



An Overview of the Renewable Energy Credit (REC) Markets

Prepared for the 2005 New Jersey
Clean Energy Conference
Sept 26, 2005
New Brunswick, NJ

About Evolution Markets

↔ Introductory energy broker with offices in New York, San Francisco, Houston, Calgary, London – Prague – Bratislava

↔ Markets served:

- Renewable Energy Credits and Green Energy
- SO₂ and NO_x Emissions Allowances
- HGB NO_x Allowances and RECLAIM RTCs
- Emission Reduction Credits (ERCs)
- GHG Reductions and EU CO₂ Allowances
- Weather Derivatives
- OTC Coal – domestic and international
- Natural Gas
- Nuclear Fuels

↔ Highest Volume Environmental Broker

- More than \$6.5 billion in brokered environmental transactions

Environmental
Finance

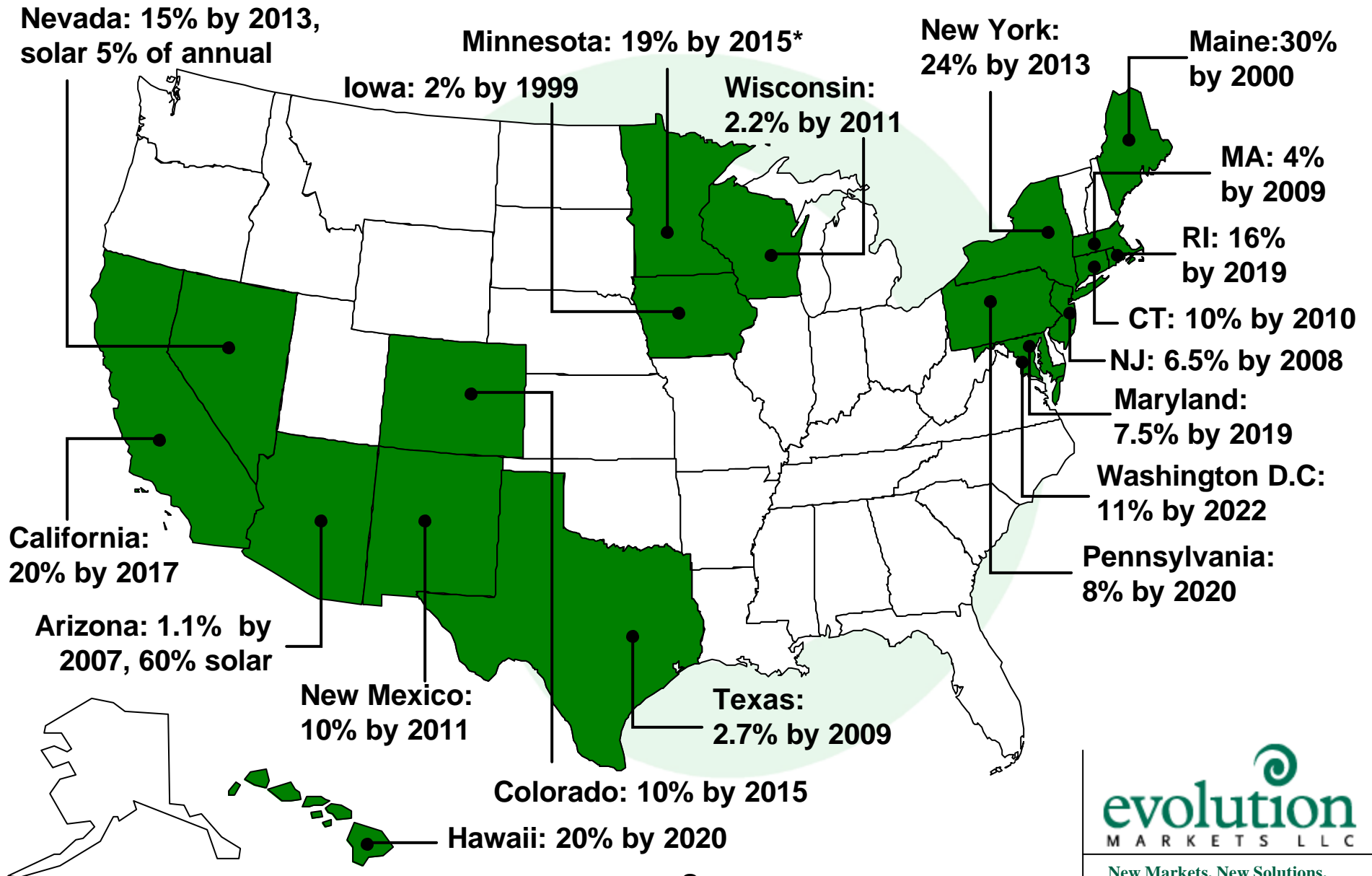
Voted “Best Broker: REC (US)” in 2003 and 2004

