

# **How Carbon Cap and Trade Program Can Harness the Power of the Renewable Electricity Market**

## **Introduction**

Designed correctly, cap and trade systems can integrate the power of voluntary renewable electricity markets in a way that reduces greenhouse gas emissions far more than either markets or regulation can alone. Cap and trade systems can encourage new development of renewable generation, while providing a platform for the voluntary market to continue to thrive. But a poorly designed system can inadvertently stifle the vibrant voluntary market. This paper will discuss why this is the case, and offer a pragmatic approach to making a rigorous mandated cap and trade program compatible with a thriving voluntary renewable energy market.

## **States and Voluntary Actors Are Leading the Charge to Address Carbon**

Lacking federal leadership on global warming, states have begun to develop their own strategies for reducing greenhouse gas emissions. States participating in the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI) and the Midwestern Greenhouse Gas Accord have agreed to implement emission cap and trade programs within the next few years. With over twenty-five states and provinces committed to carbon regulation at the executive level, carbon cap and trade that encompasses over half of the country is imminent, but it is crucial that renewable energy be promoted over fossil fuel generation in the scheme. The most effective way to do this is by incorporating the growing voluntary market, which has been supported by private citizens, government, institutions, and corporations for over a decade.

The voluntary renewable electricity market can greatly reduce carbon emissions from the electricity sector, in part because of its already impressive size. Today, more than 750 utilities and marketers offer green power products to electricity consumers in over half the U.S. states, and 46 companies offer retail renewable energy certificate (REC)-only products to consumers. Nationally, voluntary renewable demand is supporting roughly 3,500MWs of (primarily recently built) renewable generation in the form of RECs and renewable electricity sales, nearly one fifth of the overall renewable energy demand. The voluntary market is growing at an impressive rate and is expected to continue to expand as companies and other large purchasers looking to make carbon reduction claims purchase renewable energy. If a proposed cap-and-trade program does not adequately recognize the carbon-reduction value of renewable electricity, we will lose the powerful contribution of voluntary action on the part of citizens who want to reduce their carbon beyond the required amount.

## **The Effect of a Cap on Emissions**

Unlike uncapped emissions markets, where the addition of renewable generation to the electric grid reduces overall emissions, cap and trade programs establish a fixed amount of emissions that will be allowed. The programs issue permits, or allowances, equal in number to the administratively set cap. Each pollution allowance gives the owner permission to emit one ton of emissions. Because each ton of pollution must be covered

by an allowance, those entities responsible for CO2 emissions will buy pollution allowances at a market established price.

Under a cap, when a renewable energy generator produces emissions-free electricity, a fossil fuel-fired plant is displaced, but the number of pollution allowances in circulation remains unchanged. Even if the fossil-fuel facilities shut down, the same number of pollution allowances remain in circulation; the pollution allowances will simply be picked-up by another polluter! In the end, all the pollution allowances that are available in the marketplace will be used because they have economic value.

This makes it extremely important that policies are adopted that recognize the emissions-free benefits of renewable energy, the amount of GHG emissions is unchanged by the addition of emission-free generation.

### **Why Cap and Trade Can Hurt Renewable Markets**

Poorly designed cap and trade programs can reduce the incentive for renewable energy. This can happen because voluntary renewable energy markets—individuals and businesses that choose to buy green power—are motivated to a large extent by claims of environmental benefits. Unless the generation of renewable energy results in a reduction in pollution allowances, it is difficult for a renewable energy generator, marketer, or purchaser to claim the environmental benefits that common sense tells us should occur.

If buyers and sellers of renewable energy cannot make legitimate claims of greenhouse gas benefits, the motivations behind much of the demand for green power will be undercut, and the voluntary market will be all but extinguished.<sup>1</sup> This would have the effect of slowing the development of renewable energy generation—which is entirely contrary to the expectation for cap and trade programs.

*The only way that buyers or sellers of renewable energy can claim to reduce direct emissions under a cap and trade program is to reduce the number of pollution allowances in the marketplace.*

Providing allowances to renewables, in one form or another, is simply recognizing the real and quantifiable emissions benefits that have *already* accrued as a result of the renewable generation. In certain circles, arguments have made that giving allocations to renewables, whether directly to generators or as a set-aside or a reduction in the number of allowances issued, amounts to a subsidy for renewable generation. In fact, the opposite is true. When renewable generation enters the electricity grid, the need for fossil fueled electricity generation is diminished proportionately. This reduces the need for allowances by such generators; therefore, the number of pollution allowances that are allocated to those fossil generators should be reduced. Therefore, providing those pollution allowances to renewables in one form or another is simply recognizing the real and

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<sup>1</sup> Although the focus here is on voluntary demand for renewable energy, it is also true that policy mandates such as renewable portfolio standards will not reduce emissions unless the cap has taken into account this mandatory demand.

quantifiable emissions benefits that have *already* accrued as a result of the renewable generation.

