
INTEGRATING STATE, REGIONAL, AND FEDERAL GREENHOUSE GAS MARKETS: OPTIONS AND TRADEOFFS

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I. INTRODUCTION

Experiments with limiting greenhouse gas (GHG) emissions through cap-and-trade programs are underway in approximately half of U.S. states. There are currently three regional carbon markets under development in the Northeast, the West and the Midwest, and ten states recently joined eleven other countries and the European Commission to form an international forum to share information and experiences with the design and implementation of carbon markets. At the same time, the U.S. Congress is considering multiple proposals to create a federal cap-and-trade market.

Companies are beginning to take action to reduce their GHG emissions, some voluntarily and some in preparation for regional/state markets. The question arises whether and how a federal carbon market should address the state and regional carbon markets that are in operation before the federal market is implemented. This topic is distinct from the broader issues of defining the appropriate role for the states in a national GHG emission reduction strategy or whether a federal law should preempt states' authority to limit GHG emissions within their borders. The discussion in this article regarding preemption is limited to the treatment of regional/state markets and does not address preemption generally.

This article describes regional/state carbon market initiatives currently under development, identifies alternatives for addressing these initiatives within a federal GHG emissions cap-and-trade system, and highlights political and administrative challenges presented by each approach. To date, only one of the regional cap-

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and-trade markets – the Regional Greenhouse Gas Initiative (RGGI) – is far enough along in its development to provide details with which to compare to federal legislative proposals. As a result, RGGI is cited where appropriate, but much of the discussion is framed in general terms. The article also highlights related issues such as integrating credits generated through offset projects (*i.e.* emissions reductions or sequestration by uncapped entities such as small emitters or the agricultural and forestry sectors) and providing credit to companies that have taken early action to reduce GHG emissions.

II. REGIONAL/STATE CARBON MARKETS CURRENTLY UNDER DEVELOPMENT

A growing number of regional/state carbon markets are currently under development, each covering different segments of the economy and imposing different emissions caps. Ten states in the Northeast and Mid-Atlantic are cooperating in the development of the Regional Greenhouse Gas Initiative (RGGI) carbon market to cap emissions from electric utilities, with emissions trading scheduled to begin in 2009.¹ California has committed to a mandatory cap on emissions from sources throughout the state's economy through 2050,² and regulators are determining which mechanisms the state will use to meet the targets.³ In 2007, Hawaii and New Jersey became the second and third states to pass legislation mandating greenhouse gas limits, committing to reductions through 2020 and 2050, respectively.⁴ Like California, these states have not yet announced the mechanisms they will use to achieve the reductions.

California is also working with six other states and two Canadian provinces to develop the Western Climate Initiative (WCI), a

1. Regional Greenhouse Gas Initiative, *About RGGI*, <http://rggi.org/about.htm> (last visited Mar. 24, 2008).

2. California Global Warming Solutions Act of 2006, HEALTH & SAFETY §§ 38500-38599 (West Supp. 2007).

3. California will release a draft Scoping Plan describing its GHG reduction strategies by June 2008. California Environmental Protection Agency, Air Resources Board, AB 32 Scoping Plan, <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>; see also California Environmental Protection Agency, Climate Action Team Proposed Early Actions to Mitigate Climate Change in California: Draft for Public Review 3, available at http://www.climatechange.ca.gov/climate_action_team/reports/2007-04-20_CAT_REPORT.PDF.

4. Hawaii Global Warming Solutions Act of 2007, H.B. 226, 2007 Leg., 24th Sess. (Haw. 2007), signed into law June 30, 2007, available at http://www.capitol.hawaii.gov/sessioncurrent/bills/HB226_CD1_.htm; New Jersey Global Warming Response Act, Assemb. 3301, 2007 Leg., 212th Sess. (N.J. 2007), signed into law July 6, 2007, available at http://www.njleg.state.nj.us/2006/Bills/A3500/3301_R2.HTM.

regional market similar to RGGI but with the goal of capping emissions from a broader range of sources.⁵ On November 14, 2007, governors from six Midwestern states and the premier of Manitoba signed the Midwest Greenhouse Gas Accord to begin development of their own regional carbon market.⁶ Three additional Midwestern states signed onto the Accord as observers.⁷

In addition to these formal market efforts, ten states participating in the WCI or RGGI recently joined eleven other countries and the European Commission in launching the International Carbon Action Partnership, “an international forum of governments and public authorities that are engaged in the process of designing or implementing carbon markets.”⁸

