



INTER-REGISTRY REC TRANSFERS WHITEPAPER

I. HISTORY AND PURPOSE OF WORKING GROUP

In February 2009, the WREGIS Policy Subcommittee requested volunteers to convene an informal work group to study various issues concerning transfers of Renewable Energy Certificates (RECs) between tracking systems. WREGIS and APX staff prepared a table comparing certificate attributes of WREGIS, PJM-GATS, M-RETS, NEPOOL GIS, and ERCOT. The group considered which attributes might be of significant importance to the WREGIS Committee and need to be provided by other tracking systems that want to import RECs into WREGIS.

Since that time the scope has expanded beyond essential certificate information required for REC imports into WREGIS to imports and exports from any of the tracking systems. At the meeting on May 5, 2009, the working group asked the Environmental Tracking Network of North America (ETNNA) to draft a white paper summarizing the status of the working group activities and identifying potential next steps (including the pros and cons of each), as well as preliminary recommendations. It has also become apparent that Congress may shortly pass a federal Renewable Energy Standard (RES), in which case all the tracking systems may need to develop compatible import/export protocols and a mechanism for implementing such protocols. Therefore, in addition to summarizing the status of the WREGIS discussions and possible next steps, this document contains a discussion of how the import/export activities that have been discussed might be utilized in the event of federal RES legislation.

II. SUMMARY OF WORKING GROUP ACTIVITIES

The working group held five conference call meetings from February through May 2009 (including two drafting meetings). The first three meeting calls focused on the significant differences between the attribute information contained in the REC data files of the five tracking systems. These calls included discussions of which attribute differences were important to WREGIS and WREGIS stakeholders.

After some discussion about the data file differences, it was decided that only six of the inconsistent data sets were of sufficient importance for WREGIS to discuss further. These variables were: (1) The date the facility commenced operation; (2) multi-fuel generation indicator; (3) the state in which the facility is located; (4) generation period start and end dates; (5) generation technology/prime mover and (6) QF status indicator. Other data were either consistently collected by all five systems or were not sufficiently important to justify their inclusion in import data files. One challenge was to find out whether the data were captured by the tracking system even if they did not appear on the REC data sets. Table 1 includes a listing of the six key data sets and how each is managed by the other four systems.

Table 1 --Certificate Fields Required by WREGIS that are missing in Other Registries

ID #	WREGIS Field	M-RETS	PJM-GATS	NEPOOL-GIS	ERCOT
13	Commenced Operation Date	Tracked but not on certificate	Tracked but not on certificate	Included on certificate	Date generator commenced operation is tracked and reported. Date REC was created is part of the REC ID (currently down to the quarter of the year)
30	Multi-fuel Generation Indicator	Tracked but not on certificate	Tracked but not on certificate	Not captured, multi fuel units create separate certificate batches. Each batch only lists that particular fuel type.	Multi-fuel is tracked. Only 25% of production can be from fossil fuels (starter fuels) in order to qualify for RECS
28	Facility State	Included on certificate	Tracked but not on certificate	Included on certificate	Included on certificate (Texas only)
24,25	Generation period start/end dates	Included on certificate	Use month/year of generation (9)	Month and year of generation, it is assumed generation period is 1 month	Generation quarter/year included in REC ID
31	Generation Technology/Prime Mover	Included on certificate	Specific fuel type includes combination of gen type and fuel type; would require mapping to WREGIS fields	Not captured, only fuel type	RECs identified by technology type/fuel
38	Qualified Facility	Not tracked	Not tracked	?	Not included on certificate, but could link to ERCOT database; manual entry for non-ERCOT generators

III. WORKING GROUP FINDINGS

After discussing the potential work that might be involved for the tracking systems to change information contained in their REC data sets to accommodate exports into WREGIS it was decided that the cost and hassle could be substantially reduced by only adding data to those RECs that are going to be imported into WREGIS. Since nearly all of the data are already collected, adding the fields to the REC dataset for export RECs is a more manageable task than for an exporting system to add data fields to all of the REC data sets at this time. A bigger issue was how these inter-registry transfers would actually be accomplished, how to avoid double counting, and whether it makes sense to develop a set of import/export protocols exclusively for WREGIS as opposed to developing a system that would be compatible and useful for all the tracking systems. There was general agreement that the protocols should be broadly adaptable. The following is a summary of the goals, guiding principles and protocol elements along with proposed next steps needed to develop a smooth inter-registry REC transfer system.

