



REC DEFINITIONS AND TRACKING MECHANISMS USED BY STATE RPS PROGRAMS

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by
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About This Report

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Introduction – The Purpose of this Report

Over the past two decades, the vast majority of states in the United States have established either a renewable portfolio standard (RPS) or voluntary renewable energy goals. These policies either require or permit electricity suppliers to obtain some of their electricity from designated clean energy sources. In order for state program administrators to know whether utilities and other electricity suppliers are meeting their obligations or goals, there needs to be a way to track exactly the electricity that has been used for these purposes.

In almost all cases, states track this electricity with renewable energy certificates or RECs. RECs are tradable certificates of proof that a unit of power has been generated from a clean energy source. However, different states have defined a “REC” slightly differently and there are also differences in the specific environmental attributes that are embodied in a REC. In most cases, the differences are small enough that interstate renewable energy markets have been able to operate smoothly and seamlessly. However, there is some potential for confusion and complications, especially when RECs are transferred from one location to another that uses a different REC tracking system, or when an RPS intersects with a policy that may treat environmental attributes differently, such as a greenhouse gas reduction program.

To provide greater clarity and to help state renewable energy program administrators understand how their state compares to others, this report provides information on the use of RECs by states, on the definitions of a REC, and on the environmental attributes included in a REC. It also discusses how different regional and state-based REC tracking systems handle these matters. In addition, it identifies differences between the handling of RECs by states with formal RPS programs and states with voluntary renewable energy goals.

This report updates previous publications including: (1) *A Comparison of Certificate Attributes* compiled by the staff of the Western Renewable Energy Generation Information System (WREGIS) in 2009 for a Tracking System Work Group looking at certificate import/export options; (2) A 2010 report by the Environmental Tracking Network of North America (ETNNA) on *The Intersection between Carbon, RECs, and Tracking: Accounting and Tracking the Carbon Attributes of Renewable Energy*; and (3) Material from an Oregon Department of Energy document on renewable energy certificates.

For this report, we contacted 32 Renewable Portfolio Standard (RPS) program administrators (including the District of Columbia, Puerto Rico, and Vermont¹) and 7 states with voluntary renewable goals. We also contacted 10 REC Tracking System Administrators. We received responses to our questions from all of these parties with the exception of Puerto Rico.²

Summary of Findings

Although states use different names for RECs (e.g., renewable energy certificates, renewable energy credits, alternative energy credits, etc.)³ the term “REC” universally refers to—a *tradable certificate of proof of one megawatt hour (1 MWh) of electricity generated by an eligible renewable or energy efficiency resource* (except in Arizona and Nevada where it is defined as a kWh). Most state RPS program definitions reference a particular renewable energy tracking system as the body that issues and tracks the RECs; see Table 1 for a summary of which RPS programs use which tracking systems.

Eighteen state programs assume the REC includes environmental attributes. The definitions of environmental attributes range from a simple statement: “*all attributes*” to more complex definitions such as the one used by California (see Appendix B for a complete list of state definitions). Of the 11 state programs that do not seem to assume the inclusion of environmental attributes, three of those participate in the Regional Greenhouse Gas Initiative (RGGI), which has the responsibility for administering greenhouse (GHG) reductions in that region. However, six other state RPS programs that participate in RGGI do assume the RECs include all the other attributes, except carbon offsets.

All but six state RPS programs use a regional renewable tracking system to track compliance; five states use state tracking systems or are in the process of developing a tracking system (New York). Hawaii does not use a tracking system.⁴ RECs used for RPS compliance within the regional or state renewable tracking systems are then retired (i.e., placed in a retirement account) so they cannot be resold or reused.

¹ Vermont has a unique program that does not require utilities to retire RECs and instead allows them to sell RECs for electricity suppliers to use in complying with other states’ RPSs. Although called a renewable portfolio standard in legislation, it is not usually considered to be one. But because it is a mandatory program, we have grouped it with other states’ RPS programs for the purpose of this paper.

² Appendix A includes a copy of the questionnaire.

³ “Certificate” is a generic term while a “credit” usually refers to a REC that is specifically used for state RPS compliance.

⁴ The Vermont RPS does not use a tracking system for compliance but does use NEPOOL GIS for other purposes.

Table 1. *Summary of RPS Tracking Systems**

Tracking System	Mandatory state RPS programs using the tracking systems	Voluntary renewable energy goal programs using the tracking systems	Canadian provinces using the tracking systems*****
ERCOT	TX		
MRETS	IA, IL, MN, MT, OH, WI	ND, SD	MB, ON
MIRECS	MI		
NAR	IL, KS, MO, NC**, PR		
NEPOOL-GIS	CT, MA, ME, NH, RI		
NC-RETS	NC		
NYSERDA***	NY		
NVTREC	NV		
PJM-GATS	DC, DE, IL, MD, NJ, OH, PA	WA, WV	
WREGIS	CA, CO, MT, NM, OR, WA	UT	AB, BC
None	AZ, HI	OK, IN****	

*Utilities and generators may use a different tracking system for purposes of the voluntary market or for selling RECs in another state. For example, NV utilities and projects use WREGIS, but the NV RPS program only officially uses NVTREC. AZ does not use a tracking system to track RPS compliance, but AZ electric utilities report that they use WREGIS to issue and retire RECs for all renewable projects.

** Only projects in NC that are not in the state RPS are covered by NAR

*** Not yet operational

**** Indiana does not designate which tracking system must be used but allows the utility to decide.

***** As reported by the tracking systems. We did not survey Canadian provinces as part of this project.

Of the ten tracking systems, five are multi-state or “regional” systems and five are single state tracking systems. All of the regional renewable energy tracking systems (M-RETS, NAR, NEPOOL-GIS, PJM-GATS, and WREGIS) define a REC as one MWh of renewable energy. Among the single state tracking systems, four (ERCOT for Texas, MIRECS for Michigan, NC-RETS for North Carolina, and NYSERDA for New York) denominate a REC as one MWh; however, Nevada’s NVTREC denominates credits in kWh. All of the regional renewable tracking systems except NEPOOL-GIS only issue and track “whole” RECs (e.g., RECs that include all environmental attributes). However, with the exception of MIRECS and NC-RETS, the single state systems (ERCOT and NVTREC) do not include environmental attributes or refer to “whole RECs” (the NYSERDA system is still in development).

None of the tracking systems include derived data for avoided carbon emissions. However, both PJM-GATS and NEPOOL-GIS include emission data for other air pollutants since both include all power generators (including fossil), not just renewable generators, in their systems.

The lists of attributes included in the REC data sets are very similar among the regional tracking systems. Single state tracking systems designed specifically to serve one state's RPS program tend to be more limited and to only include data required by that state's initial RPS rules. It is important for State RPS administrators to understand what data files are included in a REC and if something might need to be added if the tracking system is going to import/export RECs to other systems. Also, the systems are flexible and data sets can be modified to track other types of attributes in response to policy changes.

Most of the regional tracking systems include a list of the state RPS programs for which each generator's RECs may be eligible. They also frequently include a field that indicates eligibility for one or more voluntary REC/certification programs. Only one system, PJM-GATS, tracks REC prices and does that only for Maryland and for the solar REC (SREC) market.

Finally, this report summarizes the two existing U.S. greenhouse gas (GHG) reduction programs, RGGI in the northeast and the California GHG Cap-and-Trade Program, and describes how they intersect with RPS programs.

State RPS Program REC Definitions and Use⁵

State RPS REC Definitions (See Appendix B for a complete listing of the Definitions)

Different states use different names for RECs including alternative energy certificates, certificates and credits. "Credit" generally refers to RECs used for RPS compliance purposes while "certificate" is a more generic term. The most common definition of a REC used by states with formal RPS programs that use RECs is some variation of the following definition:

*A tradable certificate of proof of one megawatt hour of electricity generated by an eligible renewable resource that is issued and tracked by a tracking system and includes all of the environmental attributes associated with that megawatt hour unit of electricity production.*⁶

Thirteen state RPS programs do not include the phrases "environmental" or "all attributes," so are thereby silent on the subject. However, five of those state RPS programs told us the REC does include environmental attributes though their definition did not. (See the section on "Definitions of Renewable Energy Attributes" below for a longer discussion of the definition of

⁵ The results described in this paper are based on the information provided by state administrators. Appendix B is a complete listing of those definitions. It was beyond the scope of the project to independently verify the accuracy of that information.

