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The Intersection of Renewable Energy Certificates and Carbon Credits

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The United States is "going green." Investments in renewable resources, clean coal technology, and battery-powered cars are being made possible by a whole new array of programs, credits, and incentives designed to reduce greenhouse gases (GHGs) and dependence on foreign oil. Some of these programs rely on subsidies to change conduct. Others will change the economics of generating electricity, for example, by mandating caps on carbon dioxide (CO2) emissions from coal-fired electric generating plants. In either case, important to understanding the changing legislative landscape is understanding the distinctions between renewable energy certificates (RECs) and carbon or GHG credits and which programs, certifications, and credits apply in particular circumstances.[1]

Upcoming energy legislation likely will include a renewable portfolio/renewable electricity standard (RPS/RES), as well as a carbon constrainment mechanism—cap-and-trade—under which entities may be able to obtain additional emissions credits by performing activities that reduce or offset GHG emissions. This article will explore the relationship between RECs and carbon credits and explain how RECs may increase the amount of carbon credits.

Renewable Energy Certificates

RECs are tradable commodities—used to meet RPS compliance obligations—that indicate that an underlying amount of electricity was generated through renewable methods. Under a national RPS, each utility in the United States would need to produce a certain percentage of its electricity through renewable methods, such as wind, solar, wave, or biomass. While the exact contours of a nationwide RPS/RES are still under debate, the latest information suggests a 20 percent requirement by 2020.[2] Not all utilities are equally positioned to meet an RPS requirement: a utility in sunny Arizona or windy South Dakota may have greater opportunities for renewable generation than states with less sun or wind, such as those in parts of the Midwest and Southeast. When an entity generates electricity using a renewable source, it produces not only the electricity itself, but also a related REC. The entity can then sell the REC independently of the actual electricity, which enables entities to meet their RPS obligations by purchasing excess RECs from others.

There are a number of exchanges and private brokers that enable entities to buy and sell RECs. Purchasers are not all utilities seeking to comply with state RPS mandates. Rather, they include individuals and companies looking to go green and subsidize renewable energy production. REC exchange volume already exceeds billions of kWh annually,[3] and rapid growth continues. A federal RPS/RES likely will increase the size of the overall REC trading market.

Carbon Credits and Carbon Markets

Carbon credits operate similarly, though they have some important distinctions. Instead of indicating that renewable methods were used to generate a certain amount of electricity, carbon credits provide evidence that GHG emissions have been reduced below a particular baseline. This reduction does not always coincide with renewable generation. Central to the idea of carbon

credits is the concept of "additionality," which means that the action must decrease GHG emissions below what would have been emitted under a "business as usual" situation—that is, the credit is generated when an action "offsets" GHG emissions.[4]

The Kyoto Protocol serves as the primary driver of worldwide carbon cap-and-trade programs and provides helpful background. Kyoto requires countries to establish emissions limits for six GHGs: CO2, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. Kyoto tracks assigned allocation units (AAUs), measured in metric tons of carbon dioxide equivalent, or CO2e. AAUs serve as a standard measure of global warming potential and are calculated relative to the global warming potential of CO2. For example, nitrous oxide has 310 times the global warming potential of CO2,so a metric ton of nitrous oxide equals 310 metric tons CO2, or 310 AAUs. Under Kyoto, industrialized nations agreed to reduce their GHG emissions by 5.2 percent below 1990 baseline levels by 2012.[5] To achieve these goals, Kyoto signatories began establishing mandatory markets to achieve GHG emission reductions. Of these mandatory markets, the most notable is the European Union's Emissions Trading Scheme (EU ETS).

The EU ETS provided national carbon "caps." Each nation then distributed to its covered industries a number of AAUs—emissions allowances—equal to its cap. Each regulated entity was required to purchase AAUs equal to its overall GHG emissions during the trading period. Entities that emitted less than anticipated could sell their excess emission allowances on the European Climate Exchange.

To provide additional flexibility, Kyoto and the EU ETS gave regulated entities the option of "offsetting" their GHG emissions, rather than simply purchasing AAUs. Offsets provide flexibility and allow participants to pursue carbon abatement in the most cost-effective manner available. As part of compliance with Kyoto, participants can gain credit through both the Clean Development Mechanism and Joint Implementation projects. Entities generate offsets under the clean development mechanism by reducing emissions in developing countries. Entities generate offsets under joint implementation projects by reducing emissions in developed countries. Both types of offsets are one-to-one equivalent to AAUs and can be used to meet emission reduction goals. Thus, Kyoto signatories have the option of meeting their carbon reduction requirements either through reducing domestic carbon or by pursuing offsetting emission reduction units.

The Kyoto Protocol has provided useful guidance in structuring a cap-and-trade program in the United States. The Waxman-Markey bill passed by the House of Representatives on June 26, 2009,[6] and expected to be considered in the Senate this fall, is a landmark effort to cap GHG emissions in the U.S. If Waxman-Markey becomes law, by 2020, emissions will need to be reduced 17 percent over 2005 levels. By 2050, emissions will need to be reduced by at least 80 percent over 2005 levels. Until federal legislation is finalized, it is not clear what level of offsets or carbon credits will be available for trade under a U.S. program.

REC Unbundling

Renewable energy and GHG abatement laws have grown increasingly complex in recent years. Many states have promulgated state-level RPS mandates, which use RECs for compliance. Some states also have entered into multi-state greenhouse gas reduction programs, such as the Western Climate Initiative or the Regional Greenhouse Gas Initiative, which focus on carbon constrainment. Imminent federal RPS/RES and cap-and-trade programs may introduce additional complexity.