### **Policy Options to Correct the Market Distortion**

Fortunately, there are solutions that would support environmental benefits claims while maintaining the integrity of the cap and trade programs.

If pollution allowances are allocated to generators:

- *Allocate allowances to generators based on electricity output.* Pollution allowances must be allocated not only to fossil generators but also to renewable generators. Renewable generators that receive allowances can then retire allowances when their renewable certificates (RECs) are sold to voluntary customers. Renewable generators that receive allowances can sell them along with the renewable energy certificates (RECs). When the RECs are sold to the ultimate voluntary customers, the allowances would be retired.
- *Set-aside allowances for renewable energy generation.* A percentage of the pollution allowances are set aside for specific activities, including renewable generation, while the remainder is earmarked for fossil generators. Renewable generators would have to apply for the allowances and demonstrate that they are eligible and meet other criteria. This approach is less desirable because it imposes an administrative cost, there is no certainty that the generator will be awarded allowances from the set-aside, and the set-aside pool might be insufficient.
- *Retire pollution allowances on behalf of voluntary demand.* Prior to allocation of allowances, renewable generators, marketers or customers notify the cap and trade program administrators of their planned voluntary demand for RECs. Program administrators would then retire allowances corresponding to this demand. At the end of the allowance allocation period, any difference between forecast and actual voluntary sales would be trued up. This “off-the-top” approach differs from the set-aside described above in that the allowances do not become a property right of the renewable generators. Instead, allowances are retired *on behalf of* reported demand.

If allowances are allocated to load serving entities (LSEs):

- *Apply fossil attributes to null energy.* LSEs must obtain allowances to cover the emissions of the entire portfolio of energy resources. To the extent that unbundled RECs represent the emission attributes of an LSE’s portfolio, the associated energy is left with no attributes (sometimes called “null” energy). This null energy must be assigned emission attributes that reflect the energy that was displaced by the addition of renewable generation. Thus, a voluntary buyer of green power (RECs) causes more renewable energy on the grid, which leads to an LSE having null energy with assigned fossil attributes, and the need to acquire allowances to cover its emissions.

These win-win solutions all have some precedent, and enable renewable energy to be recognized for its greenhouse gas emissions benefits. Without one of these solutions, the voluntary market for renewable energy is at risk.

For implementing language, see the attached document recommended by the Power Marketers Advisory Committee to Green-e.

### **Conclusions**

Voluntary markets offer citizens the power of choice- a fundamental value in our society. Carbon regulations should not undermine the ability for individuals to make meaningful choices about their electricity supply, and in so doing, help address climate change, reduce air pollution, and support the transition to a cleaner energy future. In the absence of GHG cap and trade programs, this benefit of the voluntary market is maintained. Depending on the design of the cap and trade program, this benefit may be eradicated. Fortunately, there are easy-to-implement solutions that allow policy makers to support existing renewable market activities and provide a foundation for the overall growth of the renewable market and new renewable development while maintaining the integrity and efficacy of cap and trade programs.

## **Implementing Language**

The following is possible draft language that can be inserted in legislation or regulation in order to accommodate voluntary renewable energy purchases by retail customers. The first section is generic the second is more specific – either or both can be used.

### **Generic Language**

The voluntary market for renewable energy provides an avenue for businesses and individuals to reduce their greenhouse gas emissions. In order for such a market to remain credible, purchases by voluntary customers must reduce CO<sub>2</sub> emissions below the amount required under the cap and the possibility of double counting of renewable energy generation or its environmental benefits must be eliminated.

In recognition of the importance of allowing for voluntary action to reduce greenhouse gas emissions, the REGULATORY AGENCY shall incorporate a solution that will: 1) enable the voluntary market for renewable energy to continue in a manner that allows voluntary purchases to reduce greenhouse gas emissions below what would be required under any mandatory cap, and 2) prevent renewable energy and its environmental benefits from being double counted.

