gt energy

U.S. REC Market Insight

RPS and Voluntary Market Interaction

Alternative Energy Conference
LSU
March 2-3, 2004

Jason Tournillon
Environmental Market Services
GT Energy LLC

Part I: REC Types

A) Renewable Portfolio Standard REC
B) Voluntary REC

(Main differences here are the types of demand drivers)

Renewable Portfolio Standard REC

- **Demand**: created by a government/State authority mandate.
- The mandate demands, generally, that a Power Marketer or Utility supply a minimum percentage of renewable source electricity to its customer base.
- It may do this through its own supply, through the procurement of Green Power (Power+RECs), or through solely procuring RECs.
- Short to intermediate term benefits - to help kick start the market.

Though many definitions are the same, each State defines eligible renewable energy sources independently, depending upon:

A. Generation Type

B. Build Date

C. Location:

- In-State vs. Out-of-State
- Within power pool vs. Outside power pool

RPS Market Examples

- Domestic: MA, CT, NJ Programs
- International: UK Renewable Obligation Scheme

gt energy

What would a typical transaction look like?

- Wind Energy Developer LLC sells 10,000 MWh of Q1 04 generated, MA eligible RPS RECs to MA Power Marketing Inc.
- Because it is more about compliance, generation type is less important. Therefore, specification standard drives prices in market.
- Typical trades go out 1 to 2 years.

Voluntary RECs

- **Demand**: created by the successful marketing efforts of Green Power/REC marketers, Utilities and Power Marketers.
- The Power Marketer offers to supply a percentage of renewable source electricity to his customers for a premium.
- It may do this through its own supply, through the procurement of Green Power (Power+RECs), or through solely procuring RECs. Similar to RPS markets.

Similar to how States independently define eligible renewable sources, so do Green Power Marketers:

- All of the same issues are important with a particular emphasis on generation type and build date.

    A. Generation Type

    B. Build Date

    C. Location

While generation type, in RPS markets, was important solely for meeting specification standards, in the voluntary market it is one of the most important factors, per marketing claims.

Market Differentiation

- Green Power products are most active in de-regulated markets where competition exists. Renewable power is a way to bring about product differentiation in electricity markets.
- Labeling tends to be very important to the market.

  Ex. CRS, ‘Green-e’ and ERT, ‘EcoPower’

Part II: Interaction between Voluntary and RPS markets

One of the most interesting market developments is that the flows between RPS and Voluntary sectors are becoming more fluid.

- RPS flows to Voluntary

- Voluntary flows to RPS

RPS to Voluntary

- Within RPS systems, Renewable Marketers are beginning to look further a field for their RECs.
- Caused by a tightening of supply because of the demand created by compliance, RPS measures.

- For example, there is now a $4 spread per MWh between PJM and NY-ISO LFG RECs and national LFG RECs.
- There is a $15 spread between PJM Wind and national Wind RECs.

Therefore parties looking to source the most cost effective product will be looking more frequently at the national REC market or at least outside his power pool or control area.

gt energy

Voluntary to RPS

- Renewable generators outside RPS systems are now looking for ways to get their generation into existing RPS systems.

  For example - renewable generators outside PJM may look to wheel renewable power into PJM to participate in the RPS market where premiums tend to be higher.

gt energy

Part III: Issues Affecting Liquidity

- Ownership Issues
- Segmented Market
- Knowledge Deficit on Renewables

Ownership Issues

- Long-term PURPA or PURPA-like PPAs were usually silent on who owns the environmental benefits. Therefore, in certain markets there is a substantial amount of volume locked-up in ownership disputes.

- FERC has issued a ruling that the benefits belong to the generator if silent in the PURPA contract, unless a State rules otherwise.

Ownership, cont.

- Ownership can sometimes be more of a problem for the voluntary market than for the RPS market.
- Regulatory market takes the FERC ruling seriously.
- Voluntary market usually needs a letter from power purchaser stating they do not own the benefits. Most power purchasers are unwilling to do this.

gt energy

Segmented Market

What is considered Renewable is not homogenous:

- States define eligible RPS sources differently.

  Ex. NJ includes RRF and has no build date cutoff. MA has a build date cutoff and does not include RRFs.

- Voluntary marketers define renewable products differently.

  Ex. Some might include LFG in their product others may go for a 100% new Wind product.

gt energy

Knowledge Deficit on Renewables

- Intangible commodities difficult for many potential customers to understand.
- Takes time and no guarantees.

gt energy

Summary

- No complete consensus on what is eligible under RPS or voluntary.
- Both market segments are increasing revenue streams for renewables, regardless of whether the generation is located within an RPS State or not.
- As RPS markets grow, so will voluntary markets.