



STATE TECHNICAL FORUM ON EE/RE
Call #4 Summary – January 19, 2005
Renewable Portfolio Standards & Renewable Energy Certificates

Participants: 29 state officials participated in the call (see the attached participant list)

Key Issues Discussed:

- State and Regional certification and tracking systems for renewable energy generation
- Assigning attributes of renewable energy certificates
- Calculating avoided emissions from renewable generation
- Verifying delivery of renewable generation to retail markets
- Unbundling and disaggregating attributes of RECs

Summary of Presentations & Discussion:

I. Overview (See also Background and Discussion questions, Steve Keach, PQA)

Key Definitions:

- **Tradable renewable energy certificates:** the debate over how to define RECs highlights the importance of determining how to assign and account for non-energy attributes and how RECs can be used in different markets or programs:
 - o Center for Resource Solutions defines REC as “the separable bundle of non-energy attributes (environmental, economic, and social) associated with the generation of renewable power.”
 - o Environmental Resource Trust: “unique and exclusive proof that one MWh of renewable energy has been generated.” ERT does not support the concept that an REC implies ownership of emissions reduction attributes.
- **Unbundling** refers to splitting the energy from the non-energy attributes
- **Disaggregation** refers to separating the non-energy attributes for application in different markets or different compliance requirements.
- **Retired** – Certificate is “dead,” that is it has been used for compliance or voluntary programs and can’t be used again (e.g. if it is used to meet an RPS, it can’t be used elsewhere)
- **Reserved** – Certificate is held to use some attributes (e.g. avoided CO2 emissions) associated with the REC for other purposes.- not having all the attributes would likely make the REC unacceptable for an RPS.

II. Western Renewable Energy Generation Information System (WREGIS) (See PowerPoint presentation, Rasa Keanini, California Energy Commission)

A. Background

- WREGIS is being developed in coordination with the Western Governors Association (WGA) to support voluntary, independent accounting of renewable generation across the Western Electricity Coordinating Council (WECC). Regional system is needed to avoid double counting of generation to meet CA RPS and any other state’s RPS.

- Can be used by owner to support voluntary or regulatory markets for certificates, e.g. State RPS or regional haze SIPs or green marketing. It is up to utility or retail seller to decide how the certificate will be applied.
- 1 Renewable Energy Certificate (REC) = 1 MWh of renewable generation; Each WREGIS certificate has a unique serial no. which allows them to identify each certificate and avoid double counting.
- WREGIS does not require electricity to be bundled with certificate and underlying environmental attributes. Not actually tracking energy delivery.
- WREGIS only tracks whole certificates—all attributes are aggregated, owner would have to retire other attributes to use a single attribute for compliance.
- Transactions will be managed through a system similar to an electronic banking system
- WREGIS certificates track location, technology, owner, fuel, size and month/year of generation. It does not assign specific environmental attributes.

B. Challenges:

- Ownership of baseline certificates, i.e. existing contracts that pre-date WREGIS are under consideration to determine ownership
- Ownership of some DG certificates: some projects received ratepayer funds, therefore, have uncertain ownership
- Deliverability: Verifying that the renewable generation was delivered to the utility service territory.
- Justification to policy makers for using CA funding to establish a regional system with an institutional home outside CA.
- Transactions will cover multiple states and control areas, so how do you integrate the control areas?
- Stakeholder process was used to get input on how to design the system.

III. Other State Approaches

A. Wisconsin: (Paul Helgeson, WI PSC) See PowerPoint presentation: WI RPS/REC Experience)

- WI RPS went into effect in 2001; Renewable Resource Credit Tracking System (WIRRC) began a year later.
- Credits are created when credits are sold at retail (in contrast to when the energy is generated) which makes program unique.
- PSC is responsible for tracking RECs and certifying generators. Clean Power Markets contracted for web-based tracking system.
- WIRRC tracks renewable generation on an annual basis.
- WI is working with 4 other states (MN, ND, SD and IA) and Manitoba to establish a Midwest tracking system. Looking at similar issues as CA.
- Do not allow off-grid generation unless there is a contract path back to WI.
- Legislature decided to make it retail based to avoid violations of Commerce Clause.

