Proposal – New Import Matching Tool
WREGIS PIR 165 Delivery Issues Subcommittee
Discussion of "Match and Transfer" vs "NERC Tag Transfer"
April 27, 2010

Background: The purpose of the WREGIS PIR 165 Delivery Issues Working Group is to suggest a redesign of the deliverability functionality in WREGIS for two purposes:
First, to enable entities that are not RPS[1] regulated LSEs[2] to use WREGIS to import, match and transfer WREGIS certificates that includes proof of renewable energy delivery. Second, for entities to capture operational efficiencies associated with an intermediate account[3] to match WREGIS certificates and energy delivery information.

The paper is based on the work of a smaller working group of the E-Tag Delivery Issues Subcommittee. It attempts to propose generic solutions to match renewable energy with WREGIS certificates. As of the writing of this paper, California, the largest renewable energy market in WECC, has an energy delivery requirement in order for out-of-State Renewables (TRECs - Tradable Renewable Energy Credits as well as bundled renewable power) to be counted for RPS purposes. Consequently the paper cites California examples throughout.

Purpose of this Note: Provide a list of the current issues as well as a detailed description of two proposed solutions discussed at the last meeting.

Terminology: Background concepts discussed in this paper are explored in previous discussion papers and are posted on the WREGIS website. One key term warrants special treatment, as it is has two different definitions in the context of renewable portfolio standards and NERC E-Tags: LSE (Load Serving Entity)

> "RPS LSE" – Load Serving Entity regulated under a state renewable portfolio standard. These are entities have a renewable requirement and are obligated to prove that a certain portion of their total supply is from renewable sources.
>
> "E-Tag LSE" – Load Serving Entity as defined by NERC's E-Tag convention. Specifically, the E-Tag LSE is the PSE (purchasing selling entity) in the final line of the physical path of the E-Tag.

Issues:

1) The current WIT[4] query assumes that the "E-Tag LSE" (the LSE field on the NERC E-Tag[5]) is always the "RPS regulated LSE." The issue is that the "E-Tag LSE" is not always the "RPS regulated LSE." Any Entity that is importing into the California

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[1] RPS – Renewable Purchase Standard
[2] LSE stands for Load Serving Entity
[3] As opposed to the current design of matching WREGIS certificates and delivery data in a Retirement account.
[4] WIT – Western Interchange Tool
[5] http://www.wregis.org/2009+meetings.php (bottom of page) background paper on NERC e-tags.

ISO appears as the E-Tag LSE on an E-Tag but they may or may not be an RPS regulated LSE.

2) In the case of tags to the California ISO, E-Tag data can be imported into the WREGIS account of the importing entity (because they appear as the E-Tag LSE) but the E-Tag cannot be transferred to another account holder for certificate retirement since delivery data and WREGIS certificates are "matched" only in a special WREGIS account called a "Retirement Account." Once certificates are transferred to a Retirement Account they cannot be passed on.
3) Energy can be imported into the State of California but not go into the California ISO and so the Importer into the state would not necessarily be the LSE on the E-Tag and the importer could be any PSE[6] in a chain of PSE's on an E-Tag.
4) The proposed solution must balance the cost of redesigning WREGIS against the cost of the daily administration of REC's
5) The solution should be flexible to attempt to support future legislative changes and delivery requirements in a variety of jurisdictions.

Proposals:

The two proposals previously discussed have many similarities. Both proposals:

