

***THE CURRENT STATUS OF
RENEWABLE ENERGY
CERTIFICATE TRACKING
SYSTEMS IN NORTH
AMERICA***

Report to

***The Commission
for Environmental
Cooperation***

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Executive Summary

The need to increase the amount of renewable generation to meet regulatory obligations as well as voluntary purchases of renewable energy by residential and commercial customers has rapidly expanded the marketplace for renewable electricity certificates (RECs). Electronic issuing and tracking systems have been developed in parts of North America, European Union and Australia to support the development of RECs as a compliance and market tool. The paper discusses and compares the existing or proposed REC tracking systems in North America and introduces the North American Association of Issuing Bodies (NAAIB) – an institution that will help network renewable certificate tracking bodies in North America.

By tracking unique RECs, state or provincial regulators can easily document renewable generation and sales and determine whether a load serving entity has met its renewable energy mandate. RECs can also be tracked to other entities such as green power marketers and sold in the national voluntary market to retail or commercial customers. Tracking systems ensure that: (1) RECs represent renewable generation, (2) certificate ownership is transferred between account holders, (3) certificates are retired when used to meet state or regional regulatory requirements, and (4) certificates are not double-counted.

At present, there are three operational systems in the United States to issue and track renewable generation certificates. They are: the Texas RECs Program, the New England GIS, and the Wisconsin RRC Program. There is a fourth system that is currently under development in the territory marked by the WECC boundaries (western US states, British Columbia, Saskatchewan, and Baja Norte.) In addition, several other states, provinces, and regions in North America are considering the adoption of a REC tracking systems, including, PJM in the Mid-Atlantic, New York, and the Province of Ontario. At the current time, there are no plans underway to create a renewable certificate tracking system for greater Mexico.

The North American Association of Issuing Bodies (NAAIB) is being formed to help network the existing and new certificate tracking systems, so that RECs across North America are comparable and tradable. The NAAIB is a North American alliance of REC “Issuing Bodies” and market participant members. The NAAIB will lead the effort to develop minimum standards for certificate Issuing Bodies and protocols for importing and exporting RECs between state, provincial and regional certificate tracking systems in North America. These minimum standards and protocols will be jointly developed through a tri-national stakeholder process, resulting in the creation of a governance document and cooperative agreements.

Abbreviation and Acronyms

APX	Automated Power Exchange
CDM	Clean Development Mechanism
CRS	Center for Resource Solutions
ERCOT	Electricity Reliability Council of Texas
ESP	Energy Service Provider
GIS	Generation Information System
GPS	Generation Performance Standard
LSE	Load serving entity
MWh	Megawatt hour
NAAIB	North American Association of Issuing Bodies
NEGIS	NEPOOL Generation Information System
NEPOOL	New England Power Pool
NYISO	New York State Independent System Operator
PJM	Mid-Atlantic transmission system Operator for PA, MD, NJ, DE, DC and portions of VA, WV, OH
PSC	Public Service Commission
PUC	Public Utilities Commission
PUCT	Public Utility Commission of Texas
REC	Renewable Electricity Certificate
RPS	Renewable Portfolio Standard
RRC	Renewable Resource Credit
TNRC	Texas Natural Resources Commission
WECC	Western Electricity Coordinating Council
WGA	Western Governors' Association
WIRRC	Wisconsin Renewable Resource Credit Program
WREGIS	Western Renewable Energy Generation Information System

Current Status of Renewable Certificate Tracking Systems in North America

Introduction

Renewable electricity certificates (RECs) are increasingly used in both retail and wholesale electricity markets by generators, wholesalers, brokers, agents, retailers and customers as a commercial accounting mechanism for renewable energy, and by environmental and utility regulators to demonstrate compliance with state renewable energy purchase mandates and other energy and environmental program requirements. In order to maintain credibility and liquidity of the REC for all of these uses, electronic issuing and tracking systems have been developed in parts of North America, the European Union and Australia. These systems allow for the creation, tracking, and retirement of RECs throughout their eligible lifespan. Tracking systems, generally designed for specific regulatory verification and compliance needs have many similarities, but can have their own rules and regulations tailored to the state or region that they are used in.

