



Renewable Energy Certification and Verification

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About Center for Resource Solutions

- Non-profit 501(c)(3) organization headquartered in San Francisco
- National and international programs
- Expertise in policies and consumer-protection mechanisms in renewable energy, greenhouse gas reductions, and energy efficiency
- Green-e Certification Program



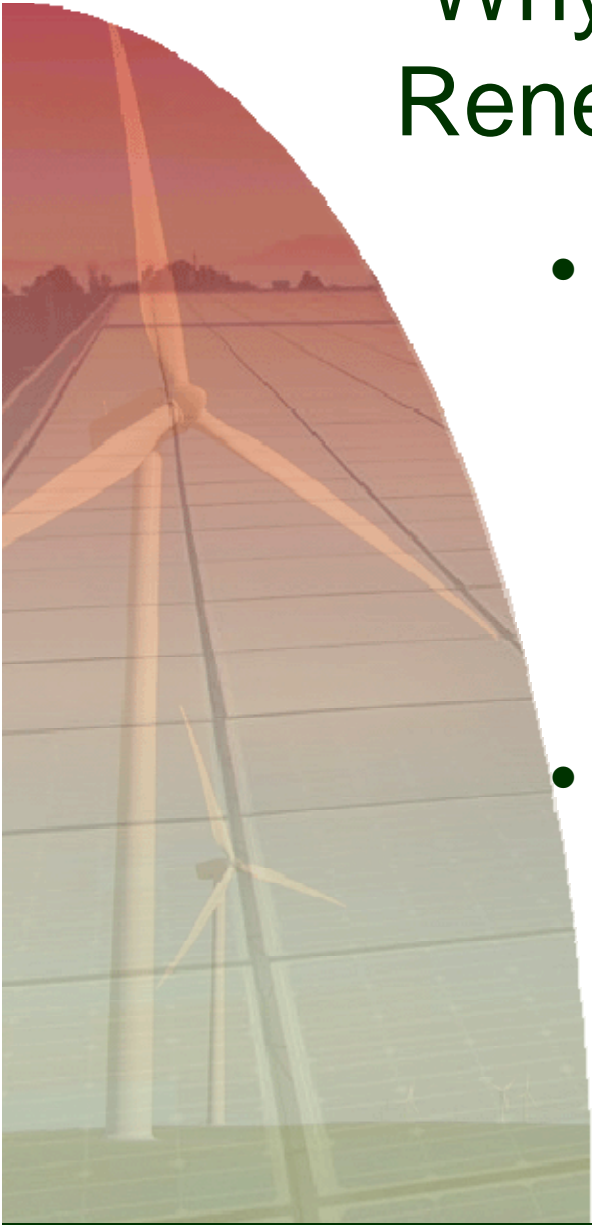
Energy



Climate

Launching early 2008





Why Companies are Purchasing Renewable Electricity? And How?

- ***Why***

- Support corporate sustainability goals
- Offset scope 2 emissions from electricity use within GHG registries
- Demonstrate environmental commitment

- ***How***

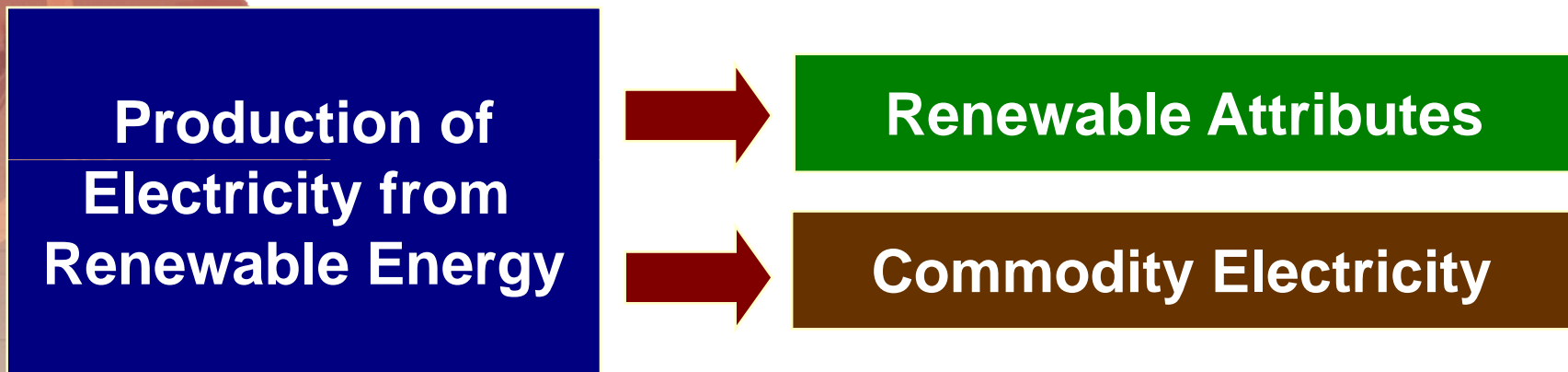
- Utility Green Pricing
- Competitive Renewable Electricity offerings from ESPs
- RECs