III. PROPOSED FEDERAL LEGISLATION

At least seven bills capping GHG emissions have been introduced in the U.S. Senate this legislative session,⁹ and at least five have been introduced in the House of Representatives.¹⁰ The Lieberman-Warner Climate Security Act, introduced by Senators Lieberman and Warner (the Lieberman-Warner bill), passed the Senate Committee on Environment and Public Works December 5, 2005.¹¹ Another bill, introduced by Senators Bingaman and Specter, enjoys the support of a powerful array of stakeholders and has garnered significant attention and support.¹²

These bills do not directly address state markets, although the Lieberman-Warner bill does authorize states to enact GHG restrictions at least as stringent as those in the federal bill.¹³ This

5. See Western Climate Initiative, <http://www.westernclimateinitiative.org/>.

6. See Midwestern Governors Association, Midwest Greenhouse Gas Accord, available at <http://www.midwesterngovernors.org/resolutions/GHGAccord.pdf>; see also Midwestern Governors Association, *Governors Sign Energy Security and Climate Stewardship Platform and Greenhouse Gas Accord*, <http://www.midwesterngovernors.org/govenergynov.htm>.

7. *Id.*

8. International Carbon Action Partnership, *Political Declaration* (Oct. 2007), available at http://www.icapcarbonaction.com/docs/icap_declaration.pdf.

9. *E.g.*, S. 2191, 110th Cong. (as reported by S. Comm. on the Environment and Public Works, Dec. 5, 2007); S. 1766, 110th Cong. (2007); S. 485, 110th Cong. (2007); S. 309, 110th Cong. (2007); S. 317, 110th Cong. (2007); S. 1177, 110th Cong. (2007); S. 1168, 110th Cong. (2007); S. 280, 110th Cong. (2007).

10. *E.g.*, H.R. 1961, 110th Cong. (2007); H.R. 4226, 110th Cong. (2007); H.R. 620, 110th Cong. (2007); H.R. 1590, 110th Cong. (2007); H.R. 2069, 110th Cong. (2007).

11. See S. 2191, 110th Cong.

12. See S. 1766, 110th Cong.

13. See S. 2191, 110th Cong. § 9004.

provision would allow state and regional carbon trading markets to continue, provided the required emissions reductions are equal to or greater than the federal standard. Other bills, such as the Bingaman-Specter bill, are silent regarding preemption of state carbon markets.

IV. CONSIDERATIONS FOR POLICYMAKERS

Developing a policy that addresses multiple regional/state carbon markets, should a federal cap-and-trade regime come into effect, raises a number of issues for policymakers to consider, including:

- Environmental performance – What level of GHG emissions are necessary to prevent catastrophic climate change, what is the appropriate timeline for achieving the reductions, and what policies will most effectively achieve the reductions?
- Loss of state revenue – States that are participating in regional/state carbon markets may earn income by auctioning the allowances to covered entities. For example, RGGI states are relying on a full or close to full auction to distribute allowances.¹⁴ Is it appropriate for the policy to consider losses in state revenue and, if so, what are the options for compensating the states?
- Implementation – How can market integration be designed to minimize transaction costs and bureaucratic complexity?
- Fairness – What safeguards are necessary to avoid windfall profits or penalties for companies already participating in these markets?
- Political viability – Is it possible to integrate state, regional, and federal carbon markets in a manner that maintains the

“(a) IN GENERAL.—Except as provided in subsection (b), in accordance with section 116 of the Clean Air Act (42 U.S.C. 7416) and section 510 of the Federal Water Pollution Control Act (33 U.S.C. 1370), nothing in this Act precludes or abrogates the right of any State to adopt or enforce—

(1) any standard, cap, limitation, or prohibition relating to emissions of greenhouse gas; or
(2) any requirement relating to control, abatement, or avoidance of emissions of greenhouse gas.

(b) EXCEPTION.—Notwithstanding subsection (a), no State may adopt a standard, cap, limitation, prohibition, or requirement that is less stringent than the applicable standard, cap, limitation, prohibition, or requirement under this Act.”

14. See, e.g., New York State Department of Environmental Conservation, Notice of Pre-Proposal of New York RGGI Rule: Notice of Release and Call for Comments (Dec. 5, 2006), available at <http://www.dec.ny.gov/regulations/26450.html> (“Principal among the New York-specific provisions is the proposed 100% auction allocation method . . .”).

political support of government officials representing the affected states?

- Economic efficiency – How can the policy best maximize economic efficiency and create incentives for investment and early reductions in GHG emissions?

V. OPTIONS FOR ADDRESSING REGIONAL/STATE CARBON MARKETS IN FEDERAL LEGISLATION

From an environmental perspective, the total reduction of GHG emissions is the most important criterion of a policy addressing climate change. The method for achieving the reductions – either through numerous state/regional trading programs or through a single federal program – is insignificant for environmental quality as long as the reductions are real and permanent and the programs do not simply push GHG emissions to other regions with higher emissions caps.

