Market-Based Instruments and Energy Efficiency

July 20, 2007

Sterling Planet

Renewable Energy
Company Background and Introduction

• First nationwide green power marketer with 100% green energy choice
• Founded January 2000
• Sold over 11,552,591,132 kWh of green energy (equal to 1,061,429 average residential customers)
  – Nation’s leader in renewable kWh sales
  – Includes largest transaction in U.S. green energy history
• Buyer and seller of green energy certificates
• Intellectual Property Includes:
  – Energy Efficiency Credits Measurement and Verification Software for White Tags™
  – Twelve Unique Renewable Energy Retail Products – Including Sterling Planet Fixed-Price Hedge™
  – Investment in the Greater Good™ Program
  – Investment in Today’s Youth™ Program
  – Investment in a Greener Future™ Program
• Customers in 45 states
• 564 Commercial and Industrial Clients (many the largest purchase in their sector)
• Utility partnership-based enterprise – 44 utilities to date
  – Most utility partnerships in green industry
• Certified Products by Both Major Certification Organizations
  – Center for Resource Solutions (Green-e)
  – Environmental Resources Trust (ERT)
• Endorsed by environmental groups and government agencies
Some of our 564 Customers

Universities (31)
- Harvard
- Yale
- Duke
- Utah
- Florida State

Commercial & Industrial (422)
- Alcoa
- DuPont
- Johnson and Johnson
- Pepsi
- Staples
- Nike

Government (67)
- US Air Force
- US GSA
- US NASA
- US Homeland Security
- US EPA

Utilities (44)
- Florida Power & Light
- Consolidated Edison
- City of Austin
- City of Tallahassee
- Constellation NewEnergy
Sterling Planet is Active in All 3 Markets

**REC Markets**

**Voluntary Markets**
- Customers voluntarily pay more for renewable energy
- Participating in 22 (41 Overall) utility renewable marketing programs in:
  - Florida, Massachusetts, New York, Connecticut, New Jersey, Rhode Island and Washington, DC

**Mandated Markets**
- Sell RECs to utility to satisfy RPS
- Manage RECs exchange among utilities
- Provide RECs to government agencies

**GHG Emission Markets**

**Greenhouse Gas Emission Markets**
- Very Early in its Definitions and Rules
- More Advanced in:
  - Europe
  - Japan
Connecting The Market

Actual Commercial and Industrial Customers
Sterling Planet Markets Attributes
Leveraging EPA Green Partnership Program

Local Utility Companies

Bi-Lateral Attribute Contracts

Residential Customers

Attribute Contracts

Solar Project (FL) I
Wind Project (MN) I
Biomass Project (GA) I
Small Hydro Project (OR) I
Customer Owned Projects (TX) I

Electricity (Null Power) Contracts - PPA

Local Utility Companies
REC Ethical Guidelines And Disclosure

- Give customers contract terms, pricing and termination fees in easily understood format
- Provide prospective power content label and annual product content data to customers
- Verify resource claims through annual process audit
- Agree to sell renewable energy only once
- Not overstate the environmental attributes of product or use misleading advertising
- Notify customer when the portfolio falls outside of original claims
What are White Tags?

- A new tradable attribute similar to green tags or Renewable Energy Credits (REC)
- Represents the value of energy not used (conserved) at facilities
- Created through the implementation of energy conservation (Demand-Side Management) projects
- Also known as Energy Efficiency (EE) Certificates & White Certificates
Many think emissions reductions markets are among the most innovative and cost-effective means society has of reducing greenhouse gas emissions.

- Bank of America pledges to reduce its total U.S. GHG emissions by 9% from 2004 to 2009.
- Eastman Kodak pledges to reduce total global GHG emissions by 10% from 2002 to 2008.
- Gap pledges to reduce its U.S. GHG emissions by 11% per square foot from 2003 to 2008.
- Marriott pledges to reduce U.S. GHG emissions by 6% per available room from 2000 to 2010.
- Pfizer pledges to reduce global GHG by 35% per $ of revenue from 2000 to 2007.
- Baxter, IBM, NREL and SC Johnson achieved their ambitious 2000 to 2005 goals.
- HSBC Bank is carbon neutral – offsetting more than 170,000 metric tons of CO2 per year.
How are White Tags Created?

