



Renewable Energy Certificate Markets: Key Indicators and Market Developments

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Overview of Session

- Overview of CRS & Green-e
- REC Sales Update
- REC Pricing Update
- REC Tracking Update
- Buzzworthy 2004
- Q&A

About CRS

- Non-profit organization
- Domestic & Internat'l programs
- Promote renewable energy & energy efficiency
- 85% financial support through foundation and government grants
- Leading organization on green power certification (Green-e)



Green-e Certification

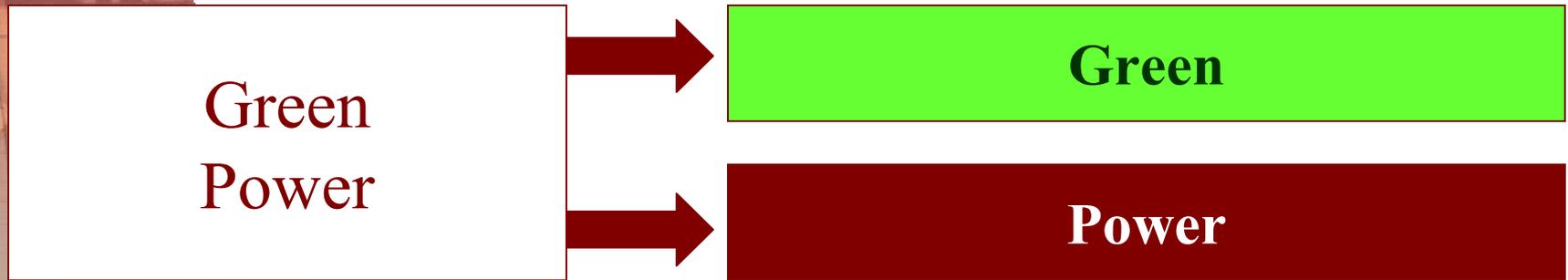
- **Green-e Certification** –voluntary program for renewable energy products sold in:
 - competitive electricity markets
 - regulated utility markets, and
 - nationwide through RECs
- Green-e is a tool that can help consumers make an informed renewable energy choices
 - www.green-e.org

Suppliers of Green-e Certified Products



- 58 certified renewable energy products
- 100 participating marketers and utilities serving over 22% of U.S. electricity customers and 100% have access to RECs

Introduction to RECs



Any questions?

What a Short Strange Trip It's Been

- 2000
 - BEF forms 'Green Tag Program'
 - 'Green Tickets' sold in CA by APX
 - EPA 1st large purchaser of RECs
- 2001
 - TX begins RPS program using RECs (ERCOT tracking Program -- Mandatory market)
 - CRS issues White Paper on RECs best practices

Short Strange Trip con't

- 2002

- NEPOOL/GIS formed (issues & tracks RECs Mandatory market)
- Green-e certifies first REC end-use retail products (voluntary market):
 - 7 companies with certified products
 - 150,000 MWhs of RECs sold
 - 45% sold to residential customers

- 2003

- 18 companies with certified products
- 1.8 million MWh of Green-e certified RECs sold
- 95% sold to non-residential customers
- 84 large Companies purchasing significant quantities of RECs

TRCs Today

- Fastest growing part of the voluntary renewable market
- Primary tool for substantiating compliance for mandatory market programs

Who is Selling RECs?

- 20 retail marketers are selling unbundled RECs (not electricity)
- 14 wholesale marketers are selling unbundled RECs (not electricity)
- Generators via brokers
- Numerous utilities and marketers are selling REC-based products
- Most renewable energy transactions involve RECs on some level

Bringing RECs to Market

- Pure marketers
- Owner marketers
- Brokers
- Wholesale/Retail

August 2004 Sample Wholesale REC Prices (MWh)

Fuel Type	REC Type	Location	Price
New Biomass	Voluntary	SERC	\$2.00
New Solar	Voluntary	WECC	\$40.00
Any new	Compliance	MA	\$46.00
Any REC	Compliance	Texas	\$11.50
New Solar	Compliance	New Jersey	\$175.00

Source: Evolution Markets LLC
www.evomarkets.com/mmu

Why the Price Disparity?

