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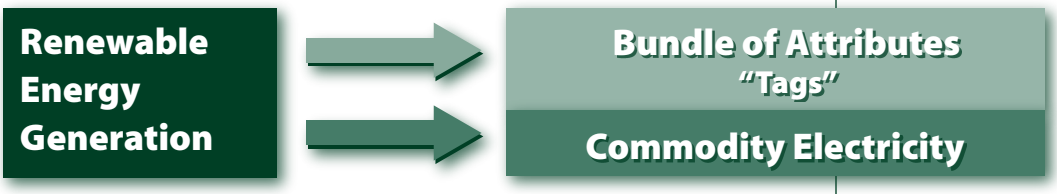
Renewable Energy Certificates and Generation Attributes

by Ed Holt

Using renewable energy resources to generate electricity is a good way to protect against electricity price fluctuations, increase resource diversity, and secure a variety of environmental benefits. Many states have recognized these values in adopting renewable portfolio standards and public incentives for renewable energy development. To facilitate these public policies and voluntary consumer markets for cleaner energy alternatives, market participants are beginning to trade renewable energy certificates.[1]

What is a renewable energy certificate?

Imagine each megawatt-hour has a conceptual tag attached to it. The tag describes the attributes of the electricity: the resource used to generate it, emissions, the location and vintage of the generator, and the date and time of generation. From these facts additional, secondary attributes may be derived such as avoided emissions and eligibility for emission reduction credits or offsets for green power certification, an RPS, or other state programs. The tags distinguish one megawatt-hour from another.



For renewable energy, these attributes are separated, or unbundled, from the electricity and sold independently as a renewable energy certificate. The generator can sell the certificates unencumbered by transmission or schedules, using bilateral contracts. The renewable generator can schedule its electricity generation with the local system operator according to energy-only contracts or sell into the spot market. For renewable generators, a certificate helps to establish property rights to a product, which they can transfer or sell to another party.

The attributes exist apart from electricity generation and may be sold, even where a protocol for establishing and tracking such certificates has not been established. However, because the attributes have economic value, establishing ownership and a system of tracking are critical.

Why do certificates matter to regulators?

Although renewable energy certificates are sold separately from electricity, they are closely associated with electricity sales and therefore

1 Renewable energy certificates are also referred to as renewable energy credits, tradable renewable certificates, and green tags, depending on the state, the marketer, and the application.

intersect frequently with electricity regulation. To date, 13 states have adopted an RPS, and more are considering adopting one. In several states, ownership of certificates serves to verify compliance with an RPS.

Labeling and disclosure

Twenty-one states require utilities or load serving entities (LSEs) to disclose to consumers the fuel mix (and sometimes emissions and other information) of electricity. States have different verification methods for these information disclosure requirements, or electricity labels, including audits of power purchase contracts (contract path method) and ownership of certificates (tradable tags approach).

Because disclosure applies to all energy resources, not just renewable resources, state disclosure policies would suggest tracking all generation attributes. This is already happening in New England with the NEPOOL Generation Information Systems (GIS) and is under consideration by PJM.

In adopting rules for electricity labeling, regulators should be careful not to create double counting, where two parties claim the same renewable attributes. For example, a renewable generator may sell commodity electricity to an LSE and the renewable certificates to a third party. Under the contract path method, this might result in the LSE claiming its energy is renewable even though its purchase did not include the certificates. With certificates only one party can prove ownership.

Consumer protection

Although state attorneys general have jurisdiction over marketing claims and false advertising, state utility regulators have a strong interest in assuring that consumers are protected in electricity markets. Certainly if certificates are rebundled with commodity electricity and supplied to satisfy a green power product obligation, commissions should retain oversight responsibility.

