

Oversight and Technical Operation

of the voluntary renewable energy market

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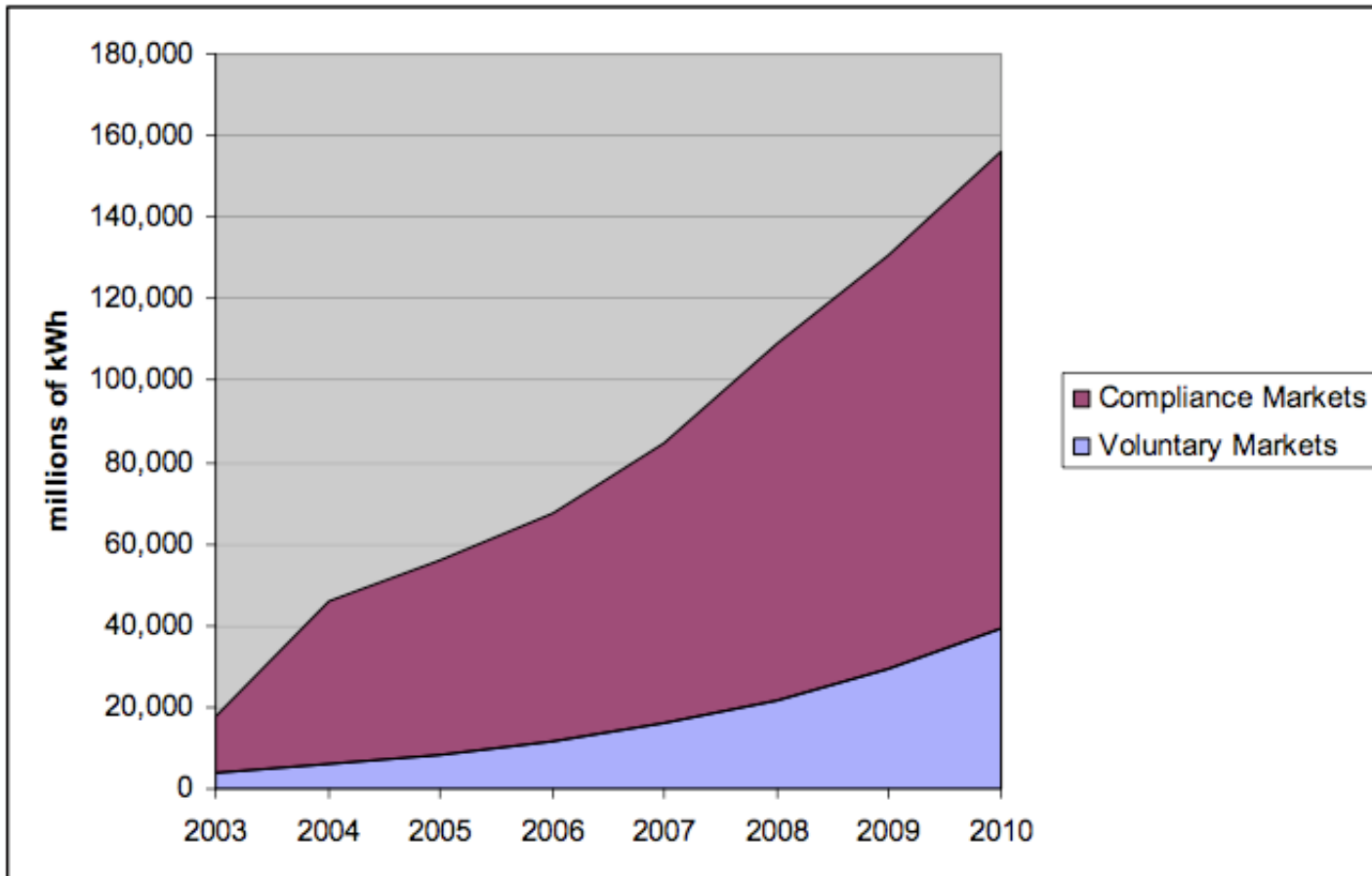
Outline

1. Voluntary Markets vs. RPS
2. Green-e Energy
3. Avoiding Double Counting: Verification and Tracking Systems
4. Purchaser Recognition Programs
5. Pricing and Money

Compliance Markets and RPS

- **Four times as many MWh used toward RPS than retail voluntary sales**
- **Prices typically higher, since penalties for non-compliance involved**
- **Compliance and voluntary markets can be complimentary or compete**
 - Overlap between resources that are eligible for either market
 - Good for sellers, tougher on certain buyers