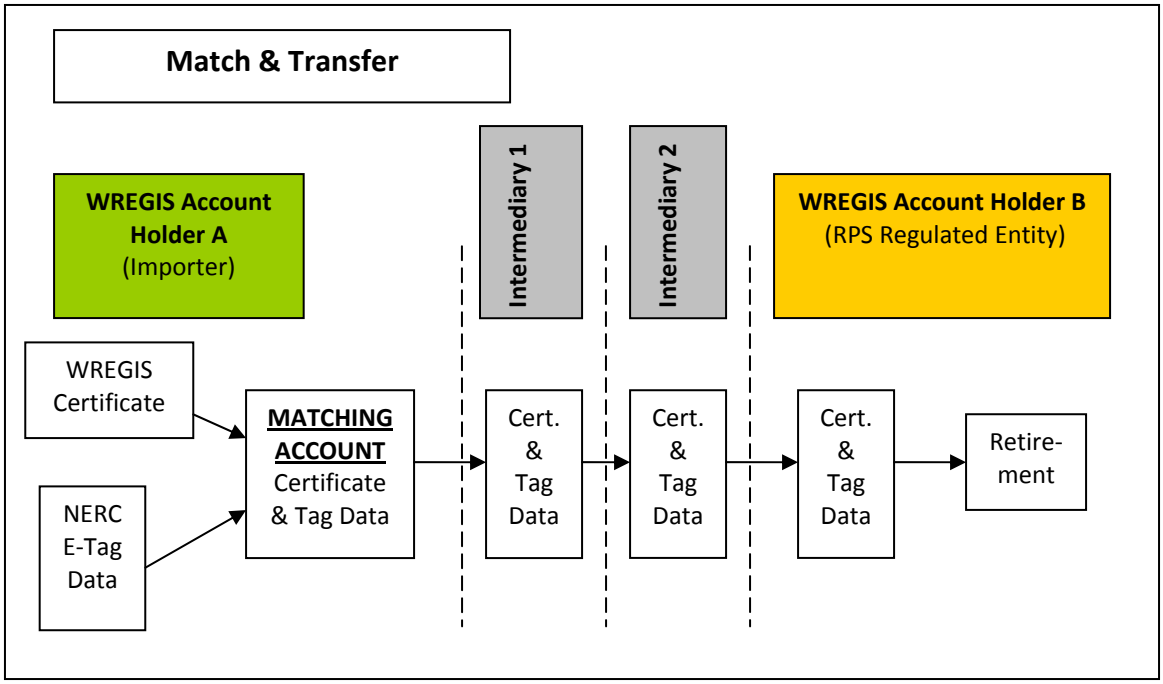
- use data from NERC E-Tags (see Appendix B) as proof of physical delivery into a jurisdiction
- link E-Tag data to a WREGIS certificate
- require modifications to the (WIT) query to collect E-Tag data and place it in the WREGIS account of the importing PSE

The key difference between the 2 proposals is the timing of when the E-Tag data is linked with the WREGIS certificate.

Proposal 1: Match & Transfer

The first proposal called "Match & Transfer", matches the E-Tag data with the WREGIS Certificate and the combined REC and E-Tag data is then transferred together within WREGIS to the downstream Account holders.

[6] PSE – Purchasing Scheduling Entity



Delivery Data, from NERC E-Tags, are associated with the appropriate WREGIS certificates in an account upstream of the ultimate Retirement Account called the "Matching Account." The WREGIS certificate (which now includes the associated delivery data) can then be transferred downstream to other entities and ultimately the final consumer of the renewable energy and retired.

In this approach the WREGIS Certificates and Delivery Data are matched by the importer before the Retirement Account.

Considerations:

- Should the system be set up such that delivery data, once matched with a WREGIS certificate, could be overwritten, if the buyer wanted to remarket the certificate to a different jurisdictions RPS? (WREGIS ensures that no generation is counted twice but it does not preclude WREGIS certificates to be remarketed as long as they haven't been retired.)

- Confidentiality – a limited quantity of delivery data from the NERC E-Tag is retrieved from the Western Interchange Tool (See Appendix B). This delivery data would then be matched with the WREGIS certificate in the Matching Account. Some of the NERC E-Tag data that will be required to establish that energy was delivered into the jurisdiction will be confidential to the parties involved in the E-TAG, however only confidential data belonging to a party will be uploaded into that parties WREGIS accounts. At this stage it becomes a commercial decision by the importer to associate their confidential E-Tag data with a WREGIS certificate. Only PSE, POR and POD data associated with an importer will be uploaded to that importers WREGIS account, confidential data connected to a third party will remain confidential to that third party. At