In the face of this array of overlapping energy/environmental regimes, some utilities have argued that the attributes of a REC should be "unbundled," in which the "renewable" attribute of the REC could count for RPS mandates, while the "carbon credit" attribute would meet goals under cap-and-trade. Allowing unbundled REC attributes would enable entities to comply with both RPS and cap-and-trade with a single, tradable commodity. Advocates argue that this would increase market depth and liquidity, stabilizing prices and making compliance more straightforward.

Unfortunately, because not all RECs are created equal, REC unbundling may create unintended ambiguities. On the one hand, not all RECs necessarily reduce carbon. The "additionality" requirement for reductions below the business-as-usual scenario means that certain renewable activities may not generate carbon credits—in the case of a wind turbine, for example, it could create a carbon credit if it replaced an already-existing fossil fuel generation facility, but it would not create a carbon credit if it merely increased the amount of clean energy generated. That is, unless the wind turbine replaces a GHG-emitting source, it does not reduce GHG emissions below the baseline and does not generate a carbon credit. This is true even if the wind turbine reduces the overall carbon intensity of the economy.

On the other hand, certain GHG-reducing activities could generate carbon credits but not constitute a renewable energy source. For example, displacing a coal-fired power plant with a nuclear plant would reduce GHG emissions below baseline, generating carbon credits, but a nuclear plant does not use a renewable resource to generate electricity. Thus, nuclear facilities could reduce GHG emissions but not qualify for RECs. In the case of landfill methane, the action generating the electricity (burning the methane rather than releasing it) directly contributes to GHG emission reduction. Depending on how carbon credits are defined and allocated, RECs produced by certain sources could have a carbon credit attribute to unbundle. The key question is whether the carbon credit attribute of these RECs should be unbundled to meet cap-and-trade obligations.

The debate over whether REC unbundling should be permitted is intertwined with the design of a national cap-and-trade program. In Europe, where renewable energy facilities do not receive allowances for carbon emission reductions, such facilities are effectively shut out of carbon credit markets. This exclusion is justified on the grounds that the renewable energy generators benefit indirectly from the cap-and-trade program: by increasing the costs of fossil fuel generation, cap-and-trade increases the cost-effectiveness of renewables.[7] The major problem with permitting REC unbundling and the sale of carbon credits by renewable energy generators is that renewables do not decrease emissions in the same way that others do. While renewables generate clean electricity, they fail, in themselves, to meet the additionality requirements under many cap-and-trade programs. If renewable energy generators can sell a carbon credit attribute separately from the REC they create, considerable guidance will be needed to establish which RECs would have a carbon credit capable of being unbundled.

If renewable energy facilities are allowed to become players in carbon markets, their financial viability could be strengthened. Because a regulated carbon market likely would raise the value of carbon credits above their value in the voluntary markets, renewable energy generators would benefit from being permitted to sell their credits and RECs separately. If the value of the two different revenue streams under new laws is greater than that created by selling the RECs bundled with carbon attributes, REC unbundling will strengthen the balance sheet for renewable generation facilities, decreasing financial risk and creating an entity more attractive to investors.

Conclusion

It is not clear how Congress will define RECs and carbon credits for RPS/RES and cap-and-trade compliance programs. Confusion in the voluntary markets has led to competing advertising claims that have garnered the attention of the Federal Trade Commission (FTC). Noting the potential for consumer misunderstanding, the FTC began a process of hosting public workshops to examine the voluntary carbon and REC markets and related advertising claims. As federal energy legislation seems imminent, resolving confusion about unbundling REC attributes takes on greater importance. With the ability to use unbundled REC attributes for dual compliance, the REC would become more valuable, thus encouraging greater investment in renewable generation. Congress should act to clarify the compliance process which would provide certainty and encourage the construction of new renewable generation facilities.

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[1] RECs indicate that an underlying amount of electricity was generated through renewable methods. In general, "carbon credit" refers to any offsetting GHG emission reduction below a baseline, even if the underlying GHG does not contain carbon, such as nitrous oxide. Though this is the popular terminology, it can create confusion in instances where the underlying GHG does not actually contain any carbon. Both RECs and carbon credits are tradable commodities and markets have developed for the purchase and sale of RECs.

[2] H.R. 2454, the "American Clean Energy and Security Act of 2009," which was recently passed by the House of Representatives, indicates that some portion of this requirement (5 percent) may be met through energy efficiency. Section 101(a)(8) of H.R. 2454 also changes the conventional terminology by using "renewable electricity credits" for compliance, rather than "renewable energy certificates" which are used by the Chicago Climate Exchange.

[3] *See, e.g.*, Jennifer Zajac, SNLFinancial, *Energy Current: REC markets riding a bumpy road to transparency, liquidity* (Jan. 3, 2007), *available at* http://jweinsteinlaw.com/pdfs/010908_REC.pdf.

[4] For example, H.R. 2454, Title VII, Parts C and D, provide rules for emission allowances and offset criteria.

[5] Following a 95-0 sense-of-the-Senate vote that developing countries must be bound by any GHG treaty, President Clinton never submitted the Kyoto Protocol for the required Senate ratification. As a result, the Kyoto Protocol is not binding on the U.S.

[6] American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (passed in House June 26, 2009).

[7] Several European nations also have RPS and feed-in tariff programs to support the development of renewable energy generation.