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CLIMATE CHANGE

EMISSIONS TRADING

Although it is likely to be several years before a national cap-and-trade program is up and running, there are good reasons for companies that would be subject to greenhouse gas emissions caps to start taking inventory of their emissions. The authors of this article note that under legislation pending in Congress—especially the Lieberman-Warner bill in the Senate—significant opportunities exist for companies to monetize early greenhouse gas reductions or innovation. They say taking advantage of those opportunities will require swift and well-considered action. To obtain early action bonuses, companies will need to implement, catalog, and verify accurately their early reductions. Although taking advantage of these bonuses will require companies to marshal significant resources quickly, the authors say any company that may be regulated under a cap-and-trade scheme should consider the potential benefits of early action.

Cap and Trade: Early Action ‘Bonuses’ Under the Lieberman-Warner Bill

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In December, the U.S. Senate took a significant step towards creating an enormous—some estimates are as high as \$150 billion—market for the trading of greenhouse gas emissions. The Lieberman-Warner Climate Security Act of 2007 (S. 2191) passed out of the Senate Environment and Public Works Committee Dec.

5, 2007, and now is in front of the full Senate.¹ S. 2191

¹ Lieberman-Warner Climate Security Act of 2007, S. 2191, 110th Cong. (2007) (*hereinafter* “S. 2191”). See 234 DEN A-16, 12/6/07. S. 2191 was approved by the Committee on Environment and Public Works Subcommittee on Private Sector and Consumer Solutions to Global Warming and Wildlife Protection Nov. 1, 2007.

would cap greenhouse gas emissions in the United States and create a tradable system of allowances to facilitate compliance with the cap. Although several other bills in the House of Representatives and Senate previously had been introduced, S. 2191 was the first of the “cap-and-trade” bills to emerge from committee.² S. 2191 is a compromise bill, borrowing elements from several of the other cap-and-trade bills. Although it is likely to be several years before the cap-and-trade program envisioned by S. 2191, or any comparable mandatory national program, is up and running, there is good reason for companies that would be subject to greenhouse gas emissions caps to start taking inventory of their emissions.

This article discusses the incentives for such “early action” in S. 2191, how to take advantage of those incentives, and the benefits of doing so.

Background

The committee markup of S. 2191 spans over 300 pages and includes several programs for encouraging new carbon control technologies, fuel and appliance efficiency, environmental impact studies, domestic and international forest protection, carbon sequestration and programs to aid consumers and train workers. The most important provisions are those establishing the basic cap-and-trade structure. Under S. 2191, greenhouse gases are classified in terms of carbon dioxide equivalents, which is a measure that quantifies the global warming potential of the emissions in standard units.³ The right to emit a ton of carbon dioxide equivalent is represented by an “allowance,” which is a certificate that may be used, traded (sold), held for a future year, or retired.⁴ From the outset, each facility regulated under the bill will be required to hold an allowance for every ton of carbon dioxide it emits. Entities that own or control such facilities will submit historical greenhouse gas data from 2004-2007, which will be used to determine those facilities’ “base year” emissions, i.e. emissions before any reduction efforts.⁵ Those entities also will receive a certain number (decreasing every year) of free allowances to help transition into greenhouse gas regulation.⁶ Over time, the number of allowances “distributed” (given away) and “auctioned” (sold) by the Environmental Protection Agency will decrease annually from 2012 (the first year with a cap) until 2050, at which point the cap will be only 30 percent of the 2012 cap.⁷

With regulation of greenhouse gases looking increasingly likely as S. 2191 continues its rapid progress through Congress, some companies already have begun to prepare for participation in the carbon market. Some of these companies have made very public commitments to reducing their greenhouse gas emissions,⁸ while others have merely inventoried their emissions in

an attempt to determine regulatory exposure. The decision to proceed cautiously is understandable because Congress has yet to establish a cap-and-trade program, let alone define the parameters of such a program. But the risks of jumping the gun must be weighed against the benefits of getting a head start. S. 2191 contains substantial incentives in the form of “bonus” allowances for taking early action towards meeting certain standards and achieving certain goals. Companies that take early action can earn extra allowances—a monetary benefit—above and beyond the other benefits (public relations, lower compliance costs) that result from reducing their carbon footprints. The opportunities for and benefits of early action are discussed below.