### **Definitions**

*Renewable energy certificate (REC):* for the purpose of voluntary renewable energy market sales, a certificate represents the greenhouse-gas emissions reduction attributes and other environmental attributes of one megawatt-hour of eligible renewable energy generation entitling the purchaser of the certificate to a unique claim to those attributes.

*Voluntary Renewable Energy Market:* The voluntary purchase of renewable energy and/or renewable energy certificates by retail customers as a method for increasing renewable energy generation and reducing greenhouse gas emissions and other environmental effects of conventional electricity generation. Such sales are separate and additional to renewable energy sales required by any law, regulation, or enforcement action.

*Voluntary renewable energy market sales:* The number of megawatt hours (MWh) of renewable energy and associated non-power attributes, or renewable energy certificates (RECs) from a renewable energy project and sold as part of the Voluntary Renewable Energy Market to retail electricity customers in any location.

*Cap and Trade System:* a regulatory mechanism that sets a maximum total amount of allowable emissions of one or more pollutants or greenhouse gases within a sector or sectors and then allocates tradable emissions allowances or permits. Regulated entities within those sectors can trade, sell or otherwise exchange those allowances and are required to submit tradable emissions allowances that correspond to emissions related to the services or products they provide.

### *Generator Caps:*

*Input-Based Cap and Trade System:* a Cap and Trade System that regulates electricity generators and allocates emissions allowances to generators based on the carbon content of fuel inputs.

*Output-Based Cap and Trade System:* a Cap and Trade System that regulates electricity generators and allocates emissions allowances to generators based on their electricity output.

### *Load-serving Entity Caps:*

*Load-Based Cap and Trade System:* a Cap and Trade System that regulates load-serving entities and allocates emissions allowances to load-serving entities based on the megawatt-hours of load served by these entities.

*Historic Emissions-Based Cap and Trade System:* a Cap and Trade system that regulates load-serving entities and allocates emissions allowances to load-serving entities based on those entities historic emissions levels in a specified base calendar year or other time period.

## **Basic Principles**

- 1) Absent any regulation, the presence of renewable energy on the system reduces CO<sub>2</sub> relative to what it would otherwise have been.
- 2) Voluntary purchases of renewable energy can and should help society reduce its CO<sub>2</sub> emissions beyond those required by mandates. The treatment of voluntary sales of renewable energy or RECs under cap/trade should have a quantifiable impact resulting in the reduction of greenhouse gases under the cap.
- 3) Accounting for emissions and emissions reductions associated with renewable energy and/or REC transactions should neither ‘create’ nor ‘destroy’ greenhouse gas emissions. Emissions recorded in the accounting process should correspond to actual emissions as closely as possible.
- 4) Regardless of the model chosen under cap and trade, these goals can and should be achieved using relatively simple mechanisms. This requires legislation and regulation that is crafted to achieve these (among other) goals.

## **Specific Language For An Input-Based (SO<sub>2</sub>-Style) Cap and Trade Approach**

*Deductions for the Voluntary Market* –The REGULATORY AGENCY will establish a methodology for determining the emissions reduction value associated with one megawatt-hour (MWh) of renewable energy and associated non-power attributes, or one renewable energy certificate (REC), expressed in tons of CO<sub>2</sub>-equivalent per MWh or REC.

Using this value, the REGULATORY AGENCY will forecast the anticipated volume of voluntary renewable energy market sales from all renewable energy facilities located in GEOGRAPHIC AREA over the relevant three-year Compliance Period (beginning 20XX) and retire the appropriate number of emissions allowances on behalf of the Voluntary Renewable Energy Market before allocating the remainder.

All voluntary renewable energy market sales from renewable energy facilities in GEOGRAPHIC AREA will be tracked using a certified tracking system.

Entities (including generators, marketers, certifying organizations and purchasers) shall report the total volume of their voluntary renewable energy market sales or purchases from renewable energy facilities located in GEOGRAPHIC AREA and the month and year of corresponding generation to the REGULATORY AGENCY on an annual basis, including supplying the unique tracking numbers issued to all RECs sold to the Voluntary Renewable Energy Market under the certified tracking system.

After each three-year Compliance Period, REGULATORY AGENCY will "true up" the difference between the forecasted total volume of voluntary renewable energy market sales from facilities located within GEOGRAPHIC AREA and the actual total volume of voluntary renewable energy sales from facilities located within GEOGRAPHIC AREA by adjusting the deduction for the Voluntary Renewable Energy Market for the next Compliance Period accordingly.