- Geography of low-cost renewables
- Supply/demand
- Volume of purchase
- Voluntary vs. compliance markets
- Type & vintage of renewables
- Regulatory (e.g. penalties for non-compliance with RPS)

Sample 2004 Retail REC Prices

Supplier	Type (all 100% new)	Price /MWh
BEF	100% Wind	\$20
Community Energy	100% Wind	\$25
Mainstay	100% Solar	\$200
Renewable Choice	100% Wind	\$20
Sterling Planet	5% Solar 45% Wind 50% Bioenergy	\$16

Mandatory REC Markets – Sales Volume

- **ERCOT –**
 - 2002 -- 2.8 million MWh
 - 2003 – 2.9 million MWh
- **NEPOOL/GIS –**
 - 2002 – 4.4 million MWh
 - 2003 – 5.8 million MWh

Recent RFPs for RECs

- Rhode Island State House 1650 Mwh/year of REC for 5 years (100% of annual use)
- GSA Great Lakes Region 60,000 MWhs post-1990 RECs
- Five EPA facilities in WAPA area for 17,375 MWh
- GSA Mid-Atlantic Region 20,000 to 50,000 MWhs per year



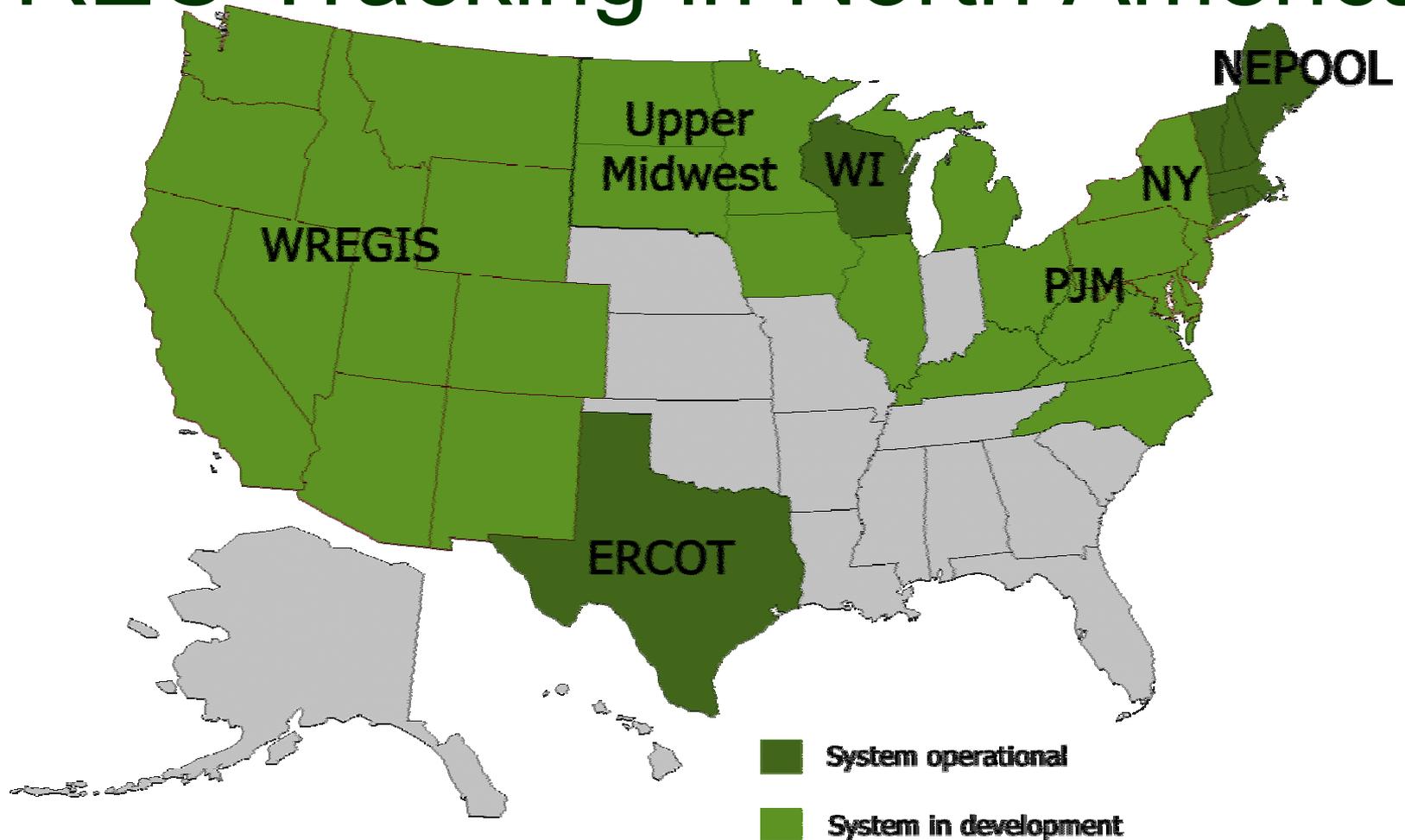
Green-e Status Update (2003 vs. 2002 results)