However, while co-existing state/regional and federal trading markets can potentially achieve the same environmental goals as a single federal market, a single national market offers additional advantages. From an economic efficiency perspective, a single, national market provides covered entities with the broadest range of options for complying with a cap on GHG emissions.¹⁵ With greater flexibility to seek low cost emission reductions and potentially lower transaction costs, the overall cost of climate regulation for consumers would be reduced.¹⁶ Additionally, if federal and state/regional markets are to be merged, policymakers must assess how such integration can be achieved efficiently and equitably.

The four general options for addressing regional/state carbon markets in federal legislation are evaluated below based on these various policy considerations. The options include:

1. Allowing federal and regional/state markets to coexist;
2. Preempting regional/state markets with no effort at integration;
3. Allocating additional federal allowances to states with carbon markets and permitting those states to manage the integration; or

15. See, e.g., Robert N. Stavins, *A U.S. Cap-and-Trade System to Address Global Climate Change* 8 (John F. Kennedy School of Government – Harvard Univ. Research, Working Paper No. 07-052, 2007).

16. *Id.*

4. Accepting banked regional/state allowances in the federal trading system.

As described below, the latter two options – integrating regional/state markets, with the integration managed either by the states or by the federal government – present more practical options from both a political and an economic perspective. Implementing either of these options would be complex, however, and the complexity increases the risk that stakeholders could manipulate the system. Should federal policymakers choose either of these routes, it would be prudent to consider the factors, described in subsections 3 and 4 below, in order to design a market that is fair, transparent, and politically viable.

1. Allowing federal and regional/state markets to coexist

There is precedent for federal environmental laws setting a baseline and allowing states to enact more stringent protections. Both the Clean Air Act¹⁷ and the Clean Water Act¹⁸ allow states to enact laws or regulations that exceed pollution limits established by the federal government. As mentioned above, the Lieberman-Warner bill currently follows this model,¹⁹ potentially allowing regional/state GHG markets to coexist with the federal market created by the bill. Allowing states to continue taking the lead in curbing GHG emissions through multiple state-based markets may be attractive politically and could lead to environmental benefits if the states target emissions that are outside the federal cap.²⁰ It is more likely, however, that this approach would have a significant economic impact and would result little or no cumulative environmental benefits. First, large GHG emitters located within states that participate in regional cap-and-trade markets would have an incentive to relocate to states without the additional emissions limitations, resulting in “leakage” of GHG emissions from one geographic region to another.²¹ Where leakage does not occur because large GHG emitters remain within the state/regional market systems, the more

17. 42 U.S.C. § 7416 (2005).

18. 33 U.S.C. § 1370 (2005).

19. See S. 2191, 110th Cong. § 9004.

20. See, e.g., STAFF OF H. COMM. ON ENERGY AND COMMERCE, 110TH CONG., CLIMATE CHANGE LEGISLATION DESIGN WHITE PAPER: APPROPRIATE ROLES FOR DIFFERENT OF GOVERNMENT (Comm. Print 2008) (hereinafter House Energy and Commerce Committee White Paper), available at http://energycommerce.house.gov/Climate_Change/white%20paper%20st-icl%20roles%20final%202-22.pdf.

21. Alice Kaswan, *The Domestic Response to Global Climate Change: What Role for Federal, State, and Litigation Initiatives?*, 42 U.S.F. L. REV. 39, 60 (2007).

stringent emission limitations would mean those companies would require fewer federal allowances.²² As a result, more federal allowances would be available to other covered entities across the nation and the nation's overall GHG emissions would remain unchanged despite the more stringent state programs.

Depending on how regional/state markets treat federal allowances and vice versa, participating in two overlapping markets simultaneously could require covered entities to pay twice for emitting the same ton of carbon without providing additional options for reducing the emissions. Furthermore, regional/state markets could decide not to link with other domestic GHG markets. Limiting trading options in this manner may inflate allowance costs by cutting off access to a larger supply of allowances from entities outside the geographic area that may otherwise be available.

Even if regional/state markets adopt the standard currency of the federal allowances and simply require their firms to meet a higher standard, compliance standards that differ across state boundaries reduce overall economic efficiency and create incentives for relocation. Depending on the compliance requirements for the regional/state markets, covered entities could face higher transaction costs due to multiple accounting and reporting standards.²³ Perhaps more significantly, a regional/state market that utilizes federal allowances would require covered entities with high GHG emissions to purchase more allowances than they would otherwise purchase under the federal system alone. Retiring these extra allowances in a state/regional market would limit the supply of allowances available to other entities covered by the federal cap-and-trade system and thereby increase the costs for all market participants.

