Recommendations for the Development of an American Certificate Tracking and Verification Network

Center for Resource Solutions

Jan Hamrin, PhD.
Meredith Wingate

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I. BACKGROUND

TRCs offer the potential to expand the market for renewables by broadening the availability and scope of green power products to customers. The concept of tradable certificates is based on separating the environmental or green power attribute of renewable generation from the electrical energy. This creates two separate products for sale by the renewable developer or marketer: (1) commodity electricity; and (2) renewable attributes (aka renewable certificates, green certificates, green tags, environmental attributes). A TRC represents the renewable attributes of a single MWh of renewable energy. The renewable attributes may be bought and sold together, separately or combined with system electricity at the point of sale by a developer or power marketer.

Although about one-third of U.S. electricity customers can now choose to purchase green power from their electric utility or from an alternative supplier, the price and quantity of green power offerings varies significantly across the country. Renewables are often disadvantaged because of intermittency, seasonality, and location, i.e., the best resource sites may be located far from potential customers. TRCs overcome these barriers by providing a financial mechanism to bank and transport renewables as the market demands. In short, TRCs create a more fluid and dynamic market for renewable electricity.

The market for TRCs is developing rapidly in the US and Europe. There are at least twelve companies currently selling TRCs in the US and several public and private entities that are issuing certificates for renewable generation across the US and tracking a limited subset of TRC transactions. A summary of current TRC market participants is shown in Appendix 1. As this market grows, there is increasingly a need for coordination among parties issuing, trading and selling certificates to uphold the integrity of the TRC market, build consumer confidence and protect TRC marketer participants from liability that could result from double claims. European market participants have formed an Association of Issuing Bodies that fills this role. This paper recommends establishing a similar association in the US that will facilitate coordination between existing issuing and tracking systems. It also includes recommendations for establishing issuing and tracking systems for generators that fall outside of existing tracking regime boundaries.

II. OVERVIEW OF THE NEED FOR NATIONAL COORDINATION

From stakeholder discussions, CRS has identified the five main reasons why a national network of TRC systems is needed.

(1) Build the Market for Renewables: The development of a national network to issue, track and verify TRCs will help to expand the market for renewables, lay a foundation for current and future uses of renewables (e.g. fulfillment of RPS, wholesale and retail sales, renewable certification programs, emissions trading, pollution offsets), will validate renewable certificates as a fungible currency for trade and banking, and will provide a framework to establish property rights of TRCs.

(2) Market Credibility: The organization of the TRC market under an umbrella framework can help to build consumer acceptance of renewables certificates and market credibility by creating a national, closed loop verification system for renewable transactions.

(3) Cost Savings: There are already two regional TRC tracking systems established in the US and several others being contemplated. It is most cost effective to address the issues that will allow communication between existing and future systems now, rather than to try to normalize systems later. In addition, it will be more cost effective to have a few, interconnected larger systems than many small and regionalized systems that serve only one purpose.

(4) Supports State and Federal Renewable Mandates: At both the Federal and State levels, renewable portfolio standards are gaining popularity. All of the regions that are contemplating or have already established a TRC tracking system have done so to verify compliance with RPS or disclosure laws. Establishing a preferred model in advance of any regulatory requirement to do so will create the most benefit for future market development and coherence for market participants.

(5) Communication: The US is at a pivotal point in development of renewable markets. If tracking systems are designed to meet only state or regional needs, we will have lost a huge opportunity to create a national currency for renewables. A voluntary effort to develop some common definitions and rules will greatly facilitate the ability for state systems to communicate with one another, thereby minimizing seams issues, facilitating information sharing, and enhancing the role of each regional system in the larger renewable market.

