

# **Tracking Environmental Attributes**

## **A Discussion Paper**

**Environmental Tracking Network of North America**  
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### **1. Introduction**

Generation and renewable energy certificate tracking systems have quickly spread across North America. Five regional certificate tracking systems cover most of the U.S., parts of Canada, and northern Baja California. These are Texas, NEPOOL Generation Information System (GIS), PJM Generation Attribute Tracking System (GATS), Western Renewable Energy Tracking System (WREGIS) and the Midwest Renewable Energy Tracking System (M-RETS). In addition, New Jersey operates a tracking system for solar RECs (which may include non-solar distributed generation projects). New York State is planning to transition from a manual tracking system to an automated system more compatible with its neighbors; APX, a commercial service provider, has announced plans to offer a tracking system for remaining states in the U.S. (and possibly Canada) not served by any existing system.

Most of these electricity tracking systems were established to support environmental disclosure requirements, facilitate RPS compliance, and support voluntary renewable transactions.<sup>1</sup> Some state RPS programs define what attributes are contained in a REC, while others state policies are silent. Likewise, many REC marketers, and the buyers of these voluntary REC products, make claims about the environmental benefits of green power, and some make specific claims about greenhouse gas emission reductions. Using RECs from one region to satisfy the private environmental goals of a voluntary buyer or state RPS in another region may be difficult to verify if the RECs convey different attributes. The differences in REC definitions, information, and tracking capability are problematic for a liquid market, can create confusion, or possibly create opportunities for fraud.

*Therefore, this paper focuses on the question of how RECs are defined by different tracking systems, and examines options for harmonizing RECs among tracking systems.*

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<sup>1</sup> Green-e estimates that in 2007, voluntary renewable demand was roughly comparable to demand created by state RPS, on the order of 20 million MWh.

## **2. Current Status**

In the context of RPS policy it is the U.S. states that define RECs,<sup>2</sup> specifically

- Seven states (AZ, CA, CO, DE, NY, PA, WA) have detailed definitions of a REC, including clear direction about whether emission reduction credits or allowances are required to be retired for compliance with their RPS.
- Seven states (CT, MA, MT, NJ, NM, RI, TX) define RECs as including all the environmental attributes or all renewable and environmental attributes of generation, but are unclear whether environmental attributes refer only to the direct (onsite) emissions from the generator or include derived attributes such as avoided emissions, emission reductions, credits or allowances.
- Maine and Maryland refer to RECs as representing attributes of generation but do not provide any further description of what those attributes might be.
- Wisconsin, Nevada and the District of Columbia define a REC simply as a unit of production.
- Three states, Iowa, Hawaii and Minnesota, do not define RECs.<sup>3</sup>

Most certificate tracking systems also have definitions of what is included with a REC or certificate. For example, Texas, GATS, WREGIS and M-RETS have some similarity, since they all define a REC as encompassing “all of the attributes,” “all of the renewable attributes,” or “all renewable and environmental attributes.” Although the GIS lacks a definition, the participating states generally use similar language. See Appendix A for the tracking system definitions.

An important difference among these tracking systems is the level of specificity about these attributes, in particular regarding derived attributes—emission reductions, credits or allowances. It is important to define whether these are included with the REC because voluntary markets and most compliance markets are motivated by a desire or expectation of emission reductions; such emission reductions may have monetary value in emission cap and trade markets and even in unregulated voluntary carbon offset markets.

The three most recent tracking systems—GATS, WREGIS and M-RETS—have some common ancestry with regards to the handling of attributes. GATS and M-RETS specify that none of the renewable attributes have been separately sold, given, or otherwise transferred to another party by a deliberate act of the Certificate owner. GATS, WREGIS and M-RETS further define these attributes as any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, (directly) attributable to the generation from the generating unit. GATS and M-RETS emphasize that these emissions reductions must be “directly” attributable to the generating unit. WREGIS has a similar definition, but omits the word “directly.” With or without the qualifier, there remains the

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<sup>2</sup> We do not have information about how Canada or the Canadian provinces define RECs.

