



JONES DAY
WHITE PAPER

MARKET DESIGN OF ALLOWANCES, OFFSETS, AND RENEWABLE ENERGY CREDITS IN THE U.S. CARBON MARKETS

Companies are confronted with many business decisions as they consider actions to reduce their greenhouse gas emissions, whether as a result of potential future regulation by federal or state governments or on a voluntary basis for environmental benefits, cost-savings, marketing, or other reasons. Understanding the existing and potential future landscape for the “carbon markets” is crucial in the current economic climate and can enable companies to identify (1) new markets and other business opportunities; (2) additional sources of financing, cost savings, and improved operations; (3) options for greenmarketing and other public relations efforts; (4) ways to mitigate costs of compliance or meeting emissions reductions goals; and (5) other potential benefits and risks.

Allowances and offsets are the “currency” underpinning existing and future potential carbon markets. The trading of allowances and offsets in the global carbon market reached \$136 billion in 2009, representing transactions for 8.2 billion metric tons,

according to Point Carbon. Allowances and offsets are the units by which greenhouse gas reductions are measured, and their functionality and value depend on the market design of the emissions reduction program or the voluntary markets that create them, as the case may be. Their emerging intersection with the markets for renewable energy credits is also becoming a key component of the U.S. carbon markets.

ALLOWANCES

Allowances are marketable instruments issued by an emissions reduction program that entitle the holder to emit a defined quantity of greenhouse gas during a specified compliance period. Collectively, all allowances for a specified compliance period equal the aggregate emissions cap established under an emissions reduction program. These allowances are distributed either by auction or allocation (or a combination of both), and at the end of a specified

compliance period, the entities that are covered under the emissions reduction program are required to submit allowances that are equivalent to their actual emissions during the specified compliance period.

Emissions reduction programs that utilize an emissions cap along with marketable allowances are known as “cap and trade” programs. The trading of allowances enables covered entities to formulate their strategy for compliance under the emissions reduction program based on the costs of reducing their emissions. Covered entities that face lower costs in reducing their emissions will implement technological or operational changes to their business to reduce emissions and thereby purchase fewer allowances or sell any surplus allowances. Other covered entities would presumably purchase allowances to the extent that it would be more economic than implementing reductions to their own emissions. In either case, cap and trade would provide covered entities the flexibility to determine their approach to compliance in a manner that lowers the overall economic costs of the emissions reduction program and promotes technological innovation.

Existing and Proposed Programs. At present there are two active cap and trade programs in the United States. The Regional Greenhouse Gas Initiative (“RGGI”) is a mandatory program covering Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont that caps carbon dioxide emissions from specified fossil fuel-fired electric power plants. The Chicago Climate Exchange (“CCX”) is a voluntary program under which companies legally bind themselves by contract to reduce their emissions of six different types of greenhouse gases.

There are also currently three proposals for climate change legislation pending in Congress. The House of Representatives has passed H.R. 2454, the American Clean Energy and Security Act of 2009 (“Waxman-Markey”), sponsored by Representatives Henry Waxman and Edward Markey, and the Senate Environmental and Public Works Committee has voted out S.1733, the Clean Energy Jobs and American Power Act (“Kerry-Boxer”), sponsored by Senators John Kerry and Barbara Boxer. A third bill, the Carbon Limits and Energy for America’s Renewal Act (“CLEAR”), sponsored

by Senators Cantwell and Collins, was proposed in the Senate at the end of 2009.

In addition, there are a number of regional emissions reduction programs that are in the process of forming. The Western Climate Initiative released a design document in September 2008 laying out the basic structure of a cap and trade program that is scheduled to commence in January 2012. It is intended to cover Arizona, California, Montana, New Mexico, Oregon, Utah, Washington, British Columbia, Manitoba, Ontario, and Quebec, with another six U.S. states, one Canadian province, and six Mexican states designated as observers. As part of Assembly Bill 32, California is developing a cap and trade program for California that would link with the Western Climate Initiative. The Midwestern Greenhouse Gas Reduction Accord released a draft model rule in October 2009 for a cap and trade program that is scheduled to commence in January 2012. It is intended to cover Illinois, Iowa, Kansas, Michigan, Minnesota, Wisconsin, and Manitoba, with another three U.S. states and one Canadian province designated as observers.

Architecture of Allowances. To provide context for the utilization of allowances, it is necessary to understand the policy decisions behind the architecture of the emissions reduction programs that create the allowances. The following is a summary of the key questions and options to consider in evaluating each of the existing and proposed cap and trade programs, including:

- What emissions are covered?
- What entities are required to comply?
- What is the baseline for measuring emissions reductions and the amount and timing of reductions?
- How are allowances distributed? Are they auctioned or allocated or a combination of both?
- Are banking and borrowing permitted?
- Are there cost containment provisions?