A. Goals

- **Adaptability** – The protocols need to be adaptable to regional differences, federal requirements and to the needs of the various market actors.
- **Feasibility** – All of the systems do not need to move forward on REC imports/exports at the same time. The approach can be designed so that state and regional systems can opt-in as they are ready to participate. This will allow some regions to move faster than others.
- **Audits and Reconciliation** – The REC import/export protocol system needs to be able to track each REC from creation to retirement regardless of the number of transfers. This type of full audit is necessary to protect against double counting or double issuing of the REC. Reconciliation¹ of cross-tracking system transfers is an important building block of any import/export system.

B. Guiding Principles

- **Policy Neutral** – As with all of the existing tracking systems, the import/export protocols must be policy neutral. Eligibilities will still be defined by the registries, state regulators and voluntary programs.
- **Tracking System Neutral** – The protocols should be applicable to all-generation registries as well as to REC only registries.
- **Scalable** – This may start as a pilot project between two or more tracking systems with limited demand. But future demand is unknown so the protocols should be scalable for broad use.

C. Communication Protocol

The electronic protocol used for communications of REC imports/exports needs to:

¹ Reconciliation of REC transfers would be similar to reconciliation of a bank account – To make sure no RECs were added or lost as a result of the transfers. In other words reconciling the total number of RECs issued and retired within the national system with the sum of the RECs issued and retired by each individual system.

- **Define tracking of imports by the importing system** – Will the original serial number be kept or modified, or will a new serial number be issued by the importing system?
- **Define how exports are handled by the exporting system** – Are the RECs permanently retired in the system, re-imported, etc.
- **How and where the imported RECs will be issued** – Will the RECs be issued to Administrator accounts or will they be issued to the sub-accounts of the entity requesting the import?

IV. INTER-REGISTRY REC TRANSFER PILOT PROJECT

A pilot import/export project between two tracking systems has been proposed to test the feasibility of the structures and protocols required for a robust inter-registry transfer system. This pilot project could, in addition to meeting current inter-registry transfer needs, lay the groundwork for implementation of protocols necessary to implement a national RES program if such legislation is passed by Congress. The objectives of this pilot project are:

- Implementation of an import/export process that meets the present needs of the participating tracking systems
- Compatibility with the inter-registry protocols that might be necessary to implement a Federal RES (according to analysis of currently pending legislation)
- Scalability from a small pilot project to a large robust REC market
- Minimization of costs to both participating tracking systems and users; and
- No restrictions on the ability of the tracking systems to provide the services to their users for which they are designed.

The proposed pilot project is made up of four key elements:

1. Participation – A minimum of two tracking systems and a subset of users would be needed to volunteer for this pilot project
2. Advisory Committee - to oversee the design and implementation of the pilot project and evaluate the results
3. Coordinating Structure - to facilitate the import/export transfers of RECs; and
4. Technical/communications protocols – to lay the foundation for implementation of the pilot.

1. Participation

A minimum of two regional REC tracking systems and a subset of users from these systems will be required to test the functionality of the protocols and systems used in the pilot. The participants can decide on the optimal duration of the pilot program. Pilot program participants will be under no obligation to continue the program beyond the pilot period unless they voluntarily choose to do so. An “opt-out” during the pilot may be necessary for all parties. A legal agreement can be drafted between the two participating tracking systems dealing with liability issues and conditions for

termination of the pilot. As with previous software development, beta testing will precede transfers of actual RECs.

Pros – A pilot will allow participants and observers to get actual experience with inter-registry REC transfers through a lower cost and a lower risk pilot experiment² before expanding the system to support a larger market that might be required under a federal RES or a robust voluntary REC market.

Cons – This pilot project would involve some costs for the participating tracking systems to design and implement the needed protocols. It would also require cooperation by a small subset of users who are willing to participate in this import/export experiment.

Recommendation – A pilot project should be developed with a goal of reducing the risks and costs of developing import/export protocols and positively informing and guiding the deliberations associated with implementation of a federal RES.