### **Specific Language For An Output-Based Cap and Trade Approach**

*If renewable energy generators are allocated emissions allowances under the cap and trade system, no additional language is necessary except reporting requirements (see “Additional Requirements for Output-Based Cap and Trade Approach” below):*

*If renewable energy generators are not allocated emissions allowances under the cap and trade system:*

The REGULATORY AGENCY will establish a methodology for determining the emissions reduction value associated with one megawatt-hour (MWh) of renewable energy and its associated non-power attributes, or one renewable energy certificate (REC), expressed in tons of CO<sub>2</sub>-equivalent per MWh or REC.

Using this value, the REGULATORY AGENCY will forecast the anticipated volume of voluntary renewable energy market sales from all renewable energy facilities located in GEOGRAPHIC AREA over the relevant three-year Compliance Period (beginning 20XX) and retire the appropriate number of emissions allowances on behalf of the Voluntary Renewable Energy Market before allocating the remainder.

After each three-year Compliance Period, REGULATORY AGENCY will "true up" the difference between the forecasted total volume of voluntary renewable energy market sales from facilities located within GEOGRAPHIC AREA and actual total volume of voluntary renewable energy sales from facilities located within GEOGRAPHIC AREA by adjusting the deduction for the Voluntary Renewable Energy Market for the next Compliance Period accordingly.

### **Additional Requirements for Output-Based Cap and Trade Approach**

All voluntary renewable energy market sales from renewable energy facilities in GEOGRAPHIC AREA will be tracked using a certified tracking system.

Entities (including generators, marketers, certifying organizations and purchasers) shall report the total volume of their voluntary renewable energy market sales or purchases from renewable energy facilities located in GEOGRAPHIC AREA and the calendar month and year of corresponding generation to the REGULATORY AGENCY on an annual basis, including supplying the unique tracking numbers issued to all RECs sold to the Voluntary Renewable Energy Market under the certified tracking system.

## **Specific Language For Load-Based or Historic Emissions-Based Cap and Trade Approaches**

REGULATORY AGENCY will track all sales of renewable energy and renewable energy certificates involving any entities within GEOGRAPHIC AREA using a certified tracking system, including all voluntary renewable energy market sales in GEOGRAPHIC AREA.

Entities (including generators, Load Serving Entities, marketers, certifying organizations and purchasers) making any voluntary renewable energy market sales or purchases within GEOGRAPHIC AREA shall report the total volume of said sales or purchases and the calendar month and year of corresponding generation to the REGULATORY AGENCY on an annual basis, including supplying the unique tracking numbers issued to all RECs sold to the Voluntary Renewable Energy Market under the certified tracking system.

The REGULATORY AGENCY will establish a methodology for determining the emissions reduction value associated with one megawatt-hour (MWh) of renewable energy and its associated non-power attributes, or one renewable energy certificate (REC), expressed in tons of CO<sub>2</sub>-equivalent per MWh or REC.

When energy from a renewable energy facility is sold to a Load Serving Entity without associated renewable energy certificates, the REGULATORY AGENCY will assign to the energy an amount of greenhouse gas emissions equivalent to the emissions reduction value credited to the associated renewable energy certificates to make the system emissions accounting balance.

For purposes of compliance with the load-based cap, Load Serving Entities purchasing energy from renewable energy facilities when said energy is not sold with the associated RECs must report said energy as containing the amount of greenhouse gases as defined above. Load Serving Entities shall report the total volume of all such purchases and calendar month and year of corresponding generation to the REGULATORY AGENCY on an annual basis.

Load Serving Entities that sell energy with renewable attributes, or RECs, to a voluntary customer may not count those renewable attributes or RECs as part of its emissions profile, and must report the energy, for their emissions profile, as containing the amount of greenhouse gases as defined above.

**Suggested methodology for establishing emissions reduction value of RECs (for any of the above regulatory approaches):**

The greenhouse gas emissions reduction value of one renewable energy certificate shall equal the approximate greenhouse gas emissions value of the resources displaced on the grid by the generation of one megawatt-hour of renewable energy.

Whatever value is selected, the process of accounting for emissions and emissions reductions associated with renewable energy and/or REC transactions should neither 'create' nor 'destroy' greenhouse gas emissions. Emissions recorded in the accounting process should correspond to actual emissions as closely as possible.