Covered Emissions. Certain emissions reduction programs are tailored to cover only carbon dioxide (CO₂), while others cover a wider range of emissions such as methane (CH₄), nitrous oxide (NO_x), sulfur hexafluoride (SF₆), hydrofluorocarbon (HFC), perfluorocarbons, and nitrogen trifluoride (NF₃). Allowances are measured in carbon dioxide equivalents (CDE or CO_{2e}) and describe the amount of global warming a given

type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of carbon dioxide (CO₂) as the reference. For example, under an emissions reduction program, methane (CH₄) can have a CDE of 21, meaning that a given quantity of methane in the atmosphere is deemed 21 times as potent as the same quantity of carbon dioxide (CO₂) in contributing to climate change.

Covered Entities. Emissions reduction programs must establish which entities will be “covered” and thus submit allowances equal to their actual emissions. Reflecting the challenges of regulating emissions in a comprehensive and cost-effective manner, programs may target regulation at (1) direct sources of emissions such as electric utilities and manufacturers of cement, steel, textile, fertilizer, and other industries that rely on fossil fuels (*i.e.*, “downstream” regulation), and/or (2) fossil fuel suppliers such as fuel refineries, natural gas distributors, and importers as a means of covering both direct sources and more diffuse greenhouse gas emissions emanating from vehicles and other small or mobile sources that are difficult to regulate directly (*i.e.*, “upstream” regulation). Emissions reduction programs may also phase in compliance on an industry-by-industry basis.

Emissions Reduction Goals. By determining the total number of allowances permitted for a specified compliance period, the duration of a specified compliance period, and the rate at which the total number of allowances decrease over time to reach an emissions reduction goal against a specified baseline (*e.g.*, 20 percent below 2005 emissions by 2020, 83 percent below 2005 emissions by 2050, etc.), an emissions reduction program can calibrate the overall stringency of greenhouse gas reductions and, consequently, the market price for the allowances. For example, if the total number of allowances is set too low and/or the rate at which the total number of allowances decreases is too accelerated, covered entities may not have the time or technology to implement reductions to their greenhouse gas emissions. This would thereby drive up the price of allowances and the cost of doing business for these covered entities in particular, and increase the expense of reducing greenhouse gas emissions for the economy as a whole.

Distribution of Allowances. In addition to determining the total number of allowances for any specified compliance period, emissions reduction programs must establish a

method for distributing allowances. The method of distribution does not necessarily affect the aggregate greenhouse gas reduction goals, but it does affect how the cost of meeting those goals is distributed among covered entities. Allowances can be distributed by free allocation, auction, or a combination of both. In any case, allowances represent value, and an emissions reduction program must determine to whom this value is to be distributed. For example, with respect to any industry that requires support to meet its emissions reduction obligations, either because of the high costs of implementing emissions reductions or because it would be at a competitive disadvantage to competitors without similar obligations, an emissions reduction program can freely allocate the allowances to covered entities in this industry or take the proceeds from auctioning allowances and distribute them to these covered entities. Or, as additional examples, an emissions reduction program can shift additional allowance value to consumers facing higher energy costs arising from the emissions reduction program or to investors developing new technology to help covered entities mitigate the costs of reducing greenhouse gas emissions.

Banking and Borrowing. To further assist covered entities with meeting their requirements for submitting allowances and to minimize volatility in the market price of allowances, emissions reduction programs may include mechanisms such as “banking,” which would enable covered entities to save any excess allowances for future use and also encourage early compliance, and “borrowing,” which would enable covered entities to use in the current year allowances that may be issued to them in a future year subject to their obligation to “pay back” (perhaps with interest) and to comply with more stringent emissions reductions in the future. The ability to bank and borrow enables a covered entity to balance its actual cost and timeline for reducing greenhouse gas emissions with the emissions reduction program’s estimate of the optimal cost and timeline for reducing greenhouse gas emissions.

Safety Valves. Finally, “safety valves” are cost containment mechanisms to adjust the emissions reduction program if the price of allowances (and hence the overall costs of emissions reduction) becomes higher than is desired. They can include (1) establishing a price cap on allowances, whereby additional allowances would be distributed to ensure that the price of allowances does not exceed the cap once the

cap has been hit, (2) maintaining a reserve of allowances, whereby a limited number of allowances would be reserved for resale, (3) expanding the use of borrowing, (4) extending specified compliance periods, or (5) increasing the availability of offsets to meet compliance.

OFFSETS

In contrast to allowances, offsets represent a reduction of a defined quantity of greenhouse gas during a specified period from a source that is not covered by an emissions reduction program. Examples of projects that generate offsets include destruction of methane from sources such as landfills, energy efficiency measures such as the installation of compact fluorescent light bulbs and lower-emission stoves across cities and localities, and reforestation or forest preservation. Even though these offsets are generated at projects offsite and not by sources owned or controlled by the covered entity, a quantity of greenhouse gas emission from one source has the same impact on the climate as the same quantity of greenhouse gas emission from another source, so the location of any reduction does not matter. Presumably, an entity seeking to reduce its emissions would utilize offsets generated by projects outside any emissions reduction program to the extent that it would be more economic than implementing reductions to its own emissions. Or, for individuals who want to reduce their carbon footprint, purchasing offsets may be more practical than modifying or ceasing certain activities such as airline travel.

Compliance and Voluntary Markets. There are compliance and voluntary markets for offsets. In compliance markets under cap and trade programs, subject to certain limitations, a covered entity would be able to purchase offsets from project sponsors that can be utilized for compliance under the cap and trade program in place of reducing its own emissions or purchasing allowances.