2. Advisory Committee

It has been suggested that an Advisory Committee be created to oversee the design, implementation and evaluation of the pilot project. This committee could not only have representatives from the participating tracking systems, regulators, and user groups but also observers from other tracking systems, regulators, and user groups that are interested in the outcome of the pilot project. Working groups or sub-committees of the Advisory Committee can be formed to deal with specific technical protocol and structural issues as deemed necessary by the Advisory Committee.

Pros – Creation and use of an Advisory Committee can aid in the design of protocols that not only meet the needs of the two participating tracking systems but that are compatible with other tracking system structures and protocols. The use of an Advisory Committee will add credibility and is consistent with meeting the guiding principles of the pilot project. Using an Advisory Committee with representation beyond the two participating tracking systems can aid dissemination and application of the pilot project results. At the same time, the use of small working groups will facilitate an efficient process for the technical design of communication protocol details.

Cons – A larger Advisory Committee may be more time consuming to convene than having a small working group.

Recommendation – To ensure credibility and replicability, establish an Advisory Committee with smaller working groups to oversee the creation of the pilot project, design the coordination function, evaluate potential issues and solutions, and design technical protocol requirements.

² This is lower cost and risk compared to doing a full national system as the first experience with inter-registry transfers.

3. Coordinating Structure

A coordinating structure would provide the functions necessary to facilitate the efficient transfer of RECs between tracking systems.

A. Guiding Principles

The coordinating structure selected should be:

- Able to provide the necessary inter-registry transfer services
- Scalable to meet the needs of a robust, large volume market (including a federal RES)
- Capable of functioning with minimal changes to the existing state/regional tracking systems
- Compatible with and preserve state Renewable Portfolio Standard (RPS) services
- Compatible with and preserve voluntary market services
- Efficient, avoid duplication of efforts, and result in minimal costs compared to other options

B. Coordinating Functions

- Act as a repository for the project data collected by the importing/exporting tracking systems
- Identify the project data required by each tracking system as a condition of accepting REC imports from another system
- Translate the data sources and needs of the different tracking systems into electronic protocol that can automatically add missing information into the data sets of RECs being transferred into another tracking system (where such data exist), and reject RECs that do not meet the importing system's data requirements.
- Maintain a master list of renewable energy projects with pertinent static data needed by state and federal regulators to administer renewable energy policies and programs and protect against double issuance and double counting of both RECs and federal RECs.
- Maintain a record of all inter-registry transfers as part of an annual audit and reconciliation process for inter-registry imports and exports.

Four options have been identified that could provide these functions: (1) Bilateral agreements between the various systems; (2) uniform changes to all systems so they have the same data requirements, numbering systems, etc; (3) a new federal system that would supersede the existing systems and force uniformity; or (4) a national coordinating structure that provides these functions to all the tracking systems. Table 2 presents the advantages and disadvantages of these four options.

Table 2 -- Alternative Structures for the Coordinating Structure

Alternative	Advantages	Disadvantages
Bi-lateral Agreements	Very simple, straight forward and easy to phase-in.	This approach may work well for two tracking systems with a low volume of transactions but may not be practical or scalable for a robust market. There may be costs associated with developing the protocols for this option and could result in duplication of efforts and costs since each tracking system would need to implement their own individual information system including other tracking system data needs, information collected, and appropriate software to translate that into an automated transfer system. This also may not meet the needs of a federal RES administrator or a national audit and reconciliation process or protect against double issuance and double counting across multiple REC tracking systems.
New Uniform System	This may eliminate the need for some of the coordinating function tasks and simplify development of communication protocols. It could easily scale to large transaction volumes	This option may require changes by all the systems that could be expensive and time consuming. It may not address the needs of a federal RES administrator or a national audit and reconciliation processor protect against double issuance and double counting across multiple REC tracking systems.
Federal System	This may eliminate the need for the tracking systems to do anything unless a federal RES is put into place.	The state/regional systems could lose control of their user services if they are replaced by a federal system. This could reduce effective services to state regulators and regional voluntary market users. Also, to the extent that tracking systems moved forward with bilateral transfer protocols, the benefits of those investments could be lost or their costs not fully recovered by the time a federal system was put into place.
National coordinating structure (National Project Database)	This option is consistent with the guiding principles as well as meeting the functional needs listed above. Software development costs could either be recovered through user fees or shared by all the participating systems rather than each system paying for the protocol changes separately. This approach would also provide evidence of the expertise and ability of the existing systems to support national programs.	Costs associated with this option may be similar in magnitude to the costs associated with implementing bi-lateral agreements. This approach requires tracking system cooperation and legal permission to share data files and would require an advisory or oversight committee to ensure the coordinating structure serves all participant needs and that any user fees are fair and cost based. If federal guidelines were created to use an application other than a national project database then some of the resources expended toward the development of a national project database could be lost.

