



An Overview of the Renewable Energy Credit (REC) Markets

Prepared for the Illinois Commerce Commission

Electric Policy Meeting

May 11, 2005

Chicago, IL

Presentation Overview

- About Evolution Markets
- RECs 101
- Compliance markets
- Using RECs for compliance
- Program design dos & don'ts
- Where to find price information

About Evolution Markets

- Evolution Markets LLC was founded in 2000
- Offices in New York – San Francisco – London – Prague – Bratislava
 - Markets
 - SO₂ Emissions Allowances
 - NO_x Emissions Allowances
 - OTC Coal Markets
 - Emissions Reduction Credits
 - GHG Reductions
 - Houston/Galveston NO_x Allowances
 - RECLAIM (Los Angeles NO_x & SO_x)
 - Discrete Emissions Reductions
 - Renewable Energy Credits
 - Weather Derivatives
 - Natural Gas & Power
 - Services
 - Introductory Brokerage Services
 - Structured Transactions
 - Expert Advisory Services
 - Joint Ventures

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Evolution Markets LLC: *Market Leader*

- Highest Volume Emissions Broker
- Highest Volume U.S. REC 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**


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Central message of this presentation:

- The over-arching goal when designing Illinois' RPS should be to create a market-based system that will get the greatest amount of renewable energy capacity built at the lowest cost.
- The best way to accomplish this is to create a flexible, RECs-based program that can interface with other programs – don't make Illinois an island!!

What is a REC?

A Renewable Energy Credit (REC) represents the environmental, social, and other benefits associated with one megawatt hour (MWh) of electricity from a renewable generation source.

The “Economics 101” rationale for RECs and REC trading is that:

1. It generally costs more to produce a MWh of electricity from renewables than from “traditional” generation.
2. However, renewables offer many benefits. These benefits are represented by the REC.
3. RPS programs create a market for RECs and give the RECs value.
4. The REC value helps renewables compete on equal footing with traditional generation.

RECs 101: RECs - O - Rama...

“Renewable Energy
Credits” (RECs)

“Renewable Energy
Certificates” (RECs)

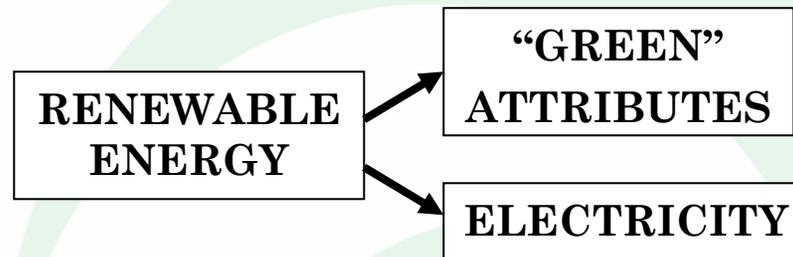
“Green Tags”

“Tradable Renewable
Certificates” (TRCs)

“Renewable Energy
Attributes”

...they're all the same thing!

RECs 101: Additional terminology



- “Unbundled RECs” – RECs traded separately from the underlying electricity
- “Bundled Power” – Grid power plus RECs
- “Green Energy” – Electricity from a renewable source that includes the REC.

Compliance Markets: Basics

- Created by Renewable Portfolio Standards (RPS)
- The one thing RPS programs have in common is that they're all different – no two are exactly alike.
- This is not necessarily a bad thing – a little diversity is good. Too much diversity, however, is bad for the market.
- It is therefore very important to create RPS programs that can interface with other programs, so that the markets can be integrated.
- RECs are a fungible commodity and play a lead role in ensuring that different markets can be integrated!

Compliance Markets: Design is Key

- The importance of program design can't be over-emphasized.
- The impact of an RPS is a function of supply (**eligible resources**) and demand (**percentage requirements**), enforced by **penalties...**
 - Maine: **30%** requirement, but **50%** of supply qualifies → **price ~\$0.30**
 - Massachusetts: **2%** requirement ('05), but limited resources qualify, and \$53 “alternative compliance payment” → **prices \$50+**
- **Good program design gets projects built!!!**

Advantages of RECs-based compliance:

- For Everyone: it's better for the market if RECs can be traded separately from the underlying energy, because this leads to increased flexibility, increased market efficiency, →improved market liquidity
- For Project Developers: the best buyer for the energy and the best buyer for the REC might not be one and the same. Also, a program that can interface with other markets presents many more opportunities.
- For Buyers and Sellers: simplifies the mechanics of transactions, simplifies documentation, contracts
- For Buyers: simplifies compliance
- For Regulators: simplifies verification and reporting, eliminates double counting; increased “legitimacy”, “trust”.