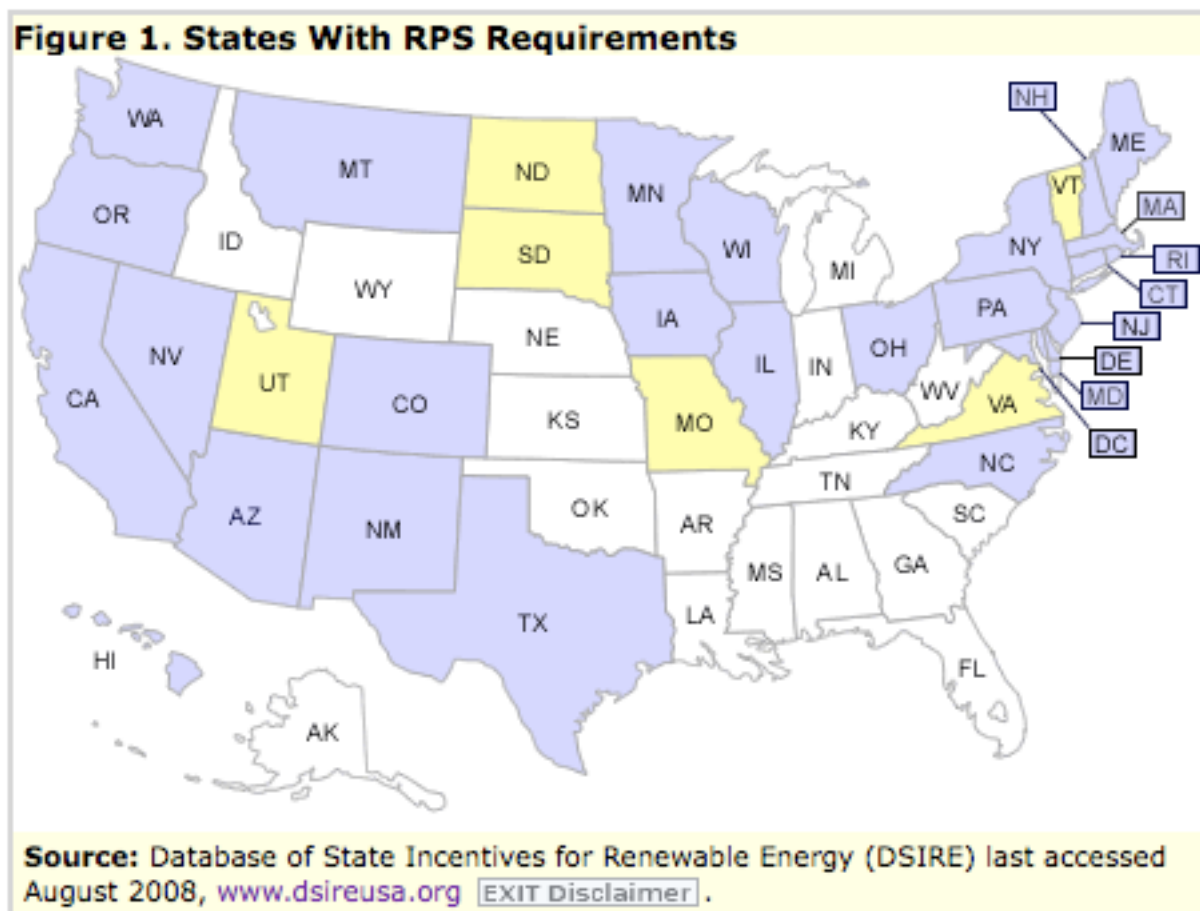
Total Market Projections



RPS in Different States

- **25 states with RPS, 6 with RPS goals**
- **Current RPSs range from 10% to 30%**
- **Definitions of eligible renewables vary by state**
 - States' eligibility rules don't entirely match Green-e Energy's
 - Some states looking at 'clean energy portfolio standards' that could potentially include nuclear or clean coal

States with RPS and RPS Goals



- States with RPS
- States with RPS Goals

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What is Double Counting / Claiming / Selling?