Stricter regional/state standards could also distort markets by creating arbitrary incentives based on geography, with GHG emissions likely shifting from regions with stringent emissions caps to those with less stringent or no emissions caps.²⁴ The concept of "leakage" – shifting GHG emissions activities from regions subject to an emissions cap to regions with no or less stringent restrictions – is a significant concern for subfederal GHG cap-and-trade systems. RGGI participants, for example, include states that participate in the PJM regional electricity transmission organization – a system with

22. House Energy and Commerce Committee White Paper, *supra* note 20, at 11, 15.

23. *Id.* at 13.

24. *See, e.g.,* Kaswan, *supra* note 21, at 60.

“significant coal-fired generation capacity.”²⁵ PJM includes three RGGI participants (New Jersey, Maryland, and Delaware), a portion of Illinois (a signatory to the Midwestern Greenhouse Gas Accord), and five additional states that have not entered into a regional agreement to regulate GHGs.²⁶ With only a portion of the PJM generators located in states that will eventually be subject to GHG cap-and-trade systems, emissions within PJM could easily shift to generators in states without their own cap-and-trade systems, thereby avoiding the higher generation costs. One organization reports that modeling using the IPM power-sector simulation model suggests that “leakage could offset 60-90% of RGGI’s emission reductions.”²⁷

2. Preempting regional/state markets with no effort at integration

Blanket preemption would likely face opposition from state political leaders, investors, and perhaps environmentalists. Political leaders in these states have invested time, resources, and political capital to forge carbon market agreements, and may see a blanket preemption of the regional/state markets as penalizing them for their leadership in addressing climate change.

At the same time, companies participating in regional/state carbon markets before a federal cap-and-trade market enters into effect will make investments to reduce their GHG emissions. Many could accumulate banked allowances by the time the federal government implements a carbon market, and would almost certainly oppose a federal system that simply preempts regional/state markets and renders those banked allowances worthless. Also, the potential for futures markets to develop in these regional programs could result in an additional pool of investors with monetary interests in the regional/state allowances.

Preempting regional/state climate initiatives without provisions to integrate the markets could result in a number of problematic outcomes, including: a depression in the value of state-issued carbon

25. Regional Greenhouse Gas Initiative, Potential Emissions Leakage and the Regional Greenhouse Gas Initiative (RGGI): Evaluating Market Dynamics, Monitoring Options, and Possible Mitigation Mechanisms ES-1, ES-2 (Mar. 14, 2007), available at http://www.rggi.org/docs/il_report_final_3_14_07.pdf.

26. See PJM, Overview, <http://www.pjm.com/about/overview.html> (last visited Mar. 24, 2008).

27. American Council for an Energy-Efficient Economy, *The Magnificent Seven: States Take the Lead on Global Warming*, ACEEE’S Grapevine Online, Jan. 17, 2006, <http://www.aceee.org/about/0601rggi.htm>.

allowances as the start date of the federal program approaches; higher costs for meeting the emissions requirements caused by stifled trading in the final years of the regional/state market; and the dumping of allowances on the market by investors seeking to recover some of their costs. The European Union's experience with the transition from Phase I to Phase II of its Emissions Trading System (EU ETS)²⁸ is instructive. The EU ETS did not allow companies to transfer banked allowances from Phase I to the current Phase II, contributing to a dramatic drop in price in the last few months of Phase I.²⁹ Preempting state programs without ensuring that banked regional/state allowances retain value could similarly discourage early emissions reductions and market investments in state/regional programs.

3. Allocating federal allowances to states with carbon markets and permitting those states to manage the integration

The first option for integrating regional/state carbon markets into a federal market relies on the states to manage the integration process. The current version of the Lieberman-Warner bill provides separate pools of allowances to states for various reasons. For example, the bill sets aside two percent of each year's allowances for distribution to states that, prior to implementation of the federal system, enacted GHG emission reduction programs that exceed the federal standard.³⁰ Similarly, one percent of the annual allowances would be distributed among states that adopt specific energy-saving policies.³¹ Another five percent of the annual emission allowances would be allocated to states to fund a variety of policy objectives, including mitigating the impacts on low-income energy consumers and/or vulnerable industries, promoting energy efficiency, and encouraging technology development.³² Following this precedent, the

28. Council Directive 2003/87, 2003 O.J. (L 275) (EC).

29. LARRY PARKER, CONG. RESEARCH SERV., CLIMATE CHANGE: THE EU EMISSIONS TRADING SCHEME (ETS) ENTERS KYOTO COMPLIANCE PHASE 26 (2008), <http://www.ncseonline.org/NLE/CRSreports/07Dec/RL34150.pdf> ("The combination of poor emissions inventories, non-use of project credits, and time-limited allowances with effectively no banking resulted in extreme price volatility in Spring 2006, and virtually worthless allowances by mid-2007.")

