions

Prices

- Certificates have traded between \$15 and \$28; average has been around \$23, but have heard prices as high as \$30.
- However, extremely difficult to get LSEs to buy forward at this level.
- Downward trend in asking prices as trading period draws to a close.

Concerns

- Without forward sales → difficult to establish a forward price curve
- Project developers look to forward price curves
- Limited ability to bank certificates a disincentive to “be long”
- Inability to trade certificates at any time means buyers unwilling to take on risk

Level playing field?

Different perspectives...

Generators:

- Generator's (nameplate) capacities are public info
- Quantity of certificates generated is public info
- By and large, generators are smaller entities, have less time & resources to devote to market analysis, negotiation, etc.
- Express frustration at what they perceive to be unfair advantages for LSEs

LSEs:

- Load is estimated
- Distribution of load is estimated
- Have staff assigned to manage portfolio
- Express frustration at what they perceive as generators taking advantage of a "windfall"

Supply and Demand?

Most market participants agree that:

- The combined generation for 2002-2003 will be slightly larger than 2003 needs.
- However, in 2004, although a portion of 2003 certificates can be banked forward,
 - the remaining demand must be met with 2004 generation
 - the minimum percentage will increase to 1.5%

**→Some LSEs will have to make the
\$50 Alternative Compliance Payment.**

Catch-22?

- Thus, there is no disagreement that more generation will have to come online to meet demand from 2004 onward.
- However, project developers need contracts for the power and certificates (usually at least a 5-year term) to secure financing.

Solutions?

- Minimize obstacles to trading certificates
 - Market capitalization will increase
 - Project development will increase
- Guarantee generators a minimum price?
 - Forward curves are key
- Imports?
 - Unappealing to NEPOOL generators, but...
 - Potential for reciprocal benefits if NY gets RPS
 - Limited percentage as a safety valve?
- Other states' RPS
 - Increased demand for new projects

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