<sup>3</sup> Holt, E. and R. Wiser, *The Treatment of Renewable Energy Certificates, Emission Allowances, and Green Power Programs in State Renewables Portfolio Standards*. LBNL-62574. Berkeley, CA: Lawrence Berkeley National Laboratory. April 2007. This categorization does not include New Hampshire, Illinois, North Carolina, Oregon or Utah, which adopted RPS requirements more recently.

question as to whether emission reductions that occur offsite from the generating unit in question are included with the REC.

The WREGIS definition alone continues to explain what attributes are *not* included: Attributes not included with WREGIS RECs are power attributes, financial incentives applicable to income tax obligations, tipping fees for disposal of certain fuels or pollutants, and (most relevant to this discussion) emission reduction credits encumbered or used by the generating unit for compliance with operating or air quality permits.

The meaning and application of this exclusion is not clear. For example, a wind generator that displaces a fossil generator in a compliance market where emissions are capped would not get the emission allowance unless the cap-and-trade rules specifically assign the allowance to the wind generator. In an uncapped market, on the other hand, where there is no compliance use, there is a question as to whether the wind generator gets to claim the emission reduction as part of its REC. Or is that claim negated by the fact that the reduction must be attributable to the (wind) generating unit?

### **3. Issues**

The differences among the tracking system definitions of RECs raise several questions:

#### ***How important are the differences?***

First, are these differences material? If two parties are transferring certificates from one tracking system to another, does it matter that one tracking system specifies the inclusion of the emissions reductions, offsets, and allowances *directly* attributable to the generating unit, and the other tracking system omits the word “directly”? Does it matter that one tracking system (WREGIS) specifies that such attributes do *not* include emission reduction credits encumbered or used by the generating unit for compliance with local, state, provincial or federal operating and/or air quality permits? And how significant is it, if one were transferring a GIS certificate to GATS, that the attributes of the GIS certificate are not defined by the GIS rules?

As described above, it is generally the U.S. states that define RECs for RPS purposes, and the tracking systems (in particular those that serve a multi-state/province region) try to support multiple states by adopting a definition broad enough to encompass all state requirements—or, as in the case of GIS, by adopting no definition at all. Can differences, if material, be resolved at the tracking system, or need they be addressed at the state level?

#### ***How would tracking systems determine whether specific attributes are present?***

Do the existing tracking systems have the capability to track whatever attributes are supposed to be included, or to determine that the renewable attributes have *not* been “separately sold, given, or otherwise transferred to another party by a deliberate act of the Certificate owner?” This is an issue not just for transfers of certificates from one tracking system to another, but also for each tracking system to resolve for itself. Can it deliver on

the promise and ascertain that individual state RPS, disclosure requirements or private investment claims are being met with respect to required attributes?

The GIS and GATS include information about direct (onsite) emissions from a generating unit, but the other systems do not. Most, if not all, of them have the technical capability to do so—it is just a matter of some added fields in the software but most renewables (with the exception of biomass and geothermal) have no direct emissions. Currently none of the systems provide information about avoided emissions, nor do they have the capability to track it separately.<sup>4</sup>

Assuming the information is complete, how could a tracking system ensure that all attributes are intact with the certificate, or that no required attribute has been deliberately transferred? One way would be to require an attestation to that effect by each seller in the chain of custody. Another way would be to create the functional capability to track (and by implication trade) individual attributes separate from the certificate. That would seem contradictory to the goal of some tracking systems to maintain whole certificates. On the other hand, it would be more consistent with those states that do not require all attributes for policy compliance, and it would support voluntary markets where a REC owner might want to sell an emission reduction or convert RECs to a verified emission reduction (VER).<sup>5</sup>

Currently, disaggregation of a whole certificate, or conversion to a VER, is supported in some tracking systems by allowing the certificate owner to remove such certificates from the tracking system. Then the owner can dispose of the certificate as desired—but the VER or other disaggregated attributes will not be tracked. However, this may not be adequate for the development of a robust market in VERS; it may be desirable to add functionality to existing tracking systems to support new and developing markets for commodities such as VERs or white tags (energy efficiency certificates).