30. S. 2191, 110th Cong. § 3401 (as reported by S. Comm. on the Env't and Pub. Works, Dec. 5, 2007).

31. *Id.* at § 3402.

32. *Id.* at § 3303. The Senate Environment and Public Works Committee adopted an amendment by Senator John Barasso that allows states to use their portion of this five percent

federal climate bill could provide an additional category of allowances to states with carbon trading markets in the final stages of development or already in existence by either; (a) the time of enactment of a federal climate bill (*e.g.* RGGI) *or* (b) the time the federal program comes online (*e.g.* California).

This approach sets a single national cap on GHG emissions while also providing the eligible states with the flexibility to determine whether and how to reimburse covered entities for their unused regional/state-issued allowances. For example, states could permit companies to exchange their unused regional/state allowances for federal allowances of equal value or could sell the federal allowances in the marketplace and offer to buy unused regional/state allowances. This approach also allows states earning income by auctioning regional/state allowances to sell a portion of the federal allowances on the market to replace the lost auction revenue. Finally, permitting states to manage the integration of their markets with a federal market could provide a solution to the question of how to address banked offset credits generated through regional/state markets, an issue that, as discussed in Section VI below, could prove difficult if managed on the federal level.

The approach is not without tradeoffs. At least 23 states have pledged to develop and participate in RGGI, WCI, or the Midwest Greenhouse Gas Accord,³³ and the number of states that would be eligible for compensation continues to grow as new markets are proposed (*e.g.* the Midwest Greenhouse Gas Accord announced on November 15, 2007³⁴) and new states sign onto existing carbon market initiatives (*e.g.* Montana announcing on November 19, 2007 that it would join the WCI³⁵). RGGI is scheduled to begin allowance trading in 2009, and the Midwest Greenhouse Gas Accord states that signatories will “develop a market-based and multi-sector cap-and-

of allowances to fund any other purpose necessary to mitigate negative economic impacts of global warming or the Act. *Id.* at § 3303(1)(L).

33. *E.g.*, Midwestern Energy Security & Climate Stewardship Summit, Midwestern Greenhouse Gas Accord, Midwestern Governors Ass’n (2007), <http://www.midwesterngovernors.org/resolutions/GHGAccord.pdf>; Midwestern Governors Ass’n, Governors Sign Energy Security and Climate Stewardship Platform and Greenhouse Gas Accord., <http://www.midwesterngovernors.org/govenergynov.htm>; Regional Greenhouse Gas Initiative, <http://rggi.org/about.htm>.

34. Midwestern Energy Security & Climate Stewardship Summit, *supra* note 33.

35. Montana announced on November 19, 2007 that it would become the seventh U.S. state to join the WCI. Sarah Elliott, *Governor Announces New 20X10 Initiative – State to Lead by Example, Accepts Climate Change Report and Joins Western Climate Initiative*, Montana’s Official State Website, Nov. 19, 2007, <http://governor.mt.gov/news/pr.asp?ID=513>.

trade mechanism within 30 months” (by May 15, 2010).³⁶ WCI has yet to announce its implementation date, but it is possible that all three regional carbon markets could come on-line by the time a federal policy would likely be effective.³⁷

States participating in these markets would have an incentive to begin trading prior to the implementation date for the federal policy to justify their claim on a portion of the additional allowances. If the portion of federal allowances allocated to states for this purpose is conditioned on the number of banked regional/state allowances that exist prior to the federal program’s implementation, there could be a strong push by states working on the WCI or the Midwest Greenhouse Accord to design their systems in a manner that would generate a higher number of allowances than would otherwise exist. Other states that are not participating in GHG market development would also have an incentive to create their own markets quickly to ensure that they get a portion of the additional allowances.

Allocating sufficient emission allowances to each of these states could restrict the number of allowances available to fund other objectives such as offsetting increased energy costs for low-income citizens, promoting carbon capture and storage technologies, investing in international forest protection, revenue recycling to offset other discretionary taxes, etc.³⁸ Furthermore, a decentralized approach may create advantages for firms in particular states. For example, New York and Connecticut could decide on different approaches to compensating utilities covered by RGGI, creating a potential advantage for companies in one of the states.

To address the concern that there may not be enough federal allowances to compensate firms for banked regional/state allowances, federal policymakers could limit allocations to the states based on the actual number of allowances that are banked when the federal market becomes effective. If policymakers determine that the number of allowances should also be sufficient to reimburse states for some or

36. Midwestern Energy Security & Climate Stewardship Summit, *supra* note 33.

37. For example, the Lieberman-Warner bill would become effective in 2012. S. 2191, 110th Cong. § 1201(a) (as reported by S. Comm. on the Env’t and Pub. Works, Dec. 5, 2007).