RGGI and CCX are two compliance emissions reduction programs that permit the use of offsets under certain circumstances. The most well-known example of an existing cap and trade program's utilization of offsets is the Clean Development Mechanism ("CDM") under the Kyoto Protocol. CDM offset credits are widely used by regulated entities within the world's largest emissions reduction compliance

market, the European Union Emissions Trading Scheme ("EU ETS"). In addition, the three current proposals for climate change legislation pending in Congress—Waxman-Markey, Kerry-Boxer, and CLEAR—all address the use of offsets under the applicable emissions reduction program.

In the voluntary markets for offsets, entities that are not subject to any emissions reduction program may seek to procure reductions in greenhouse gas emissions for reasons such as (1) environmental benefits or greenmarketing or other public relations efforts or (2) anticipating potential cap and trade legislation for which offsets purchased early and at lower cost may be used for future compliance or sold for profit. Individuals may also seek to purchase offsets for altruistic reasons such as compensating for greenhouse gas emissions caused by personal air travel or consumer product purchases. The offsets in these markets are commonly referred to as "verified emission reductions," "voluntary emission reductions," or "carbon offsets."

Since the voluntary markets are, by definition, outside of any cap and trade program, allowances that consist of the right to emit greenhouse gases do not apply and offsets are the primary instruments for trading emissions reductions in the voluntary markets. In lieu of a standard established by a cap and trade program for qualifying offsets, the voluntary markets are fragmented and consist of multiple "standards" established by various voluntary programs to validate offsets and multiple venues for registering offsets. Commonly utilized voluntary standards include the Voluntary Carbon Standard, the Gold Standard, the Climate Action Reserve, and the American Carbon Registry Standard. Registries may or may not be associated with a standard for qualifying offsets and include APX, American Carbon Registry, Bank of New York Mellon Registry, BlueRegistry, Climate Action Reserve, GHG CleanProject Registry, Gold Standard Registry for VERs, Markit, The Registry Company, and Traceable VER Registry.

Architecture of Offsets. The following is a summary of the key questions and options to consider in evaluating offsets, including:

- With respect to cap and trade programs, can covered entities satisfy a percentage of their compliance obligations with offsets? And if so, are there limitations?

- What are the criteria for determining the “additionality” of the offsets?
- What entity is responsible for determining validation and registration?
- Can early-action offsets be used to satisfy compliance obligations?

Compliance Obligations. Policies in favor of allowing offsets to be used for compliance under cap and trade programs are premised on the understanding that the use of offsets can (1) reduce greenhouse gas emissions at lower cost to covered entities than taking action to reduce greenhouse gas emissions internally and (2) promote the development of technology to reduce greenhouse gas emissions. At the same time, a primary thrust of a cap and trade program is to encourage covered entities to make actual reductions in greenhouse gas emissions internally without resorting to offsets. Another goal is to mitigate the burdens of compliance on covered entities so that they do not relocate their operations outside the jurisdiction of the program and thereby circumvent the goals of emissions reduction entirely (*i.e.*, “leakage”). Therefore, as a means of balancing the need to prevent over-reliance on offsets with the need to allow flexible mechanisms for compliance so as to avoid leakage, an emissions reduction program could restrict the use of offsets for compliance by covered entities to a specified percentage that may increase if the price of allowances exceeds certain thresholds. Moreover, to encourage the development of projects that generate offsets in the United States, an emissions reduction program may permit a higher percentage of offsets from domestic projects than from international projects.

Additionality. The primary test in determining the validity of offsets generated by a project is “additionality.” To avoid granting offsets to projects for reductions in greenhouse gas emissions that would have occurred anyway, the reductions of greenhouse gas emissions by a project must be “additional” to any greenhouse gas reductions that would have occurred in the absence of verification of the offsets by a cap and trade program or a voluntary program. In other words, if the project to reduce greenhouse gas emissions would have happened anyway, it is not “additional.” The determination of additionality does not constitute a single litmus test, but rather a review of various considerations taking into account the particular circumstances of a project. At

its root, a project must demonstrate that the reductions to greenhouse gas emissions are not the byproduct of “business as usual” activities. The following is a nonexhaustive review of various determinations of additionality, many of which can be complex to evaluate in practice:

- Regulatory – A project can be considered additional if it is not undertaken to satisfy any applicable law or regulatory framework.
- Capital – A project can be considered additional if it would not have been undertaken without revenues from the offsets.
- Return on Investment – A project can be considered additional if it would not have met acceptable internal rates of return without revenues from the offsets.
- Technological – A project can be considered additional if the technology for reducing emissions would not have been utilized without revenues from the offsets.
- Institutional – A project can be considered additional if organizational, social, or cultural barriers to undertaking it were overcome as a result of revenues from the offsets.
- Common Practice – A project can be considered additional if it employs technologies or practices that are not already in common use.