⁶ From Montana's REC definition.

environmental attributes.) Three states, Missouri, New Hampshire and Ohio, are in the process of revising their REC definitions. Two states, Arizona and Nevada, denominate their RECs in kWh. Hawaii and Vermont do not use RECs for RPS compliance.

REC Definitions for States with Renewable Goals Only

Of the seven states with renewable goals only, four (IN, ND, SD, UT) use a definition similar to the one used by formal RPS states including environmental attributes and three (OK,⁷ VA, WV) use a definition that does not include any environmental attributes. However, though four states have definitions of a REC that include environmental attributes, only SD assumes the attributes are part of the REC for the purpose of meeting their renewable energy goal.

Definitions of Renewable Energy Attributes

State definitions of renewable energy attributes range from a long, complex definition used by California to a very short phrase “all renewable energy attributes” or “all generation attributes” that is used by six states. The more specific a state definition is in declaring exactly which attributes are and are not included in a REC for the purpose of complying with its state’s RPS program, the less confusion there will be. Unfortunately being silent with regard to the inclusion of non-energy attributes can lead to misunderstandings. To avoid confusion, states that are silent about attributes might want to expand their definitions to specify exactly what is and is not included in their REC definitions.

The following paragraphs provide a flavor of the variations in definitions used in RPS states. For a list of the specific state definitions, see Appendix B.⁸

Six states (IL, MT, NJ, NM, OH, OR) use a version of the following definition or one that simply mentions “environmental attributes” generally:

Renewable Energy Certificate (REC) means a unique representation of the environmental, economic, and social benefits associated with the generation of electricity from renewable energy sources that produce Qualifying Electricity. One Certificate is created in association with the generation of one Megawatt-hour (MWh) of Qualifying Electricity.⁹

⁷ Since Oklahoma is a capacity-based system, it does not use RECs.

⁸ It should be noted that these state definitions sometimes vary from the RPS compliance requirements discussed in the next section. This may be due to changes in the use of RECs over time or amendments to one part of the legislative code but not to another.

⁹ This is from the Oregon State REC definition.

Two states, Colorado and Vermont, explicitly include all environmental attributes including fuel-related subsidies and emission reduction credits. Hawaii does not use RECs and there is no state REC definition.¹⁰

Figure 1. *Map of State Programs*



There are certain attributes that are not directly associated with one MWh of power generation from a renewable energy facility but rather are associated with emission reduction credits and/or allowances encumbered or used by a Generation Unit for compliance with local, state, or federal operating and/or air quality permits or with tax credits or other subsidies. Since these are not under the direct control of the generator nor uniformly applied to all renewable generators in that region, five states (CA, DE, MN, NY, and NC) specify that RECs do **not** include some or all of these types of attributes:

A REC does not include any emissions reduction credit issued pursuant to § 40709 of the Health and Safety Code or any credits or payments associated with the reduction of solid waste or treatment benefits created by the utilization of biomass or biogas fuels. A REC also does not include any energy, capacity, reliability or other power attributes of the generation; any tax credits or other financial incentives in the form of credits, reductions, or allowances associated with the generation that are applicable to a state or federal income taxation obligation; any fuel-related subsidies or 'tipping fees' or local subsidies received by the generator for the destruction of particular preexisting

¹⁰ The Hawaii utilities report their renewable energy production directly to their PUC. This is also true of Vermont, although Vermont verifies the production output through the NEPOOL-GIS.

pollutants or the promotion of local environmental benefits; or emission reduction credits (whether issued pursuant to § 40709 of the Health and Safety Code or any other authority) that are encumbered or used by the generator for compliance with local, state, or federal operating and/or air quality permits.¹¹

Thirteen state definitions do not mention any attributes other than energy, while only one state, Kansas, explicitly declares that RECs do not include environmental attributes.

Inclusion of Carbon and Environmental Benefits in RPS Programs

Although state or regulatory definitions of RECs may include environmental benefits, state RPS programs may be vague in this regard. Of the 31 state RPS programs, 18 assume the REC includes carbon and other environmental benefits while 11 do not.¹² Of those that do not include carbon or other environmental benefits, three are from the RGGI states where carbon benefits are handled separately. The Hawaii respondent said their RPS program is designed to reduce the carbon impacts of power.

The following is a list of state RPS responses to the question: *Do you assume the REC includes carbon benefits and other environmental attributes?*

Table 2. *State Responses to Question on Environmental Benefits*

Responded YES	Responded NO
AZ, CA, CO, DE, HI, IL, MA, MN, MT, NJ, NM, NY OH, OR, RI WI, WA, VT*	CT, DC, IA, KS, MD, ME, MI, MO, NC, NH, NV, PA, TX

* Vermont's RPS program is capacity based and does not use RECs.

Of the 18 states with RPS programs that responded “yes” to this question, their definitions included *all* environmental attributes as defined (with the exception of those that do not directly result from the production of one MWh of power—see Attribute Definitions above and Appendix B for more specifics). In addition, those responding “yes” required that these attributes remain bundled with the REC to be eligible for RPS compliance.

Direct emissions or avoided emissions for regions not in compliance for NO_x or SO_x regulations are generally not included as part of the environmental attributes of a “whole” REC except in

¹¹ This is from the California Public Utilities Code definition of a REC and is the most specific state definition in this regard.

¹² Note that state REC definitions may differ from RPS definitions due to policy or legislative changes and use over time.

Colorado, New York and Vermont (Colorado is in the process of a hearing on this issue). As mentioned above, five states explicitly exclude “emission reduction credits and/or allowances encumbered or used by a Generation Unit for compliance with local, state, or federal operating and/or air quality permits associated with the 1 megawatt-hour of electricity [SOx and NOx].”¹³ States that do not specifically exclude SOx and NOx credits could face this question in the future if areas of their state come into non-compliance for those pollutants. For states with voluntary renewable energy goals, only South Dakota assumes the REC includes environmental attributes.