Using RECs for compliance: an example

- The RPS establishes what the load-serving entity needs for compliance over time (e.g., what percent of their load must be covered by RECs).
- The LSE may choose to enter into long-term purchase agreements, or buy RECs in the spot market (or a combination of both).
- Sellers of RECs also have the option of selling under long-term agreements, or in the spot market.
- Depending on the RPS, the pool of potential sellers may include sources outside Illinois. Other buyers (e.g., financial entities, trading firms) may also enter the market and buy and sell RECs. All of this would lead to improved liquidity.
- One way or another, the LSE purchases and retires the RECs it needs for compliance and files a compliance report with the RPS program administrator.

RPS program design dos & don'ts:

● DON'T:

- Attempt to reinvent the wheel (there are some great RPS out there!).
- Create a program that is complicated and difficult to understand (if you're not sure – ask someone who will have to follow them!).
- Write rules that could have more than one possible interpretation (this has happened – not good for the market!).
- Ignore the realities of the energy markets and resource locations.
- Create a market that becomes an island – better to create a program that can easily interface with others in the region.

RPS program design dos & don'ts:

- DO:
 - Give the program teeth (otherwise, what's the point?).
 - Create clear, easy to understand rules (can you explain the program to your neighbor?!?).
 - Create well-defined targets (= demand).
 - Establish what qualifies & where it can come from (= supply).
 - Establish an alternative compliance payment (= a penalty).
 - Allow RECs to be used for compliance.
 - Be flexible: consider allowing
 - Banking.
 - RECs from outside Illinois.
 - LET THE MARKET FUNCTION !!

« April 2005 »

Mo	Tu	We	Th	Fr	Sa	Su
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25	26	27	28	29	30	

DATE

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Voluntary Renewables Market Prices:

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 [EMISSIONS \(GHG\)](#) |

The following are indicative offers of Tradable Renewable Certificates (TRCs) and do not constitute a binding offer to sell. Some of these TRCs may be eligible for inclusion in Green-e certified products. [Click here to learn more about Evolution Markets' Green-e certified TRC products.](#)

category	region	state	generation	MWh	year	b/s	price
Limit to... <input type="text"/>	Limit to... <input type="text"/>	... <input type="text"/>	Limit to... <input type="text"/>	... <input type="text"/>	Limit to... <input type="text"/>	... <input type="text"/>	-
New TRC	Central		wind	10,000	2005 - 2006	Sell	\$4.00
New TRC	Central		wind	10,000	2005	Sell	\$4.50
Existing TRC	WECC		small hydro	20,000	2005 - 2010	Sell	\$3.50
Existing TRC	WECC		wind	40,000	2005	Sell	\$1.50
Existing TRC	WECC	CA	biomass	40,000	2006 - 2008	Sell	\$2.00
New TRC	ECAR		biomass	20,000	2005 - 2010	Sell	\$2.50
New TRC	WECC	CA	wind	40,000	2006	Sell	\$2.50
New TRC	WECC	CA	wind	40,000	2006 - 2008	Sell	\$5.00
New TRC	WECC	CA	landfill	40,000	2006	Sell	\$1.50
New TRC	South East		landfill	15,000	2005 - 2008	Sell	\$2.00
New TRC	Central		wind	15,000	2005 - 2010	Sell	\$2.50
Existing TRC	WECC	CA	landfill	5,000	2004 - 2007	Sell	\$0.75
Existing TRC	WECC		geothermal	10,000	2004	Sell	\$1.50
New TRC	WECC		wind	5,000	2004 - 2008	Buy	\$1.75
New TRC	WECC		wind	5,000	2004 - 2008	Sell	\$2.75
New TRC	PJM		wind	15,000	2004	Sell	\$16.00
Existing TRC	New York	NY	small hydro	25,000	2005	Sell	\$4.00

Voted Top Renewables Broker – North America

2003 and 2004 Environmental Finance Customer Survey

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