REC tracking systems typically issue a certificate (with a unique serial number) for every unit of renewable electricity generation (typically, each MWh). By tracking that certificate through intermediate transactions from the renewable generator to the load serving entity (LSE), state regulators can easily determine whether an LSE has met its renewable energy mandate. RECs can also be tracked to other entities such as green power marketers and sold in the national voluntary market to retail or commercial customers. One of the principal benefits of RECs lies in their ability to be used for accounting purposes whether they are transacted separately from or bundled with electricity.

In the United States, there are currently ten states that are using or that plan to use RECs for Renewable Portfolio Standard (RPS) compliance purposes: Arizona, California, New Mexico, Nevada, Texas, Massachusetts, Maine, Connecticut, New Jersey, and Wisconsin. Three systems, encompassing five of these states, currently have operational tracking systems in place to issue and track renewable certificates and more broadly, generation attribute certificates: the Texas RECS Program, the NEPOOL GIS, and the Wisconsin RRC Program.

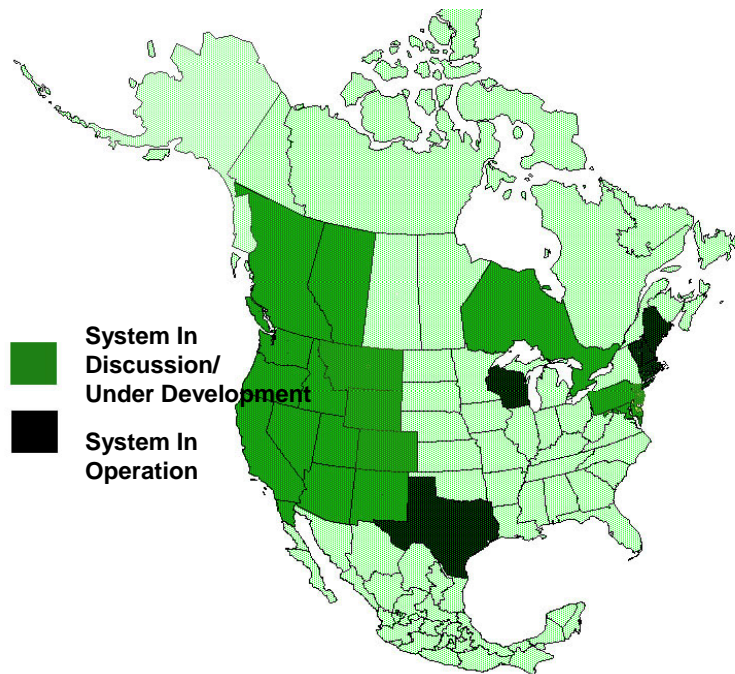
There are several other efforts underway to develop regional or state-based certificate tracking systems in the United States. The rapid development and adoption of these systems are primarily in response to renewable policy mandates enacted to increase the amount of renewable generation in a region's energy generation portfolio. The Mid-Atlantic States and New York have begun discussions on an attribute tracking system for the PJM interconnection electricity region and New York State, respectively. The Western Governors' Association (WGA) in conjunction with the California Energy Commission is developing a tracking system for Western Electricity Coordinating Council (WECC) that will be operational in 2005.

Other areas of North America have expressed interest in developing certificate tracking systems. The Province of Ontario is working on the design of a tracking, accounting and trading system

for renewable energy attributes. The system as envisioned would be used for tracking environmental disclosure for every MWh of generation, tracking imports and exports, supporting the voluntary green power market through verification and consumer protection, and encouraging regulations such as Renewable Portfolio Standards. In addition, a group of interested stakeholders in Western Canada have commissioned a feasibility study on the creation of a renewable tracking system for other provinces in Canada. In Mexico there is increasing interest in marketing renewable certificates for greenhouse gas markets, which would create a need for some sort of tracking and verification mechanism.