Who is Buying – EPA's Green Power Partnership Top 10

Company	MWh	% of Total Electricity Use
Intel Corporation	1,302,040	46%
PepsiCo	1,105,045	100%
U.S. Air Force	899,143	9%
Wells Fargo & Co.	550,000	42%
Whole Foods Market	509,104	100%
The Pepsi Bottling Group, Inc.	457,851	100%
Johnson & Johnson	400,702	39%
Cisco Systems, Inc.	373,500	51%
City of Dallas	333,659	40%
HSBC North America	300,000	93%

Source: <http://www.epa.gov/grnpower/toplists/top25.htm>

What's a Renewable Energy Certificate (REC)?



- A REC represents ownership of the non-energy attributes of 1 megawatt-hour (MWh) of renewable electricity generation
- Why RECs? Enables electricity users not directly connected to the renewable generator to purchase renewable electricity
- Commodity – proof of ownership
- Not a donation

REC Benefits

- Proves **ownership** of renewable attributes associated with renewable electricity generation
- Supports **financing** for new renewable energy facilities
- **Monetizes** the value of renewable attributes
- Facilitates renewable energy **markets**
- Breaks down **geographic** boundaries

Example Wholesale REC Prices (\$/MWh) - December 2007

Fuel Type/ Class	REC Type	Location	Price
New Wind	Voluntary	Nation- wide	\$3.50 - \$5.50
New Wind- 2008-2011	Voluntary	CA	\$10.00 - \$15.00
New	Regulatory	MA	\$55.00
RPS	Regulatory	Texas	\$4.25 – \$4.75
Class I	Regulatory	NJ	\$30.00
Solar	Regulatory	NJ	\$275.00

Source: Evolution Markets, LLC. www.evomarkets.com

Why the Price Disparity?

- Geography of low-cost renewables
- Supply/demand
- Volume of purchase
- Type & vintage of renewables
- Regulatory penalties for non-compliance

The Green-e Energy Certification Program

- Leading renewable energy certification program in the U.S.
- Administered by Center for Resource Solutions
- Consumer protection program for renewable electricity products
- Began in 1997 with electricity choice in California
- Program currently covers all 50 states and Canada
- Certification of three product types
 - Renewable energy certificates (RECs)
 - Renewable electricity sold in competitive retail and wholesale markets
 - Utility green pricing programs