B. Texas (David Hurlbut, TX PUC, See PowerPoint Presentation: TX Renewable Energy Program)

- Interstate commerce is not a significant problem for the Texas RPS, because the transmission grid operated by ERCOT (which includes the bulk of the state's generation and load) is self-contained entirely within Texas. Most of what is generated in Texas goes to Texas customers.
- RPS was born when competition was launched so RECs have always been unbundled – burden is placed on Load Serving Entities to meet RPS.
- Unique characteristics of TX program: 1) Designed to work in conjunction with retail competition; and 2) Transmission issues affecting most wind power development are under state purview.
- Generation is metered by ERCOT, outside ERCOT data provided quarterly.
- Market is fairly liquid, robust trading. Some credits are committed by contract, others traded on open market.
- Challenge: handling old renewable energy – e.g. certifying hydro is controversial with stakeholders. To resolve issue, state created offsets that were not credits but could be used to offset credits if demonstrated that there was a long-standing contract. But they are not tradable like RECS.
- Challenge: mixing RPS with green choice. Didn't want large retailer with large RPS requirement to meet all of its commitment with one retail product (100% renewable). Therefore, require all retailers to have some proportion of REC applied to RPS. To achieve 100% renewable, i.e. rules might require 2% of the generation met with RPS credits and 98% through voluntary renewable generation..
- Tracking RECs with avoided air emissions: separated the objectives. RECs designed for RPS. How they are used for SIP is up to purchaser, who can retire RECs and use them for other purposes.
- Goals for RPS have turned out to be modest. Target of 2000 MW new renewable by 2009 will be achieved this year. Legislature is interested in increasing to 5000 MW

by 2015. Will require \$1 billion worth of transmission investment to accommodate that much new generation. Voltage stability also a potential problem.

C. Massachusetts (Howard Bernstein, MA Office of Energy Resources)

- RPS program also developed out of restructuring law and is imposed on retail sales – setting an obligation to deliver a minimum amount to end users.
- Generation Information System (GIS) similar to CA but MA has assigned avoided emissions and other non-energy attributes to certificates. Avoided emissions are based on monthly average data not hourly load data, therefore may not be adequate for SIP.
- Challenge: GIS reports retail load obligation not actual sales; therefore don't account for line losses. Need to develop a method for determining sales figures.
- Alternative Compliance Payment (ACP) Fund: established to allow LSEs that do not meet the RPS to make payments instead (Set at \$50./MWh in 2003 and inflated annually.) Funds go toward new renewable generation projects.
- In 2004 REC selling at about \$50/MWh.

D. New Jersey (Mike Winka, NJ BPU, Clean Energy Division)

- NJ RPS calls for 4% Class I (PV, solar thermal electric, fuel cells with renewable fuels, tidal wave, wind, sustainably grown and harvested biomass) and 2.5% Class II (RRF, Municipal solid waste incinerators with energy recovery and small hydro less than 30 MW) by 2008
- Separate solar RPS set aside (2% Class I) and price.
- PJM Generation Attributes Tracking (GAT) system is similar to WREGIS for tracking RECs. NJ is in the process of financing implementation of the system.
- RECs are generated within PJM or the power is imported into PJM. Solar RECs are generated locally.
- Exploring a regional compliance market in RECs with NY and New England states.
- Also has an Alternative Compliance Payment program. ACP price is set annually.
- NJ is considering futures market but not banking of RECs.

IV. Discussion & Questions

A. How do you track deliverability?

- MA and NJ: ISO-NE, NY ISO and PJM verify delivery of RECs into the region or state. NJ and MA do not require that the power be sold within the state, but must be delivered to the region.
- In New England, the ISO-NE qualifies anything that enters NEPOOL, don't worry about which service territory it is delivered to. NERC tag being used to verify delivery.

B. How do states handle banking and forward markets in RECs?

- WREGIS has standing orders where certificates are depositing in generators account and then transferred over when generation occurs.
- MA: Banking is limited to 30% of RPS obligation in MA. Not sure what affect it will have on supply or prices of RECs in the future.

C. What is the experience of states in tracking the avoided emissions associated with renewable generation?

- WREGIS does not track emissions at this time – only provides monthly data, not hourly, so don't know what emissions are being displaced.
- MA does track emissions, but still isn't adequate for the purpose of getting SIP credits. Need hourly data for determining marginal emission rate. Also has been some problem is matching utility emissions data as reported to EPA (e.g. SO₂) and data reported to MA State REC. Should be the same, but in practice it has been difficult.
- TX has not found it difficult to track output of wind farms hourly, but it is difficult to match generation with offset emissions hourly.

E. Issues that may benefit from further discussion?

- Verifying delivery of renewable generation (or RECS) to the utility's service territory
- Disaggregation of REC attributes for use in different markets or for various compliance programs.
- Banking and its effect on supply and price of RECs in future
- Discrepancy in sales and load obligation data in tracking generation.