If all of these efforts move forward, large portions of North America will be covered by a state, provincial or regionally-sanctioned certificate Issuing Body. Center for Resource Solutions (CRS) is also working with a group of stakeholders on establishing a North American Association of Issuing Bodies (NAAIB), which will establish minimum standards for data quality, reliability, security, and compatibility for regional or national tracking systems. This effort will help unify existing national tracking systems into an integrated marketplace.

Figure 1. Current Status of Tracking Systems in North America



Operational Tracking Systems in the U.S.

There are currently three operational systems in the United States to issue and track renewable generation attribute certificates. The NEPOOL Generation Information System (NEGIS) tracks all electricity generation via a certificate system in the six New England states (MA, ME, VT, NH, RI, CT). The Electricity Reliability Council of Texas (ERCOT) operates a renewable-only certificate tracking system in Texas. The Wisconsin Renewable Resource Credit Program (WIRRC) tracks renewables purchased by the local utilities in excess of their renewable mandate. These three systems represent the most current operational REC tracking systems in North America to date.

The Texas RECs Program

Texas developed the first comprehensive RECs system in the U.S., a web-based platform that provides for the issuance, registration, trade, and retirement of RECs. The system facilitates tracking and verification for RPS compliance. The Automated Power Exchange (APX) was hired to build the software system in December 2000, delivering the system to ERCOT 6 months later. The Texas REC Program, which only tracks renewable energy certificates, started operating in July 2001.

Though designed principally to meet RPS compliance needs¹, the Texas' RECs system has also been useful for other purposes. In particular, green power marketers use the system to procure renewable energy generated in Texas. Texas RECs have also been purchased by out-of-state entities for the purposes of marketing RECs independent of electricity and for making green power claims.

There are two categories of certificates in the Texas REC Program: Renewable Energy Credits (RECs) and REC Offsets. A REC is created from generation at a new² renewable facility; a REC Offset is created by generation from an existing renewable facility. Pursuant to Texas law, only RECs may be traded. RECs represent all of the renewable attributes associated with one MWh of production from a certified renewable generator. RECs are allocated to certified REC generators on a quarterly basis by ERCOT. Data for each REC is based on electronically transferred settlement quality meter data, transferred directly from generators, and based on actual measured production. Non-metered monthly load and generation data are submitted to ERCOT, which is then stored for historical and verification purposes.

System administration is handled primarily by ERCOT with some shared responsibility with the Texas PUC. Generator registration in the system requires certification by the Texas PUC, which then allows for on-line registration with the ERCOT RECs system³. Participation in the REC Program is mandatory only for Competitive Retailers (LSEs) participating in the Texas retail

¹ The Texas RECs program does not provide the "market making" function of a certificate exchange, as this function is to be left to the private marketplace, as will REC brokering and financial markets.

² New facilities are defined as renewable energy generators placed in service on or after September 1, 1999.

³ [Hwww.texasrenewables.com](http://www.texasrenewables.com)H

market. Other renewable generators wishing to participate in the REC Program as well as REC aggregators and brokers, may participate in the RECs Program on a voluntary basis.

RECs can be traded anytime within the three compliance periods for which they are valid or until they are retired from the system. RECs are retired under three circumstances: mandatory compliance (e.g. RPS) voluntary retirement (e.g. green power sale), or expiration. The account holder must designate which RECs it wants to retire for mandatory or voluntary requirements. ERCOT will automatically retire RECs after three compliance periods, the first being the year in which the REC was generated, plus 2 additional years.

ERCOT is responsible for generating regular reports summarizing the transactions of the REC program. ERCOT publishes a list of REC account holders with contact information to facilitate REC trading and REC generators with associated non-competitive information, such as facility name, REC ID numbers, resource type, location, etc. ERCOT also posts each month the best available total energy sales in MWh of competitive retailers in Texas for the previous month and year to date. Finally, ERCOT posts a table that contains the CO₂, SO₂, NO_x and particulate matter emissions data supplied by the PUCT and based on the Texas Natural Resources Commission (TNRC) standards on an emissions per MWh or tons of fuel used basis for each energy type.