An alternative approach to determining additionality on a project-by-project basis is to use a performance standard for all projects of a specified type and calculate the amount of offsets based on a quantitative benchmark of carbon intensity per unit of output (*e.g.*, all wind energy projects meeting certain general characteristics would be deemed to generate offsets at the rate of a specified kgCO_{2e} per kWh of electricity generated). The advantages of using this benchmark approach include simplicity and ease of application. The disadvantages of using this benchmark approach include imprecision and potential over-counting, with the associated risks of granting more offsets than are warranted to projects and fueling skepticism over the validity of the offsets themselves and the effectiveness of the emissions reductions.

Validation. The credibility of the validation process for the offsets is an important factor in determining the quality and market price of the offsets. In the context of a cap and trade program, this responsibility is placed on the program administrator designated by the emissions reduction program to

administer the offsets. These challenges can be significant, as has been the case internationally with CDM, which has been criticized for the lengthy and costly application process to register projects and the improper registration of projects that critics claim generates invalid offsets lacking additionality. In the context of the voluntary markets, offsets are validated under a voluntary program in accordance with a “standard” that is mutually agreed upon by the seller and the buyer of the offsets. Because of perceived differences in the quality of the standards, partly based on (1) the rigor-ousness and thoroughness with which it screens projects for additionality and (2) the perceived probability that the stan-dard would be eligible for compliance under any future cap and trade program, the market prices of offsets validated by different standards can vary significantly.

Registries. Another mechanism for ensuring the integrity of offsets is the utilization of registries to identify and list the creation and ownership of offsets. Such registries provide greater transparency to the market and can prevent multiple parties from claiming the same offset (*i.e.*, double count-ing). There are various existing registries in the voluntary markets, and they can assume different roles, such as reg-istering, issuing, transferring, and/or retiring offsets, depend-ing partly on each registry’s affiliation with a standard. For example, certain registries are established to list only offsets generated by an affiliated standard while other registries are independent and accept offsets generated under several standards. Other determining factors in evaluating registries include transparency and the extent to which information on registered offsets and projects is available to the public and the scope of the rules and fees for issuing, registering, transferring, and/or retiring the offsets.

Early Action. Any new cap and trade program must address the question of whether offsets that are created in the vol-untary markets prior to such cap and trade program will be recognized and given credit. This “early action” can con-sist of, among other things, (1) voluntary direct reductions of greenhouse gas emissions by a covered entity, such as those resulting from increased energy efficiency or the capture and sequestration of carbon, (2) voluntary indirect reductions of greenhouse gas emissions through the pur-chase of renewable energy and other reductions of green-house gas emissions that occur at sources outside of the covered entity, (3) voluntary purchases of offsets in the

voluntary markets, and (4) mandated greenhouse gas reduc-tions under existing cap and trade programs.

With respect to early action from voluntary direct reductions and voluntary indirect reductions, a key consideration is whether distributing allowances to covered entities as credit for early action (1) comes out of allowances that constitute the aggregate cap (“under the cap”), which thereby retains the emissions reductions goal of the cap and trade pro-gram, or (2) results in the issuance of additional allowances (“above the cap”), which thereby increases emissions of greenhouse gases above the emissions reductions goal of the cap and trade program. In either case, if credit is given to early action, the question arises as to whether early action should be recognized prior to promulgation of the legisla-tion, when it may be retroactively difficult to determine if the action constituted a reduction that was “additional” or “busi-ness as usual,” or between promulgation and actual imple-mentation of the cap and trade program, when regulatory guidance can be provided to set the standards of measure-ment and determination. If no credit is given to early action, then in a cap and trade program in which allowances are auctioned, covered entities that have taken early action ben-efit because they will need to purchase fewer allowances, and in a cap and trade program in which allowances are allocated, the same entities will be penalized because they will receive fewer free allowances than they would have had they not taken early action.

With respect to the voluntary purchase of offsets in the voluntary markets, a key consideration is whether recogni-tion of offsets will be limited only to those offsets that are registered in registries with standards that are deemed to be reputable by the cap and trade program, in which case the selection of registries and standards will be of critical importance to participants in the voluntary markets prior to any cap and trade program. And these offsets can be rec-ognized in a number of ways, either as a source of eligible offsets under the cap and trade program, which could have the effect of increasing greenhouse gas emissions “over the cap,” or converting the offsets to allowances either “over the cap” or “under the cap.”

With respect to mandated greenhouse gas reductions under existing cap and trade programs such as RGGI, the value and marketability of their existing allowances and offsets will

depend on their treatment under any cap and trade program on the federal level. If the existing cap and trade program is to be terminated and/or preempted without any mechanisms for transition, then the impending conclusion of such program could result in extreme price volatility, with sharp increases likely if there are insufficient allowances to meet the emissions cap at the end of the program or a collapse in prices if there are more allowances than are necessary to meet the emissions cap at the end of the program. Alternatively, a transition could be provided whereby allowances, as well as offsets, under the existing cap and trade program could be exchanged for allowances and offsets under the federal cap and trade program. An exchange on a ton-for-ton basis could result in speculation and price volatility, since any potential disparity in prices between the existing and federal cap and trade programs could provide arbitrage opportunities (if, for example, the market value for federal allowances and offsets ends up higher than the market value of allowances and offsets for any existing cap and trade program). In contrast, an exchange on a dollar-for-dollar basis could minimize disruption to the market value of the existing allowances and offsets leading up to the transition.