38. *See, e.g., id.* at § 3401, 3403(b)(1) (allocating allowances to load-serving entities to “mitigate the economic impacts on low- and middle-income energy consumers, including by reducing transmission charges or issuing rebates” and to promote energy efficiency); *id.* at § 3601 (allocating four percent of annual allowances for years 2012-2030 to promote development of carbon capture and storage technologies); *id.* at § 3801-3806 (allocating “2.5 percent of allowances for use in carrying out forest carbon activities in countries other than the United States.”).

all of the lost income from allowance auctions, the number of allowances could be increased accordingly. The allowances given to the states for this purpose could also be rationed over a number of years if the number of required allowances is too high to allocate in one year, eventually achieving a one-to-one ratio between the banked state allowances and the allocated federal allowances.

4. Accepting regional/state allowances in the federal trading system

A second option for integrating regional/state carbon markets would preempt state markets when the federal market becomes effective, yet allow entities with banked regional/state carbon allowances to use them in the federal market. Under RGGI and the Lieberman-Warner bill, covered entities can comply with their emissions caps by reducing their own emissions, purchasing allowances from other companies subject to the emissions cap, or purchasing offset credits from entities that are not subject to the emissions cap.³⁹ Assuming that allowances for direct emissions in all of the affected markets represent the equivalent of a ton of carbon dioxide,⁴⁰ reductions in carbon emissions under any program are equivalent to reductions under any other program, even if total emission reductions and price per ton may vary.⁴¹

This approach maintains administrative simplicity on the federal level and maintains stable regional/state markets until the federal program begins. In addition, certainty that banked regional/state allowances would retain value in the federal system could provide an incentive for companies to invest in early emission reductions. While accepting regional/state allowances into the federal system could lead

39. RGGI, Regional Greenhouse Gas Initiative Model Rule, Jan. 5, 2007, XX-7, XX-10, http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf; *see also*, S. 2191, 110th Cong. §§ 1202, 2101.

40. The RGGI market will use the measurement of short tons, while proposals for federal legislation and the EU Emission Trading System use metric tons. Should policymakers choose this option, it may be necessary to translate RGGI credits to metric ton equivalents. One metric ton is equal to 1,000 kilograms, or 2,204.6 pounds, whereas the U.S. measurement of a short ton equals 2,000 pounds, <http://www.metric-conversions.org/weight/short-tons-to-metric-tons.htm>.

41. For example, RGGI allowance prices are projected to reach about \$3.00/ton in 2015, while credits based on a proposal outlined by Senators Lieberman and Warner in August, 2007, were projected to reach \$18 in the same year. New York Dept. of Env'tl. Conservation, *Job Impact Statement 6 NYCRR Part 242, CO2 Budget Trading Program*, available at <http://www.dec.ny.gov/regulations/39140.html>; Brian C. Murray & Martin T. Ross, *The Lieberman-Warner America's Climate Security Act: A Preliminary Assessment of Potential Economic Impacts*, Oct. 2007, at 5, Duke University and RTI International, available at <http://www.nicholas.duke.edu/institute/econsummary.pdf>.

to extra allowances in the first years of the federal market, it should not lead to a net increase in atmospheric GHG concentrations if all state programs are designed well. Because carbon dioxide released today will remain in the atmosphere for approximately a century, a ton of carbon dioxide will lead to the same increase in overall atmospheric concentrations whether it is released in 2011 under a regional cap or in 2012 under a federal cap.⁴² Accepting regional/state allowances would simply allow companies with banked allowances to choose between using allowances in the regional/state market prior to the federal market, or after the federal market comes online.

One concern with accepting regional/state allowances in a federal market is that any major failures of state/regional programs could be carried over to a federal program. For example, a recent analysis by Point Carbon suggests that the RGGI emissions cap may exceed actual emissions through 2012, “allowing for the build-up of a significant emissions bank.”⁴³ The report projects that the bank of over-allocated allowances “would not be depleted until the cap begins to decrease in 2015.”⁴⁴ Over-allocation could be a particular concern, as accepting regional/state allowances into a federal market could create perverse incentives for states to over-allocate credits, particularly those taking action relatively close to the effective date of the federal program.

If an over-allocated regional/state cap were not resolved before implementation of a federal market (*i.e.* a regional/state program does not result in total reductions greater than the emissions represented by banked allowances), then the companies holding banked allowances would have the advantage of continuing to emit the same level of GHGs while also saving low-cost emissions allowances for use in the federal market. This would result in both a fairness issue and more GHG emissions on balance than prescribed by the regional/state and federal caps.