Benefits of Early Action

Section 3201 of S. 2191 defines “early action” as “actions of the owners and operators [of regulated facilities] taken since January 1, 1994, that resulted in verified and credible reductions of greenhouse gas emissions.”⁹ In the first five capped years (2012-2016), EPA will distribute—meaning it will give away—nearly 885 million allowances to early acting companies.¹⁰ Companies who receive those allowances can sell them or hold them as an investment. One study projects that allowances will be worth \$18 a piece in 2015 (the final year of free distribution) and \$101 in 2050.¹¹ According to that measure, the allowances distributed to early acting companies will be worth more than \$15.9 billion in 2015, and more than \$89.3 billion in 2050.

S. 2191 does not create criteria for calculating the number of allowances that will be distributed to early acting companies; Congress decided to leave that up to EPA. Among the criteria EPA might employ are the total tons of carbon dioxide equivalents reduced per year, the reduction achieved as a percentage of base year emissions, the reductions achieved over time (reduction size times years enacted), or non-quantitative factors (including development of new technology or innovation).¹² Regardless of how EPA ultimately decides to distribute the allowances, a company with a significant greenhouse gas footprint could receive a valuable distribution of allowances for even a small qualifying reduction.

How is Early Action Achieved?

S. 2191 identifies four methods by which companies can register “verified and credible” reductions in greenhouse gas emissions, but the common theme is that all reductions must be “registered *before the date of enactment*.”¹³ With S. 2191 on a fast track towards passage,

⁹ S. 2191 at § 3201.

¹⁰ See S. 2191 at § 3201 (setting forth percentages of allowances to be allocated to early-acting companies); § 1201(d) (setting allowance cap for each year); S. 2191 at § 3202(c) (requiring that those allowances be distributed in first five years).

¹¹ Brian C. Murray and Martin T. Ross, *The Lieberman-Warner America’s Climate Security Act: A Preliminary Assessment of Potential Economic Impacts* 5 (Nichols Institute for Environmental Policy Solutions at Duke University 2007) (analysis based on Aug. 2, 2007 precursor to S. 2191).

¹² In a bill with similar language, S. 1766, the early action provision examined the reduction as a percentage of the base year emissions. See Low Carbon Economy Act of 2007, S. 1766, § 206 (110th Cong.) (2007). See also 133 DEN A-14, 7/12/07.

¹³ *Id.* at § 3202(a)

² All language cited to S. 2191, unless otherwise noted, is from the committee markup.

³ S. 2191 at § 4(5).

⁴ S. 2191 at §§ 4(9), 1202, 2101-04, 2202 (collectively setting forth the properties of allowances).

⁵ S. 2191 at § 1103(d)(1).

⁶ S. 2191 at § 3901.

⁷ S. 2191 at §§ 1201, 3102. The proportion of distributed allowances to auctioned allowances will decrease yearly as well.

⁸ E.g. United States Climate Action Partnership (<http://www.us-cap.org>); Chicago Climate Exchange (<http://www.chicagoclimatex.com>).

the window of opportunity is closing for those companies that are considering taking advantage of the early action provisions but not yet prepared to register “verified and credible” emissions reductions.

The first two methods of registration require participation in federal voluntary reduction programs run by EPA or the Department of Energy, most notably the Climate Leaders Program¹⁴ (EPA) or the Voluntary Reporting of Greenhouse Gases Program¹⁵ (DOE).¹⁶ The third method for early action is participation in a state or regional reduction program, provided that program tracks emissions.¹⁷ Finally, a company may join a “voluntary entity program that result[s] in entity-wide reductions” in greenhouse gas emissions.¹⁸

The last two methods are the most practical options for many companies looking to take advantage of the early action distribution. Companies doing business in states participating in the Regional Greenhouse Gas Initiative and Western Climate Initiative will have to inventory and register their emissions under those programs. A comparable initiative is in the works among Midwestern states. Other companies already are participating in voluntary programs such as the Chicago Climate Exchange or the United States Climate Action Partnership, whose members are expected to adhere to binding reduction commitments.¹⁹ Reductions that have been registered with a reputable voluntary inventory, most notably the Climate Registry (which has a special position in S. 2191), also would be covered.²⁰

There are practical benefits to getting a head start in any of these programs. Taking an inventory can be a complex process—especially if third-party verification is involved. However, once it has been completed for at least one year, it is easier to inventory historical emissions (to capture historical reductions), and thereby identify opportunities for future reductions.