- # of Green-e certified products nearly doubled from 32 to 59.
 - 30 electricity products
 - 23 REC products
 - 6 green pricing products
- Total renewable sales increased by 86%, while total customers dropped by 41%.
- Total REC renewables sales grew to over 1.8 million MWh - 12 fold increase over 2002.

Tracking

- Each unit of generation assigned a unique ID that includes its attributes:
 - Date generated
 - Facility location
 - Date facility went online
 - Type of renewable
 - Emissions profile
 - Eligibility for programs such as RPS, Green-e
- Electronic system tracks each unit from “birth” to retirement

REC Tracking in North America



- **Canada:** British Columbia and Alberta are participating in WREGIS, and Manitoba is participating in the northern Midwest system.
- **Mexico:** northern Baja is participating in the WREGIS system.

Need for National REC Tracking Network

An equivalent of a financial banking system is needed for REC issuing & tracking. State, provincial, regional or national REC “issuing bodies” need common practices for handling accounts, transferring assets.

- Establish property rights of RECs
- Verify regulatory compliance with RPS
- Quantify state or regional power mix and/or emissions for disclosure
- Ensure consumer credibility, prevent double sale
- Facilitate fluid market
- Tracking RE Generation
- Translation into Emission Reduction Credits

North American Association of Issuing Bodies (NAAIB) Activities

•A North American Association of Issuing Bodies (NAAIB) is being considered to ensure compatibility among systems and provide credibility to the emerging REC market

- Registering generators
- Issuing certificates
- Transferring ownership of RECs
- Recording information in the Central Registration Database
- Verifying generation
- Investigating requests for changes to the Basic Commitment rules
- Mediating disputes



Buzzworthy: Check-off Programs

- Q: What do these utilities have in common?
 - Pacificorp
 - Portland General Electric
 - Niagara Mohawk
 - NYSEG
 - City of Palo Alto
 - Mass Electric
- A: REC-based check-off programs offered by 3rd party suppliers



Buzzworthy: WRI Green Power Development Group

- 12 large corporations purchasing 97 MW of renewables including 36 MW of RECs - the largest corporate purchase of RECs in the US.