New England GIS

The second fully functional and operational system for tradable certificates in the United States is in New England, where the NEPOOL Generation Information System (NE GIS) tracks all electricity generation via a certificate system. The NE GIS was established to account for various attributes of energy transactions in the NEPOOL transmission region for the purposes of verifying compliance with state RPS or other mandates, emission and power content disclosure statements, and to establish a trading platform to facilitate compliance with these mandates. The system was built by the APX, who is also serving as the Program Administrator for the first five years. The system took about six months to develop, and became operational in July 2002, marking the start of the first official trading period.

All LSEs in New England are required to have accounts in the GIS system, with the exception of any entity not required to meet state mandates (some electricity co-operatives and municipal providers). Those power providers that are not required to register as well as market participants located outside of the NEPOOL central dispatch Control Area may voluntarily participate in the GIS system. Entities that are located outside the region are required to meet certain criteria, verified by the GIS Administrator, in order to import or export energy from the NEPOOL Control Area.

The GIS Administrator issues certificates for every MWh of generation in the NEPOOL Control Area or for generation that is imported into the Control Area (based on the wholesale energy market settlement data received from the System Operator). Certificates are created two calendar quarters after generation has occurred on the 15th day of the quarter. For example, all generation occurring in the first quarter of the year, is issued certificates on July 15th. The

certificates are given a unique serial number and deposited into the generator's account, establishing the generator as the original owner of the certificate until it is transferred.

The GIS is organized in quarterly compliance or trading periods. At the end of each compliance period, all trading is stopped and all certificates created during that quarter are accounted for and retired. Any certificates that are not held in a retail LSE's account are used to calculate the residual mix. The residual mix is simply the weighted average mix of all unaccounted for certificates (equivalent to the generation occurring in the trading period, minus any generation that has been removed through the direct purchase of certificates). Any retail LSE that has a Certificate Obligation that has not already been satisfied by purchased certificates, is assigned residual mix certificates. After this time, all accounts are closed, reports are made available, and a new trading period begins. Limited banking of certificates beyond each quarterly compliance period has recently been allowed.

The GIS administrator provides account holders and New England regulatory agencies with quarterly and annual reports respectively. In addition, there is a publicly accessible portion of the GIS website⁴ that contains a directory of all account holders for the reporting period, and list for each account holder static generator information as well as aggregated information about certificate ownership from the four most recent compliance periods (one year).

Wisconsin's RRC Program

Wisconsin is the third operational system in the U.S., and tracks only renewable generation for compliance with the state's RPS. The certificates generated are called Renewable Resource Credits (RRC) and are issued to local utilities for renewable generation in excess of their renewable mandate and that was served to utility customers. The RRCs can then be traded between the utilities or held for future compliance. An unlimited banking period for RRCs currently exists in Wisconsin creating a premium and a market for "excess" generation. The tracking system was launched in February 2003, and was built by Clean Power Markets and Zyquest. It took approximately 5 months to construct and deliver the system.

The system's main function is to track and verify utility compliance with the state's RPS. It also serves the additional function of facilitating the trading of RRCs among utilities and Energy Service Providers (ESPs). The system is administered by Clean Power Markets, with some additional regulatory oversight. Sources of dynamic certificate data come from settlement quality meter data, electronically and manually transferred, as well as some self-reported generation data, verified by the Wisconsin PSC. Static data about all generators and account holders whether in or out-of-state are certified by the Wisconsin PSC.

The RRC Program Administrator maintains the Wisconsin RRC web site,⁵ which includes a list of participating electric providers, reports on each renewable facility certified by the Commission, and annual renewable generation summaries for the state.

⁴ [Hwww.nepoolgis.com](http://www.nepoolgis.com)H

⁵ [Hwww.wirrc.com](http://www.wirrc.com)H

Comparison of Existing RECs Tracking Systems in the US

The three operational tracking systems outlined above have similarities and differences that arise from the different regulatory needs of each region, system design, system cost, and market size. The following section compares and contrasts these three systems, and Table 1 provides a reference for each system's main characteristics.

Basic system operation is similar in the three regions, as they have been designed mainly to provide verification of compliance with state renewable policies, to: (1) issue certificates based on verified generation data, (2) record transfer of ownership of certificates, and (3) account for retirement of certificates per operating rules or regulatory requirements.