The differing regional/state caps raise a similar concern – companies operating in markets with less stringent caps could enjoy a competitive advantage over those subject to more stringent caps. For

42. Lydia Olander et al., *Climate Change Science: What We Know*, Nicholas Inst. for Envtl. Policy Solutions, Duke University, Mar. 2007, at 2, available at <http://www.nicholas.duke.edu/institute/climatechangesummary.pdf>.

43. Press Release, Point Carbon Research, Emissions Trading in the U.S.: Is RGGI Over-Allocated?, (Aug. 17, 2007), 10-11 (on file with author).

44. *Id.*

example, Company A, operating in a region with a less stringent cap, and Company B, operating in a region with a more stringent cap, could make equal reductions in their GHG emissions. Whereas the reductions may be enough for Company B to comply with the region's emissions cap, Company A's emissions reductions could lead to a large number of banked allowances because fewer allowances are required to comply with the less stringent cap. The ability to use banked allowances in a federal cap-and-trade system could lead to pressure on state lawmakers to enact less stringent emissions caps in order to provide a long-term economic advantage for companies under their jurisdiction.

Additionally, accepting regional/state allowances could suppress the initial value of federal emission allowances if a significant number of regional/state allowances were available due to over-allocated regional/state programs or greater reductions in GHG emissions than expected. Depending on a stakeholder's interests, suppressed prices in the federal market could be seen as a positive or a negative – companies may face less of a financial burden as they adjust to a carbon market, yet a higher number of available allowances, and thus a higher cap on GHG emissions, could delay investments aimed at emissions reductions.

If any of the concerns described above become points of contention, either from an environmental or economic perspective, policymakers could grant to the EPA Administrator the authority to discount the value of a state-generated allowance (*i.e.*, counting a state-generated allowance as half of a federal allowance, or another appropriate number).

VI. CREDITS GENERATED THROUGH OFFSET PROJECTS

Early emissions reductions achieved through offset projects present additional challenges for integrating federal and state/regional GHG markets. In order to represent a valid, long-term reduction in GHG emissions, mechanisms must be in place to measure and verify the offset projects. Regulators designing a federal offsets program must determine the types of projects that are eligible for participation in the program, as well the mechanisms for verifying that: (a) the offsets represent additional reductions in GHG emissions rather than reductions that would have occurred without the offset program; (b) the projects do not create "leakage" – shifting the emissions from one emitter to another rather than achieving a reduction in overall emissions; and (c) there are adequate safeguards

to account for eventual release or reversal – a particular concern when offset projects depend on storing GHGs in plants or soils.⁴⁵ Federal regulators could face significant challenges with verifying numerous regional/state offset projects based on differing standards and verification measures.

Additionally, while the allowances available in a cap-and-trade system are limited by the cap placed on total GHG emissions, banked offset credits (credits purchased from entities not covered by the GHG emission cap and banked for future use) have to qualify as offsets under the legislation but are not ultimately limited in number.⁴⁶ Although RGGI analysts predict low demand for offset projects in the first three years of the market – only 0.6 million short tons out of a total emissions cap of 188 million short tons⁴⁷ – the supply of credits in the private, voluntary GHG markets is large and growing. In just five years, the Chicago Climate Exchange has issued credits for over 20 million metric tons (or nearly 23 million short tons).⁴⁸ Participants in regional/state GHG markets may be more likely to tap into this already booming offset market if banked offsets were transferable to an emerging federal market. Regulators determining how to address banked offset credits in regional/state markets could decide to subject all banked offset credits – from regional/state markets and voluntary markets – to the same verification criteria in order to transfer into a federal market.

45. Climate Change Policy Partnership, *Harnessing Farms and Forests: Domestic Greenhouse Gas Offsets for a Federal Cap and Trade Policy FAQs*, Duke University Ctr. on Global Change, <http://www.nicholas.duke.edu/ccpp/harnessingfaqs.pdf>.

46. Legislation may limit the total number offset credits that a covered entity may use to comply with its emissions cap. For example, the Lieberman-Warner Bill allows capped entities to “satisfy up to fifteen percent of the total allowance submission requirement . . . by submitting offset allowances.” S. 2191, 110th Cong. § 2402(a). If GHG markets allow unrestricted banking of offset credits, however, the total number of offset credits available for purchase would be limited by the scope of projects that qualify under the definition of an offset and the number of offset providers selling the credits rather than the amount of GHG emissions that could be sequestered in trees and soil and/or achieved through companies that are not subject to a federal emissions. The U.S. Environmental Protection Agency, for example, estimates that the total GHG mitigation potential from the domestic forest and agriculture sectors alone could be as high as 655 terragrams (or 655 million metric tons) of carbon dioxide per year by 2025. U.S. ENVIRONMENTAL PROTECTION AGENCY, GREENHOUSE GAS MITIGATION POTENTIAL IN U.S. FORESTRY AND AGRICULTURE ES-2 (Nov. 2005), available at http://www.epa.gov/sequestration/pdf/ghg_part2.pdf.