RENEWABLE ENERGY CREDITS

In the United States, 30 states plus the District of Columbia have established renewable portfolio standards (“RPS”), which are state programs that require electricity generators or retailers within the state to obtain a minimum percentage of their power from renewable energy resources on an annual basis. RPS programs, typically administered by state public utility commissions, generally require 1 to 5 percent of power from renewable generation in the first year of implementation and an increasing percentage of renewable generation in subsequent years, often aiming for a goal of 10 to 25 percent in about five to 10 years. Certain RPS requirements are imposed (1) on utilities and require that a certain percentage of their electricity be generated from renewable energy resources or (2) on electricity retailers and require that a certain percentage of the electricity sold be generated from renewable energy resources. These requirements can be satisfied through self-generation of renewable energy or the purchase of renewable energy credits or certificates (“RECs”). A REC is commonly defined as the environmental attributes associated with one megawatt of

electricity generation from a renewable energy resource. These RECs can be sold separate from electricity or bundled with electricity, depending on the applicable RPS.

In addition to promoting the increased production of energy from renewable energy sources, such as wind, solar, biomass, and geothermal, RPS programs are also designed to implement state-specific policy objectives such as employment opportunities, economic growth, diversity of energy supply, environmental benefits, and energy security. For example, the California legislature under Public Utilities Code Section 399.11 declared that “[i]ncreasing California’s reliance on eligible renewable energy resources may promote stable electricity prices, protect public health, improve environmental quality, stimulate sustainable economic development opportunities, and reduce reliance on imported fuels”

Aside from the compliance markets for RECs under RPS programs, there is also a voluntary market for RECs in which entities that are not subject to any RPS requirements may seek to procure RECs for reasons such as environmental benefits, greenmarketing, branding, or other public relations efforts. Some of the largest RECs buyers are associated with the Environmental Protection Agency’s Green Power Partnership, a voluntary program that supports organizational procurement of green power. Individuals who also seek to support renewable energy for altruistic reasons will more likely participate in green pricing programs with their local utilities than purchase RECs.

Issues. The treatment of RECs under cap and trade programs has been the subject of debate—with specific focus on whether the sale of RECs can convey any entitlement to greenhouse gas reductions to a buyer. The underlying question is whether generation of electricity from renewable energy resources avoids or reduces greenhouse gas emissions from nonrenewable energy resources. A number of issues flow from this inquiry, including:

- Are greenhouse gas reductions associated with the generation of RECs additional?
- Should greenhouse gas reductions be included or excluded as an “environmental attribute” of RECs?
- Are there mechanisms for harmonizing RECs and greenhouse gas reductions in the U.S. carbon markets?

Additionality. The key question in determining additionality under these circumstances is whether the reductions of greenhouse gas emissions associated with the generation of RECs would have occurred in the absence of the validation of offsets by the emissions reduction program. With respect to RECs that are used for compliance with an RPS, the answer is negative due to the mandatory requirements of the RPS. With respect to RECs that are sold and purchased in the voluntary markets, the answer depends on whether the analysis is directed at RECs as an asset class or at specified RECs based on a project-by-project review.

At present, there is likely insufficient evidence to support the blanket conclusion that all voluntary RECs generated from renewable energy projects are additional. Due to the complex operations of the transmission of electricity, there may not be a conclusive link between generation of electricity by every renewable energy resource and the displacement of generation of electricity by a nonrenewable energy resource. Moreover, the rapid development of renewable energy projects in the United States points to the existence of many factors, such as production tax credits and other incentives, that are driving their development rather than the financial support of offsets. A determination of whether the generation of RECs is additional must therefore be made on a project-by-project basis.

Greenhouse Gas Reduction Attributes. Even if the RECs generated by a renewable energy resource and sold in the voluntary markets can pass or be deemed to pass the additionality assessment, there is discussion as to whether renewable energy resources can sell greenhouse gas reductions as an “environmental attribute” to a buyer. In the voluntary markets (as well as the RPS markets), RECs are commonly defined to include greenhouse gas reductions.

Critics take the position that RECs cannot convey greenhouse gas reductions under a cap and trade program. They contend that renewable energy generated in a capped jurisdiction does not result in additional greenhouse gas reductions because the associated nonrenewable energy resource that is displaced by generation from the renewable energy resource will emit fewer greenhouse gases due to such displacement and thus its need for allowances will be reduced. Those allowances that are no longer

required by the nonrenewable source have been “freed up” by the increase in generation from the renewable energy resource, which can then be used by other covered entities. Consequently, assigning emissions reduction attributes to the RECs generated by the renewable energy resource will result in double counting and increase emissions “above the cap.” If a cap and trade program clearly excludes any greenhouse gas reduction attributes from RECs, there would be no confusion between the RECs and carbon markets and the two can coexist without overlap.

Allowance Set-Asides and the Voluntary Markets.