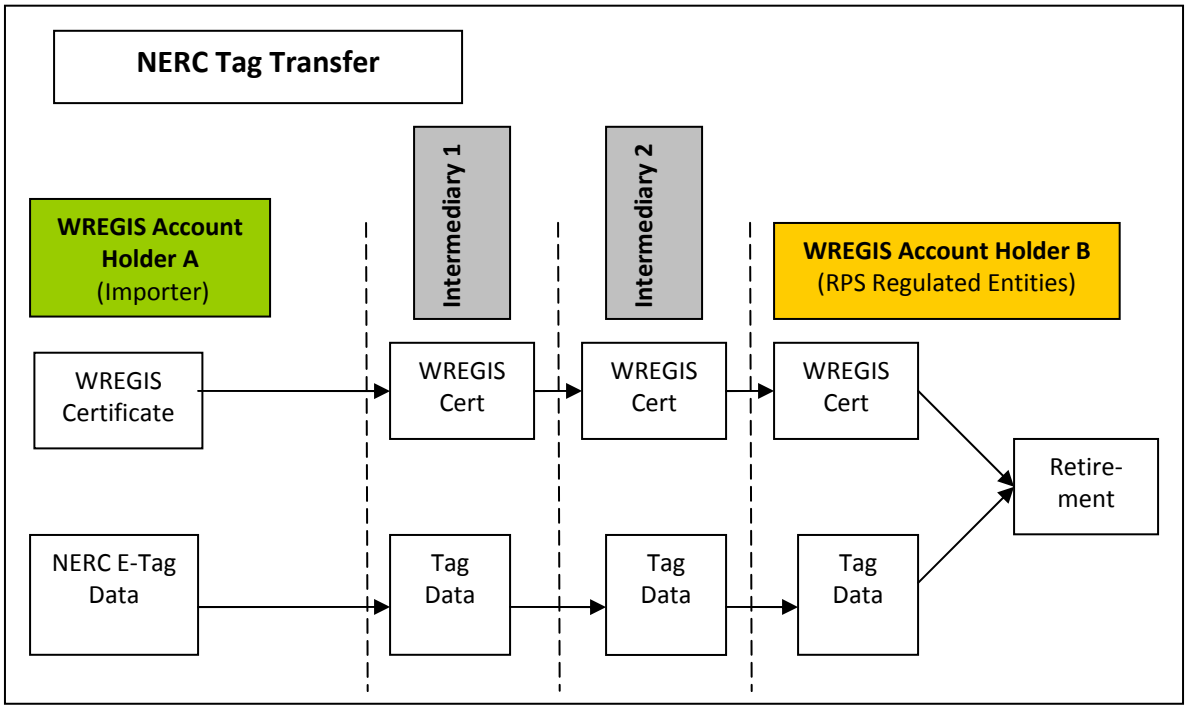
retirement, all aspects of the WREGIS certificate and delivery data would need to be accessible to all parties, including the regulator, for verification.

- Complexity – based on discussions with James Webb (APX), this approach would be the more complex of the two proposals to implement.

- This method would allow the buyer to re-sell the RECs associated with the WREGIS certificates to another entity should the buyer find themselves with surplus.

Proposal 2: NERC Tag Transfer

The second proposal, called "NERC Tag Transfer" requires that the delivery data can be packaged as a discrete unit and that can be transferred between entities and would not be combined with a REC until it was retired in the Retirement Account of the RPS Regulated LSE's account.



In this approach the existing method of joining Delivery Data and WREGIS certificates is preserved (in which Delivery Data and WREGIS certificates are matched in a Retirement Account). In this approach the Delivery Data is loaded into WREGIS and transferred in parallel with the WREGIS certificates then the two sets of data are matched in the Retirement Account.

Considerations:

- Method for joining NERC delivery data and WREGIS certificates would not need to be changed.

- Transfer NERC E-Tag data may require an entirely new data structure which may involved substantial incremental cost to implement

- Does not confer any incremental "operational efficiency" benefits to Load Serving Entities (WREGIS Account Holder B.) RPS Regulated Entities already are able to import energy and match the energy to WREGIS certificates in a Retirement Account, in the "NERC tag transfer" approach this would still be the method of matching import data and WREGIS certificates.