Getting Credit for Unplanned Reductions

Companies that have not registered with the EPA or Energy Information Administration voluntary programs, have not prepared to comply with state or re-

gional regulation, or have not joined a voluntary program, still may be able to get early action credit for greenhouse gas reductions that are the by-product of cost saving measures or other circumstances. S. 2191 contemplates that companies will report emissions pursuant to the rules of the Climate Registry. Under the Climate Registry’s draft rules for reporting emissions, a company may register historical greenhouse gas emissions.²¹ Reductions from historical emissions (dating back to 1994) may be eligible for early action credit if the reducing company submits a report showing the reductions were the result of a particular program. However, not every reduction in historical greenhouse gas emissions will qualify for early action credit.

The historical reductions eligible for early action credit are generally defined in S. 2191, but there is ambiguity at the margins. Credit hinges on the meaning of the term “reduction,” which is not explicitly defined by S. 2191.²² Under any definition, company actions taken explicitly to reduce greenhouse gas emissions since 1994 should qualify without question. This is true even though the Climate Registry does not currently verify the effectiveness of individual projects (i.e. that a project meant to reduce greenhouse gas emissions by 500 tons of carbon dioxide equivalent actually achieved its goal).²³ However, other actions that reduce greenhouse gas emissions clearly do not qualify as “reductions” that entitle the registrant for credit. For example, under the Climate Registry draft rules, divestiture or closure of facilities does not qualify as a reduction because that leads to recalculation of a company’s base year emissions to include only the presently owned/operating facilities.²⁴ Between these two poles are a range of activities that reduce greenhouse gas emissions, but which may or may not qualify as “reductions” entitled to early action credit.

Intent Requirement. As a threshold matter, neither S. 2191 nor the Climate Registry draft rules contain an intent requirement for either historical or capped year reductions of greenhouse gases, meaning there is no requirement that a company first announce its intention of taking advantage of early reduction at the time of reduction to receive a bonus. However, that could change when the bill gets to the House of Representatives. One of the leading greenhouse gas cap-and-trade bills in the House, H.R. 620, would require a form of intent to reduce greenhouse gas emissions to borrow allowances against future reductions or for early compliance in the

¹⁴ See <http://www.epa.gov/climateleaders/basic/index.html>. Climate Leaders is a federal program administered by EPA that allows companies to register greenhouse gas emissions and set greenhouse gas reduction goals. Unlike S. 2191, which mandates absolute greenhouse gas reductions, participants in Climate Leaders have the flexibility to set goals based on alternative standards (for instance, carbon dioxide (equivalent) emissions per widget produced). In addition, the accounting standards for greenhouse gases under Climate Leaders is less stringent than the Climate Registry, an independent standards setting organization whose methods for calculating greenhouse gas emissions appear to be endorsed by S. 2191 (see n.20 *infra*).

¹⁵ See <http://www.eia.doe.gov/oiaf/1605/guidelns.html>. The 1605(b) program, named after the program’s enabling section in the Energy Policy Act of 1992, appears to be similar to Climate Leaders, but operated by DOE. Although 1605(b) and Climate Leaders programs operate under the aegis of different federal agencies, the differences between the two programs are not material for the purposes of this article.

¹⁶ S. 2191 at § 3202(b)(1)-(2).

¹⁷ *Id.* at § 3202(b)(3).

¹⁸ *Id.* at § 3202(b)(4).

¹⁹ See n.8 *supra*.

²⁰ In directing EPA to create rules for monitoring, S. 2191 mandates that EPA consider the rules set forth by the Climate Registry. See §§ 1104(a)(1), 1105(b)(3).

²¹ It is important to note that the Climate Registry itself is only a standards-setting organization and database; it does not control what reductions will be recognized. Climate Registry draft rules at xii-xiii. Nor does the Climate Registry register the impact of individual projects (only a facility’s total emissions), *id.* at xiii, so companies seeking to register reductions will need independent verification, such as a consultant’s report.

²² See, e.g. §§ 4 (definitions), §§ 3101, 3201-02 (early action section).

²³ Climate Registry draft rules at xiii.

²⁴ Climate Registry draft rules at 33-34. As discussed above, under S. 2191 the number of free allocated allowances a company gets is based on its base-year emissions. Thus, a reduction in base-year emissions means fewer allocated allowances. See also S. 2191 at § 3901(c) (describing allocation rules when a facility shuts down).

first years of enactment.²⁵ The “intent” aspect comes from the binding commitment to make the future reductions. In other words, a company cannot take advantage of early reductions unless it notifies EPA of its intentions in advance of the reductions.²⁶ S. 2191, a compromise bill that drew upon existing greenhouse gas legislation, including H.R. 620, does not have any provisions for binding reduction commitments, but the House might try to incorporate such requirements into the final version of any cap-and-trade legislation that comes before it. Furthermore, regardless of what the House does, EPA could create rules that limit early action credit to programs designed to reduce greenhouse gas emissions. Nevertheless, at this point, inclusion of an intent requirement is purely speculative.