III. GOALS FOR ESTABLISHING AN AMERICAN ASSOCIATION OF ISSUING BODIES

The primary goals for the formation of the institutional structure recommended include:

A. To develop an agreed-upon framework for addressing immediate US market issues relating to issuing, registering and tracking TRC transactions;

B. To develop a legal framework that will establish property rights of TRC owners;

C. To meet multiple stakeholder needs including, but not limited to, satisfying verification needs for state regulatory programs or for voluntary programs, such as Green-e;

D. To ensure emerging TRC markets get a positive start by providing consumer confidence and credibility, by preventing double sales or other types of certificate abuses;

E. To establish an ongoing forum to exchange information and discuss topical TRC issues as they arise and to provide a basis for international cooperation on TRC trading;

The intent is to form a coordinated body that will facilitate the development of a TRC market within various regions of the US, Canada and Mexico. The network should have sufficient flexibility to allow for individual regional and national differences while not compromising the integrity of individual programs. In addition to facilitating communication among issuing bodies

and renewable energy program within the hemisphere, the proposed network is intended to be compatible with the European system so that global trading and sales can be facilitated in the future as market opportunities present themselves. Finally, an additional goal of this network is to provide appropriate levels of information to allow TRCs to be easily converted into pollution allowance certificates as those markets mature.

IV. CHARACTERISTICS OF SUCCESSFUL TRC TRACKING NETWORK

Though the few TRC trading regimes that are running today worldwide have very limited experience, there appears to be several key characteristics that all such systems include as important to a successful TRC tracking network.

A. Adequate Governance, Education and Institutional Support

Developing a sound framework for trade and governance is one of the most important first steps in developing a harmonized network. Establishing agreements for registering generators, issuing certificates, transferring ownership of certificates, sharing information, verifying generation, and mediating disputes can be highly complex and subject to political sensitivities. As demonstrated in the European RECS system, developing trading rules that harmonize existing governmental TRC systems is no small task. Adequate institutional support to bring parties together, facilitate discussion of sensitive issues, and manage conflict resolution is critical to the success of establishing a sound framework for a US network. Providing an effective institutional home for managing this process is important.

B. Effective Network and System Design and Operation

Besides trading rules, the network itself has to be organized to meet the needs of the market and stakeholders, including the different regulatory purposes of governmental participants. As we have seen in the US renewable electricity markets, regulatory uncertainty creates risk for new market participants and can act as a barrier to participation. The rules governing the network must effectively link together different Issuing Bodies and allow seamless communication between such bodies. Not all the information contained in an Issuing Bodies' system needs to be available to all participants; On the contrary, most information in the databases operated by the Issuing Bodies will remain confidential. However, there needs to be an ability to transfer some information between systems to prevent double counting or double selling of TRCs.

There are several key functions that each Issuing Bodies' TRC tracking system must satisfy including: (1) retirement of certificates after they have been used to meet government mandates or retail sales, (2) prevention of double counting, double sale or double use, (3) ability to ensure the basic information (e.g. fuel type, emissions profile) and quantity of certificates is verified, (4) ability to meet a variety of regulatory objectives, such as verification of compliance with RPS or desire to increase market potential for renewables; and (4) the ability of the various issuing bodies to communicate between each other in an efficient and secure manner. The individual systems and the network should be easy to use, transparent, flexible, and have low transaction costs.

C. Public Acceptance

Public acceptance by market participants, non-governmental organizations (like trade associations and environmental groups) and government is important for the success of a TRC tracking system and consequently a national TRC network. To identify policy objectives and functional requirements of individual systems and to develop appropriate trading rules for trading between systems requires the cooperation of all parties. The development of a network without such cooperation would unavoidably mean the network might not evolve in a way that would satisfy the needs to different potential parties. In addition, lack of confidence in an individual system or the network as a whole, for example by a regulatory body or environmental group, could undermine the potential uses. Public acceptance of the network of systems and the process for developing the network of systems is important for building a strong and diverse coalition of interested parties that have a stake in the success of the project.

D. Secure Intersystem Communications

It is critically important that tracking systems located in different geographic areas be able to electronically communicate with each other in a clear and efficient manner. The information common to tracking system functions should be handled in a consistent manner and the systems and their electronic interface must be secure from outside intrusion or tampering. Public information must be transparent and easily accessible while proprietary information must be secure and unavailable to unauthorized acquisition.