- NERC Tag Confidentiality – The NERC Tag Transfer approach would have the same confidentiality issues as the "Matching Account" proposal. The proposed WIT query (Appendix B) limits the data queried to only data that is public and data that is private to the importer. The importer then can choose (conceivably this is a condition of their commercial agreement) to pass their delivery data along to their buyer (and ultimately to the verifier.)

- This method would not allow the buyer to re-sell the RECs associated with the WREGIS certificates to another entity should the buyer find themselves with surplus since the E-Tag data and WREGIS certificates continue to be matched in a retirement account.

Potential Changes to the Current System: If either of the two methods discussed in this paper were to be adopted there would need to be a number of changes to the query that retrieves the NERC E-Tag[7] data, the Western Interchange Tool, as well as the structure of a WREGIS certificate and the functionality of WREGIS sub-accounts.

Amendments to Western Interchange Tool (WIT) Query: The Western Interchange Tool (WIT) is the WECC (Western Electricity Coordinating Council) tool that consolidates accepted NERC E-Tags for system wide reliability coordination. WREGIS runs an automated query that extracts select NERC E-Tag data and transfers that data into the WREGIS account of the LSE. The WIT query is detailed in Appendix B.

The current implementation of the NERC tag upload tool is designed around the special case found in the California ISO in which the importer is the RPS regulated LSE and is also the E-Tag LSE (the final PSE, purchasing selling entity, in the NERC tag.)

For reference the following table illustrates the relationship between the Importer to a jurisdiction and the RPS eligible LSE with the data found in the physical path of the NERC E-Tag. This relationship changes when the LSE is within an ISO or Power Pool.

[7] http://www.wregis.org/2009+meetings.php (bottom of webpage) contains background paper on NERC e-tags.

	LCA (Load Balancing authority)		
	California ISO	**In California State but not California ISO (for example SMUD/TID)**	**Outside California State (no tracking requirements for this yet but it may come)**
Importer into jurisdiction	*Final PSE on tag and also the* PSE on line in the E-Tag where POR[8] <> California and POD[9] = California	PSE on line in the E-Tag where POR <> California and POD = California	PSE where POR <> relevant jurisdiction and the POD = the relevant jurisdiction
RPS regulated LSE	Not on the Tag unless they are also the importer due to CAISO tagging requirements	LSE is on the E-Tag	LSE is on the E-Tag

In both the "Match and Transfer" and "NERC Tag Transfer" methods, the relevant PSE (purchasing selling entity) in the NERC E-Tag would become the importer rather than the current method in which the relevant PSE is the final PSE in the physical path in the NERC E-Tag (i.e the E-Tag LSE).

In the case of energy delivered to the California ISO, the issue is that once WREGIS certificates are matched with NERC E-Tags they can't be transferred (they are matched in a Retirement Account).

In the generic case (i.e. all other imports other than to the California ISO, including those into California that don't terminate in the ISO) the importer into the state is not necessarily the PSE in the final line of the NERC E-Tag.

An amendment to the WIT query is required to clearly identify the entity that is responsible for the import. This logic is being suggested:

> *For each regulatory region X (state):*
> *If the Sink Balancing Area (LCA) is in region X then,*
> *Find the PSE in the line of the E-Tag where:*
> *POR is not in Region X*
> *AND*
> *POD is in Region X.*
> *That PSE is the importer to the region and the tag data should go into the WREGIS account of that PSE (importer).*

Proposed amendments to the WIT query are discussed in more detail in Appendix B.

[8] POR – Point of Receipt on a NERC etag
[9] POD – Point of Delivery on a NERC etag

In either the “Match and Transfer” or “NERC Tag Transfer” process, the regulators in different jurisdictions would need to develop a list of “import” points in order to identify which entity was the importer of the energy.

Amendments to the WREGIS Certificate

Appendix D lists a set of proposed amendments to the WREGIS certificate under a “Match and Transfer” approach to amending the WREGIS delivery verification system.