RISK MANAGEMENT • TRADING • FINANCE

energy risk

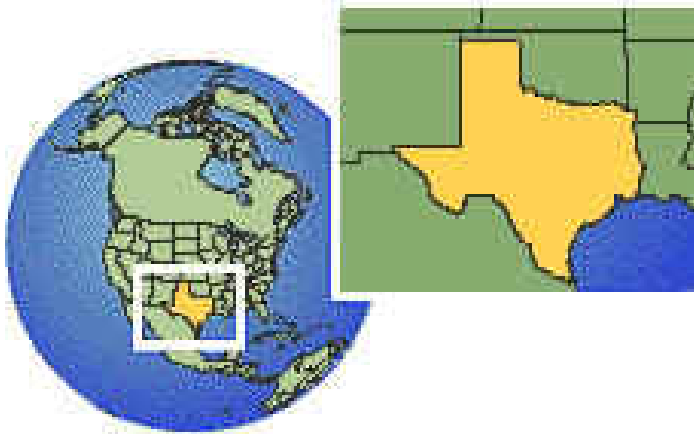
Named “House of the Year: Weather/Emissions” 2004

“Best European Emissions Broker” 2005



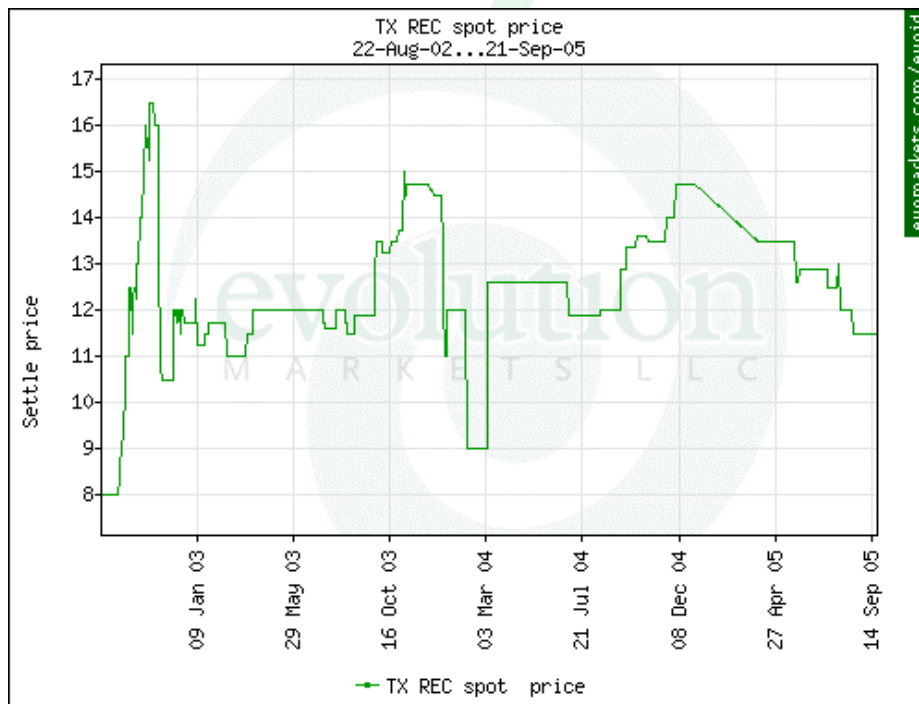
Source: www.ucsusa.org





Texas Snapshot

- ⇔ First in nation to trade
- ⇔ Uses GIS (Generation Information System) to track RECs
- ⇔ Program success has been striking:
 - 850 MW mandated for 2004, but ~1200 MW already on line (~1100 MW is wind)
- ⇔ Program success due in part to two key factors:
 - Certificates can be **traded at any time**
 - Certificates can be **banked for 3 years**
- ⇔ Prices currently around \$14.50 for vintage 2004 RECs

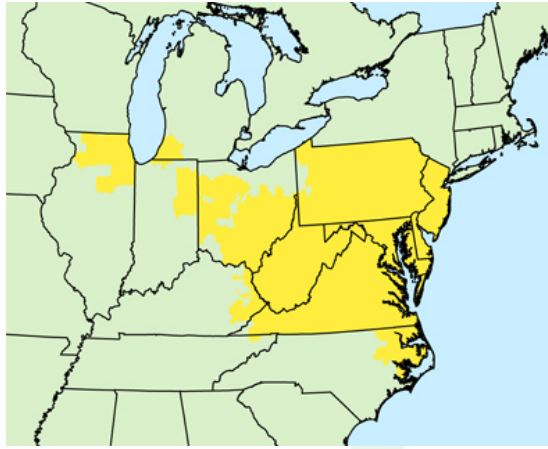


Texas: Deal Structures

- ↔ Most RECs sold with the energy under long-term (10+ year) PPAs.