Use of Regional Tracking Systems to Track RECs for RPS Compliance

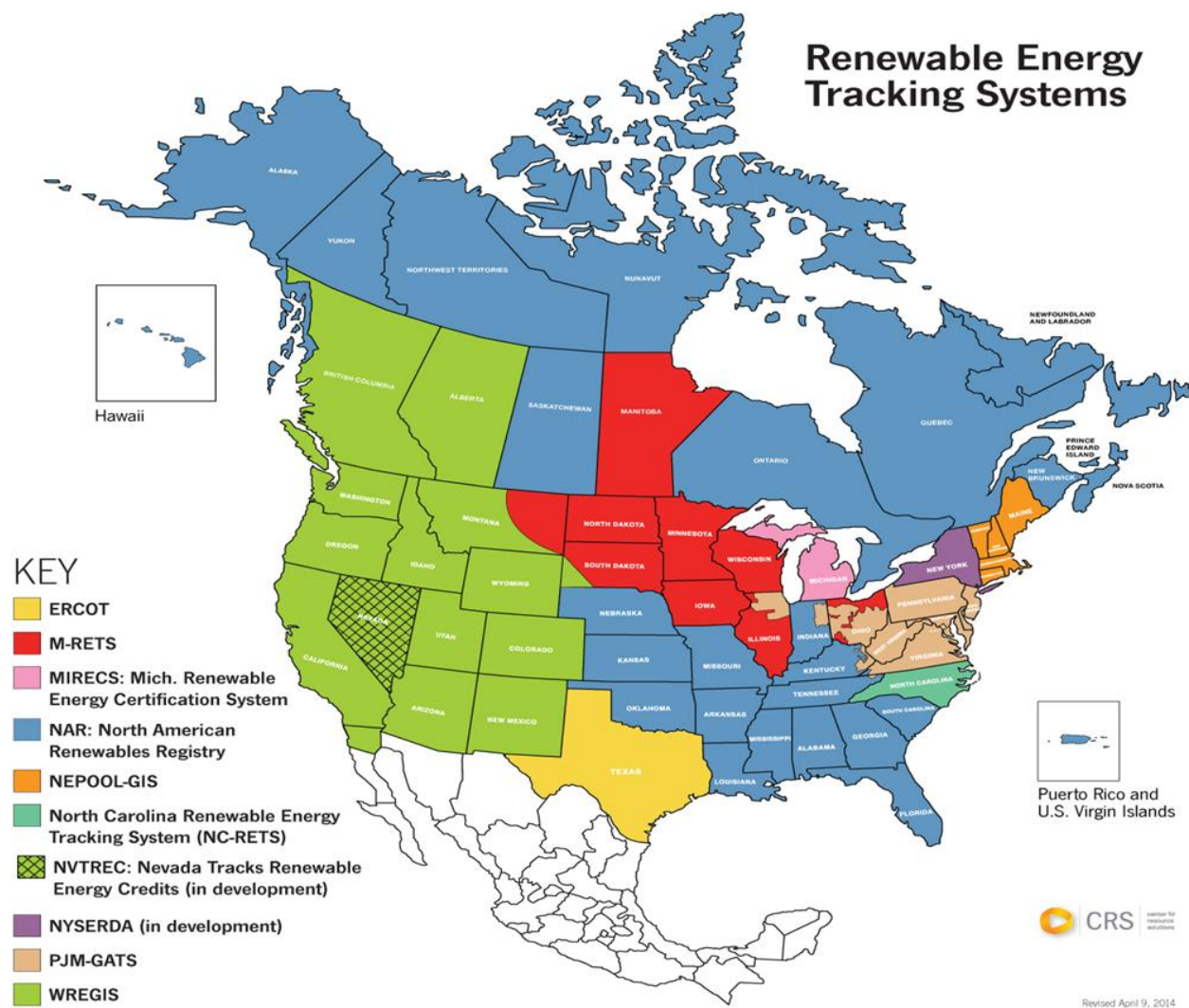
The map in Figure 2 below shows the regional and state tracking systems. The ten tracking systems listed in this report were all created through direct state action, either by an individual state or a consortium of states. They were designed to independently issue renewable energy certificates (with unique ID numbers for each certificate) using electronic data supplied directly by transmission control areas thereby assuring the data are accurate. By tracking such certificates from issuance to retirement once they have been used, these systems ensure against double counting. States that do not use tracking systems are not able to take advantage of these benefits.¹⁴

Of the 31 RPS programs (Including the District of Columbia and Vermont) 23 use renewable tracking system(s) to track compliance with their RPS mandates. Three of these states use multiple regional tracking systems: Illinois uses PJM-GATS, MRETS and NAR; Montana uses WREGIS and MRETS; and Ohio uses PJM-GATS and MRETS plus its rules consider the possibility of recognizing other attribute tracking systems in the future. Multiple tracking systems make sense for these states because they include generators located in more than one transmission control area. Nevada uses its own NVTREC system for RPS compliance although generation in the state that qualifies for other states’ RPSs use WREGIS. Iowa’s RPS program is capacity based so it does not use RECs for compliance purposes, but it requires that the RECs from designated facilities be issued and retired by MRETS so they cannot be used for any other purpose. Vermont’s mandatory renewable energy program is also capacity based and does not use RECs to track compliance though the state verifies output through NEPOOL-GIS. Unlike most states with an RPS, New York State uses a central procurement approach whereby NYSERDA administers programs for the majority of the RPS goals. NYSERDA verifies delivery requirements from NYISO, utility, and metering data and uses an internal database for RPS metrics.

¹³ From Delaware’s REC definition.

¹⁴ For a discussion of the legal basis for RECs see “*The Legal Basis for Renewable Energy Certificates*” Todd Jones, Center for Resource Solutions, January 2014.

Figure 2. *Renewable Energy Tracking Systems*¹⁵



Four states have individual state-based tracking systems (TX, MI, NC, and NV) and New York will have one shortly. Although Texas has a capacity-based program, its tracking system, ERCOT, is specifically designed for use with its RPS program and compliance is demonstrated by REC retirement. Arizona does not use a tracking system to track RPS compliance. However Arizona electric utilities report that they use WREGIS to issue and retire RECs for all renewable projects. Arizona, Hawaii and Nevada do internal verification of RPS compliance through utility reports to their state energy regulatory commissions and Arizona and Hawaii are the only states that do not verify these reports through some type of tracking system.

¹⁵ Map courtesy of Center for Resource Solutions (CRS)

Of the seven states with voluntary RPS programs, five use a designated regional tracking system. Indiana does not designate which tracking system must be used but allows the utility to decide. Oklahoma does not use a renewable energy tracking system, but instead depends upon utility reports to the state commission and therefore does not have assurances that there has not been double counting.

Retirement of RECs Used for RPS Compliance

Of the 31 state RPS programs responding to the question *“Do you require that a REC used for RPS compliance be placed in a tracking system retirement account if it is applied to the RPS mandate?”* all but three of the state RPS programs responded “yes.” The retirement of RECs used for RPS compliance is important since it assures that the RECs and their associated attributes are not being resold or double counted. The three states that responded “no” were Arizona (which does not use a tracking system to verify compliance), Hawaii and Vermont—as both do not use RECs. The table below summarizes the responses.

Table 3. *Summary of REC Retirement Requirements*

Are RECs used for RPS compliance placed in a tracking system retirement account if it is applied to the RPS mandate?			
	YES	NO	N/A
Mandatory RPS States	CA, CO, CT, DC, DE, IA, IL, KS, MA, MD, ME, MI, MN, MO, MT, NC, NH, NJ, NY, OH, OR, PA, TX, WA, WI	AZ	HI, VT
Voluntary RPS States	SD, WV, UT	IN, ND, OK, VA	

Renewable Energy Tracking System Data

Renewable Tracking System REC Definitions¹⁶

All of the regional Tracking Systems that are in operation use essentially the same definition of a REC. And almost all of these regional systems require that the RECs transacted in their systems be “whole” (i.e. include all of the environmental attributes that are associated with the generation of one MWh of electric power). This is primarily because the regional tracking systems are designed to accommodate a variety of state RPS programs as well as voluntary REC

¹⁶ See Appendix B for a complete list of definitions

programs. This is accomplished by having a comprehensive REC definition that includes all attributes related to the generation of a unit of power. Transacting with whole RECs also protects against having fragments of RECs floating around the marketplace that would be difficult to describe or value, difficult to track, and confusing to consumers. Appendix C includes a complete list of these definitions. All of the systems define a REC as one MWh of renewable energy except NVTREC (Nevada) which denominates credits in kWh.

The one exception is NEPOOL-GIS (that serves the RGGI participating states), which does not assume there are any environmental attributes associated with the REC. Two of the single state systems—ERCOT that serves only the Texas RPS, and the Nevada NVTREC system—do not assume any environmental attributes since those were not relevant to the initial goals of these state RPS programs that focused on things other than environmental benefits. NYSERDA’s tracking system is not yet in operation.

MIRECS serving Michigan does not include any definition of a REC other than listing the tracking of different types of credits within the system. However the operating procedures do state that one credit will be issued for each MWh of eligible energy and the MIRECS Export Policy converts one MWh into a REC certificate for the purpose of export.

States Served by Renewable Tracking Systems

Table 1 on page 3 indicates which tracking systems are used by state RPS programs for issuing certificates to eligible facilities. Also some tracking systems like NAR in North Carolina and WREGIS in Nevada issue certificates to renewable energy projects (or parts of projects) that do not participate in the state RPS. Because the North American Renewables Registry (NAR) is unique, filling in gaps that other tracking systems do not cover, it sometimes provides services to projects that are located in an RPS state that does not formally use NAR or any of the other regional tracking systems to verify its RPS program (for example, Hawaii and Oklahoma). In that case NAR checks with other tracking systems and, where possible, with state program administrators to ensure there is no double issuing or double counting. WREGIS serves projects that are located in Nevada and Arizona though their state RPS programs do not use WREGIS for compliance.

Attributes Tracked by Systems

Table 4 below lists the data commonly included in a tracking system REC file though some systems may use different names or variations for some of the data fields. These data sets provide an example of the types of data that can be collected and stored in a generator’s file. As policies and programs change in the future, new data fields may be added. These systems provide significant flexibility and opportunities for future applications.