- Two or more people count a single REC toward both of their electricity use
- A utility counts a single renewable MWh toward both their RPS obligation and sell the MWh to a particular customer who pays for the MWh specifically (through a green pricing program)
- Double selling occurs when a REC seller has bought a REC but contractually sells that one REC to more than one buyer



Energy

Consumer Protection and Certification for Voluntary Renewables Purchases

- **Established in 1997**
- **Certification of three RE product types:**
 - Renewable Energy Certificates (RECs)
 - Utility green pricing programs
 - Green electricity in deregulated states
- **Covers all 50 states and Canada**

Governance

- **Independent Governance Board**

- Natural Resources Defense Council
- Union of Concerned Scientists
- National Renewable Energy Laboratory
- 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**

Marketshare

- **In 2007 Green-e Energy certified:**
 - Over 15 million MWh of voluntary retail and wholesale transactions
 - About half of all voluntary retail RE sales
 - Over 70% of voluntary retail REC sales
- **Works with over 200 marketers, utilities and ESPs**
- **Referenced in LEED renewable energy standard**
- **Purchasers can be recognized by EPA Green Power Partnership and Green-e Marketplace**

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Avoiding Double Counting

- **Third-party certification**
 - Green-e Energy
 - Environmental Resources Trust (ERT)
- **Tracking Systems**
 - Five existing regional systems
 - “Default” and New York systems pending

Function Provided by Green-e Energy

- **“Good Housekeeping” seal of approval for renewable energy**
- **Ensures clear ownership, no double counting**
 - Independent verification audits of sales and supply
 - Chain of custody through attestations and tracking systems
- **Reviews customer disclosure and marketing language**
 - Consumer Product Content Label and product disclosures
 - Twice-annual marketing material reviews