- ↔ Most off-take agreements are with entities that also have compliance needs (e.g., TXU, AEP, Reliant), so most if not all of the RECs are never offered in the bilateral market.
- ↔ We are not aware of any generator that is selling power and RECs directly to separate buyers.
- ↔ We are not aware of any future-vintage REC-only trades having occurred.

Texas: Market Outlook

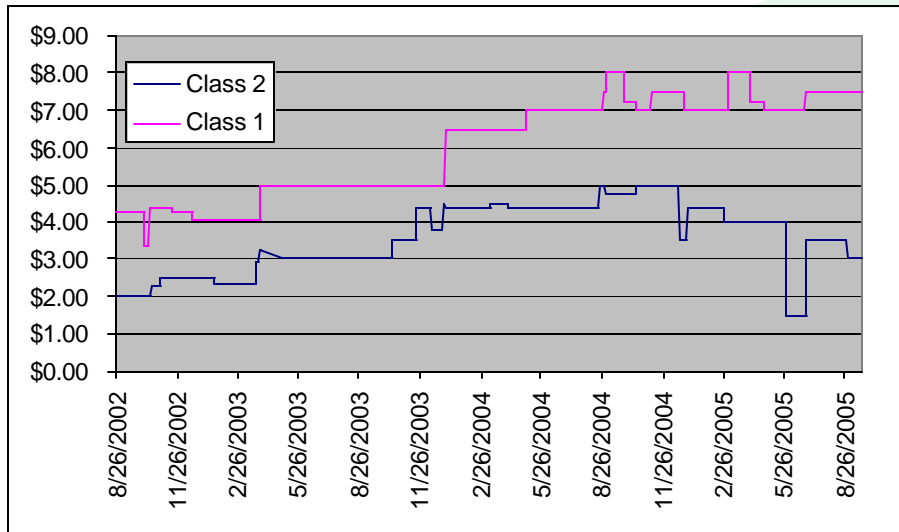
- ↔ Installed renewable capacity in Texas well exceeded the targets for 2002-2003 and 2004-2005.
- ↔ As a result, the market was/is over-supplied for 2002 - 2005 (2002 REC supply was almost twice the compliance need).
- ↔ However, there are a number of factors which could contribute to a shortage in 2006 – 2008:
 - Transmission constraints
 - Stalled development in 2004 due to uncertainty about the production tax credit (PTC)
 - Regulatory change – significant increase in targets?!