E. Demonstrated Market Need and Demand

The success of a TRC network requires the support of government and the participation of market participants at all levels, including generators, traders, retail suppliers, and end-use customers. Like all markets, a TRC market needs volume in terms of renewable supply and renewable demand, in order to make participation worthwhile. Without the willing support of a range of market participants, the market simply won't have enough activity to sustain interest. As in the example of the RECS system in Europe, government policy that limits cross-border trade of renewable certificates has a crippling effect on the renewable certificate market because it fundamentally limits the number of participants that have a reason to participate in the market. Similarly, the restrictions imposed by the New England system on exports will greatly limit the opportunities for New England generators to sell their renewable certificates outside of their region. This may have the opposite effect from what New England desired by ultimately capping the amount of new renewable generation that is developed in New England and limiting the potential market for New England generators. Policies like the TX RPS that support long-term demand for TRCs help reduce investment risk, drive the supply side of the market and provide a stable environment for market participation.

V. RECOMMENDATIONS FOR THE DEVELOPMENT OF AN AMERICAN CERTIFICATE TRACKING AND VERIFICATION NETWORK[1]

Based on stakeholder input, research conducted and organizational experience spearheading similar multi-stakeholder processes, including the Green-e and Green Pricing Accreditation Programs, CRS recommends that a network similar to the European RECS model of a harmonized TRC issuing and trading system be developed for the US. As envisioned, an American Association of Issuing Bodies would be formed to develop inter-regional trade rules, educate market participants, and provide an institutional base for the development of interconnected state and national systems in North America.

A. Organizational Structure

The structure being recommended for the formation of an integrated network consists of three key elements:

1. American Association of Issuing Bodies (AAIB)

A North American alliance of TRC Issuing Bodies would be responsible for approving and accepting all Issuing Bodies wishing to issue internationally acceptable TRC certificates in North America. The AAIB will lead the effort to develop some basic trade rules and minimum protocols for North America, called the 'Basic Commitment.' The Basic Commitment is conceptually oriented with general principles that preserve transferability and accuracy of information. The Basic Commitment does not govern how a specific Issuing Body operates or what mechanism an Issuing Body uses to fulfill the Basic Commitment obligations. CRS envisions the draft Basic Commitment will be discussed and modified through the stakeholder process directed by the AAIB. Ideally, each Issuing Body will incorporate these guidelines and minimum operating procedures into their own system.

2. Issuing Bodies

Issuing Bodies will be established for different regional domains in North America. A domain would ideally be defined by geographical boundaries (e.g. state, power pool, country, or region) or other similar delineations such that a renewable generating facility is assigned to one and only one domain. Each Issuing Body will develop its own operating protocol (called the Domain Protocol) consistent with the laws and renewable energy programs in its geographic domain and will agree to abide by the procedures established for cooperation with other Issuing Bodies outlined in the AAIB Basic Commitment.

Two Types of Issuing Bodies

Under the conceptual model developed by the Center for Resource Solutions, there will be two general types of Issuing Bodies: Issuing Bodies for mandatory programs and Issuing Bodies for voluntary purposes. A single Issuing Body could fill both of these roles. The

[1] Initially, the focus will be on North America with emphasis on the US where certificate markets are developing the most rapidly. At the same time, it should be recognized that the incremental cost of designing a system that will accommodate certificate markets throughout the hemisphere is negligible while the value of anticipating this at the start versus the cost of trying to change a system later is significant.

Issuing Bodies for mandatory programs would most likely have some regulatory designation from the state or region where it is operating. For example, ERCOT and NEPOOL GIS are the defacto Issuing Bodies for TRCs generated within Texas and New England that are used to meet state RPS requirements. An Issuing Body established for voluntary registration of TRCs would also have to follow the guidelines of the Basic Commitment, but would not necessarily be operated by any regulatory authority. For example, a voluntary Issuing Body could be run by a private business, a non-profit, or a system operator. To avoid issuing more than one TRC for a given kWh, CRS is recommending that there only be one Issuing Body with jurisdiction in a particular geographic area, whether it is a mandatory or voluntary Issuing Body.