Data sets for tracking systems operating in a single state for the exclusive use of that state's RPS program (e.g., NV, TX) do not include several of these items since they are not needed under the state's current RPS rules. In contrast, NC-RETS, which was designed specifically for the NC RPS, is as comprehensive in its REC files as any of the regional systems since that system imports from other states. To the extent a tracking system exports RECs to other systems; it is helpful if the files include the same data fields used by the importing system (in fact that may be a requirement by the importing system). Most of these systems also include a field that indicates if the REC has been imported from another system. Some tracking systems like WREGIS also include a marker for customer-sited distributed generation.

Table 4. Attributes Tracked by System

Certificate Data	Static Data
Certificate Type	State or Province
Tracking System ID	Country
Project Type	NERC Region
Project Name	eGrid Sub-Region
Certificate Vintage	Commenced Operation Date
Certificate Serial Numbers	Fuel Type/Energy Source
Quantity of Certificates	Nameplate Capacity
Meter Data From:	Reporting Entity Type
Meter Data To:	Reporting Entity Contact Company or Organization
Name	Utility to Which Facility is Interconnected
Certificate Creation Date	Repowered Indicator (Y/N)
Utility to which project is connected	Repowered Amount
	Repower Date (required if repowered indicator = Y)
	Qualified Facility (Y/N)

Derived Attributes and Emissions Data

None of the tracking systems includes derived data – e.g., the amount of carbon emissions avoided by production from the renewable generator. When some systems were first developed, it was believed that including this value would be useful, but until there is agreement regarding the appropriate methodology to use in calculating derived impacts, none of the tracking systems are populating this field.

Both PJM-GATS and NEPOOL-GIS include emission data for other air pollutants since both include all power generators (including fossil) not just renewable generators in their systems. These data are primarily applied to fossil generators or hybrid renewable generators that use more than a small fraction of supplemental fossil fuel. As reported by PJM-GATS, emission values included in the certificates are default emission rates based on the latest data available

from the US Environmental Protection Agency (EPA) at the time of certificate creation. The Account Holder can review the Default Emissions and elect to change them during the Account Holder Review Period. EPA supplies emissions data at the generator level on an annual basis. For Multi-fuel Generating Units, the emissions data reflect the percentage of generation for each fuel type. The following emissions data are supplied in pounds per MWh: Carbon dioxide; Nitrogen oxides; Sulfur dioxide. The EPA also supplies the Default Emissions by Fuel Type and System Mix Emissions by Control Area. The system assigns Default Emissions to all GATS Generators or if the Generator has a specific EPA data file, this is used. Otherwise, the Fuel Type Default is assigned.

NEPOOL-GIS reports include emission data that is collected for specific plants by the Continuous Emission Monitoring System (CEMS) if such data are available, and through the use of EPA proxy data if not.

Other Attributes¹⁷

Eligibility for State and Provincial RPS Programs

Most of the multi-state tracking systems include an indication of the state, provincial or municipal RPS programs for which certificates from the generating project could be eligible. In addition, NEPOOL-GIS indicates eligibility for RGGI.

Eligibility for Voluntary Programs

The most common voluntary program markers included in the tracking system data sets are: Green-e Energy eligible; and LIHI (Low-impact Hydro Institute) certification for hydro projects -- six systems include a marker for Green-e Energy and four systems include LIHI. In addition, two systems, WREGIS and MRETS, included eligibility for Ecologo certification and MRETS also includes the Consumer-Owned utility Tradable renewable credits Initiative (Muni COTI) Certification.¹⁸ NAR includes EPA Green Power Partnership eligibility in addition to Green-e Energy and LIHI. PJM-GATS is the only multi-state system that does not include any markers for voluntary programs. Voluntary retirements are tracked by ERCOT but there is no coordination or association with any other program in regards to voluntary retirement or what other systems require or may or may not use.

REC Prices

Only PJM-GATS tracks REC prices. They reported that they: “track solar RECs at the transaction

¹⁷ Appendix D includes guidelines from other REC-related programs.

¹⁸ A voluntary certification effort to insure credible public power green tag products and trades.

level, while non-solar REC prices are only tracked if a state (e.g., Maryland) requires it at the time of retirement for RPS purposes.”

Intersection of REC Tracking Systems and GHG Reduction Programs/GHG Emission Registries

Summary of US Greenhouse Gas Reduction Programs

There are only two greenhouse gas (GHG) reduction programs presently operating in the US – one in the northeast/mid-Atlantic (RGGI) and one in California. Since the greenhouse gas reductions are controlled by the RGGI participating states, RECs from renewable energy generating facilities located in the nine RGGI participating states by definition do not include any carbon benefits. However three RGGI states (DE, NY, and VT) say that RECs include all environmental benefits other than carbon reduction credits. The other six states are silent on this topic.

In the California Cap & Trade Program, renewable electricity produced in state or imported into California does not have to be covered by carbon allowances if it is purchased with an RPS contract that includes ownership of the RECs. (The Serial Numbers of the RECs must be provided in order to comply with this provision.)

RGGI — *The Regional Greenhouse Gas Initiative* (RGGI) is the nation’s first mandatory, market-based program to reduce emissions of carbon dioxide (CO₂), the principal human-caused greenhouse gas. The nine participating states are: CT, DE, MA, MD, ME, NH, NY, RI, and VT. All of them have RPS programs. RGGI reduces CO₂ emissions by first establishing a regional cap on the amount of CO₂ that power plants can emit and then issuing a limited number of tradable CO₂ allowances.

The RGGI CO₂ Allowance Tracking System (RGGI COATS) is the electronic platform that records and tracks data for each state's CO₂ Budget Trading Program. RGGI issues a limited number of tradable CO₂ allowances that are auctioned quarterly to all who are qualified. The RGGI participating states have each chosen to auction nearly all CO₂ allowances and to invest the proceeds in consumer benefit programs to build a clean energy economy. Overall, participating states are investing 63 percent of RGGI auction proceeds in programs to improve end-use energy efficiency and to accelerate the deployment of renewable energy technologies.¹⁹

¹⁹ Text taken from RGGI website, <http://www.rggi.org/market/tracking>

California GHG Cap-and-Trade Program — California’s GHG Cap-and-Trade Program took effect in early 2012. The enforceable compliance obligation began on January 1, 2013, for greenhouse gas (GHG) emissions. The cap and trade program is a key element in California’s climate plan. It sets a statewide limit on sources responsible for 85 percent of California’s greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions and to link with similar trading programs in other states and regions.

The Compliance Instrument Tracking System Service (CITSS) is a market tracking system that supports the implementation of greenhouse gas (GHG) Cap-and-Trade Programs for California and other potential linked jurisdictions. The CITSS provides accounts for market participants to hold and retire compliance instruments and to conduct transactions of compliance instruments with other account holders.

The CITSS is used to:

- Register entities participating in the California Cap-and-Trade Program
- Issue allowances and compliance offsets
- Track the ownership of compliance instruments
- Enable and record compliance instrument transfers
- Facilitate emissions compliance
- Support market oversight

Each entity participating in the California Cap-and-Trade Program must register with the California Air Resources Board through the CITSS.

Intersection of Mandatory GHG Reduction Programs with State RPS Programs

Both of the existing greenhouse gas reduction programs, RGGI and the California GHG Cap-and-Trade Program, have coordinated closely with state RPS programs, renewable energy advocates, and REC tracking systems to ensure the GHG reductions are real and verifiable and that there is no double counting or double sales of carbon benefits from renewable projects. This is particularly important when dealing with renewable energy imports from non-participating states. RGGI does not presently allow energy imports but there is increasing interest in doing so. RGGI

does not have a mechanism for tracking what benefits or emissions they might be getting from imports. Resolution of this issue is presently under consideration.²⁰

With the exception of California and the RGGI states, the only state RPS programs that responded yes to the question: *“Do you coordinate with GHG Reduction Programs or Carbon Registries to avoid double counting?”* were Kansas, Minnesota and South Dakota. We do not have additional information on Kansas, but Minnesota said it relies on M-RETS to do that coordination. South Dakota says it relies upon M-RETS and WREGIS to undertake that coordination. However both M-RETS and WREGIS indicated they do not coordinate with carbon registries.