C. DISCUSSION

There may need to be some type of project database to support implementation of a federal RES and a robust national REC market. It may be more efficient to establish a system early in the process that can accommodate both requirements. Piloting this concept would allow time to identify issues and develop workable solutions now rather than being rushed to develop the structure later.

The National Project Database would be an electronic software interface designed to coordinate inter-registry transfers. In order to implement a National Project Database, each of the participating tracking systems would need to agree to share certain data with the project database. Initially, the exporting system might only need to gain permission from the specific generating projects from which RECs are being exported to share the dynamic REC data with the National Project Database. This authorization could be included as part of a RECs Export Request Form that would be required of any party requesting REC Exports. A similar approach could be used by the importing system. Information that is not considered confidential and already publically available (static data) could also be integrated into the database without requiring special permission if the Advisory Committee felt it would be useful.

A National Project Database could help to ensure that there is no double registration or double REC issuance by maintaining a file with the names, locations, project descriptive data and the tracking system to which each generator is registered. Individual tracking systems may have limited methods of ensuring that a generating facility is not registered in more than one system except through attestation. Although this is likely not a problem for WREGIS since there are only very limited interconnections between WECC and other transmission grids, it could be a problem in areas of the country where there are many interconnections between grids, where the tracking system is geographically smaller than WREGIS (or limited to just one state), or where a generator may parse their electrical output and associated RECs to multiple buyers located in more than one tracking system. If a federal REC system evolves the problems would be magnified. This project database will facilitate auditing and reconciliation of imports/exports for both RECs and federal RECs.

Recommendation-The National Project Database described above appears to best fit the principles and functions previously outlined. As part of the pilot project, an Advisory Committee should be formed to analyze all alternatives in-depth and determine the most appropriate design of the coordinating structure. They should also choose the information that should be available for public distribution, oversee any coordination fees to ensure they are fair and reasonable, and make decisions on other pilot program related issues that may arise.

4. TECHNICAL/COMMUNICATION PROTOCOLS

The Advisory Committee may establish small working groups to develop the appropriate communications protocols. These protocols will be developed for use by

the pilot project using the standard beta testing process. At the end of the pilot project, the Advisory Committee will evaluate the effectiveness of the protocols and make recommendations regarding their continued use in a national inter-registry transfer system.

A. Identification of originating system – It was suggested that a prefix be added to the REC serial number to identify the originating tracking system (e.g. W = WREGIS; M = M-RETS, E = ERCOT, etc).

- **Pros:** Adding the identification of the originating system to the REC would simplify the reconciliation process and help prevent double counting of the RECs.
- **Cons:** There would be an incremental cost for implementation in the regional REC tracking systems.

Recommendation – For all exported RECs, add a letter prefix to identify the originating system that issued the REC.

B. Serial numbering system – It was suggested that, at least for the pilot project, imported RECs keep their original serial number with the originating system prefix as described above.

- **Pros:** Keeping the original REC serial number would simplify the tracking of imports and exports and make reconciliation and protecting against double counting easier. This is particularly true if there are large volumes of RECs transferred between tracking systems or if a single REC is transferred between multiple tracking systems. Moreover, a REC could be exported out of its originating system and then transferred back into the originating system at a later date. If the original serial number was retained, the tracking and reconciliation would be much easier.
- **Cons:** Some registries have a system of serial numbers that convey basic information (e.g. date and time of power generation) in addition to being a unique serial number. A document explaining the various serial numbers may need to be produced to benefit importing entities.

Recommendation – Keep the original serial number and add any information required by the importing REC tracking system to an added certificate field. The Advisory Committee should monitor and evaluate this issue to assess whether there would be sufficient value in normalizing serial numbering systems at some time in the future.

C. Import Protocols – How are imported RECs handled by the importing system (e.g. will the RECs be placed in the Administrator's Account)? Part of this question

depends upon the resolution of the previous question having to do with serial numbers.