Hamrin and Wingate (2003) describe opportunities for misrepresentation:

- **Double sale.** Outright fraud, in which the same certificate is sold to two parties. This can happen in an electric market that lacks an adequate certificate tracking system, espcially one that can follow and verify cross-border sales. Double sale should be prohibited.
- **Partial double sale.** Sales in which part of the certificate is sold to one party as renewable energy, but one or more individual attributes (such as CO_2 avoidance) are sold to a third party. In this case, while the buyer of the renewable energy certificates reasonably expects to receive all the attributes, this is not the case. Regulators should be cautious about partial double sales because they can lead to market confusion. They are also discouraged by the Green Electricity Marketing Guidelines prepared by the National Association of Attorneys General. Some think partial double sales should be prohibited for small consumers but allowed for large consumers, who presumably will understand the distinctions.
- **Double claim.** More than one person claims ownership to the same certificate. In the example above a utility or LSE buying com-

New Mexico RPS rules

"All transactions between public utilities and suppliers of renewable energy shall be documented through renewable energy certificates."

modity electricity from a renewable generator might claim the renewable attributes on its disclosure label, even when the certificates have been sold to a third party. Making a double claim knowingly should be prohibited. The best protection against inadvertent double claims is a certificate registry and tracking system.

➜ **Double use.** One owner uses the same certificate for two purposes, such as to meet an RPS requirement and to satisfy voluntary green power demand. Whether or not double use should be allowed depends on individual program rules. In some instances, double use may be intended. Regulators should consider whether the intent of the program is to create additional environmental or social benefits before allowing the double use of certificates.

Setting rates

Renewable energy certificates also intersect with the regulation of utility rates (Hamrin and Wingate, 2003). If a utility acquires certificates to meet a state mandate, such as an RPS, the cost of compliance with the requirement should be included in rates.

If a utility owns a renewable energy generator or has a power purchase agreement that includes certificates, and sells the certificates to other utilities or marketers, what is a fair disposition of the revenue from the sale? If the cost of the power plant or power purchase agreement is fully ratebased, then the revenue should be credited against the utility's cost of service and distributed to ratepayers in the form of lower rates, like an off-system power sale.

A third example of the relationship of certificates to rates arises from utility green pricing programs. The certificates bundled with energy and sold for a premium to willing customers should be paid for by only one party. Allowing the same certificates to be supported by self-selected green power consumers and all ratepayers would be a double sale.

Ownership of certificates

Regulators in several states have needed to decide who owns the green certificates associated with existing power sources. Because most PURPA contracts were written before certificate sales emerged, they are silent as to ownership.

So who owns the certificates created by generation that is contracted to a utility under PURPA requirements? Qualifying Facilities – the generators – argue that, since environmental and other benefits are not accounted for in the avoided cost paid for electricity under a PURPA contract, they should retain the rights to the certificates. Utilities contend that PURPA's intent "was for utilities to purchase all of the components of the power that was produced by the QF, including any environmentally beneficial attributes" (Belval and Rosetti, 2002). They further assert that, because one way to qualify for preferential QF status is to use a renewable fuel, certificates should be awarded to the purchasing utility.

Others suggest that, because ratepayers are paying the cost of the PURPA contracts, they should receive the benefits of the certificates. Under this line of reasoning, benefits should be assigned to ratepayers, and certificates retired. Alternatively, regulators could grant the certificates to the utility with the proviso that they be sold and revenue returned to ratepayers.

This is becoming a big issue across the US. For existing PURPA contracts that are silent

about ownership, regulators have the following options:

- ➜ Adjudicate and turn to the state PURPA statutory language for guidance;
- ➜ Require the parties to renegotiate the PURPA contracts; and
- ➜ Assign the certificates or their realized income to ratepayers.

Nevada renewable energy credit program

"The certificates generated by a net metering system shall be assigned to the owner of the…system, unless…another allocation is provided for by written mutual agreement between the utility…and the owner…"

This issue may also lead to litigation. To avoid that in the future, new contracts need explicit language about ownership.

Net metering

Ownership of green attributes can also be an issue with net metering. Net metering usually benefits renewable generation. As with PURPA contracts, net metering raises a property rights issue with respect to the certificates.