PJM Snapshot

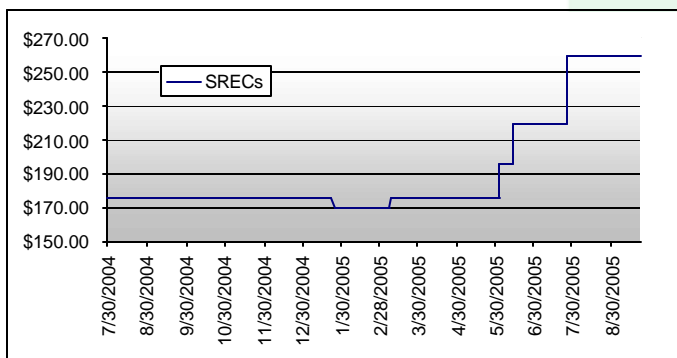
- ↔ NJ currently the only active compliance market
- ↔ MD has passed RPS – begins in 2006
- ↔ PA has passed RPS – begins in 2007 (but not for everyone)

PJM Snapshot: New Jersey



↔ NJ was the first compliance market in PJM

- Began 2002, new RPS rules went into effect June 1, 2004
- Relatively aggressive target (2.5% by 2008)
- Alternative compliance: \$50 for Class I/II, \$300 for Solar
- Prices: Class I -- \$7.00; Class II -- \$3.00; Solar -- \$175 - \$200
- Supply & Demand: forward picture very murky – demand could increase with other state RPS, but supply will increase as PJM expands.





PJM Snapshot: Maryland

- ↔ MD will be the second compliance market in PJM
 - RPS passed in May 2004, 2006 will be first compliance year.
 - RPS target (Tier I): 7.5% by 2014.
 - Alternative Compliance: Tier I - \$20; Tier II - \$15/MWh.
 - Prices: only one Tier I trade has occurred, price was ~\$3.00.
 - Supply & Demand: supply will depend on geographic eligibility – some regulatory uncertainty.



PJM Snapshot: Pennsylvania

- ↔ PA has the newest compliance market in PJM
 - RPS passed in November 2004, 2007 will be first compliance year (but several utilities exempt until 2009-2010)
 - RPS target: 18% by 2021.
 - Alternative Compliance Payment: \$45/MWh (Tiers I & II)
 - Prices: too early to tell, but likely to follow NJ REC prices?
 - Supply & Demand: RPS rules not final. Qualifying generation resources likely to be located anywhere in PJM service territory or deliver into PJM grid.