This can also be a consumer issue. If there is no tracking of individual attributes, final consumers may lose confidence in the purchase of RECs. For example, in a voluntary market with uncapped carbon emissions, end-use consumers buy RECs in the belief that carbon emissions will be reduced. Will they know that no one else claimed the same emission reduction?

***How should derived attributes such as emission reductions, credits and allowances be tracked?***

With respect to avoided emissions in uncapped markets, it would be easy to add a data field (if it doesn't already exist) for emission reductions but there are some issues of consistency that need to be addressed for this function to work properly..

Emission reductions in uncapped markets are different from emission allowances in cap-and-trade markets. Only a handful of states have addressed whether derived emission

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<sup>4</sup> The APX default system under development for states without a tracking system is expected to have the capability to track emission reductions.

<sup>5</sup> A VER is a tradable commodity in use in voluntary (uncapped) emission markets.

reduction benefits must be retired with RECs for the RECs to satisfy the state's RPS. Delaware and Pennsylvania explicitly do not require derived emission reduction benefits for RPS compliance.

For capped emissions, Arizona, California (in some cases), Colorado, New York and Washington do require that allowances be retired, if they are available to the renewable generator. But how will they know if an allowance has been retired if (a) the tracking system does not track allowances, or (b) if allowances are tracked by a totally different tracking system?

For capped emission markets that allocate allowances, the allowances are currently tracked in separate emissions tracking systems. For example, U.S. SO<sub>2</sub> allowances are tracked by EPA, and CO<sub>2</sub> allowances under the Regional Greenhouse Gas Initiative (RGGI) will be tracked separately by a system now being established by RGGI, Inc. If generation certificate tracking systems were to track emission allowances in parallel with these allowance tracking systems adjustments would need to be made to avoid double counting. Finally, it is highly likely that the emissions regulation scheme will be different in Canada than for the U.S. and the tracking systems will need to be flexible to meet the needs of both countries.

Perhaps emission allowances and generation certificates could be tracked by the same systems, but that is not the direction currently being pursued by regulators. If that turns out to be the case, is any further coordination needed among generation certificate tracking systems, climate action registries and emissions allowance tracking systems? If coordination is needed, what is it and how should it be pursued?

#### ***How do tracking systems treat null power?***

If RECs are sold separately from energy, with all the attributes intact, the energy no longer has any environmental or fuel type attributes. Energy without such attributes is often referred to as null power. How do tracking systems treat this energy? The GIS and GATS assign the average attributes of the residual system mix<sup>6</sup> to this null power on a regular schedule. These two tracking systems track the attributes of all generation to support states that require periodic disclosure of direct environmental attributes.

Texas and some states in WREGIS (Arizona, California, Nevada, New Mexico, Oregon and Washington) and in M-RETS (Minnesota and Illinois, to the extent Illinois is served by M-RETS) all have disclosure requirements, but they may not rely on the tracking systems to create their labels. Whether they do or not, it is unclear how the tracking systems treat null power because not all generation is issued certificates. It appears that some states comply with the disclosure requirements by reporting the attributes of the generators even though the RECs may have been sold to a separate buyer. If RECs are sold outside these systems, or are exported to another tracking system, it is possible that the RECs buyer and the utility or LSE purchasing the energy may both be claiming the

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<sup>6</sup> Residual system mix is the electricity attributes that cannot be identified with a specific buyer because the electricity was sold into the spot market, plus the attributes (certificates) that have not been transferred to entities (utilities or LSEs) obligated to provide their retail customers with environmental disclosure labels.

same attributes. If a second tracking system is involved, the importing system would want to know that it is getting the attributes and that no one else is claiming them.

Just as not recognizing null power results in double claiming the attributes for disclosure labels, emission factors used by greenhouse gas emission registries, or for calculating emission reductions, may be distorted by not recognizing that emission attributes have been sold along with RECs to a party that claims them. That party may be an LSE (or a state that requires all environmental attributes in their RPS definition of a REC), or a voluntary purchaser seeking to make environmental claims.