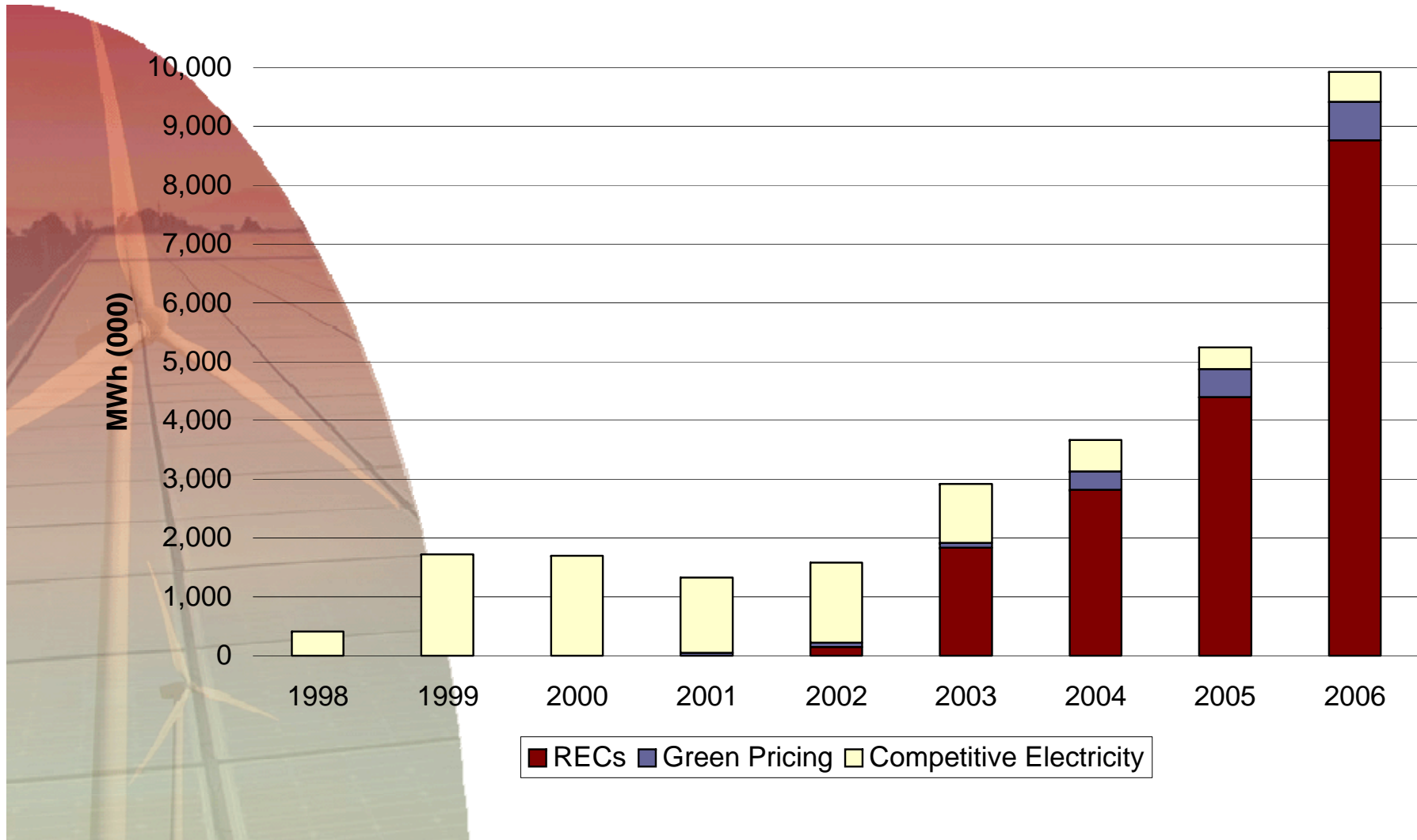


Green-e

Energy



Sales of Green-e Certified Renewable Energy Certified by Product Type, 1998 - 2006



2006 - Green-e Energy Certified 63% of Voluntary Renewable Energy Sold to End-use Customers in the US