Proponents claim that the failure of a cap and trade program to permit renewable energy resources to convey greenhouse gas reduction attributes could negatively affect the development of renewable energy resources generally. To avoid the possibility of double counting and permit renewable energy resources to convey greenhouse gas reduction attributes, a cap and trade program could establish an “allowance set-aside” program that would (1) retire freed-up allowances associated with the purchase of RECs by buyers in the voluntary market or (2) lower the cap in an amount equal to the freed-up allowances. RGGI has promulgated a model rule for an “allowance set-aside” program that implements this concept. It establishes an account of CO₂ allowances that may be retired in connection with “purchases of electricity from renewable energy generation or renewable energy attribute credits by a retail electricity customer on a voluntary basis” that may not be used for RPS compliance. All of the states participating in RGGI except for Delaware have adopted one form or another of the “allowance set-aside” rules for RECs.

With respect to the voluntary markets for offsets, an increasing number of wind energy projects are registering offsets with voluntary programs such as the Voluntary Carbon Standard and the Gold Standard. To prevent double counting, these wind energy projects intend to generate and sell either offsets or RECs, but not both, depending on market conditions. Some of these wind energy projects are developed in states without any RPS, which facilitates their ability to meet the regulatory additionality assessment. However, others are located in states with an RPS and an active RECs market, which emphasizes the point that there is no bright-line test for determining additionality.

Whether a renewable energy resource is selling its offsets under a cap and trade program or in the voluntary markets, this development represents a new revenue stream for projects and a potential boost for the renewable energy industry generally.

CONCLUSION

As regulations and industry practices continue to develop, the “currency” of allowances, offsets, and the emissions reductions represented by RECs will continue to evolve. The potential significance of these changes to the economy means that companies must continue to pay close attention to the opportunities and challenges presented by the dense rules and shifting landscape of the carbon markets in the United States.

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PROPOSED FEDERAL CAP AND TRADE PROGRAMS AND THE REGIONAL GREENHOUSE GAS INITIATIVE

	Kerry-Boxer	Waxman-Markey	CLEAR	RGGI
Emissions Coverage	<ul style="list-style-type: none"> • Carbon dioxide • Methane • Nitrous oxide • Sulfur hexafluoride • Hydrofluorocarbons emitted from chemical manufacturing process at an industrial stationary source • Perfluorocarbons • Nitrogen trifluoride • Any other gas designated by the EPA Administrator 	<ul style="list-style-type: none"> • Carbon dioxide • Methane • Nitrous oxide • Sulfur hexafluoride • Hydrofluorocarbons emitted from chemical manufacturing process at an industrial stationary source • Perfluorocarbons • Nitrogen trifluoride • Any other gas designated by the EPA Administrator 	Carbon dioxide from “Fossil Carbon”	Carbon dioxide from covered fossil fuel-fired electric power plants
Covered Entities	<p>Covered in 2012:</p> <ul style="list-style-type: none"> • All electric power generators (downstream) • Natural gas liquid-, petroleum-, and coal-based liquid fuel producers/importers (upstream) whose products when combusted emit over 25,000 tons annually • Producers and importers of fluorinated gases (upstream) except HFCs • Geologic storage sites <p>Added to coverage in 2014:</p> <ul style="list-style-type: none"> • Industrial sources (downstream) that annually emit 25,000 tons or more, not including emissions from petroleum and biomass combustion • Industrial sources (regardless of size) in select energy-intensive sectors (e.g., glass, ceramics) <p>Added to coverage in 2016:</p> <ul style="list-style-type: none"> • Natural gas Local Distribution Companies (“LDCs”) (midstream) that deliver more than 460 million cubic feet of gas annually to noncovered entities • Emissions that result from sales are regulated with measures to prevent double counting 	<p>Covered in 2012:</p> <ul style="list-style-type: none"> • All electric power generators (downstream) • Natural gas liquid-, petroleum-, and coal-based liquid fuel producers/importers (upstream) whose products when combusted emit over 25,000 tons annually • Producers and importers of fluorinated gases (upstream) except HFCs • Geologic storage sites <p>Added to coverage in 2014:</p> <ul style="list-style-type: none"> • Industrial sources (downstream) that annually emit 25,000 tons or more, not including emissions from petroleum and biomass combustion • Industrial sources (regardless of size) in select energy-intensive sectors (e.g., glass, ceramics) <p>Added to coverage in 2016:</p> <ul style="list-style-type: none"> • Natural gas Local Distribution Companies (“LDCs”) (midstream) that deliver more than 460 million cubic feet of gas annually to noncovered entities • Emissions that result from sales are regulated with measures to prevent double counting 	<p>Covers “First Sellers” – entities in the business of producing or importing “Fossil Carbon” or “Production Process Carbon.”</p> <p>“Fossil Carbon” is carbon in the form of a fossil fuel (such as coal, natural gas, and crude oil) that is extracted domestically or imported.</p> <p>“Production Process Carbon” means the quantity of Fossil Carbon used to manufacture an energy-intensive commodity.</p>	<p>Fossil fuel-fired electric power plants 25 megawatts or greater in size (approximately 225 facilities region-wide) located within RGGI states.</p> <p>RGGI states are CT, DE, MA, MD, ME, NH, NJ, NY, RI, VT.</p>