Amendments to the structure of WREGIS Subaccounts:

Currently the WREGIS certificates are matched with delivery data in a Retirement Account. The problem with this approach is that WREGIS certificates, once matched with delivery can’t be further transferred, this limits the parties who can import renewable energy and match it to the corresponding WREGIS certificates to ONLY those entities that are also California RPS regulated entities.

A new WREGIS subaccount would need to be created that would allow WREGIS certificates and delivery data to be matched in an account that was not a Retirement Account. For the purposes of this paper this account is called “Matching Account.”

Appendix A - Review of Current Functionality

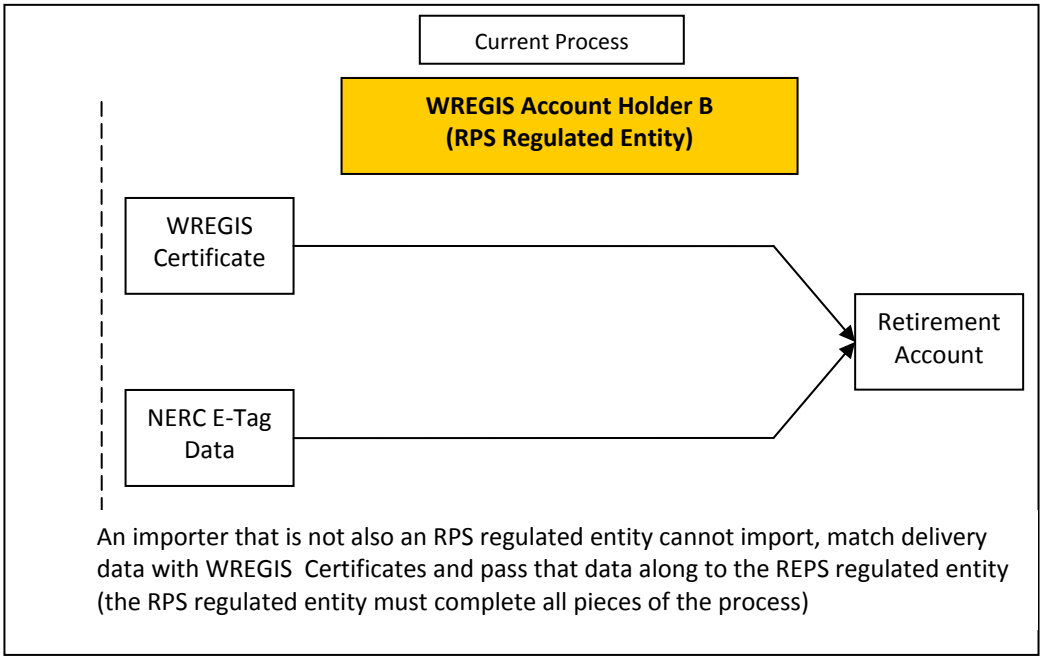
The functionality issues that PIR 165 is intended to solve are given an abridged treatment here but are discussed in detail in a number of documents on the WREGIS Website:

Background Documents: near the bottom under "2009 WREGIS NERC E-TAGS Working Group") http://www.wregis.org/2009+meetings.php. The August 4th Memo gives as a good introduction to the issue.

Ongoing Work: http://www.wregis.org/NERC+E-Tag+Working+Group+Meetings.php

The functionality of the current system can be described a few different ways. The following graphics describe the existing system from the perspective of an RPS regulated entity that is importing renewable energy from outside the state.