NAR coordinates with the Verified Carbon Standard, (VCS), which it administers, and also informally coordinates with the other GHG Reduction Programs and carbon registries to avoid double counting of carbon. With the exception of California (through coordination with the California Air Resources Board), NEPOOL-GIS, and NAR, none of the other tracking systems indicated that they coordinate with carbon tracking systems.

Voluntary GHG Reduction

There are several voluntary GHG reduction programs and tracking systems in the US. Green-e Climate coordinates with carbon tracking systems like VCS (the Voluntary Carbon Standard) and with the two mandatory GHG reduction programs—RGGI and the California Cap & Trade—to ensure there is no double counting of benefits.²¹ Other programs that track offsets from US renewable energy projects are the Climate Action Reserve and the American Carbon Registry (part of Winrock International). These are both US based. The Gold Standard also includes US projects but is based in Europe, like VCS.

²⁰ See *“Tracking Emissions Associated with Energy Serving Load in the Regional Greenhouse Gas Initiative (RGGI) States.”* Farnsworth D., R. Terada; RAP April 2013.

²¹ VCS is a certification program for carbon offsets. They have methodologies against which projects are evaluated and maintain registries for the minting and tracking of the credits.

APPENDICES

APPENDIX A – STATE RPS AND TRACKING SYSTEM QUESTIONNAIRES²²

STATE RPS QUESTIONNAIRE

a) How do you define a REC for the purpose of complying with your RPS program?

(i) Do you assume the REC includes carbon benefits and other environmental attributes?

YES _____ NO _____

- If yes, which attributes?
- If yes, are these attributes required to remain bundled with the REC to be eligible for RPS compliance purposes? YES _____ NO _____

b) Do you use a regional or other type of tracking system to issue and track the RECs?

YES _____ NO _____

If yes, which one? _____ERCOT _____ M-RETS _____MIRECS (Michigan)
_____ NAR (North America) _____ NEPOOL/GIS _____ NC-RETS (No. Carolina)
_____ NYSERDA _____ PJM-GATS _____ WREGIS _____ OTHER

If no, who issues & tracks them?

c) Do you require that a REC used for RPS compliance be placed in a tracking system retirement account if it is applied to the RPS mandate? YES _____ NO _____

d) Do you coordinate with GHG Reduction Programs or Carbon Registries to avoid double counting? YES _____ NO _____

If yes which?

e) Do you allow carbon benefits associated with a specific REC that is being used for RPS compliance to be unbundled and also used for a Carbon reduction program?

YES _____ NO _____

²² For REC definitions, see Appendix B below.

TRACKING SYSTEM QUESTIONNAIRE

a) The following is the definition of a REC received from your system for a previous report:
Has this definition changed -- if so how?

b) The following is a list of the REC primary, secondary & derived attributes we have listed as included in your tracking system's REC files. Is this list correct, has it changed, if so how? (Additions & deletions)

c) Does your system track REC prices?

YES ____ NO ____

If yes, for all technologies or only for certain types (e.g. solar)?

d) If you include derived or measured attributes (e.g. Carbon, NOx, and SOx), how are those calculated or from whom are the data collected?

e) Your REC file system indicates eligibility of the REC for the Green-e Program – is that still correct?

YES ____ NO ____

f) Does your system indicate eligibility for other programs?

YES ____ NO ____

If yes, which ones?

g) Which state RPS programs use your tracking system for issuing certificates to some or all of their eligible facilities?

h) Do you coordinate with GHG Reduction Programs or Carbon Registries to avoid double counting?

YES ____ NO ____

If yes, which?

APPENDIX B - RPS STATE REC DEFINITIONS

The REC definitions listed here were provided by State RPS Administrators. In some places, we quote directly from the responses, while in other places we summarize or paraphrase the response provided by the state. The only changes that were made in the definitions were to delete some extraneous material such as a listing of the types of technologies eligible for that state's RPS program or to smooth out language.

ARIZONA

The unit created to track kWh derived from an Eligible Renewable Energy Resource or kWh equivalent of Conventional Energy Resources displaced by Distributed Renewable Energy Resources.

CALIFORNIA

A renewable energy credit (REC) for compliance with the California renewables portfolio standard (RPS) is a certificate of proof, issued through the Western Renewable Generation Information System, that one megawatt-hour of electricity was generated by an RPS-eligible renewable energy resource and delivered for consumption by California end-use retail customers. A REC includes all renewable and environmental attributes associated with the production of electricity from the eligible renewable energy resource, including any avoided emission of pollutants to the air, soil or water; any avoided emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, or any other greenhouse gases that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of global climate change;^[77] and the reporting rights to these avoided emissions, such as Green Tag reporting rights.^[78]

A REC does not include any emissions reduction credit issued pursuant to § 40709 of the Health and Safety Code or any credits or payments associated with the reduction of solid waste or treatment benefits created by the utilization of biomass or biogas fuels. A REC also does not include any energy, capacity, reliability or other power attributes of the generation; any tax credits or other financial incentives in the form of credits, reductions, or allowances associated with the generation that are applicable to a state or federal income taxation obligation; any fuel-related subsidies or "tipping fees" or local subsidies received by the generator for the destruction of particular preexisting pollutants or the promotion of local environmental benefits; or emission reduction credits (whether issued pursuant to § 40709 of the Health and Safety Code or any other authority) that are encumbered or used by the generator for compliance with local, state, or federal operating and/or air quality permits.

The electricity underlying a REC must be delivered for consumption by California end-use retail customers, in accordance with the definition of delivery implemented by the California Energy Commission (CEC).

No REC may be created based on any electricity generated pursuant to any contract with a California retail seller or a local publicly owned electric utility executed before January 1, 2005, unless the contract contains explicit terms and conditions specifying the ownership or disposition of the RECs. A REC may not be created based on any electricity generated pursuant to a contract with a qualifying facility pursuant to the Public Utility Regulatory Policies Act of 1978 that was executed after January 1, 2005.

A REC cannot be created with respect to electricity generated by an eligible renewable energy resource attributable to the use of nonrenewable fuels, beyond a de minimus quantity as determined by the CEC.

COLORADO

“Renewable energy credit” or “REC” means a contractual right to the full set of non-energy attributes, including any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, directly attributable to a specific amount of electric energy generated from a renewable energy resource. One REC results from one megawatt-hour of electric energy generated from an eligible energy resource.

CONNECTICUT

The Connecticut RPS requires that electricity providers (Connecticut Electric Suppliers and Electric Distribution Company Wholesale Suppliers) obtain a minimum percentage of their retail load by using renewable energy. 1 REC = 1 MW.

GIS Certificate: An electronic record produced by the NEPOOL-GIS that identifies Generation Attributes of each MWh accounted for in the NEPOOL-GIS. Renewable Generation Attribute: The Generation Attribute of the electrical energy output of a specific Generation Unit that derives from the Unit’s production of Renewable Generation. A Retail Electricity Supplier shall demonstrate to the satisfaction of the Department that RPS Class I Renewable Generation Attributes or Solar Carve-Out Renewable Generation Attributes used for compliance have not otherwise been, nor will be, sold, retired, claimed, used or represented as part of electrical energy output or sales, or used to satisfy obligations in jurisdictions other than Massachusetts.

DELAWARE

"Renewable Energy Credit" or ("REC") means a tradable instrument comprised of all the Generation Attributes equal to 1 megawatt-hour of electricity derived from Eligible Energy Resources and that is used to track and verify compliance with the provisions of this Regulation.

A REC includes environmental attributes but does not include emission reduction credits and/or allowances encumbered or used by a Generation Unit for compliance with local, state, or federal operating and/or air quality permits associated with the 1 megawatt-hour of electricity.

"Generation Attribute" means a non-price characteristic of the electrical energy output of a Generation Unit including, but not limited to, the Unit's fuel type, geographic location, emissions, vintage, and RPS eligibility.