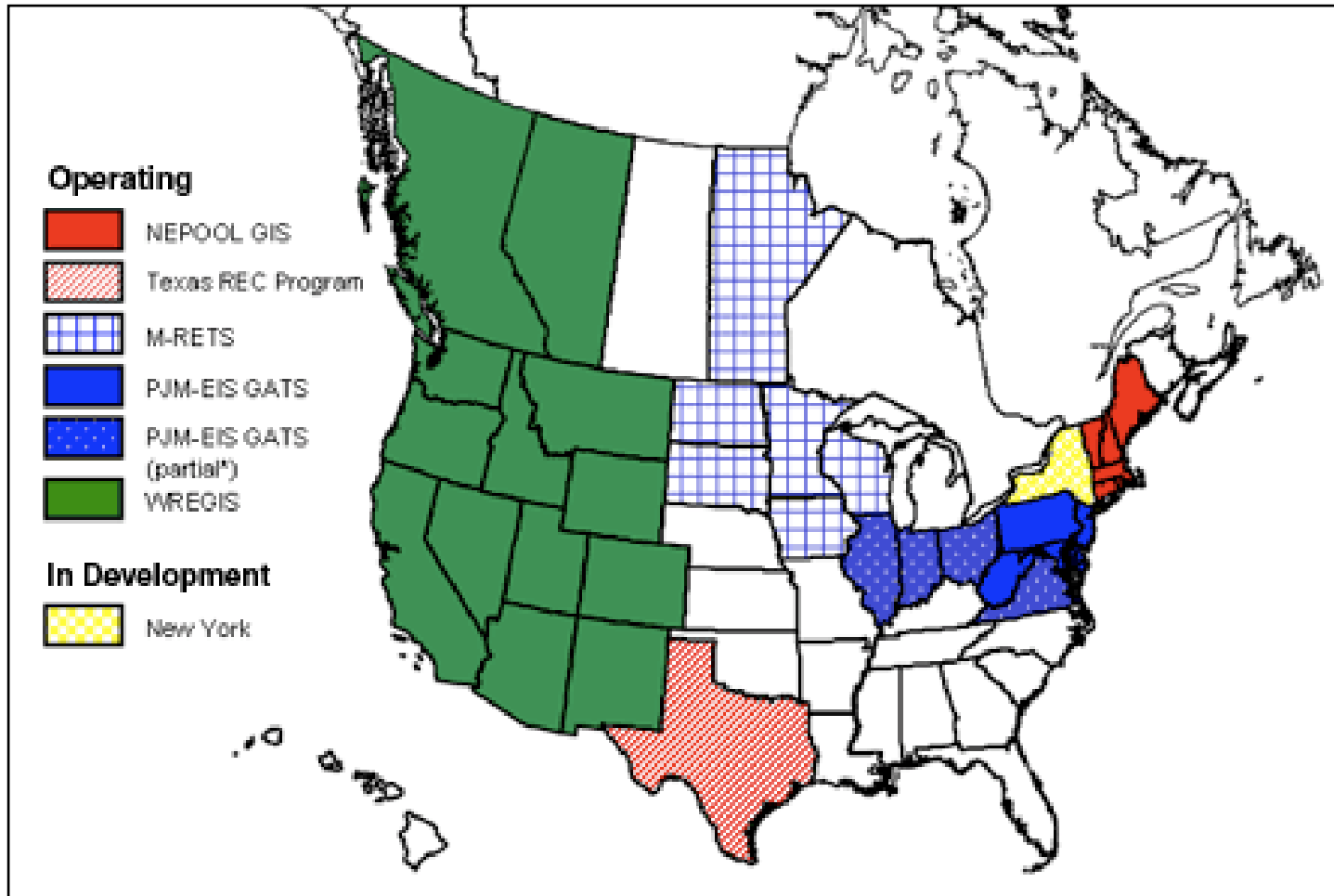
Tracking Systems

- **“Bank account” for RECs**
- **Each MWh has a unique ID number, avoiding double claims**
 - MWh only “retired” (claimed) once, but can be transferred many times
- **Accounts held by:**
 - Generators, utilities, marketers, large end users
 - Large utilities and marketers can have accounts in multiple Tracking Systems

Tracking Systems, continued

- **Developed for RPS, but also used for:**
 - Voluntary sales
 - Utility power resource reporting
- **Administered by governmental or quasi-governmental agencies**
- **Generator oversight body records generation in generator's account**

Current Tracking Systems



Access to Tracking Systems

- **Renewables that are located in a tracking system footprint:**
 - 80% that meets Green-e Energy standards
 - 70% of all RE capacity in the US
- **System use by renewables can vary**
 - Few facilities signed up in newer systems
 - In ERCOT, nearly all wind is **tracked** in system
 - Depends on whether use is required, or beneficial

Tracking Systems and Voluntary Sales

- **Compliment voluntary certification programs; do not replace**
- **Offer streamlined verification**
- **Do not inherently certify MWh against any particular standard**
- **Not required for Green-e Energy verification currently, but preferred**

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Why Recognize Purchasers?

- **Purchasing is just one option**
 - On-site generation
 - Energy efficiency > green power > offsetting
- **Buying renewables is an easy, discrete first step address emissions**
 - Often leads to (or follows) other action
- **Increase consumer awareness and demand for renewables and action**



Marketplace

Verification and Logo Use for Renewables Purchasers

- **Allows use of Green-e logo to promote purchase**
 - Minimum purchase or generation requirements
 - Fee to use trademarked logo
 - Verification of purchases and percent of use claims
- **Logo can be used on consumer goods manufactured with 100% renewable energy**
- **Helps demonstrate environmental commitment and use of renewable energy**

Marketplace Participation

- **60 participants in 2008**
 - Up from 55 in 2007 and 38 in 2006
 - 41 bought renewables for 100% of use in 2007
- **Estimated purchases of over 3 million MWh by end of 2008**
 - Intel and Pepsi both purchasing over 1 million MWh annually
 - Participants used 2.7 million MWh of renewable energy in 2007





Increasing Green Power Use among Leading US Organizations

- **EPA Green Power Partnership**
 - Grew from 4 million MWh in 2005 to 15.3 million MWh as of August 2008
 - Mostly RECs for large purchasers
- **Over 1000 participants**
 - Largest purchasers are Intel, Pepsi, US Air Force, Wells Fargo and Whole Foods
 - Over 400 purchasing for 100% of use

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Pricing and Money

- **Generator will sell RECs / electricity for prices they need to meet their return on investment**
- **Retail pricing varies by sale and year**
- **Final retail prices set like any other commodity**
 - Dependent on overall market
 - Reflects commodity cost, marketing, overhead and (in some cases) seller profits
 - Subject to supply and demand

Pricing and Money, continued

- **Pricing data is not widely available**
 - Evolution Markets provides wholesale prices
- **RECs are not donations**
- **RECs are not subsidies**
 - Selling your REC means you lose the claim to using renewable energy
 - Tax credits and other actual subsidies typically do not cause you to give up your RECs

Pricing Variables

Voluntary REC Offers

PRODUCTION	GENERATION	REGION	TERM	VOLUME	BID	OFFER
New TRC	Wind	National	2008	50,000	\$3.00	\$4.25
New TRC	Wind	WECC	2008	50,000	\$7.00	\$9.00
New TRC	ANY TECH	National	2008	25,000	\$3.00	\$4.00
New TRC	Wind	California	2008	50,000	\$8.00	\$12.00
New TRC	LFG	National	2008	25,000	\$3.00	\$4.00
New TRC	Solar	National	2008	5,000	\$5.00	\$10.00

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Resources

- **EPA.gov/greenpower**
 - Buying green power:
www.epa.gov/greenpower/buygp/index.htm
- **EvoMarkets.com**
- **Database of State Incentives for Renewable Energy**
 - DSIREusa.org
- **Green-e.org**
- **Green Power Network**
 - <http://apps3.eere.energy.gov/greenpower/>

Renewables Portfolio Standards