Responsibilities of an Issuing Body

The chief responsibility of an Issuing Body is to ensure the accurate issuing, tracking, and retiring of TRCs for any given generator and to verify the information supplied by generators. The mechanism for issuing, tracking and retiring TRCs can be developed by the Issuing Body (referred to as the Domain Protocol), however, they will need to meet the standards in the Basic Commitment to ensure compatibility with the larger system.

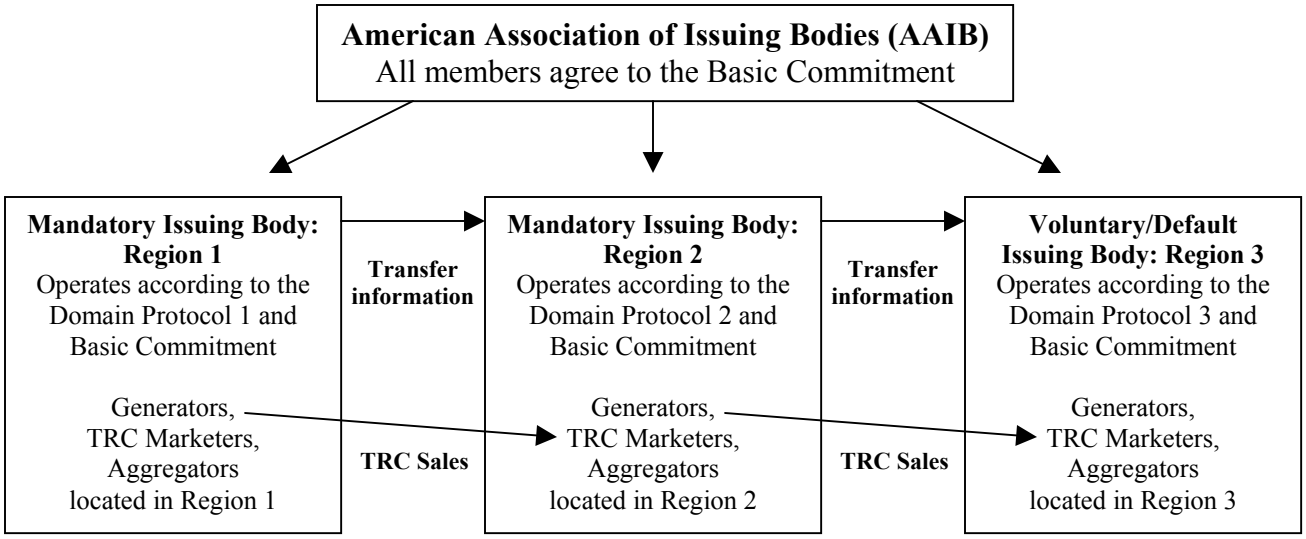
A second responsibility of the Issuing Body is to ensure that information is transferred and shared between Issuing Bodies when necessary and appropriate, for example, when TRCs are sold into a neighboring region with a different Issuing Body. Since there are only two existing systems in place, we anticipate that it will be relatively easy to establish a communication network as new systems are developed. Again, this underscores the importance of having an institutional driver, the AAIB, to work through these coordination issues with stakeholders before many systems are in place and invested in a certain methodology. The goal here is to make sure there is seamless coordination between Issuing Bodies so that a national network of Issuing Bodies is established.

A third responsibility of the Issuing Bodies is to register generators and periodically verify the information provided by generators.

3. Market Participants

The third component of a North American TRC tracking network is market participants, including renewable energy generators, marketers, wholesale purchasers, aggregators, large end-use customers, product certifiers, and traders. These market participants must voluntarily agree to participate in such a system, unless they are located in a region where participation is mandatory, such as New England. Market participants should be involved in the development of the Basic Commitment and the relevant Domain Protocols because of their valuable perspective on the functional requirements of a robust market.