DISTRICT OF COLUMBIA

A credit representing one megawatt (1 MWH) hour of electricity produced by a Tier One or Tier Two renewable resource located within the PJM Interconnection region or within a state that is adjacent to the PJM Interconnection region.

HAWAII²³

Hawaii does not have a REC definition since they do not use RECs for compliance with their state program.

ILLINOIS

In Illinois law, a "Renewable energy credit" means a tradable credit that represents the environmental attributes of a certain amount of energy produced from a renewable energy resource.' Notwithstanding this definition, any tradable credit that certifies that a certain amount of energy was produced from a "renewable energy resource," as defined in Illinois law, if acceptable for purposes of complying with the RPS program, as long as any and all potentially tradable "environmental attributes" associated with the REC are acquired and retired along with the REC.

IOWA

Since Iowa's RPS is capacity-based (i.e., capacity and the associated energy production), not energy-based, RECs are not used for compliance. Iowa's two investor-owned electric utilities must own or purchase, at any one time, their share of the 105 MW of power from alternate energy production facilities or small hydro facilities. The two investor-owned electric utilities have designated specific facilities and capacities for compliance. The RECs acquired by the two utilities as a result of the designated facilities must be retired so that the REC cannot be used for any other purpose.

Iowa Utilities Board orders have described "tradable renewable certificates" as a medium of exchange representing the renewable attributes of renewable energy. However, as described above, the certificates are not used for RPS compliance.

²³ Hawaii did not fill out a questionnaire but did respond to our questions via the telephone.

KANSAS

“REC” means “renewable energy credits,” as defined in K.S.A 66-1257 and amendments thereto. For purposes of these regulations, this term is reflected on a certificate representing the attributes associated with one megawatt-hour (MWh) of energy generated by a renewable energy resource that is located in Kansas or serves rate payers in the state. The present definition does not include environmental attributes in the REC.

MAINE

REC equals GIS certificate: “GIS certificates” mean certificates created pursuant to the NEPOOL Generation Information System that represent attributes of electric power and that may be traded separately from the energy commodity. “Eligible GIS certificates” mean GIS certificates that correspond to eligible or new renewable generation resources as specified in this Chapter.

MARYLAND

“Renewable energy credit” or “credit” means a credit equal to the generation attributes of 1 megawatt-hour of electricity that is derived from a Tier 1 renewable source or a Tier 2 renewable source that is located: (1) in the PJM region; (2) outside the area described in item (1) of this subsection but in a control area that is adjacent to the PJM region, if the electricity is delivered into the PJM region; or (3) on the outer continental shelf of the Atlantic Ocean in an area that: (i) the United States Department of the Interior designates for leasing after coordination and consultation with the State in accordance with § 388(a) of the Energy Policy Act of 2005; and (ii) is between 10 and 30 miles off the coast of the State.

MASSACHUSETTS

“GIS certificates” mean certificates created pursuant to the NEPOOL Generation Information System that represent attributes of electric power and that may be traded separately from the energy commodity. “Eligible GIS certificates” mean GIS certificates that correspond to eligible or new renewable generation resources as specified in this Chapter.

MICHIGAN

A renewable energy credit means a credit granted pursuant to section 41 [of 2008 PA 295] that represents generated renewable energy. Each megawatt hour of an electric provider's total renewable energy creates one renewable energy credit for the electric provider.

MINNESOTA

The definition of a REC and whole certificate in the Operating Procedures for M-RETS applies to RECs for MNPUC RES compliance. M-RETS requires "whole certificates" and defines them as follows:

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). Renewable attributes do not include greenhouse gas avoidance credits based on the upstream capture of methane combined with the subsequent destruction of the methane. 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.

On October 9, 2007, the MNPUC issued an Order requiring all MN utilities subject to the RES statute to participate in M-RETS.

MISSOURI

REC, Renewable Energy Credit, or Renewable Energy Certificate means a tradable certificate, that is either certified by an entity approved as an acceptable authority by the commission or as validated through the commission's approved REC tracking system or a generator's attestation. Regardless of whether RECs have been certified, RECs must be validated through an attestation signed by an authorized individual of the company owning the renewable energy resource. Such attestation shall contain the name and address of the generator, the type of renewable energy resource technology, and the time and date of the generation. A REC represents that one (1) megawatt-hour of electricity has been generated from renewable energy resources. RECs include, but are not limited to, solar renewable energy credits. A REC expires three (3) years from the date the electricity associated with that REC was generated.

NOTE: The Commission's RES rule is currently being revised, so this definition may be revised too. In addition, as carbon emission guidelines are issued by EPA and addressed by the State of Missouri, the answers to this questionnaire may change.

MONTANA

[REC] means a tradable certificate of proof of 1 megawatt hour of electricity generated by an eligible renewable resource that is tracked and verified by the commission and includes all of the environmental attributes associated with that 1 megawatt hour unit of electricity production.

NEVADA

"Portfolio energy credit" means any credit which a provider has earned from a portfolio energy system or efficiency measure and which the provider is entitled to use to comply with its portfolio standard, as determined by the Commission.

NEW HAMPSHIRE

“Certificate” means “the record that identifies and represents each megawatt-hour (MWh) generated by an eligible renewable energy generating source under RSA 362-F:6.” NOTE: We are in the process of revising our rules, and we are proposing language that says certificate also includes the terms “renewable energy certificate” and “REC.”

NEW JERSEY

"Renewable Energy Certificate" or "REC" means a certificate representing the environmental benefits or attributes of one megawatt-hour of generation from a generating facility that produces class I or class II renewable energy, but shall not include a solar renewable energy certificate. "Solar renewable energy certificate" or "SREC" means a certificate issued by the Board or its designee, which represents one megawatt-hour (MWh) of solar energy that is generated by a facility connected to the distribution system in New Jersey, and has value based upon, and driven by, the energy market.

NEW MEXICO

Renewable energy certificate (REC) means a document evidencing that the enumerated renewable energy kilowatt-hours have been generated from a renewable energy generating facility, and shall represent all of the environmental attributes associated with the generation of renewable energy.

NEW YORK

RPS-eligible Attributes: Shall mean all environmental characteristics, claims, credits, benefits, emissions reductions, offsets, allowances, and allocations, howsoever characterized, denominated, measured or entitled, attributable to the generation of Actual Eligible Production by a Bid Facility. One RPS-eligible Attribute shall be created upon the generation by a Bid Facility of one MWh of Actual Eligible Production. RPS-eligible Attributes include but are not limited to: (i) any direct emissions or any avoided emissions of pollutants to the air, soil or water including but not limited to sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), particulate matter and other pollutants; (ii) any direct or avoided emissions of carbon dioxide (CO₂), methane (CH₄) and other greenhouse gases (GHGs) that have been or may be determined by the United Nations Intergovernmental Panel on Climate Change to contribute to the actual or potential threat of altering the Earth’s climate by trapping heat in the atmosphere; (iii) all set-aside allowances and/or allocations from emissions trading programs made unnecessary for compliance in such program as a result of performance under an RPS agreement, including but not limited to allocations available under 6 NYCRR §§ 204, 237 and 238; and (iv) all credits, certificates, registrations, recordations, or other memorializations of whatever type or sort, representing any of the above. If the Bid Facility is a biomass or landfill

gas facility and the Seller receives any tradable credits, benefits, emissions reductions, offsets, and allowances based on the greenhouse gas reduction benefits attributed not to the production of electricity but rather to its fuel production, collection, conversion or usage, it shall provide NYSERDA or its designee with sufficient credits, benefits, emissions reductions, offsets, and allowances to ensure that there are zero net GHGs associated with the production of electricity from such Bid Facility.

RPS-eligible Attributes do not include (i) any energy, capacity, reliability or other power products, such as ancillary services; (ii) production tax credits associated with the construction or operation of the Bid Facility or other financial incentives in the form of credits, reductions, or allowances associated with the Bid Facility that are applicable to a state 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 pre-existing pollutants or the promotion of local environmental benefits; or (iv) emission reduction credits encumbered or used by the Bid Facility for compliance with local, state, or federal operating and/or air quality permits.

(Note: Because NY does not have a REC Tracking System and will be issuing an RFP later this year, the definition given is the closest to an official definition for now. The REC will be defined when we start designing and developing the tracking system.)