Currently, regional CO<sub>2</sub> emissions factors include all generating sources in the region, including renewables. If those renewables and their emissions attributes are sold to a user and claimed by the REC buyer, they will be double-claimed by those who measure their reduction actions against the unadjusted system average. For example, if an entity were participating in the EPA Climate Leaders program and were to reduce its CO<sub>2</sub> footprint based on its purchase of RECs, the zero-emissions attributes would get counted twice, first in the regional average used to calculate the footprint, and a second time when the specific entity adjusted its emissions based on REC purchases.

#### **4. Possible Solutions**

Several issues have been raised, and no single solution will address all of the issues. For each issue, ETNNA staff has identified possible solutions, though these solutions may not be exhaustive. The purpose of the stakeholder meeting on April 14 and 15, 2008, is to discuss the issues and possible solutions, with a goal of reaching consensus on specific steps that should be undertaken to address the issues raised, to the extent they create problems.

##### ***Differences in Definitions***

Whether the differences between tracking systems are significant is worthy of more discussion, but it does seem potentially problematic that some systems require whole certificates (no disaggregation of environmental attributes) while others do not. Even though the GIS and Texas, for example, do not require whole certificates, this does not mean that certificates are being disaggregated in those states.

From a practical standpoint, RECs are in short supply in New England currently, so there is probably very little sale of GIS certificates to buyers in PJM or M-RETS, even in voluntary markets. On the other hand, there are Texas RECs being sold to consumers in other regions that require whole certificates without the ability to know if they are whole or not.

### ***Disaggregation of Attributes***

To determine whether disaggregation of attributes has occurred, states and tracking systems could:

- a. Urge consumers to exercise due diligence in determining whether attributes of interest are present and require that the accompanying tracking system dataset reflect what attributes are explicitly conveyed in the sales contract (such as in the standard REC contract developed by the American Bar Association).
- b. Require attestations by each seller in the chain of custody that no attributes have been disaggregated and sold separately.
- c. Create the capability to track individual attributes separate from the RECs, adding functionality to accommodate different state attribute requirements allowing the tracking systems to support whatever the markets wish to do.
- d. Include the capability to remove a certificate from the tracking system if the owner wants to disaggregate attributes, or create VERs, or whatever is outside the norm of what the tracking system supports.<sup>7</sup>

There are pros and cons to each of these options as well as other options or combinations of these four all of which will be discussed at the meeting.

### ***Derived Emission Reductions and Allowances***

Regarding derived attributes (emission reductions or credits in voluntary uncapped markets, and emission allowances in cap-and-trade markets), some claim the ambiguity about the right to claim emission reductions is a barrier to tracking emission reductions and a barrier to those voluntary emissions markets. There are a few actions that can help address this problem:

- It would be helpful if states clarified in their RPS whether or not derived emission reductions are intended to be included in the REC for RPS compliance purposes. In many states this seems to be the intent, but is not explicitly stated.
- More coordination is needed between the electricity tracking systems and the climate registries to understand the implications for voluntary claims of emission reductions made in the registries. ETNNA can help with the coordination of parties to discuss this problem.
- For regulated cap-and-trade markets, if states require emissions allowances to be retired with RECs for RPS compliance, then they should require proof of REC retirement from the certificate tracking systems, and proof of allowance retirement from the allowance tracking systems.
- Merging generation certificate tracking and allowance tracking in one system is probably technically feasible and may be a possibility for cap-and-trade programs.

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<sup>7</sup> In some systems this is called the Reserve Account.

### ***Null Power***

If a REC purchaser wants to take credit for the emissions benefits associated with that purchase then some adjustment needs to be made to the emissions treatment of the original power if regional emissions are to be accurately characterized. There should not be two sources claiming zero emission power associated with the same energy production. Under a capped system, whether null power is assigned average system emissions, natural gas or coal plant emission values is a decision that will be made by air and energy regulators. But the tracking systems should either have the capability of identifying null power as it is tracked by the system or null power should be removed from the tracking system.

For states that are not yet dealing with the issue of carbon caps or null power, the tracking systems should work with stakeholders and climate registries to define an appropriate regional emissions factor that recognizes that REC purchasers are already counting the emissions attributes for their own voluntary or mandatory purposes.