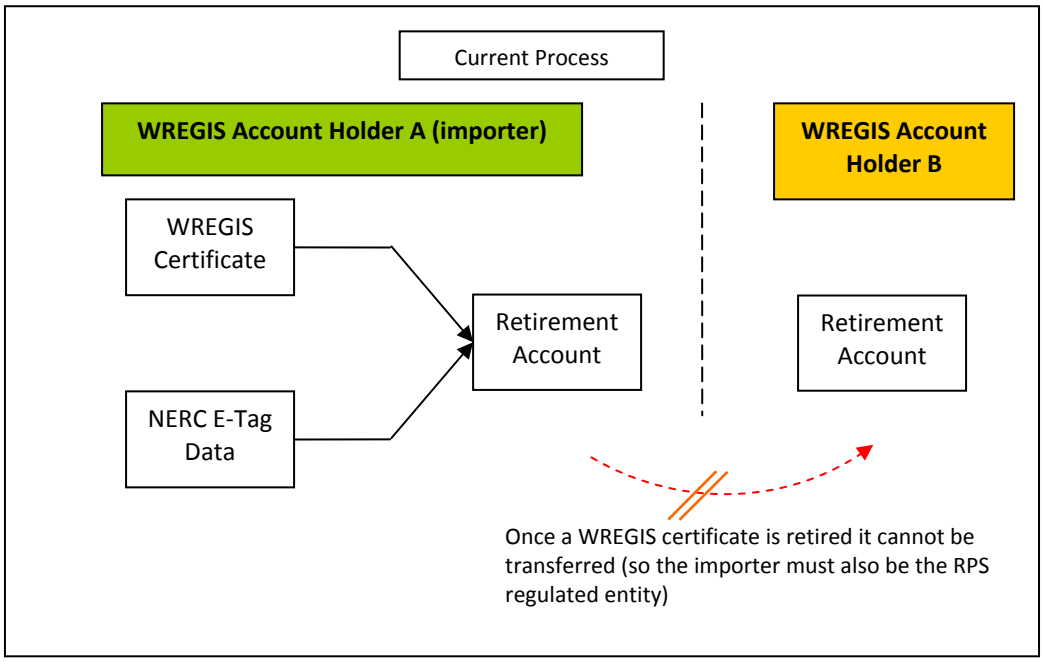
Example 1 – Current System from Perspective of an RPS Regulated Entity that imports renewable energy



In the existing system the RPS regulated entity is able to import, match and retire renewable energy.

However, from the perspective of an importer that is not also an RPS regulated entity (for example a marketer or generator), the functionality of the system could also be described as follows:

Example 2 – Current System from Perspective an Importer that is NOT an RPS Regulated Entity.



Abridged Version of key issues:

The NERC E-Tag matching functionality within WREGIS is designed to connect WREGIS Certificates (unique evidence of renewable energy production) with NERC E-Tags demonstrating renewable delivery into a given jurisdiction. The system has a number of building blocks:

1. NERC E-Tag Query of the Western Interchange Tool – to pull in specific delivery data from NERC tags that are appropriately designated
2. Functionality to allow users to connect the delivery data with WREGIS Certificates to establish an eligible delivery for RPS verification purposes.

There are two issues with the current system that first, limit the type of parties that can make an eligible import into a jurisdiction and second, how the "delivered" renewable energy (defined as WREGIS certificate and evidence of eligible delivery) can be transferred to the ultimate consumer of the energy.

1. The NERC E-Tag Query of the Western Interchange Tool – the query is based on the final PSE in the NERC E-Tag, which in the case of the California ISO's E-Tagging protocol, is the same as the importer. The issue is that the importer is not always the PSE in the final line of the NERC E-Tag (the case when a marketer is an importer in the Cal ISO market and can be the case in bilateral markets, including those in California when any other entity other than the final consumer imports energy into the jurisdiction.)

2. The matching process occurs in a WREGIS Retirement Account. The issue here is that once a WREGIS certificate is matched with the NERC E-Tag data from associated energy delivery, the Certificate with the delivery data cannot be transferred (the Retirement Account is the last stop, WREGIS certificates cannot be transferred out of Retirement Accounts.)

Appendix B – WIT Query Changes

Description of Existing WIT Query

The following description is from Mark Neilson of OATI.