NORTH CAROLINA

"Renewable energy certificate" means a tradable instrument that is equal to one megawatt hour of electricity or equivalent energy supplied by a renewable energy facility, new renewable energy facility, or reduced by implementation of an energy efficiency measure that is used to track and verify compliance with the requirements of this section as determined by the Commission. A "renewable energy certificate" does not include the related emission reductions, including, but not limited to, reductions of sulfur dioxide, oxides of nitrogen, mercury, or carbon dioxide.

OHIO

"Renewable energy credit" means the environmental attributes associated with one megawatt-hour of electricity generated by a renewable energy resource, except for electricity generated by facilities as described in paragraph (E) of rule 4901:1-40-04 of the Administrative Code.

The definition we are adopting in this proceeding in Rule 40-01 (T) clarifies that environmental attributes may not be unbundled from the REC and sold individually, although the credit may be unbundled from the electricity with which the REC was originally associated.

OREGON

Renewable Energy Certificate (REC) means a unique representation of the environmental, economic, and social benefits associated with the generation of electricity from renewable energy sources that produce Qualifying Electricity. One Certificate is created in association with the generation of one MegaWatt-hour (MWh) of Qualifying Electricity. While a Certificate is always directly associated with the generation of one MWh of electricity, transactions for Certificates may be conducted independently of transactions for the associated electricity.

PENNSYLVANIA

(Pennsylvania uses the term alternative energy credit.) "Alternative energy credit": A tradable instrument that is used to establish, verify and monitor compliance with this act. A unit of credit shall equal one megawatt hour of electricity from an alternative energy source. The alternative energy credit shall remain the property of the alternative energy system until the alternative energy credit is voluntarily transferred by the alternative energy system.

RHODE ISLAND

Obligated entities must demonstrate compliance through the procurement of NEPOOL-GIS Renewable Energy Certificates (RECs) relating to Generating Units certified by the RI Public Utilities Commission as using eligible renewable energy sources. NE-GIS certificate is the electronic record produced by the NE-GIS that identifies the relevant generation attributes of each megawatt-hour accounted for in the NE-GIS. For the purpose of complying with RI's RPS program, a REC is defined as the settlement of GIS certificates within the Obligated Entity's NEPOOL-GIS account.

TEXAS

A REC represents one MWh of renewable energy that is physically metered and verified in Texas and meets the requirements set forth in subsection (e) of this section. A REC or Compliance Premium is a tradable instrument that represents all of the renewable attributes associated with one (1) MWh of production from a certified renewable generator.

VERMONT

Pursuant to 30 VSA Section 8002(22): "Tradeable renewable energy credits" means all of the environmental attributes associated with a single unit of energy generated by a renewable energy source where: (A) those attributes are transferred or recorded separately from that unit of energy; (B) the party claiming ownership of the tradeable renewable energy credits has acquired the exclusive legal ownership of all, and not less than all, the environmental attributes associated with that unit of energy; and (C) exclusive legal ownership can be verified through an auditable contract path or pursuant to the system established or authorized by the Board or any program for tracking and verification of the ownership of environmental attributes of energy legally recognized in any state and approved by the Board.

Pursuant to 30 VSA Section 8002(6): "Environmental attributes" means the characteristics of a plant that enable the energy it produces to qualify as renewable energy and include any and all benefits of the plant to the environment such as avoided emissions or other impacts to air, water, or soil that may occur through the plant's displacement of a nonrenewable energy source.

WISCONSIN

Each megawatt hour of an electric provider's total renewable energy creates one renewable resource credit for the electric provider. "Renewable energy" means electricity derived from any of the following: a) A fuel cell that uses, as determined by the commission, a renewable fuel; b) Tidal or wave action; c) Solar thermal electric or photovoltaic energy; d) Wind power; e) Geothermal technology; g) Biomass; h) Synthetic gas created by the plasma gasification of waste; i) Densified fuel pellets made from waste material that does not include garbage, as defined in s. 289.01 (9), and that contains no more than 30 percent fixed carbon.

NOTE: Subd. 1m. is amended eff. 12-31-15 by 2011 Wis. Act 34 to read: 1m. A resource that derives electricity from hydroelectric power.

WASHINGTON

"Renewable energy credit" means a tradable certificate of proof of at least one megawatt-hour of an eligible renewable resource where the generation facility is not powered by freshwater. The certificate includes all of the non-power attributes associated with that one megawatt-hour of electricity, and the certificate is verified by a renewable energy credit tracking system selected by the department.

REC DEFINITIONS IN STATES WITH RENEWABLE ENERGY GOALS BUT NO FORMAL RPS

INDIANA

"Clean energy credit", or "CEC", means an interest that: (1) represents one (1) megawatt hour of clean energy that satisfies the condition set forth in section 12(c)(2) [IC 8-1-37-12(c)(2)] of this chapter; (2) is quantifiable and transferrable; and (3) is possessed by not more than one (1) entity at a time.

NORTH DAKOTA

"Renewable energy credit" means the intangible, generally perceived environmental benefits and attributes associated with generating one megawatt hour of renewable electricity or recycled energy that is physically metered and meets the requirements set forth in section 69-09-08-04.

69-09-08-04 -- Facilities eligible for participation in the renewable energy certificates tracking program. For a renewable energy facility to be eligible to participate in the tracking program, the facility must be either a new facility or existing facility as defined in section 69-09-08-02 and must also: 1) Register under section 69-09-08-07; and 2) Have output that is capable of being physically metered and verified by the program administrator. A renewable energy facility with more than one generating unit may be metered with a single meter.

OKLAHOMA

[RECs] are non-tangible energy commodities in the United States that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity). Solar Renewable Energy Certificates are RECs that are specifically generated by solar energy.

SOUTH DAKOTA

RECs are not specifically defined in law. However, most of our utilities use M-RETS or WREGIS to track and retire credits, which specifically defines a REC as including all attributes. (Although we don't have a codified requirement that attributes cannot be split off, it is assumed.)

UTAH

Utilities may meet their targets by producing electricity with an eligible form of renewable energy or by purchasing renewable energy certificates (RECs). [SB 99](#), enacted in March of 2009 granted authority to the PSC to develop or approve a system to track RECs. The legislation specifically referenced the Western Renewable Energy Generation Information System ([WREGIS](#)) as an acceptable trading platform. To date the PSC has not adopted a system to track RECs. "REC" means a certificate issued in accordance with the requirements of sections 10-19-202 and 54-17-603 (above) or RECs as issued by WREGIS.

VIRGINIA

"Renewable energy certificate" means either (i) a certificate issued by an affiliate of the regional transmission entity of which the participating utility is a member, as it may change from time to time, or any successor to such affiliate, and held or acquired by such utility, that validates the generation of renewable energy by eligible sources in the interconnection region of the regional transmission entity or (ii) a certificate issued by the Commission pursuant to subsection J and held or acquired by a participating utility, that validates a qualified investment made by the participating utility.

WEST VIRGINIA

"Alternative and renewable energy resource credit" or "credit" means a tradable instrument that is used to establish, verify and monitor the generation of electricity from alternative and renewable energy resource facilities, energy efficiency or demand-side energy initiative projects or greenhouse gas emission reduction or offset projects.

APPENDIX C - TRACKING SYSTEM REC DEFINITIONS

ERCOT: “ERCOT rules define a REC as a “tradable instrument that represents ***all of the renewable attributes***²⁴ associated with one (1) MWh of production from a certified renewable generator.”

MIRECS: MIRECS has ***no specific definition of a REC***, other than listing the tracking of different types of credits within the system primarily due to the complications posed by the RPS Incentive program. The operating procedures do state that one credit will be issued for each MWh of eligible energy and the MIRECS export policy converts one (1) MWh into a certificate for export.

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.’”²⁵

NAR: A Whole Certificate is one where ***none of the Environmental Attributes have been separately sold, given, or otherwise transferred to another party by a deliberate act of the Certificate owner.***

NC-RETS: NC-RETS issues two kinds of Certificates: Renewable Energy Certificates (RECs), and Energy Efficiency Certificates (EECs). Unless otherwise specified by statute, rule or NCUC order,

²⁴ To highlight the essential core of each tracking system’s definition, we have added bold and italics.