## Appendix A: Tracking System Certificate Definitions

- **Texas:** ERCOT rules define a REC as “a tradable instrument that represents all of the renewable attributes associated with one (1) MWh of production from a certified renewable generator.”
- **NEPOOL GIS:** Operating rules provide no explicit definition.
- **PJM GATS:** “The term ‘Certificate,’ as used in this document, refers to a GATS electronic record of generation data representing all of the attributes from one MWh of electricity generation from a Generating Unit registered with the GATS tracking system or a Certificate imported from a Compatible Certificate Tracking System. Blocks of related Certificates may be grouped together to simplify Certificate transactions and for reporting purposes. The GATS will create exactly one Certificate per MWh of generation. Additionally, the GATS will create one Certificate for each MWh related to Certificates that are imported from a Compatible Certificate Tracking System based on the conversion rules established by the GATS Administrator. See also definition of ‘Whole Certificate.’”

“A ‘Whole Certificate’ is one where none of the renewable Attributes have been separately sold, given, or otherwise transferred to another party by a deliberate act of the Certificate owner. Renewable Attributes shall include the environmental Attributes which are defined as any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, directly Attributable to the generation from the Generating Unit(s). Individual states may create different definitions of renewable Certificates. The GATS Administrator may consider revision of the definition of a Certificate in the future if needed to better meet the needs of state programs.”

- **WREGIS:** “The term ‘Certificate,’ as used in this document, refers to a WREGIS Certificate. A WREGIS Certificate represents all Renewable and Environmental Attributes from one MWh of electricity generation from a renewable energy Generating Unit registered with WREGIS or a Certificate imported from a Compatible Registry and Tracking System and converted to a WREGIS Certificate.<sup>8</sup> The WREGIS system will create exactly one Certificate per MWh of generation that occurs from a registered Generating Unit or that is imported from a Compatible Registry and Tracking System. Disaggregation of certificates is not currently allowed within WREGIS.

“Renewable and Environmental Attributes: Any and all credits, benefits, emissions reductions, offsets and allowances, howsoever entitled, attributable to the generation from the Generating Unit, and its displacement of conventional Energy generation. Renewable and Environmental Attributes do not include (i) any energy, capacity, reliability or other power attributes from the Generating Unit, (ii) production tax

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<sup>8</sup> A renewable Generating Unit, for the purposes of WREGIS, includes any Generating Unit that is defined as renewable by any of the states or provinces in the WECC.

credits associated with the construction or operation of the Generating Unit and other financial incentives in the form of credits, reductions or allowances associated with the Generating Unit that are applicable to a state, provincial or federal income taxation obligation, (iii) fuel-related subsidies or ‘tipping fees’ that may be paid to the seller to accept certain fuels, or local subsidies received by the generator for the destruction of particular preexisting pollutants or the promotion of local environmental benefits, or (iv) emission reduction credits encumbered or used by the Generating Unit for compliance with local, state, provincial or federal operating and/or air quality permits.”

- **M-RETS:** “The term ‘Certificate,’ as used in this document, refers to an M-RETS Certificate of generation, or M-RETS Certificate. An M-RETS Certificate represents all of the attributes from one MWh of electricity generation from a renewable generating unit registered with the M-RETS tracking system or a Certificate imported from a Compatible Certificate Tracking System and converted to an MRETS Certificate. The M-RETS system will create exactly one Certificate per MWh of generation that occurs from a registered generating unit or that is imported from a Compatible Certificate Tracking System. See also definition of ‘Whole Certificate.’”

“A ‘Whole Certificate’ is one where none of the renewable attributes have been separately sold, given, or otherwise transferred to another party by a deliberate act of the Certificate owner. Renewable attributes shall include the environmental attributes that are defined as any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, directly attributable to the generation from the generation unit(s). Individual states and provinces may create different definitions of renewable Certificates. The M-RETS Administrator may consider revision of the definition of an M-RETS Certificate in the future if needed to better meet the needs of state and provincial programs. See also definition of ‘Certificate.’”