Utilities may argue that, because they are crediting the customers with the retail rate, they should own the certificates. System owners believe that the credit they receive from the utilities compensates them only for the energy, not for the certificates, and if utilities want the certificates, they should pay fair compensation for the added value. As with PURPA contracts, regulators – or the courts – may be asked to adjudicate.

California SB 1078 (2002)

"The Energy Commission shall…design and implement an accounting system to verify compliance with the renewables portfolio standard…to ensure that renewable energy output is counted only once for the purpose of meeting the renewables portfolio standard…and for verifying retail product claims…"

The vesting of certificate property rights under both PURPA and net metering agreements will affect the incentives to generators and utilities. Assigning them to the generator will provide an incentive for the deployment of new distributed resources. Assigning them to the utility may lower compliance costs with state renewable portfolio standards or offer other opportunities for revenue. If so, regulators should ensure that any added revenue be returned to ratepayers.

Certificate management and tracking

States, and especially utility commissions, have a role in facilitating the use of certificates through active support of regional attribute tracking systems.

For instance, in New England, state regulators, through the New England Conference of Public Utility Commissions (NECPUC) and the Northeast States for Coordinated Air Use Management (NESCAUM), built support among the states for what eventually became the NEPOOL GIS.

A key issue for tracking system design is whether to track all generation attributes or only the attributes of renewable energy generation. Texas supports a renewables-only approach, and California appears to be moving in the same direction. These tracking systems primarily facilitate a state RPS but also support green power marketing claims. Tracking all generation attributes, on the other hand, has the advantage of supporting a wider range of policies, including electricity disclosure labels.

A renewable energy tracking system is simpler to design and implement, while an all-generation tracking system requires assigning a "shelf life" to certificates and limiting the

period during which they may be traded. This is because disclosure reporting requires a settlement period when all certificates must be accounted for and allocated, and may not be used for the next round of reporting. The NEPOOL GIS demonstrates that this can be done, but it requires some compromises with respect to the use of renewable energy certificates.

The GIS has been in operation since early 2002 and, to provide the most flexibility, tracks all generation attributes. Its design was driven by the state policies that a tracking system needed to support: different state RPS requirements, generation (or emission) portfolio standards, information disclosure requirements, and green power marketing. Because not all certificates have value and are traded, these unsold certificates are assigned as a residual mix to LSEs at the close of each trading period.

On balance, we favor tracking all generation attributes because it supports multiple public policies and market applications. Establishing a tracking system for a multi-state region makes it even more cost-effective, and it creates a larger and potentially more liquid market for certificates.

In establishing regional generation attribute tracking systems, attention should be paid to "seams" issues – the sale of certificates out of or into a region. Tracking systems should be designed to support communication between and the electronic transfer of certificates from one tracking system to another (Grace and Wiser 2002).

Finally, generation attribute tracking systems may take on increased importance as a means of documenting reductions in air emissions. For example, some states have set-asides for renewable energy generation in their State Implementation Plans under the Clean Air Act. Other states are developing greenhouse gas registries in which the CO_2-reducing attributes can be claimed. Either of these could have monetary value if the pollution reduction actions can be verified – a strength of a certificate tracking system.

Excerpt from NARUC resolution adopted July 2002

WHEREAS, the electricity generation attributes are important for all generation, not just renewable energy (for example, for information disclosure or electricity labels), and attribute tracking systems should be comprehensive; now, therefore, be it

RESOLVED, That…the NARUC encourages each RTO/ISO or larger geographic region to assume the responsibility of developing tracking databases for all electricity generation, and for issuing, recording transfers, and redeeming or retiring attributes within the tracking database…

Perspective

Renewable energy certificates, or generation attributes, are not by themselves the policy objective. They don't create demand for renewable energy. But they do facilitate a number of important state policies and programs, and they support compliance verification and public credibility for green products and electricity labels.

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