²⁵ Midwest Renewable Energy Tracking System Operating Procedures, July 2, 2007, https://www.nepoolgis.com/GeneralDoc/NEPOOL%20GIS%20Rules%20-%201_1_08.DOC

NC-RETS will issue one Certificate for each MWh of energy produced by a Renewable Energy Facility or saved via an Electric Power Supplier-sponsored energy efficiency or demand-side management program. ***Though in theory NC-RETS does not include any environmental attributes in the RECs, there are no rules that would permit NC-RETS to be exported to other regional tracking systems without their environmental attributes and thus at the present time there no risk of double-counting such attributes.***

NEPOOL-GIS: Operating rules provide ***no explicit definition***.²⁶ A NEPOOL-GIS Certificate represents 1 MWh of energy generated and tracks the attributes listed in the attribute section. GIS Certificate: An electronic record produced by the NEPOOL-GIS that identifies Generation Attributes of each MWh accounted for in the NEPOOL-GIS. Renewable Generation Attribute: The Generation Attribute of the electrical energy output of a specific Generation Unit that derives from the Unit's production of Renewable Generation.

NEVADA: Tracking compliance of the Nevada RPS is handled by the Nevada PUC. The NV RPS uses "Portfolio energy credits" that means any credit that a provider has earned from a portfolio energy system or efficiency measure and which the provider is entitled to use to comply with its portfolio standard, as determined by the Commission. Portfolio energy credits (PCs) represent 1 kilowatt-hour of renewable energy generated or 1 kilowatt-hour of energy saved through energy efficiency programs. Generation not included in the Nevada RPS use the WREGIS system

NYSERDA: New York does not have a REC tracking system. NYSERDA plans to issue an RFP in 2014 to retain a contractor to design and implement a generation attribute tracking system for New York.

PJM-GATS: "The term 'Certificate,' as used by PJM-GATS, 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.'"

²⁶ New England Power Pool Generation Information System, Operating Rules, Effective 1/1/08, https://www.nepoolgis.com/GeneralDoc/NEPOOL%20GIS%20Rules%20-%201_1_08.DOC

“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.”²⁷

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.²⁸ 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 titled—attributable to the generation from the Generating Unit, and its avoided emission of pollutants. Renewable and Environmental Attributes do not include (i) any energy, capacity, reliability, or other power attributes from the Generating Unit; (ii) production tax 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 pre-existing 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.”²⁹

²⁷ Generation Attribute Tracking System (GATS) Operating Rules, May 10, 2006, <http://www.pjm-eis.com/documents/documents.html>

²⁸ 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.

²⁹ WREGIS Operating Rules, July 15, 2013, <http://www.wecc.biz/WREGIS/Documents/WREGIS%20Operating%20Rules.pdf>

APPENDIX D - GUIDELINES FROM OTHER REC-RELATED PROGRAMS³⁰

National Association of Attorneys General Environmental Marketing Guidelines for Electricity

(f) Emissions Claims: It is deceptive to misrepresent, directly or by implication, the amounts or attributes of emissions that result from the generation of electricity. Emissions are defined as all discharges of matter or energy that have a significant negative impact on the environment. Claims about emissions should be quantified or qualified to the extent necessary to avoid consumer deception about such matters as: the types of emissions associated with specific generation; the amounts of emissions relative to environmental standards; the benefits or reduction in harm to the environment associated with the absence or reduction of various types of emissions; and the relevance of the emissions claims to the geographic area in which the claims are made. Care should also be taken to ensure that consumer deception does not occur by the failure to disclose other emissions that have a significant negative impact on the environment. If a reference is made to a specific emission or emissions that have a certain negative impact on the environment, the reference should be accompanied by a clear and prominent explanation of all emissions associated with the product or company that is the subject of the claim that reduce or eliminate that environmental impact.

Federal Trade Commission's Green Guides

§ 260.15 (a): It is deceptive to misrepresent, directly or by implication, that a product or package is made with renewable energy or that a service uses renewable energy. A marketer should not make unqualified renewable energy claims, directly or by implication, if fossil fuel or electricity derived from fossil fuel, is used to manufacture any part of the advertised item or is used to power any part of the advertised service, unless the marketer has matched such non-renewable energy use with renewable energy certificates.

§ 260.15 (d): If a marketer generates renewable electricity but sells renewable energy certificates for all of that electricity, it would be deceptive for the marketer to represent, directly or by implication, that it uses renewable energy.

³⁰ The material in this appendix comes from the Federal Trade Commission (FTC)'s Green Guides Summary, available here: <http://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguidessummary.pdf>. More detailed information from the FTC is available as follows. General FTC website with Green Guide info: <http://www.ftc.gov/news-events/press-releases/2012/10/ftc-issues-revised-green-guides>. FTC RECs are same as bundled energy: <http://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguidesstatement.pdf> (see page 218). Webinars: <http://vimeo.com/51175894> and <http://votesolar.org/2011/06/17/dont-get-left-in-the-dark-when-it-comes-to-your-solar-marketing-claims/>.

Green-e Energy National Standards

Green-e Energy is a national program of the Center for Resource Solutions (CRS).

Double Counting and Use of Utility Resources: Eligible RECs or renewable energy can be used once and only once; making a claim (e.g. stating “we buy wind power”) is one example of a ‘use’ that results in retirement. Renewable energy or RECs (or the renewable or environmental attributes incorporated in that REC) that can be legitimately claimed by another party and may NOT be used in Green-e Energy certified REC products.

Fully Aggregated Renewables Policy: Green-e Energy only certifies MWh (electricity or REC) must contain all the greenhouse gas emission reduction benefits, including carbon dioxide (CO₂) reduction benefits, associated with the MWh of renewable electricity when it was generated.

Interaction with State Renewable Portfolio Standards: Renewable energy or RECs may not be used in a Green-e Energy certified product under the following circumstances:

- 1.) The REC or the electricity from which the RECs are derived is being used simultaneously to meet local, state, or federal energy mandate or other legal requirement; or
- 2.) The RECs are derived from a renewable facility that has been mandated by a local, state, or federal government agency or was required under any legal requirement.

The sole exception to (1) and (2) is a facility that is generating renewable energy in excess of the government mandate or other legal contract, in which case that excess (either renewable electricity or the RECs associated with the renewable electricity) may be used in a Green-e Energy certified product.

EPA Green Power Program Making Environmental Claims

Ensure your purchase does not count towards a mandate. *Buyers of unbundled renewable energy certificates (RECs) or bundled green power products should ensure that their supplier is not also applying the underlying attributes and environmental benefits to a mandate (e.g., a state renewable energy portfolio standard [RPS]). Such a situation would constitute a double claim between you and your supplier.*

Retire the RECs associated with your green power purchase. *Your organization should retire the RECs associated with its green power purchase. Organizations should not transfer or sell RECs after a claim has been made. Making a claim constitutes a retirement of the REC; any sale or claim by a different owner would constitute a double claim. In taking these steps, you help avoid two different parties claiming the same green power benefits.*



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The Clean Energy States Alliance (CESA) is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

CESA works with state leaders, federal agencies, industry representatives, and other stakeholders to develop and promote clean energy technologies and markets. It supports effective state and local policies, programs, and innovation in the clean energy sector, with emphasis on renewable energy, power generation, financing strategies, and economic development. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the positions and achievements of its members.

www.cesa.org

ABOUT THE STATE-FEDERAL RPS COLLABORATIVE

The State-Federal RPS Collaborative, managed by the Clean Energy States Alliance, serves as a forum for the exchange of experiences and lessons learned regarding the implementation of state Renewable Portfolio Standard (RPS) policies. It was established to advance dialogue and cooperation among a broad network of state and federal government officials, renewable energy certificate tracking system administrators, NGO experts, industry representatives, and other stakeholders. It is supported by the U.S. Department of Energy and the Energy Foundation.

The Collaborative offers a free monthly newsletter, regular webinars, reports, an annual National Summit on RPS, and opportunities for information exchange.

For more information see <http://www.cesa.org/projects/state-federal-rps-collaborative/>.