	Kerry-Boxer	Waxman-Markey	CLEAR	RGGI
Greenhouse Gas Emissions Targets	<p>Baseline – 2005 Levels</p> <p>2012 – 3% below 2020 – 20% below 2030 – 42% below 2050 – 83% below</p>	<p>Baseline – 2005 Levels</p> <p>2012 – 3% below 2020 – 17% below 2030 – 42% below 2050 – 83% below</p>	<p>Baseline – 2005 Levels</p> <p>2012 – NA 2020 – 20% below 2030 – 42% below 2050 – 83% below</p>	<p>Baseline – 2009 Levels (188 million tons for the 10 states)</p> <p>2010 – 2014 – Hold 2015 – 2.5% 2016 – 5.0% 2017 – 7.5% 2018 – 10.0%</p>
<p>Allowances</p> <ul style="list-style-type: none"> • Auctions • Free Allocation • Beneficiaries 	<p>Percentage sold through quarterly auction. Less than 20% of the allowances are auctioned through 2025. Increases over life of program. Auctions open to any person meeting minimum financial assurances.</p> <p>Several industries, sectors, and other entities receive free allowances that phase out gradually from 2025 through 2035.</p> <p>Energy consumers and industry get over half of available allowances during the first 25 years of the program. Another quarter go to investments in clean technology. The rest are spread to reserve pools, deficit reduction, physical adaptation, and supplementing emissions reduction funding.</p>	<p>Percentage sold through quarterly auction. Less than 20% of the allowances are auctioned through 2025. Increases over life of program. Auctions open to any person meeting minimum financial assurances.</p> <p>Several industries, sectors, and other entities receive free allowances that phase out gradually from 2025 through 2035.</p> <p>Energy consumers and industry get over half of available allowances during the first 25 years of the program. Another quarter go to investments in clean technology. The rest are spread to reserve pools, deficit reduction, physical adaptation, and supplementing emissions reduction funding.</p>	<p>100% of allowances auctioned monthly to “first sellers” of carbon only.</p> <p>Zero</p> <p>75% of auction revenues refunded directly to U.S. residents, each month, on an equal per capita basis as non-taxable income. 25% of auction revenues go to Clean Energy Reinvestment Trust Fund (see below).</p> <p>“Bonus shares” go to entities that sequester carbon.</p>	<p>The RGGI states will distribute CO₂ allowances primarily through regional auctions.</p> <p>Allowance-allocation provisions vary from state to state, but each state must allocate a minimum of 25% to a consumer benefit or strategic energy purpose.</p> <p>Beneficiaries of the consumer benefit/strategic energy funds vary from state to state. They include programs promoting energy efficiency, mitigation of ratepayer impact attributable to RGGI, distributed noncarbon resource developments, and clean technologies.</p>

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Allowance Set-Aside for RECs	Not expressly addressed.	<p>Not expressly addressed.</p> <p>Would establish its own "Federal Renewable Energy Credit" and allow state programs with more stringent renewable energy standards to continue. But does not address relationship between RECs and allowances.</p>	<p>Accounts for Voluntary Carbon Reduction ("VCR") by retiring the aggregate quantity of Carbon Shares in an amount that depends on the comparative price of VCRs and Carbon Shares.</p> <p>If the price of VCRs is equal to or greater than the price of Carbon Shares, then one Carbon Share is retired for every VCR. Otherwise, the number of Carbon Shares retired is the product of (a) the quotient of the VCR and Carbon Share prices and (b) the total number of VCRs.</p>	<p>States may account for voluntary renewable energy ("VRE") purchases by allocating allowances to the VRE market set-aside accounts and retiring such allowances in the amount up to the number of tons of CO₂ represented by actual voluntary renewable energy purchases.</p>

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Offsets				
• General	Directs President to create an offset program within two years that ensures offset credits represent verifiable, additional, and permanent emissions reductions, avoidance, or sequestration.	Directs EPA to create an offset program within two years that ensures offset credits represent verifiable, additional, and permanent emissions reductions, avoidance, or sequestration.	Does not recognize offset credits. Establishes Clean Energy Reinvestment Trust ("CERT") Fund, a percentage of which can be used to fund offset-type projects.	Establishes general requirements for offset projects that list five types of eligible projects and requires location within a RGGI state or a state with MOU with all RGGI state regulatory agencies.
• Caps	Capped at 2 billion tons per year: three-quarters allowable from domestic sources (1.5 billion) and one-quarter (500 million) from international sources.	Capped at 2 billion tons per year: one-half of these could come from domestic sources and the other half from international sources.	Not applicable.	RGGI states may approve offset projects that power plants can use to meet up to 3.3% of their compliance obligations. May award offset allowances for an initial 10-year period.
• Additionality	Cannot be required by any law or regulation; cannot have commenced prior to Jan. 1, 2009. Must exceed "baseline," which is a conservative estimate of ordinary practices for the relevant activity.	Cannot be required by any law or regulation; cannot have commenced prior to Jan. 1, 2009. Must exceed "baseline," which is a conservative estimate of ordinary practices for the relevant activity.	Not specifically applicable. Various offset-type projects may be funded by the CERT Fund. Such projects include cost-effective domestic and international projects that verifiably reduce, avoid, or sequester greenhouse gas emissions through the modification of agriculture, forestry, or other land use practices.	Cannot be required by any law or regulation; cannot include electric generation component unless RECs transferred to program administrator; cannot be funded by strategic reserve fund. Commenced on or after Dec. 20, 2005.
• Verification	Offset project representatives submit report prepared by "accredited" third-party "verifier" that states quantity of reductions, avoidance, or sequestration. Projects subject to audit. Establishes an offset reserve for reversals.	Offset project representatives submit report prepared by "accredited" third-party "verifier" that states quantity of reductions, avoidance, or sequestration. Projects subject to audit. Establishes an offset reserve for reversals.	Does not establish verification procedures.	Offset projects are verified by an independent "verifier" that certain parts of a CO ₂ emissions offset project consistency application and/or measurement, monitoring, or verification report conform to the requirements of this Subpart.