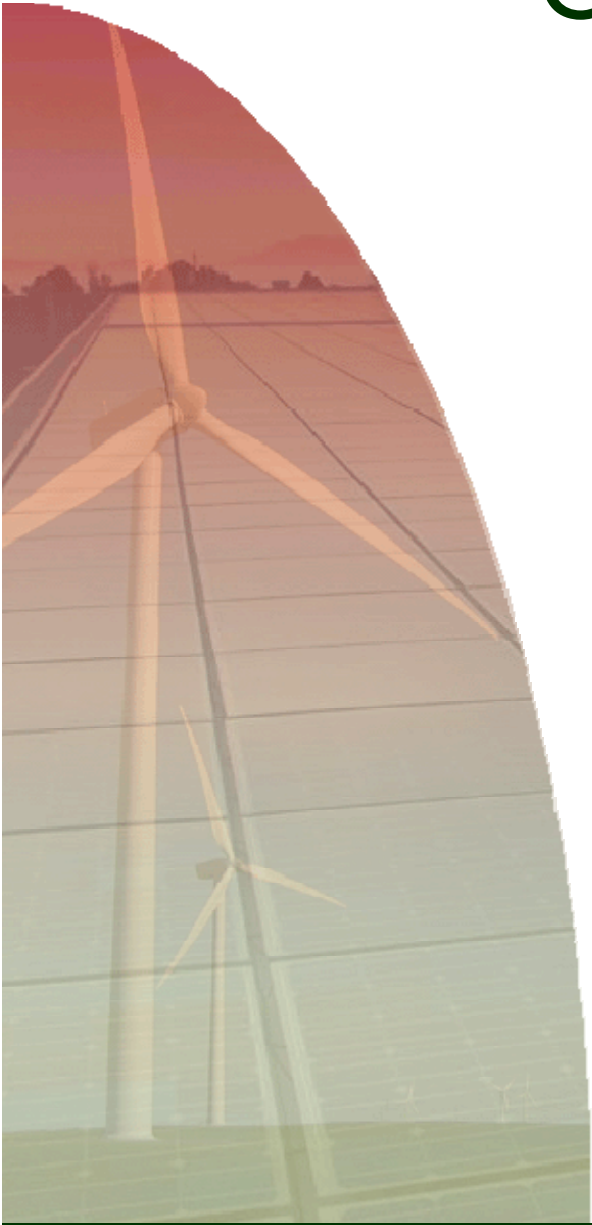
Green-e Program Governance

- Independent Governance Board
 - Natural Resources Defense Council
 - Union of Concerned Scientists
 - Environmental Defense Fund
 - National Renewable Energy Laboratory
 - WWF
 - Regulatory Assistance Project, and
 - Several other environmental and industry leaders.
- All standards and policies developed through open stakeholder consultations
- Associate Member of the International Social and Environmental Accreditation and Labeling (ISEAL) Alliance

Green-e Energy Functions: *Product Certification*



- Green-e Energy National Standard defines eligible renewable electricity products
 - Eligible resource types
 - Wind, solar, geothermal, clean biomass (solid, liquid and gaseous), B100, low impact hydro, fuel cells using renewable fuels
 - New (post 1/1/97) or repowered resources
 - Grid-connected and behind-the-meter
 - Voluntary renewables - no regulatory double counting
 - Minimum product size
 - Additional requirements for competitive electricity utility green pricing programs
 - Regional sourcing
 - System power or cleaner for non-renewable portion
 - No cross-subsidization in utility products



Green-e Energy Functions: *Seller Oversight*

- Green-e monitors sellers and requires disclosures to customers
 - Product Content Labels
 - Percentage by resource type and location
 - Comparison to system mix
 - Prospective and historical disclosure
 - Price, terms and conditions
 - Biannual marketing material review



Green-e Energy Functions: *Independent Verification*

- Verification ensures that there is clear ownership and no double counting of renewable energy attributes
 - Annual reporting by sellers, including
 - Independent audits of supply and sales
 - Regulatory notifications
 - Generator and seller attestations
 - Ownership verified through electronic tracking systems and contract path verification