If the importing system is going to issue a new REC with a new serial number to replace the imported REC then it might make sense to place the imported REC in the Administrator's Account, issue a new REC/serial number and then transfer the REC to the sub-account of the entity requesting the import. If this method is used, the original serial number should be retained somewhere in the data set of the newly issued REC. If imports and exports become numerous in the future (e.g. under a federal RES), putting all imported RECs through the Administrator's Account could become burdensome.

If the REC keeps its original serial number then depositing the imported REC directly into the sub-account of the entity requesting the import may be the most efficient method. Nonetheless, the participating tracking system Administrators would need a mechanism or report to account for all RECs imported into the system.

Recommendation – During the initial pilot phase, RECs should be imported into an Administrator Account to ensure that the protocols are being followed. Once the Administrators are comfortable that the protocols are functioning properly, the RECs could then be deposited directly into the importing user's account.

D. Export Protocols -- Should exported RECs be transferred into an Administrator's special export account to facilitate individual tracking system audits and reconciliation?

- **Pros:** An Administrator's export account may simplify import/export reconciliation and might also facilitate reentry by previously exported RECs that had not been retired elsewhere and were traded to an account holder in the originating system.
- **Cons:** Tracking system import/export reconciliation is just one type of reconciliation that must be undertaken. Account holder's RECs must also be reconciled and it might be easier to achieve this by depositing exported RECs into a separate Export Sub-account of the exporting account holder rather than putting them into an Administrator's Export Account.

Recommendation – This question needs more thorough study by the working group to determine the best disposition of the exported RECs.

E. RECs Re-entering the Originating system -- Should the pilot system be designed to accommodate RECs that have been previously exported so they can reenter the originating system if they have not been retired elsewhere? This is a technical protocol question rather than a policy question of whether particular tracking

systems will allow or not allow this type of transaction. If there is a federal RES system it is likely that trading back into the originating system would be allowed.

The primary barrier to implementing this type of process is concern about double counting. However, preventing the double counting of RECs should be no more difficult for RECs reentering the originating tracking system than for any other REC import/export transaction. As long as the import/export system anticipates this situation and is designed to handle it properly, it should not result in an increased risk of double counting. There is likely to be some type of coordination fee for imports and exports that will likely result in self-limiting the number of times a REC is transferred between systems.

- **Pros:** To the extent that tracking systems/registries want to facilitate market transactions and development of a robust liquid market, trading RECs back to the originating system if desired by the system users can be facilitated as long as the REC is active and has not been retired.
- **Cons:** Allowing a REC to reenter the tracking system where it originated could result in double counting.

Recommendation – This issue should be examined by the technical protocol working group when inter-registry protocols are worked out between the systems.

V. COSTS ASSOCIATED WITH IMPLEMENTATION OF THE INTER-REGISTRY REC TRANSFER PILOT PROJECT

A. National Project Database (national coordinating structure)

According to APX, the company that manages and already has access to the REC data for four of the six tracking systems (WREGIS, MRETS, NEPOOL/GIS; and NAR) they could establish a project database at no extra expense to the participating systems. They would need permission from the four systems they work with to comingle the static generator data and permission from the other two systems (PJM/GATS and ERCOT) with whom they do not presently have a working relationship to access generator REC data for generators that wish to export RECs. This could be accomplished on an opt-in basis, as tracking systems are ready to participate. The protocol development costs could be covered by transaction fees the project database would charge participating account holders that export RECs.

Alternatively an independent third party could establish the project database. However, the cost of that option is unknown at the present time and is almost certain to be greater than zero.

B. Technical/Communication Protocols

To the extent new protocols and processes are needed within the participating tracking systems (e.g. adding a export request form, establishing export sub-accounts, etc.) each

system would pay for the export/import process and protocol modifications required of their own system consistent with the methodology they presently use to make system modifications. Protocols could be added incrementally for export or import transactions only and expanded to cover all market participants later once the pilot phase is ended or a federal RES is being implemented whichever comes first.

Recommendation – If at least two tracking systems are interested in participating in the Inter-registry REC Transfer Pilot Project, an Advisory Committee should be created that will work with APX to establish a project database structure or other feasible interface as may be determined by the committee and the protocols necessary for the pilot.