Implementation of energy conservation projects at a facility, including:

• Equipment upgrades, retrofits, & replacement
• Operational modifications & set point changes
• Energy management and monitoring systems
• Combined Heat and Power (CHP) or cogeneration
• New technologies (e.g. High Efficiency Lighting).
White Tags™

- Prescriptive method for direct replacement/retrofit
- Metered method for cogeneration or CHP
- Design method for new buildings (LEED)
- Modeled method for operational changes (existing and new buildings)
  - Requires establishing a baseline (actual building or reference)
  - Traditionally used facility simulation models or statistical models
    - Facility: on-site, complex, expensive, subjective - but accurate
    - Statistical, off-site, simple, inexpensive, objective - but inaccurate
- Sterling Planet has developed neural network model
Comparison to RECs

White Tags™

Many Ways the Same

• Mandated Market - Same States & Similar Mandates (%)
• Voluntary Market - Same rationale, but larger market share (vs mandated)
• Market Size - Similar, but likely larger with broader scope & faster adoption
• Certification - Similar, but more complex (savings vs generation)

Some Ways Different

• Regulations - Facility based, not equipment based
• Measurement & Verification (M&V) - Historically problematic
Where Are White Tags Sold?

- New South Wales (2003), Italy, Great Britain, France
- Mandated in 3 US states
  - Connecticut (2007)
  - Pennsylvania (2007)
  - Nevada (2007)
  - 9 Others Evaluating Concept
- Likely in 20 other RPS states
- Mandates require utilities in that state to purchase White Tags - creating minimum demand, certain buyers & a price floor
- May be created in one state and sold in another (global perspective)
- May be sold to corporations & federal gov’t (CO₂ reduction - not mandates)

* States that have voluntary renewable energy goals or RPS-type legislation without enforcement provisions
• Became operational in 2005
• Focus on energy intensity (defined as energy used per GDP)
• Reduction of 2% per year until 2015, increases to 2.5% per year until 2030
• Projects in all end-use sectors are eligible
• Tags are valid for up to 5 years for most projects; max 8 years
• Accept “deemed savings” values, estimation using engineering approaches, and monitored savings
• Final savings must be submitted and approved by Regulator before trading
• Banking is allowed in 2005-2009 period; early action projects from 2001-2004 period eligible
• Certificates tracked on spot market via a registry
• 350 requests drawn from 1,100 projects
• 40% of projects from distributors (usually in conjunction with third parties), while the other 60% performed directly by accredited ESCOs
• Approximately 75% of projects used deemed savings; only 4% used monitored savings measurements
White Tags™

- 1% of total electricity use in 2007; 4% by 2010
- Owner of facility, not equipment, has title to the tags
- If utility funds project (e.g., rebates), utility owns tags
- Demand-side projects must involve physical activity
- CHP projects must achieve 50% efficiency & 20% thermal output
- Projects completed after January 1, 2006 qualify for tags
- Mandated markets began trading January 1, 2007
- Compliance prices in mandated markets range from $31 - $45/MWh
- Tags have a “vintage” and expire the year after created (+ 3 months)
- Certification requires the approval of a M&V plan
Other US Energy Efficiency Regs/Policy

**PA** - Tier 2 “advanced energy resources” must account for an additional 10% of power sold. Tier 2 include energy efficiency, hydro, waste coal generation.

**NV** - 2005 amendment to the RPS to require Renewable Energy and Energy Efficiency to meet 20% of electricity by 2015, of which up to 25% can be met with energy efficiency. Considering peak demand multipliers.

**TX** – Utilities must offset 10% of demand growth.

**CA** – 12% of peak demand reduction and 10% of electricity use.

**IL** – 25% of projected load growth by 2017.

**HI** – Energy efficiency projects are treated the same as renewables.

**Federal Government** – 3% Energy Efficiency per Agency per Year for next 10 years.
Final Observations

1. Transparent rules and procedures
2. M&V guidelines that create real, measurable, and verifiable reductions
   • Flexibility in options/methods (e.g., Italian scheme)
3. Independent third-party certification
4. Reporting, Tracking and Accounting through Electronic Tracking System
   • Establish clear property rights
   • Avoid double counting
   • Prove compliance with program requirements
   • Serve to integrate voluntary and compliance markets
5. Consequences/penalties for noncompliance

Goal: Achieve as much energy savings as possible as rapidly and cost-effectively as possible
Questions?

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