All three systems are used to provide the basic accounting functions needed to verify policy compliance and voluntary certificate transfers. A bulletin board on each systems' website provides limited trading functions, but does not provide pricing, contracting or other market-making functions. In addition, the three tracking systems require certain entities to register and participate in order to meet specific regulatory requirements and retire certificates used to meet these mandates at the end of the compliance period. Finally, all of these systems have at a minimum limited import and export capabilities for tracking the transfer of certificates into and out of their systems.

These systems, although creating and tracking certificates for similar purposes, differ from each other in the degree to which they track electricity generation, general system operation, participation requirements, and the sources of data that are accepted into the system.

The length of the compliance period and the ability to use certificates beyond one compliance period (generally referred to as certificate banking) varies from system to system. The Texas RECs system has a 1-year compliance period and allows for limited banking of certificates, the current plus two additional compliance periods. The New England GIS system, on the other hand, has a quarterly compliance and trading period for certificates, with very limited banking allowed. Wisconsin allows for an unlimited banking period, providing a "bankable" premium for those utilities that purchase/generate renewables above their required level within the annual compliance period.

The New England system tracks generation not only for RPS compliance, but also for disclosure and emissions reporting requirements. Accordingly, the system generates certificates for all sources of generation in New England, and tracks a greater number of generation "attributes", including emissions characteristics for all "fuel" types. The New England system is therefore a good model of a system that serves multiple purposes, while Texas and Wisconsin offer a simpler solution, used solely for state RPS compliance verification.

The New England system must account for generation located within the entire multi-state region, and must also account for and track electricity generation in surrounding regions that is imported into the state. The Texas and Wisconsin systems need not account for multiple states, but do allow for limited imports and exports to be tracked.

Finally, generation data used to create certificates comes from electronically transferred settlement quality meter data, except in certain cases in Wisconsin where generation data can be self-reported, subject to PSC verification.

Table 1. Comparison of Current US Tracking Systems

	Texas Renewable Energy Credit (REC) Program	NEPOOL Generation Information System (GIS)	WI Renewable Resource Credit (RRC)
Type of Generation Tracked	Existing and new renewable generation	All generation in or delivered to NEPOOL dispatch and control area	Renewable generation delivered in excess of state RPS requirement
System Overview	<ul style="list-style-type: none"> - RECs are issued based on settlement data & deposited in generator accts. -RECs are traded per privately arranged contracts -RECs transfers occur electronically, initiated by participants -RPS compliance is verified via REC ownership at end of compliance period - RECs are retired after they are used to meet RPS compliance 	<ul style="list-style-type: none"> - Certificates are issued based on settlement data & deposited in generator accounts. -Certificates are traded per privately arranged contracts -Certificate transfers occur electronically, initiated by participants - At end of compliance period, all unsold certificates are assigned the "residual mix" and are retired; all certificates in LSE accts used to calculate disclosure label or verify compliance w/ RPS or GPS 	<ul style="list-style-type: none"> -RRCs are issued for any amount of RE generation delivered in excess of an LSEs RPS obligation -RRCs are traded per private contracts - RRC transfers occur electronically, initiated by participants -At end of compliance period, all RRCs used to meet RPS are retired.
Location/Domain	Texas/ERCOT Control Area	NEPOOL Control Area- 6 New England States	Wisconsin
Primary Function of System	Verify utility and ESP compliance with State RPS. Secondary function to verify green power claims).	Develop and issue environmental disclosure labels; Verify RPS and GPS compliance where applicable.	Track and verify utility compliance with State RPS; facilitate trading of RRCs among electric providers.
System Administrator	ERCOT with some shared responsibilities with PUCT	APX with some shared responsibilities by NE regulators	Clean Power Markets
Source of Data	Electronic transfer of settlement quality meter data	Financial settlements data from ISO's Market Settlement System	Electronic transfer of settlement quality meter data, manual entry of meter data, and self-reporting
Participation in System	Mandatory for companies that must meet RPS; voluntary for other market participants	Mandatory for all generators and LSEs; voluntary for other market participants	RPS compliance mandatory for all WI electric providers; RRC trading participation voluntary
Imports/Exports	Generally not applicable	Unit-specific imports or exports must be physically delivered to/from NEPOOL system. System mix imports/exports assigned system or "residual" average.	Imports of renewable energy allowed from renewable generators that have a wholesale contract with a WI electric provider