On the 7th of each month, a WIT automated process runs a data query against all schedules from the previous month. This query retrieves schedules meeting the following criteria:
(1) Schedules matching a WECC approved LSE list. LSEs will be identified using NERC PSE Codes.
(2) Schedules with a start/stop date and time within the previous calendar month in the UTC time zone.
(3) Schedules with RPS ID numbers. These Values are found on the E-Tag Physical Path LSE row with Misc Info Tokens of "RPS_ID"

All schedules retrieved from the aforementioned query will be properly formatted as an EIDE message and sent to the WREGIS system. The following data elements will be provided for each schedule:

- Schedule name (E-Tag Code)
- Schedule net MWh value for query period
- Start Date/Time of energy flow during the query period
- Stop Date/Time of energy flow during the query period
- Generating facility NERC registered "Source Point"
- Generator Balancing Area (GCA)
- Generation Providing Entity (GPE)
- Load facility NERC registered "Sink Point"
- Sink Balancing Area (LCA)
- Load Serving Entity (LSE)
- Token Value(s) (RPS_IDs)

Proposed changes to WIT Query are Underlined in RED ~~Deleted in Strikethrough~~

On the 7th of each month, a WIT automated process runs a data query against all schedules from the previous month. This query retrieves schedules meeting the following criteria:

(1) Schedules matching a WECC approved **Import PSE** list. **Importing PSE** will be identified using NERC PSE Codes and the following logic:

For each regulatory region X (state):
If the Sink Balancing Area (LCA) is in region X then,
Find the PSE in the line of the etag where:
POR is not in Region X
AND
POD is in Region X.
That PSE is the importer to the region and the tag data should go into the WREGIS account of that PSE (importer).

(2) Schedules with a start/stop date and time within the previous calendar month in the UTC time zone.
(3) Schedules with RPS ID numbers. These Values are found on the E-Tag Physical Path LSE row with Misc Info Tokens of "RPS_ID"

All schedules retrieved from the aforementioned query will be properly formatted as an EIDE message and sent to the WREGIS system. The following data elements will be provided for each schedule:

- Schedule name (E-Tag Code)
- Schedule net MWh value for query period
- Start Date/Time of energy flow during the query period
- Stop Date/Time of energy flow during the query period
- Generating facility NERC registered "Source Point"
- Generator Balancing Area (GCA)
- ~~Generation Providing Entity (GPE)~~
- Load facility NERC registered "Sink Point"
- Sink Balancing Area (LCA)
- ~~Load Serving Entity (LSE)~~
- Token Value(s) (RPS_IDs)

- **Import POR (POR associated with last transmission node not inside jurisdiction)**
- **Import POD (POD associated with first transmission node inside jurisdiction)**
- **Import PSE (PSE associated with above import POR and POD)**

Confidentiality: With these proposed changes only confidential data belonging to an importer will be uploaded into that importers WREGIS account, no confidential data belonging to any other third party will be uploaded. At this point, the only transfer confidential E-Tag data becomes the transfer of the importer's confidential E-Tag data. The decision to transfer this data would be a commercial decision by the data's owner and will be governed by any underlying commercial contract that the importer has with respect to the transfer of WREGIS certificates.

Appendix C - Certificate DATA Structure

For reference – the existing WREGIS certificate data structure

Certificate Data	
WREGIS Generating Unit ID	Wxxxx
Generating Unit Name	Demo Wind
Primary Facility Name	Demo Wind
Vintage Year/Month	2008/08
Certificate Serial Numbers	xxx-WA-1920-6231 to 11250
Total Certificates	5000
Generation Period Start Date	8/1/2008
Generation Period End Date	8/31/2008
Certificate Creation Date	11/30/2008

Static Generating Unit Data	
Facility County	County1
Facility State or Province	WA
Facility Country	US
Multi-Fuel Generator Indicator	No
Generation Technology/Prime Mover	Wind
Fuel Type/Energy Source	**Wind**
Fuel Source/Other Criteria or Eligibility Characteristics:	**Wind-Wind*-Wind***
Date when Generating Unit first commenced operation	1-Jan-07
Nameplate Capacity	100
Facility Operator Info Company or Organization Name	Gen1
Customer Sited Distributed Generation (Y/N)	No
Reporting Entity Company or Organization Name	Gen1
Reporting Entity Type	**Balancing Authority**
Generating Unit in WECC Region Declaration Indicator (Y/N)	Yes
Utility to which the Generating Unit is interconnected	UtilityA
Qualifying Facility Indicator (Y/N)	No
Facility Ownership type	**IOU**
California Supplemental Payment Received (Y/N)	No
Facility receives state/provincial public benefit fund support indicator (Y/N)	No
Federal Tax Credits received indicator (Y/N)	Yes
Most recent FERC Hydro license date, or	NA
One of the following from the following valid values Non-jurisdictional, application pending, or not applicable.	NA
Repowered Indicator (Y/N)	No
Repower date	NA