Cost-Saving Programs. One category of ambiguous actions consists of cost-saving programs that a company undertakes to improve its bottom line by reducing a production input or improving a production process in a way that happens to reduce greenhouse gas output, though that was not the goal of the program. Examples of cost-saving measures that also may reduce greenhouse gas emissions include energy efficiency projects, switching to cheaper, lower carbon feedstocks, or requiring a minimum mileage per gallon rating for the company vehicle fleet. Greenhouse gas reductions from such programs should qualify for early action credit.

Less likely to qualify for early action credit are “non-program” reductions that result from economic circumstance. Non-program reductions would include, for instance, greenhouse gas emission reductions caused by reductions in a plant’s production due to lower demand. Such reductions could be reversed if demand increased and returned to normal. Consequently, production slowdowns will almost certainly not be “reductions” eligible for credit under S. 2191.

Offset Allowances. Another type of greenhouse gas reducing action that probably will not be entitled to “early action” credit is the purchase of offset allowances—the allowances granted to owners of projects, such as reforestation projects that take greenhouse gas emissions out of the atmosphere. S. 2191 allows companies to purchase offset allowances to satisfy up to 15 percent of their total compliance obligation.²⁷ The plain language of the early action provision requires early action credits to be awarded “in recognition of actions of the owners and operators . . . that resulted in verified and credible reductions of greenhouse gas emissions.”²⁸ It is debatable whether purchasing offset credits is an “action” and violates the spirit (if not the letter) of the “resulted in . . . reductions” passage. To draw a parallel, if a large greenhouse gas emitter were to purchase, as an investment, millions of allowances from regulated facilities in contracts completed before enactment of S. 2191, EPA is unlikely to regard that purchase as early action. Thus companies should be cautious about investing heavily in offset allowances for the sole purpose of achieving the early action bonuses.

By contrast, offset projects on a company’s own land could provide a cornerstone for an early action plan.

This is because offsets earned by the owner or operator of a facility for undertaking a reforestation, wetlands remediation, or other ecosystem restoration project on the facility’s land (for instance, on buffer land) look much more like the programmatic greenhouse gas reductions than mere allowance purchases.²⁹ An onsite offset project seems to fit well within the definition of an “action . . . result[ing] in . . . reductions,” as the net emissions from the *facility site* have actually decreased. Such projects could be useful particularly for a company that owns many facilities, some of which have large tracts of otherwise unused buffer land. In that case, even if a facility with significant buffer land or degraded land is not a significant greenhouse gas emitter, the allowances gained from a project on that land could help control costs at other facilities.

In sum, a company that has engaged in significant cost-saving programs since 1994 should consider documenting and reporting the resulting greenhouse gas reductions. There is some risk involved in documenting early reductions: lack of an established methodology for documenting and verifying historical reductions projects, ambiguous distribution methodologies for early action reductions, and a short time frame for companies that have yet to catalogue emissions reductions. Nevertheless, the enormous potential payouts (and the risk-deterrents to participation by others, increasing the payouts left for participating companies) warrant at least a cost-benefit analysis of calculating and reporting historical greenhouse gas emissions before legislative mandates kick in. Companies that decide to pursue early action should develop reduction programs with care. They also should consider the greenhouse gas reduction potential of cost-saving measures and position those measures to qualify for early action bonuses.

Carbon Sequestration Bonus

In addition to creating early action bonuses, S. 2191 sets aside a significant number of allowances as bonuses for implementing carbon-capture technology. By permanently injecting it into geologic formations, carbon sequestration diverts carbon dioxide created during a process from entering the atmosphere.³⁰ Only geologic carbon sequestration projects that begin after Jan. 1, 2008, can qualify for the bonus.³¹ Furthermore, unlike early action bonuses, which are as effectively achieved through low-tech and proven techniques as through innovative approaches to greenhouse gas reduction, an effective geologic carbon sequestration program will require a significant amount of research and development. It also appears that power plants are targeted as the primary beneficiaries of the sequestration bonus. Bonuses will be allotted according to performance standards that are expressed in terms of “pounds of carbon dioxide per megawatt-hour of net electricity generation.”³²

²⁹ It is less clear whether merely preserving buffer land that is already forested—through a land trust, for instance—also would qualify as early action. See S. 2191 at § 2403 (describing qualifying offset projects). However, restoring degraded buffer land or degraded land onsite should fit. *Id.* at § 2403(b)(2), (4).