Diagram 1: Organization Structure of a North American TRC Tracking and Verification Network



B. Other Recommendations

From the stakeholder feedback received at the CRS hosted meeting in March 2002, from discussions and meetings CRS has attended, and from an assessment of the European program and process as well as the needs for a program here in the United States, we recommend the following:

Recommendation: An American Association of Issuing Bodies (AAIB) should be established as soon as feasible to ensure orderly and consistent development of the TRC market in North America.

There are many opportunities for synergies between this project and activities in the renewable market and energy politics. The Senate Energy Bill contains language for establishing certificate trading as a means of compliance with a national RPS. At the regional level, RTO discussions are still in formative stages in many parts of the country and RTOs may be candidates to act as Issuing Bodies because they will have generation data. The timing of the Federal RPS and the development of RTOs provide good opportunities for building support for an AAIB and national certificate tracking network. This is the most efficient and rapid way of bringing order to the market.

Recommendation: The AAIB operating rules and procedures, as defined in the Basic Commitment, should strive to fulfill the needs of North American regulatory and market participants, as well as be compatible with the European network.

The AAIB Basic Commitment should be developed through a collaborative stakeholder process so that the resulting guidelines will be flexible enough to serve a variety of purposes. This will help attract support, financial and otherwise, to the project.

Since interest in the development of a TRC market has also been expressed by stakeholders in both Canada and Mexico, and given NAFTA and WTO guidelines for establishing a transparent and consistent market approach across borders, the AAIB should anticipate potential activities in these neighboring countries and design the AAIB to accommodate those needs. We believe this broader approach will not require major adjustments in the structure and will be much easier and less controversial to accomplish now rather than wait and try to rationalize two or three different systems later. Similarly, the AAIB should strive for as much consistency as possible with other systems being set up in Europe and others parts of the world. For example, certificates should carry all of the specifications of the European network even if those specifications are not immediately relevant in a North American context. Incorporating these fields now paves the way for international trading later.

Recommendation: The AAIB should develop a default system for issuing and tracking TRCs in regions that do not have an RPS program or appropriate Issuing Body.

Renewable generation facilities are often located in geographic areas where there is no RPS program or any active issuing body. There was consensus at the stakeholder meeting in March that one of the greatest needs is to find or create an Issuing Body to handle TRC transactions that are outside one of the established systems (NEPOOL GIS and ERCOT). There were three possible options that were identified: (1) an independent party, such as APX or a system operator, could conduct this work on a fee-for-service basis, (2) one or more of the existing Issuing Bodies could expand their role and perform this function outside of their established state or region, and/or (3) the AAIB could create or operate a default Issuing Body. If one default Issuing Body is established, it might cede its "territory" to state and regional systems as new systems are created. These three options are not mutually exclusive.

The AAIB could put out a competitive solicitation for 'default' Issuing Bodies to fulfill the responsibilities of a voluntary Issuing Body. We recommend that there be no more than one Issuing Body having jurisdiction in a particular geographic area.

Recommendation: The AAIB rules and protocols should strive to be as inclusive as possible.

The AAIB should not attempt to exclude participation by different types of renewable generation resources from the national network. It may be entirely appropriate for individual programs, such as a state RPS or Green-e Certification Program to set standards for their own programs. However, the AAIB is primarily an information and tracking network. It should not make

implicit value judgments about the relative benefits of different types of renewable generation by excluding specific technologies or fuel types.

Recommendation: The AAIB should conduct more research into the legal issues surrounding a North American market.

The AAIB must be mindful to avoid creating NAFTA issues or triggering NAFTA challenges. For example, there could be a challenge if the AAIB tried to exclude renewable generators or suppliers from Canada or Mexico. There needs to be more research on the legal issues in this area.

Recommendation: The AAIB should strive for the development of a few large Issuing Bodies that can serve multiple functions and cover multi-state territories.