	Texas Renewable Energy Credit (REC) Program	NEPOOL Generation Information System (GIS)	WI Renewable Resource Credit (RRC)
Verification of Generator Attribute Information	Generators register and become "certified" by the PUCT	Generator information verified by state regulators	Generators register and become "certified" by Wisconsin PSC, including out-of-state generators referenced above
Maximum lifespan of certificates	Approx 3 years	Up to 1 year	Current rules have no expiration date for RRCs
Other Features	Banking and borrowing capability for RPS	GIS organized in quarterly trading periods. System automates line losses, pumped storage, green tag transactions, etc.	"Bulletin board" provided to facilitate trading of RRCs

US Tracking Systems that Are Proposed or Under Development

PJM

In the Mid-Atlantic, an ad hoc committee of interested stakeholders has been meeting since early 2002 to discuss the formation of a generation attribute tracking system for the PJM interconnection electricity region. This ad hoc group has recently been officially recognized as a "Working Group" under PJM, which gives it the ability to make recommendations to the PJM System Operator for operational changes. This group is discussing and defining the design features of the certificates tracking system for PJM. The system, as currently envisioned, is modeled after the NEPOOL GIS and would create certificates for all energy attributes. There is no calendar for when the system will be built, and there is also not a clear funding mechanism for creating the software.

Western Renewable Energy Generation Information System (WREGIS)

The Western Governors Association (WGA) has begun the design and development of a tracking system for the eleven Western US states, western Canada and northern Baja California. In June 2002, Western Governors adopted an amendment to the WGA resolution, *Western States' Energy Policy Roadmap*. The amendment expressed support for (1) "creation of an independent, regional generation tracking system to provide data necessary to substantiate the number of megawatthours generated from renewable energy sources and support verification, tracking and trading of RECs;" and (2) "establishment of a single institution in the West that will issue, track and oversee REC trading."^{6, 7}

⁶ Western Governors' Association, *Western States' Energy Policy Roadmap*, Policy Resolution 02-26, repeated and updated in Policy Resolution 03-19, September 15, 2003 at <http://www.westgov.org/wga/policy/index.htm#EnergyH>.

⁷ This resolution does not bind states to reliance on RECs for compliance with renewable portfolio standards or

Included in the resolution is a management directive charging WGA to bring Western stakeholders together to help define the institutional structure, design operating guidelines and identify information needed to support tracking and accounting of renewable energy generation and registration of RECs in the Western Interconnection.⁸ Such a system will help state regulators verify compliance with state Renewable Portfolio Standards, facilitate the development of a voluntary renewable energy market, and provide an important verification function for REC transactions in the West.

During the fall of 2003, the WGA and the California Energy Commission conducted a survey of western stakeholders and held six public workshops on the functional requirements for a regional tracking system. A final report will be released, by the end of 2003, incorporating comments received from the survey and workshops. The WGA and Energy Commission have formed several working groups to help resolve operational design issues and to identify the appropriate institutional home for the tracking system. The WGA and Energy Commission anticipate issuing an RFP to solicit a contractor to build the software for the tracking system in March-April 2004. The WGA and Energy Commission plan to launch WREGIS sometime during the first quarter of 2005.

New York

New York has already passed an RPS law, known as Executive Order 111, and is currently holding proceedings to discuss implementation of the rule. New York currently has a system to demonstrate renewable energy purchases through a process known as “conversion transactions.” This is akin to a paper version of a certificate-tracking system. This system may be used for verifying compliance with the RPS, although they are also considering the development of an electronic tracking system that could easily interface with the NEPOOL GIS and potentially Ontario. Another option being considered is expanding the NEPOOL GIS to include New York.