³⁰ For a technical definition, see 42 U.S.C. 300h(d) (incorporated by reference by S. 2191 at § 3602(b)(2)).

³¹ S. 2191 at § 3602(b)(2)-(3).

³² *Id.* at § 3602(c). Note that § 3602(c)(4) although provides standards for a “covered facility that is not an electric genera-

²⁵ Climate Stewardship Act of 2007, H.R. 620, §§ 143(a)-(b), 165, 110th Cong. (2007). See 17 DEN A-4, 1/26/07.

²⁶ H.R. 620 § 165(a).

²⁷ S. 2191 at §§ 1202(1), 2402(a).

²⁸ S. 2191 at § 3201 (emphasis added).

Timing Critical. Timing is critical for taking full advantage of sequestration projects under S. 2191—companies that act early will receive disproportionately high rewards. The base rate of the bonus is one extra distributed allowance for every ton of carbon dioxide not emitted (adjusted by a factor discussed below), but significantly more allowances are available for distribution under the program in the early years. Of the more than 3.125 billion allowances available to grant as bonuses from 2012 to 2039, more than 75 percent of those bonus allowances will be distributed between 2012 and 2022.³³ Because each geologic sequestration project generates bonus allowances for the first 10 years of its operations, projects that commence operations between 2008-2012 will draw from a bonus pool more than 11.5 times larger (2.235 billion versus 192 million) than projects commenced after 2012.³⁴ Furthermore, EPA may, at its discretion, freeze out new projects from collecting bonuses in a year in which it determines there are insufficient bonus allowances to distribute.³⁵

Effectiveness Rewarded. S. 2191 also rewards sequestration programs for effectiveness. The number of bonus allowances awarded to a sequestration project will be adjusted based on a performance standard of 350 pounds of carbon dioxide per megawatt-hours.³⁶ Here's how the adjustment works. Power plants constructed after 2018 must emit no more than 350 pounds of carbon dioxide per megawatt-hour to qualify for the se-

tion unit," any non-electric generating unit would still have to express its sequestration in the standard unit and not in a more industry-specific metric.

³³ Calculation based on S. 2191 at §§ 1202 (total yearly allowances) and 3603(a)(3) (percentage of total allowances distributed as geologic sequestration bonus).

³⁴ S. 2191 at § 3604 (setting forth 10-year limit); *see also supra* n.30 (discussing bases for bonus allowance calculations).

³⁵ S. 2191 at § 3605.

³⁶ *Id.* at § 3603(b).

questration bonus, while preexisting power plants need only achieve 1,200 pounds of carbon dioxide per megawatt-hour.³⁷ Thus, a project that reduces actual carbon dioxide emissions through sequestration by 10,000 tons may receive fewer than 3,000 bonus allowances if it emits just under 1,200 pounds of carbon dioxide per megawatt-hour. Conversely, a clean-running sequestration project that reduces a facility's emissions to 100 pounds of carbon dioxide per megawatt-hour would receive 35,000 allowances for 10,000 tons of carbon dioxide saved.³⁸ Although there is time pressure to develop sequestration projects early, the performance-based adjustment should also enter into a company's calculations.

Conclusion

Under legislation pending in Congress—most notably the Lieberman-Warner Bill—significant opportunities exist now for companies to monetize early greenhouse gas reductions or innovation. However, taking advantage of those opportunities will require both swift and well-considered action. To obtain early action bonuses, companies need to accurately implement, catalog and verify their early reductions. Although geologic carbon sequestration bonuses are available until 2039, the benefits of employing the best technology, and doing so before 2012, are significant. Thus, taking advantage of these bonuses will require companies to marshal significant resources quickly, but any company that may be regulated under a cap-and-trade scheme should consider seriously the extraordinary potential benefits of early action.

³⁷ *Id.* at § 3602(c).

³⁸ Note that under § 3602 there is no specific requirement for the *reduction* necessary to qualify for a project. Thus, an already low-emission facility that manages to sequester all of its carbon dioxide could present a divide by zero problem that EPA would have to solve by rule (probably with a maximum multiplier).