From the stakeholder meeting in March, several market participants identified cost as a chief concern in participating in a voluntary TRC tracking system. In addition, the administrative costs of working with multiple Issuing Bodies for market participants that either buy or sell TRCs across regions could be a barrier to participation. Finally, the development of key documents such as the Basic Commitment will be made easier with fewer Issuing Bodies. Therefore, it is recommended that the AAIB work to create or facilitate the creation of a few large Issuing Bodies, instead of several smaller ones.

Recommendation: The AAIB must create rules that enable secure and seamless communication between Issuing Bodies.

The security of the individual systems and the ability of Issuing Bodies to accurately record and transfer information is of the utmost importance in establishing credibility of the national network and a national TRC market. Because Issuing Bodies are effectively issuing and recording transfer of a commodity with monetary value, network security should be of the highest caliber. In addition, the ability of the network to record and transfer information quickly is important to the liquidity of the market.

Recommendation: The AAIB should aggressively reach out to state regulators, Federal institutions, NGOs, and market participants to garner political and financial support for this project.

Two general areas of work need to be conducted to facilitate the formation of an American TRC issuing and tracking network. These can occur simultaneously and in concert with the development of trading rules and an American Association of Issuing Bodies. The first involves education and outreach to market participants, and in particular to regulatory agencies and governmental bodies in the US, Mexico and Canada. The key areas of education needed include:
General understanding of how the TRC market is evolving,
What is happening nationally and internationally,
Why stakeholders would benefit from such a network, and
How individual governments can play a role.

Second, there needs to be institutional acceptance for moving forward with a process to develop an integrated network. Acceptance for this process involves seeking consensus on the role of the association, the general structure, and goals. Garnering support from national institutions such as the EPA, DOE, Commission for Environmental Cooperation (NAFTA environmental body), Mexico's CONAE, and Canada's ECOlogo, NARUC, as well as environmental groups can greatly facilitate the process.

CRS hosted a meeting in March 2002 to begin the consensus building process. During this meeting there was strong support from environmental groups, market and regulatory participants for moving forward immediately to develop a coordinated national network of TRC Issuing Bodies. In addition, the Western Governor's Association recently recommended the development of a Western States generation attribute tracking system, essentially filling the role of an Issuing Body for the WSCC. Other states including New York, Wisconsin and New Jersey are exploring the idea of setting up state or regional systems. Cumulatively, this represents a strong and diversified coalition of supporters for the recommendations presented here. However, there are many more groups and institutions that are moving forward on TRC related initiatives and are unaware of the work being done to establish a national network. It is critical to get these states and organizations involved before money and time is invested in projects that are not compatible with national level initiatives.

Recommendations for Rules Governing Issuing Bodies

Although the focus of this paper is on the development of a national framework for a TRC market, several recommendations came out of the stakeholder meeting in March 2002 that warrant mention here. These recommendations pertain to the rules governing Issuing Bodies and would most likely be incorporated in the Basic Commitment document.

- Issuing Bodies do not need to quantify emissions offsets or track emissions from a particular facility. However, the Issuing Bodies should have enough generator information carried in the database so that the certificate can be converted for use in current or future emissions markets.

- There has to be coordination and agreements in place to prevent more than one Issuing Body from issuing certificates to a specific generation facility.

- Issuing Bodies should be able to indicate whether or not emissions attributes have been split off from a certificate.

- In the start-up phase, participating Issuing Bodies don't need to have the capability of importing certificates, only the capability of exporting certificates

- Issuing Bodies should be financially independent of the market

- Issuing Bodies should be able to accommodate the following (though these may be implemented in phases): All renewable generation types, small distributed generation, various disclosure systems, various pollutant offset systems, rural off-grid renewables

VIII. CONCLUSIONS

The development of a national network for issuing and tracking TRCs is feasible and there is broad-based support for the development for such a network. There are already two defacto Issuing Bodies in the US, ERCOT and the NEPOOL GIS. There are several other states and regions that are either contemplating a system, or have already issued an RFQ for a system designer and developer. In addition, there appears to be strong support for the development of a national coordinating body, such as the AAIB, to help facilitate the development of agreements needed to form a national network of Issuing Bodies. Conceptually, there is widespread agreement that the simple model recommended in this paper is logical and will provide the most efficient solution to many different markets and regulatory needs. The chief barrier to the development of such a network appears to be the initial funding to establish the AAIB and the necessary agreements, and to help develop Issuing Bodies in those regions where there might not be a strong regulatory interest in developing a TRC tracking system. Despite this, the strong and diversified coalition of supporters may be able to bring money to this process.