Whichever system is adopted, it would be used to facilitate the sale and purchase of environmental attributes, associated with energy sold and purchased through the spot market of the New York State Independent System Operator (NYISO), bilateral trades, and energy transacted between the NYISO and neighboring systems. It would also provide a mechanism to satisfy the verification needs of green power products offered in New York to both residential and commercial customers. As various options are still being discussed, there is no clear timeline for establishment of a tracking system in New York.

other state programs. Those decisions will still be made by individual states for each program.

⁸ The Western Interconnection encompasses 11 US states, two Canadian provinces and parts of Northern Mexico: Alberta, Arizona, Baja California, British Columbia, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Canadian Renewable Tracking System Initiatives

Ontario's Environmental Tracking System Program

On March 21, 2003, the Ministry of Energy introduced a notification of proposal to make a Regulation⁹ for the development and implementation of a generation attributes tracking, disclosure and trading system under its Environmental Labeling Program. The proposed tracking system would (1) track and disclose the environmental attributes associated with each MWh of electricity generated in and imported into Ontario, (2) promote the development of green power markets in Ontario by facilitating REC trading, (3) provide consumer protection and confidence as well as credible information to assist them in choosing electricity products based on their environmental characteristics, and (4) support other evolving policy objects such as Renewable Portfolio Standards.

The proposed tracking system would issue, track and retire certificates, and provide a platform to facilitate intra- and inter-provincial certificate transfers. The tracking system would also calculate, verify and issue emissions disclosure labels for all electricity generated and sold from all sources, including imports. All electricity providers would be required to provide disclosure labels to their customers describing the generation portfolio and emission characteristics of the electricity that was supplied to them.

Under this proposal, any person selling RECs, namely those entities (generators, retailers, electricity providers) making a claim that electricity has been supplied from a specific generation source, would be required to obtain a Certificate Seller license from the Ontario Energy Board. The license would enable a person to sell differentiated electricity products and facilitate certificate trades through registration in the tracking system, as well as enable the activity to be subject to standards set by the Ontario Energy Board, program rules and requirements prescribed by the regulation.

The Regulation has not been passed by the Cabinet because of a change in political parties that occurred during the October 2003 election. When and if the Regulation is passed, a contractor will be selected to build the tracking system described above. At the time of this writing, it is unclear whether or not the Regulation will be promulgated.

Other Provinces in Canada

There are two initiatives under way that could result in the creation of a renewable certificate tracking system in other parts of Canada. The first is the WREGIS effort described above, which would include the provinces of British Columbia and Saskatchewan, if these provinces wanted to participate. The other initiative is being led by a group of renewable generators who have hired a contractor to conduct a preliminary feasibility study and design document for a Canadian renewable energy certificate Registry. The Registry, which would serve renewable generators and market participants in all provinces, would create RECs, and provide a mechanism for

⁹ The notification of proposal to make a Regulation was published on the Environmental Bill of Rights Registry on March 21, 2003 for public comments. This summary reflects the proposed design and requirements at the time of its publication.

transferring ownership and retiring RECs. The timeline for completing this feasibility study is first quarter 2004.

Mexico

Renewable energy development in Mexico may be on the verge of a breakthrough, though many barriers to renewable development still exist. The World Bank has announced a Mexican Strategic Partnership for Renewable Energy Development that is specifically focused on bringing 600 MW of new renewable energy (primarily wind generation) into operation over the next ten to twelve years. There are elements of this project that are compatible with the creation of a renewable energy tracking system. Moreover, a Mexican renewable certificate market may be stimulated in conjunction with the Kyoto Protocol coming into force. The Mexican government has also expressed keen interest in integrating renewable energy with carbon trading markets and the Clean Development Mechanism (CDM) of the Kyoto Protocol. However, there are still significant political and technical barriers to increasing the development of renewable generation in Mexico that have not yet been adequately resolved.