Buzzworthy: EPA Green Power Partnership

- Over 400 members, many large purchasers of RECs



*Setting a
New Standard
for Power
Procurement*





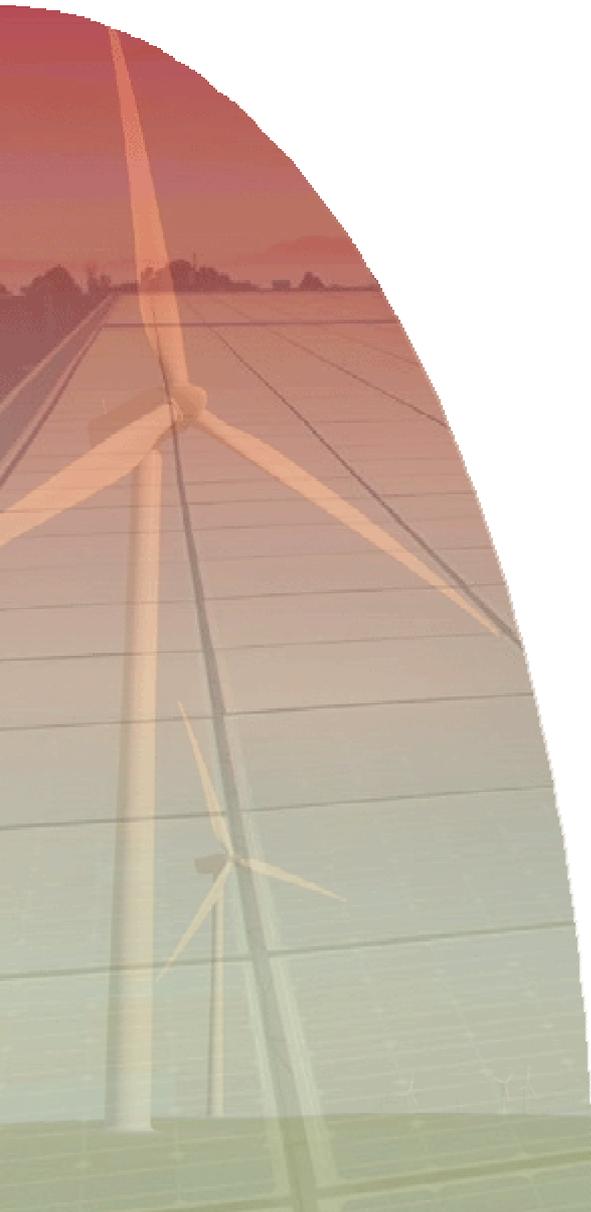
Buzzworthy: DNC and RNC Conventions

- Not because Zell Miller challenged Chris Matthews to a duel...
- Both conventions offset electricity use with Green-e certified RECs



Buzzworthy: White Tags

- Under discussion in the smoky back-rooms of the REC cartels: White Tags, or energy efficiency certificates.





Buzzworthy: Consumer Product Labeling



- In 2004 Green-e launched the Product Labeling Initiative.
- Many vendors are using the “Made With Renewable Energy” Green-e logo.
- Many more consumer products (Odwalla juice, Silk Soy Milk, Fat Tire beer, etc.) contain info on packaging encouraging customers to buy RECs



Buzzworthy: Mini Tags

- “Mini-tags” or “Point of Purchase (POP) Tags” are small quantities of RE attributes sold at point-of-purchase to offset the consumer’s energy use and/or emissions from a particular activity.
- Green Mountain and BEF have sold 100 kWh blocks of wind RECs at ski resorts so customers can offset their ski lifts energy use.
- Potential uses: offsetting emissions from airline travel, grocery store purchases, rental car usage, etc.



Buzzworthy: Emissions Values of RECs

- Montgomery Country (MD) used RECs in NOx SIP, first use of RECs as a control measure for ozone pollution in state SIP
- Will RE be assigned CO2 value in future Cap & Trade schemes?

Unfinished Business

1. Property rights to RECs from early PURPA projects
2. Property rights for distributed Solar PV RECs
3. Definition of a REC in terms of emissions issues

For Additional CRS Information

- **Green-e REC Certification:**
 - Gabe Petlin, gpetlin@resource-solutions.org
 - www.green-e.org
- **NAAIB, Regulatory Handbook, and National REC Tracking Initiatives:**
 - Meredith Wingate, mwingate@resource-solutions.org
 - Regulator's Handbook on RECs
 - www.resource-solutions.org/RegulatorHandbook.htm