CRS was both surprised and pleased by the strong support these recommendations have received from a diverse coalition of stakeholders. We believe this reflects the fact that stakeholders have already been thinking in these same directions and that the timing is right to move forward on this critical next phase.

Appendix 1. Active TRCs Marketers in the US

Company Name	Role in US TRCs Market	Retail Product Description
Aquila Inc.	Internet marketer of TRCs to commercial customers only.	100% new wind resources from Gray County Wind farm in Kansas, only available to commercial customers. Green-e certified.
Automated Power Exchange	TRCs internet broker in California and Midwest; designer of TREC accounting systems for Texas and New England	N/A
Bonneville Environmental Foundation	Marketing TRCs on internet and to businesses directly; TRCs that are sold are established via contracts with generators and are not "formally" issued by an independent body.	T-RECs are sold in increments of 1,000 kWh, with a minimum purchase of 2,000 kWh, from new wind and solar facilities located in the Pacific NW; Also negotiates individual contracts for large customers. This product is Green-e certified.
Community Energy, Inc	Marketer of wind TRCs; TRCs that are sold are established via contracts with generators and are not "formally" issued by an independent body.	Individually negotiated contracts for new wind certificates; wind blocks also available for residential customers on the internet (unspecified quantity- not sure if they are actually selling these or if it is in preparation for the PECO deal). Product is Green-e certified.
Native Energy	Aggregating financing for new wind projects through advance sale of wind capacity; TRCs are established via contracts with generators and are not "formally" issued by an independent body..	0.042% of a 900 kW wind turbine (or 0.379 kWs of its generating capacity) over a contract period of 15 years. This amount of capacity is expected to generate about 15,771 kWh of TRCs. The TRCs are donated to a non-profit organization for retirement or other environmentally beneficial purpose.
Navitas Energy	Aggregating financing for new wind projects through advance sale of wind capacity; TRCs are established via contracts with generators and are not "formally" issued by an independent body..	NEW Windwatts™ Certificate program allows virtually any customer to support the development of NEW renewable energy facilities, by purchasing the environmental attributes of 100% wind energy directly – separate from the energy commodity itself.
NatSource	Broker of TRCs; TRCs are brokered such that Natsource matches up buyers and sellers of TRCs but never takes ownership of the TRCs; TRCs may be issued by a governmental issuing body, or may be established via contracts with the generators	Individually brokered deals. Company does not takes ownership of TRCs.
PG&E's National Energy Group	Internet marketer of TRCs from wind facilities owned by the company; The company issues TRC serial numbers for every kWh generated.	TRCs sold in blocks of new wind from NY and CA (future) wind facilities.
Renewable Choice Energy	Internet provider of TRCs from undisclosed location	100% of customer usage; Two products, 100% new wind and mix of new renewables
Sun Power Electric	Internet provider of TRCs from solar and landfill gas operations. Effectively issues certificates from their own projects, although they do not use a serial numbering system. Currently only available to businesses in the Northeast, check their website.	2000/kWh of solar and landfill gas blended TRCs. This product is Green-e certified.
Sterling Planet	Internet provider of TRCs; TRCs that are sold are established via contracts with generators and are not "formally" issued by an independent body.	TRCs in a quantity that matches 25%, 50%, 100% of a customer's usage based on average electricity bill. From various renewable generators across the US. This product is Green-e certified.
Waverly Light and Power	Internet provider of TRCs from self-owned wind generation; TRCs not formally issued by an independent body.	2500kWh of Iowa wind TRCs