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<p>Emissions Reduction Activities Prior to Implementation</p> <ul style="list-style-type: none"> • Early Action 	<p>1% of allowances for 2012 allocated to compensate early actors that (1) hold offset credits issued before 2009 by an approved state or voluntary program (75%) or (2) can demonstrate pre-2009 project satisfies reduction criteria (25%).</p> <p>Directs regulations for exchanging emission allowances issued before Dec. 31, 2011, by the State of California, the Western Climate Initiative, or RGGI for emission allowances established by the federal program. Person exchanging these allowances shall receive an amount of allowances sufficient to compensate for the cost of obtaining and holding the original allowances.</p> <p>No state or political subdivision shall implement or enforce a cap and trade program that covers any capped emissions emitted during the years 2012 through 2017.</p> <p>RPS programs do not appear to be covered by this prohibition.</p>	<p>1% of allowances for 2012 allocated to compensate early actors that (1) hold offset credits issued before 2009 by an approved state or voluntary program (75%) or (2) can demonstrate pre-2009 project satisfies reduction criteria (25%).</p> <p>Directs regulations for exchanging emission allowances issued before Dec. 31, 2011, by the State of California, the Western Climate Initiative, or RGGI for emission allowances established by the federal program. Person exchanging these allowances shall receive an amount of allowances sufficient to compensate for the cost of obtaining and holding the original allowances.</p> <p>No state or political subdivision shall implement or enforce a cap and trade program that covers any capped emissions emitted during the years 2012 through 2017.</p> <p>RPS programs do not appear to be covered by this prohibition. Waxman would establish a national portfolio standard, but does not appear to preempt more stringent state standards.</p>	<p>Not expressly addressed. Rules for VCRs also may apply to early reductions (see Allowance Set-Aside for RECs).</p>	<p>No longer applicable. Provided credit for early reduction by a CO₂ budget source's CO₂ emissions achieved in 2006, 2007, and 2008. Reductions through facility shutdowns were not eligible.</p>
<ul style="list-style-type: none"> • Early Offset Projects 	<p>Receive offset credit for projects started after Jan. 1, 2001, that reduce emissions between Jan. 1, 2009, and enactment of offset program (or three years after bill's enactment if program is delayed).</p>	<p>Receive offset credit for projects started after Jan. 1, 2001, that reduce emissions between Jan. 1, 2009, and enactment of offset program (or three years after bill's enactment if program is delayed).</p>	<p>Not applicable.</p>	<p>Provided offset allowances for offset projects initially commenced on or after Dec. 20, 2005.</p>

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Cost Containment				
• Strategic Reserve	Uses a “strategic reserve pool” to stabilize prices when they reach a threshold price set at \$28/ton in 2012 and increasing each year thereafter.	Uses a “strategic reserve pool” to stabilize prices when they exceed 60% of the historical price.	No strategic reserve pool; controls to keep prices equal to or less than ±50% of the mean.	25% of allocation to a consumer benefit or strategic energy purpose. Implementation determined by each state.
• Price Cap/Ceiling	Sets a \$10/ton carbon permit price floor.	Sets an \$11/ton carbon permit price floor.	Floor price of \$7 in 2012 rises annually by 6.5% plus inflation; ceiling price of \$21 in 2012 rises annually by 5.5% plus inflation.	Minimum bid at \$1.86.
• Banking	Covered entities may bank an unlimited amount of allowances.	Covered entities may bank an unlimited amount of allowances.	Covered entities may redeem a “banked” allowance during the 10-year period commencing on the date of issuance to the original Carbon Share holder.	Allowances generally remain “banked” in a compliance account or a general account until deducted. Allowances deducted in chronological order of vintage year.
• Borrowing	Covered entities may borrow without interest an unlimited amount of allowances that are designated for use no more than one year out. Allowances that are designated for use two to five years out can satisfy only up to 15% of compliance obligations. An 8% annual interest fee in the form of allowances also applies.	Covered entities may borrow without interest an unlimited amount of allowances that are designated for use no more than one year out. Allowances that are designated for use two to five years out can satisfy only up to 15% of compliance obligations. An 8% annual interest fee in the form of allowances also applies.	No borrowing provisions.	No specific provisions for borrowing. Auctions may include allowances with future vintage years.

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