NEPOOL Snapshot

↔ Uses GIS system

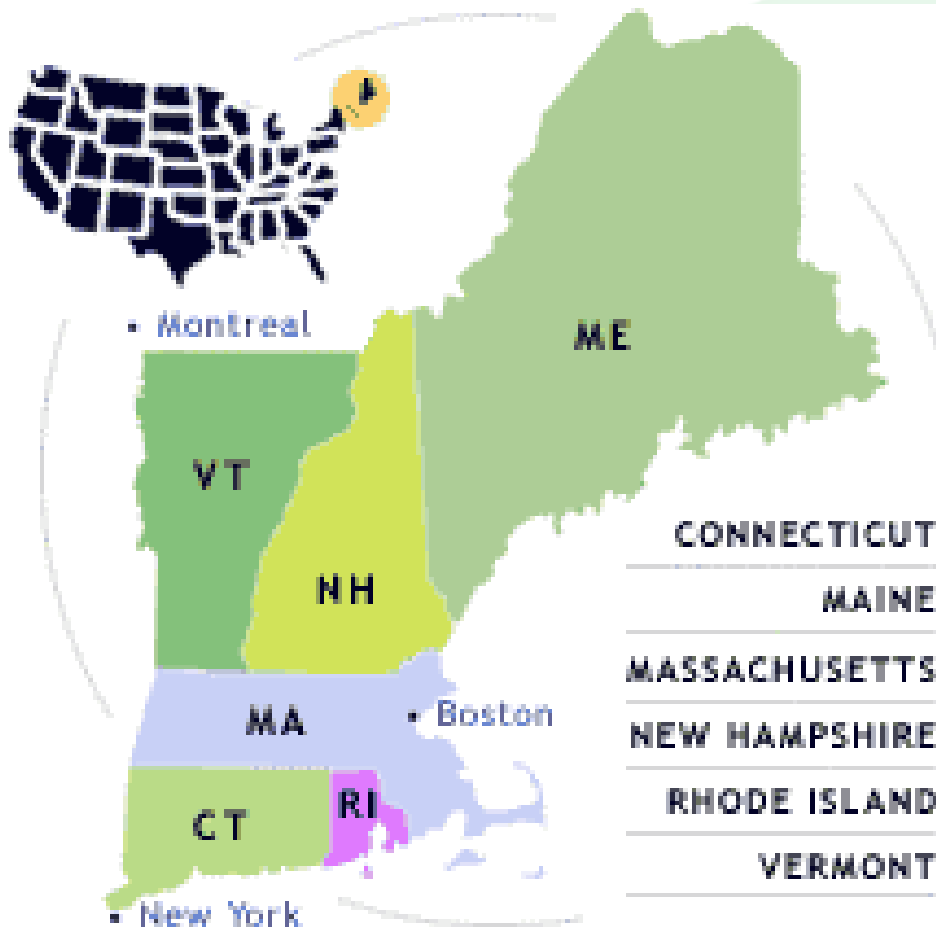
↔ Three states have RPS:

- Massachusetts
- Connecticut
- Maine

↔ Maine RPS is relatively lax, prices are quite low

↔ Massachusetts and Connecticut have very aggressive RPS

- MA & CT likely to be undersupplied for the next few years; changes in CT's "import" rules could change this
- certificate prices highest in country
- disconnect between developers' and buyers' time horizons





MA Snapshot

- ↔ 2004, 2005 REC supply is almost “sold out”
- ↔ “Imports” from NY providing much-needed breathing room
- ↔ 2006 supply picture looks a little better, but also likely to be tight
- ↔ 2004 prices have gone as high as \$51.05 (against a \$51.40 alternative compliance payment)
- ↔ 2005 ACP expected to be ~\$53, 2005 prices expected to be \$50+



CT Snapshot

- ↔ RPS passed June, 2003 - rules finalized October, 2004
- ↔ Strong likelihood that “mail in certificates” (RECs w/out delivery of power) will be permitted
- ↔ Eligible source states: NY, NJ, PA, MD, DE
- ↔ Expectation of increased supply from “mail in” RECs dampening prices for 2005, 2006
- ↔ CT’s acceptance of “mail in” RECs could raise PJM/NY REC prices
- ↔ 2004-2005 prices: Class I - \$35 - \$45; Class II - \$0.30

NEPOOL : Resource Mix

- ↔ The RECs sold in the MA and CT compliance markets are almost exclusively from landfill gas, biogas and biomass.
- ↔ Biomass is likely to dominate the compliance RECs market for the next few years, primarily because of:
 - the relative ease/low cost of retrofitting existing facilities.
 - relatively plentiful fuel supply (whereas wind resources are generally not good).
- ↔ Although wind is an eligible resource, there are no major wind projects operating in NEPOOL at present. In terms of wind, the proposed 420 MW Cape Wind project is by far the biggest potential source within NEPOOL.
- ↔ However, New York state has excellent wind resources, and while exporting to NEPOOL involves additional cost and some technical obstacles, many developers are considering this option.

Voted Top Renewables Broker – North America

12/04 Environmental Finance Customer Survey

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The logo for Evolution Markets LLC features a stylized green swirl icon above the word "evolution" in a lowercase, green, serif font. Below "evolution" are the words "MARKETS LLC" in a smaller, uppercase, green, sans-serif font.

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