



An Overview of the Renewable Energy Certificate Market

Evolution Markets Inc.



Transactions 101



Transactions 101: How do RECs trade?

One REC represents the attributes associated with one megawatt hour (MWh) of energy from a renewable source

RECs are assigned a “vintage” based on the year in which they were generated

RECs are quoted by resource type and/or the market eligibility

Examples:

“5,000 vintage RY 2009 New Jersey Class 1 RECs”

“10,000 vintage 2009 Massachusetts-eligible RECs”

“30,000 Q4 2008 Nationwide Green-E Landfill RECs”

Voluntary Market: Basics

- Driven by environmental disclosure, consumer demand, corporate commitments, carbon claims
- Voluntary market pricing has increased markedly in the past year → although prices are very low compared to the compliance markets and are expected to remain so
- Voluntary buyers - generally less concerned about geographic location, but often have a preference for a specific resource type – usually wind
- In 2007, total sales in the voluntary markets (Green-e sales as well as utility green pricing programs) were approximately 13.3 million MWh
 - Roughly 1370 MW of around-the-clock generation

Voluntary Market: Pricing

price discretion based on
resource type:

Solar: \$2 - \$12



Biomass/Low-impact Hydro: \$1 - \$6

Wind: \$1- \$18



Landfill Gas: \$1 - \$6

Geothermal: \$1-\$10



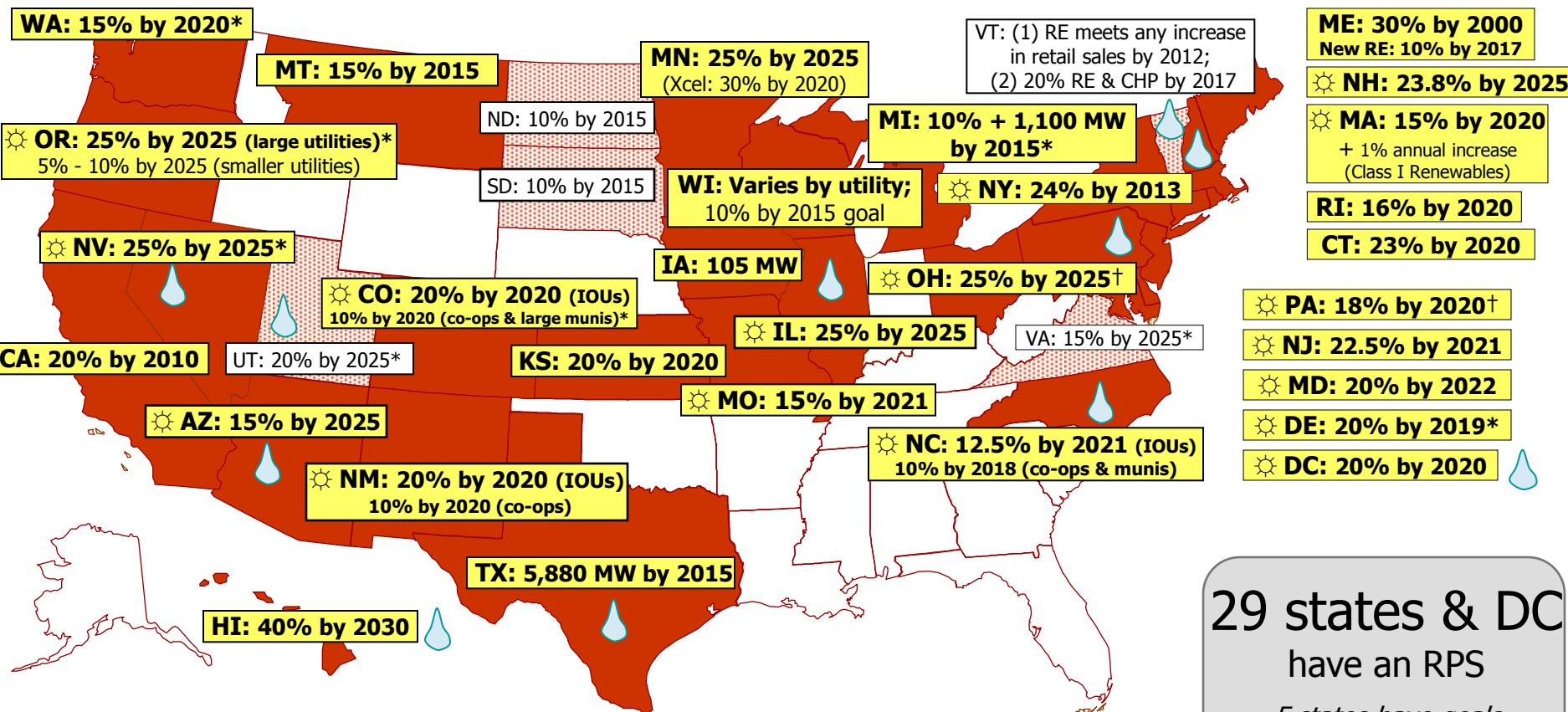
Compliance Markets: Pricing


- RPSs vary, so do the markets they create...
- The impact of an RPS is a function of supply (eligible resources) and demand (percentage requirements), enforced by penalties...
 - Maine Class II: 30% requirement, but 50% of supply qualifies → price ~\$0.20
 - Massachusetts: 4.0% requirement ('09), but limited resources qualify, and \$60.92 “alternative compliance payment” → prices \$30+


Compliance Markets


- Created by Renewable Portfolio Standards (RPS)
- The most salient feature of the compliance markets is that they differ considerably from state to state: prices differ. Therefore, some states are more attractive than others to renewable energy developers.
- Compliance buyers are generally indifferent to the type of resource that created the REC (insofar as it qualifies), but they are limited to a specific geographic region from which the REC can be sourced
- Approximate total volumes required in the compliance markets in 2008 were as follows:
 - Texas: 6.7 million MWh
 - Massachusetts: 1.9 million MWh
 - Connecticut: 1.7 million MWh
 - New Jersey: 2.9 million MWh (RY 2009)


Renewable Portfolio Standards – September 2009





 State renewable portfolio standard

 State renewable portfolio goal

 Solar water heating eligible

 Minimum solar or customer-sited requirement

 Extra credit for solar or customer-sited renewables

 Includes separate tier of non-renewable alternative resources

29 states & DC
have an RPS
5 states have goals