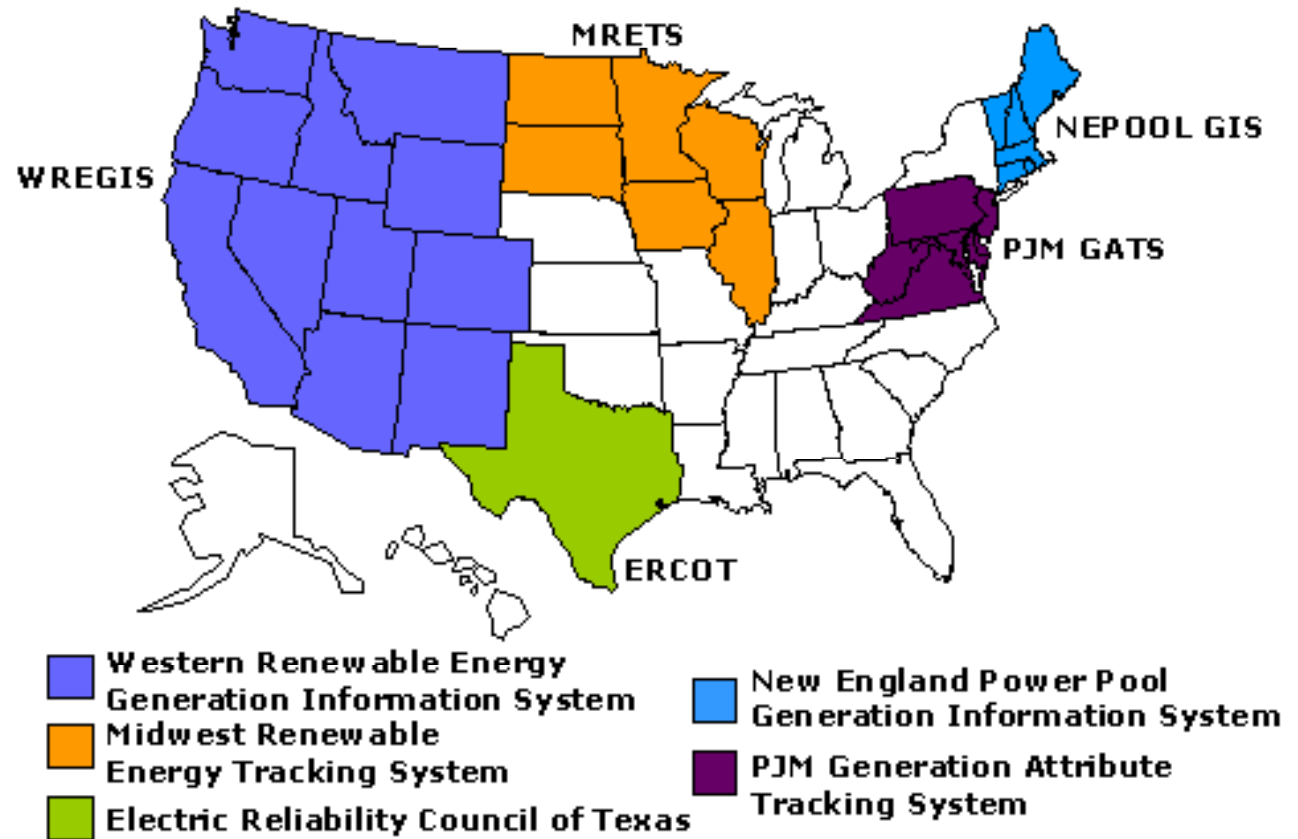
Role of Tracking Systems

- Issue RECs to Generators
- Verify generator characteristics
- Verify generation amount
- Provide permanent retirement mechanism for certificates
- Protect against double-selling
- Verify deliverability requirements
- Provide for banking functionality

Tracking System Functions

- Each unit of generation (MWh) assigned a unique ID that includes its attributes:
 - Date generated
 - Facility location
 - Date facility went online
 - Type of renewable
 - Emissions profile
 - Eligibility for programs (RPS, Green-e)
- Electronic system tracks each unit from “birth” to retirement (like online banking)
- Technology and policy neutral

Certificate Tracking Systems



Source: PEW Center on Global Climate Change,



Marketplace

Promoting Businesses'
Commitment to
Renewable Energy

Green-e Marketplace

- Enables businesses and organizations to use the Green-e certification logo
- Green-e logo conveys corporate renewable energy commitment
- Guides businesses to use the logo consistent with consumer protection
- The Green-e logo adds **validity**, **credibility** and **independent verification** and consumers want this assurance.



Marketplace



Green-e Logo Uses

- The Green-e logo is used to communicate renewable energy commitments on:
 - Corporate/Marketing collateral
 - Websites
 - Signage
 - Ecoaudits
 - Products
 - Annual and corporate sustainability reports



Businesses and Green-e

- 60 businesses and other organizations participate in Marketplace
- 2007/08 participants purchased close to 4,000,000 million MWh of Green-e certified renewable energy
- Over half of the companies participating purchased enough renewable energy to cover 100% of their electricity usage
- A range of industry sectors are represented including manufacturing, banking, organic foods, retail and business services

Green-e Marketplace Companies Include:



Program Requirements

- Minimum renewable energy purchasing requirements consistent with EPA's Green Power Partnership Leadership level
- Percentage of the certified renewable electricity purchase appears with the logo and on the Green-e website to ensure transparency
- On-product usage requires 100% purchase
- Companies pay an annual logo licensing fee which is assessed based on gross annual revenue
- Participants complete a logo use agreement, the renewable energy purchase attestation and provide documentation which verifies electricity use and certified renewable energy purchase



Green-e®

Climate

- Consumer protection program for greenhouse gas emission reductions (aka “offsets”)
- Certifies “offset” products sold at retail level
- Standard and program developed through advisory group and stakeholder processes 2006-2007

Green-e Climate Functions

- Requires GHG reductions are independently certified to be real, verified, permanent, enforceable and additional
 - Endorsed Project Certification Programs
 - Green-e Climate Protocol for Renewable Energy
- Verifies that consumers get what they pay for through a supply and sales audit
- Ensures consumers are given full and accurate product disclosures

How Green-e Climate certification works, from project to consumer.



1

The Project. A greenhouse gas emission reduction (offset) project, such as renewable energy, energy efficiency, methane capture, or forestry.

Projects must be certified by a Green-e Climate Endorsed Partner. These partners verify that the greenhouse gas emission reductions have taken place and are tracked.



2

The Vendor. A company buys the offsets produced from the project, and packages them together into a product that is then sold to consumers.

Green-e Climate Certified Offsets are real, permanent reductions from "additional" projects. Consumers are also guaranteed that a vendor's supply of offsets equals their sales, and that their advertising is accurate.



3

The Consumer. Buys a Green-e Climate certified offset to balance their own greenhouse gas footprint.

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