At the current time, there are no plans underway to create a renewable certificate tracking system for greater Mexico. There are portions of Northern Mexico that may be served by US renewable tracking systems, such as the WREGIS (Baja Norte) and the ERCOT RECs Program (Chihuahua, Coahuila, and Tamaulipas), but in general, the ability to participate in these tracking systems will be limited by electrical interconnection, which is currently somewhat limited. An important issue in developing a robust international market for Mexican renewable certificates is the ability to track both the certificates and greenhouse gas emission reduction credits.

Systems Integration and Coordination

North American Association of Issuing Bodies (NAAIB)

The Center for Resource Solutions (CRS) will be launching a new institution that would help to network renewable certificate tracking bodies in North America. The overarching goal of such an organization is to facilitate the creation of the minimum standards and protocols that ensure compatibility between systems issuing and tracking renewable certificates in North America. The institution, known as the North American Association of Issuing Bodies (NAAIB), is modeled after the European organization that coordinates and networks different certificate tracking systems in the European Union.¹⁰

The participating Issuing Bodies are renewable certificate tracking system operators who have already developed or are developing such tracking systems. The NAAIB, as envisioned, is a North American alliance of REC Issuing Bodies and market participant members. The NAAIB will lead the effort to develop minimum standards for certificate Issuing Bodies and protocols for importing and exporting RECs between state, provincial and regional certificate tracking systems in North America. These minimum standards and protocols will be jointly developed through a

¹⁰ In Europe, the organization is known as the Association of Issuing Bodies.

tri-national stakeholder process, resulting in the creation of a governance document and cooperative agreements.

The rules and standards will be conceptually oriented with general principles that preserve transferability and accuracy of information. The NAAIB will not govern how a specific Issuing Body operates or what mechanism an Issuing Body uses to fulfill the minimum obligations necessary to participate in the national network. As envisioned, the rules and standards will be discussed and modified through the stakeholder process directed by the NAAIB. Ideally, each Issuing Body will incorporate these guidelines and minimum operating procedures into their own system.

Under the NAAIB umbrella, Issuing Bodies will control the issuance and tracking of certificates from their own domains. A domain may be defined by geographical boundaries (e.g. state, power pool, country, or region) or other similar delineations, such that a renewable generating facility is associated with one and only one Issuing Body. Each Issuing Body will develop its own operating protocol consistent with the laws and renewable energy programs in its geographic domain but will be networked with other tracking systems through the common set of agreements and standards established for cooperation with other Issuing Bodies. Such agreements and standards will allow the transfer of certificates between Issuing Bodies to ensure that no double selling, double issuing, or double counting is occurring.

Conclusion

The regulatory push for increases in renewable energy in electricity generation portfolios, as well as voluntary purchases of renewables by residential and commercial customers have created a rapidly expanding marketplace for RECs. Tracking systems provide the support and legitimization of the REC as a tradable and marketable product by serving as an electronic accounting platform. These systems ensure that: (1) RECs represent renewable generation, (2) certificate ownership is transferred between account holders, (3) certificates are retired when used to meet state or regional regulatory requirements, and (4) certificates are not used for more than one purpose.

The three operational US systems were all designed to verify specific regulatory requirements for tracking renewable generation. However, they have also served the voluntary marketplace by allowing verification of retail REC products. All of the proposed systems now contemplate voluntary market functions as well as mandatory market functions in their proposed design discussions. Therefore, certificate tracking systems are evolving to serve multiple purposes through North America.

As these systems are implemented and the REC marketplace grows, there is an ever-increasing need for coordination among parties issuing, trading, and retiring certificates. This coordination is essential, in order to uphold the integrity of the market, build consumer confidence and protect participants from liability that could result from double claims of certificate ownership. The North American Association of Issuing Bodies will provide a foundation for this coordination by establishing a network that will facilitate bringing together regional tracking systems, by

requiring basic data quality, security, and integrity commitments from its participants. Any proposed tracking systems in development should ensure that they meet these basic commitments¹¹ to data compatibility in order to ensure the fluid transfer and retirement of certificates between state, regional and national systems.

¹¹ The basic commitment draft document can be found on the CRS website at: [Hhttp://www.resource-solutions.org/Library/Library-NAAIBpage.htm](http://www.resource-solutions.org/Library/Library-NAAIBpage.htm)H.