State/Provincial/Voluntary RPS Selections		
Eligible	State	Certification Number
No	Arizona	**NA**
No	British Columbia	**NA**
No	California	**NA**
No	Colorado	**NA**

No	Montana	**NA**
No	Nevada	**NA**
No	New Mexico	**NA**
No	Texas	**NA**
No	Washington	**NA**
Yes	Oregon	**XXwnd044wa**
No	Alberta	**NA**
No	Utah	**NA**

State/Provincial/Voluntary RPS Selections			
California SEP Eligibility	No		
California Qualifying Facility Qualified to Claim Non-Renewable	No		
Green-e Energy Eligible	Yes	Certification Number	NA
Ecologo Certified	No	Certification Number	NA
Low Impact Hydro Certification	No	Certification Number	NA
SMUD Eligible	No	Certification Number	NA

Appendix D: Proposed Additions to the Structure of a WREGIS Certificate under "Matching Account" proposal:

The Certificate Structure of a WREGIS Certificate is as follows (for a complete view of the data structure associated with a WREGIS certificate see Appendix C)

Certificate Data	
WREGIS Generating Unit ID	Wxxxx
Generating Unit Name	Demo Wind
Primary Facility Name	Demo Wind
Vintage Year/Month	2008/08
Certificate Serial Numbers	xxx-WA-xxxx-6251 to 11250
Total Certificates	5000
Generation Period Start Date	8/1/2008
Generation Period End Date	8/31/2008
Certificate Creation Date	11/30/2008

Note that the data structure in WREGIS captures monthly total generation (not generation by hour.) If the market moves to a finer generation/delivery framework (for example hourly) then the current structure of WREGIS likely won't support it.

Proposal: Amend the data structure of the certificate to include import data such that the pertinent and non-redundant import data can be associated with the certificate and passed from importer to consumer and into the consumer's Retirement Account for RPS verification by the regulator. The following table lists the elements pulled into WREGIS by the WIT query with proposed fields to add to the WREGIS certificate in **Underlined in RED** (including those new proposed elements of the WIT query proposed in Appendix B).

Proposed Additional Information to Add to the Certificate	Notes
E-Tag Code	**Include**
Schedule net MWh value for the query period	MWh imported and # WREGIS certificates should be the same
Shape Block	***The MWh should be tracked at the hourly level to support simultaneous delivery requirements***
Start Date/Time of energy flow for the query period	***Relevant if energy delivery needs to be demonstrated for every delivery hour, this would need to be associated with changes to the WREGIS data structure to track hourly generation (see above)***
Stop Date/Time of energy flow for the query period	***See above***

Generating facility NERC registered "Source Point"	**Include**
Generator Balancing Area (GCA)	**Include**
Load facility NERC registered "Sink Point"	**Include**
Sink Balancing Area (LCA)	**Include**
Token value – RPS ID(s)	redundant (already associated with facility data set)
Last POR[10] outside the jurisdiction (country, state, group of states)	**new field – see WIT Query additions**
First POD[11] inside the Jurisdiction (country, state, group of states)	**new field – see WIT Query additions**
PSE associated with import	**new field – see WIT Query additions**

While not every field is required to test for eligible delivery in every jurisdiction, If all the **red underlined** fields are included in the WREGIS Certificate, then individual jurisdictions can retain autonomy over what constitutes an eligible delivery.

[10] POR – Point of Receipt on NERC etag, the location where the relevant PSE take title to the energy
[11] POD – Point of Delivery on NERC etag the location where the relevant PSE gives up title to the energy