47. RGGI, *Evaluation of Offsets Supply and Potential Demand*, May 1, 2006, http://www.rggi.org/docs/offsets_supply_5_1_06.pdf.

48. Chicago Climate Exchange, *CCX Registry Offsets Report*, December 13, 2007, <http://www.chicagoclimatex.com/offsets/projectReport.jsf>.

Given the difficulties of verifying actual reductions⁴⁹ and the potential for offset credits to flood the market in its early years, federal regulators could choose to exclude banked offset credits from the federal market. If policymakers adopted options V(3) or V(4) described above, the impacts of excluding banked offsets on the state and regional markets would be limited by the fact that covered entities could use credits from offsets to meet their obligations in the regional/state markets and bank any remaining regular allowances for use in the federal market.

On the other hand, a decision to accept banked offset credits in the federal system could lead to increased investment in regional/state-based offset projects and early emissions reductions from unregulated entities, generating income for and support from landowners, farmers, and small emitters, and allowing federal regulators to evaluate the effectiveness of offset projects while creating the federal rules for offset projects. If policymakers choose to integrate banked offset credits into the federal GHG market, they will need to establish clear standards that a state and regional offset verification program must meet. While the EPA could define the federal offsets protocol, federal legislation could place the burden on state/regional regulators or the owners of the banked offset credits to provide independent verification of compliance with the federal criteria.

A federal cap-and-trade system could accept verified, banked offset credits using an approach similar to those described above – allocating allowances to states and permitting the states to distribute the federal allowances to owners of banked offset credits or allowing the owner of banked offset credits to use the credits directly in the federal market. Federal legislation could address concerns about a large number of offset credits flooding the market by allowing regulators to discount the credits or limit the number of offset credits that may enter the market in any given year.

49. Regulators will need to verify that an offsets project (a) results in an overall reduction in GHG emissions (i.e., a tree plantation that would exist with or without a cap-and-trade market would not lead to additional reductions), (b) avoids leakage, and (c) accounts for the risk of release or reversal (e.g., a hurricane blowing trees down). Olander, *supra* note 42, at 4; *see generally*, Michael Gillenwater, et al., *Policing the Voluntary Carbon Market*, *Nature*, Oct. 11, 2007, <http://www.nature.com/climate/2007/0711/full/climate.2007.58.html>.

VII. CREDIT FOR EARLY ACTION

Both the Lieberman-Warner bill and RGGI provide allowances for companies that take action to reduce their GHG emissions prior to implementation of the markets. The Lieberman-Warner bill, for example, provides allowances during the first five years of the federal market to reward firms for verified emissions reductions from 1994 until the implementation of the federal market.⁵⁰ Similarly, the RGGI Model Rule establishes a utility's emissions baseline using emissions data from 2003-2005, and creates "early reduction CO2 allowances" for utilities whose emissions are lower than their baseline level between 2006 and 2008.⁵¹

The different dates for determining baselines and the different methodologies for verifying early emission reductions create the distinct possibility that early actors could receive multiple allowances for the same emission reduction.⁵² If a company received allowances for early action from regional/state markets and those markets were integrated into the federal system, it would not be equitable to provide an equal number of allowances for early action at both regulatory levels. Companies operating in states without mandatory GHG cap-and-trade systems could find themselves at a competitive disadvantage. On the other hand, state and federal regulators may not provide the same level of credit for early actions, suggesting that a blanket approach that excludes companies from receiving federal credit if they have also received state-based credit could result in inadequate compensation compared to companies in unregulated states.

A federal law could avoid both of these inequitable results by granting regulators the flexibility to adjust allocation to individual early actors, with the goal of treating early actors equally. If the regional/state market has already provided some credit, the federal regulators could provide additional allowances as necessary to ensure that those companies receive the same level of credit as those companies operating in unregulated states. On the other hand, regulators could withhold allowances from companies receiving the

50. S. 2191, 110th Cong. § 3301.

51. RGGI, Regional Greenhouse Gas Initiative Model Rule, January 5, 2007, XX-5.3(c), http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf.

52. WCI and the Midwest Greenhouse Gas Accord have not specified how they will address early actors.

same level of early action credit in the regional/state market as they would have under the federal market.

VIII. CONCLUSION

At least one of the three regional/state carbon markets currently under development – RGGI – is scheduled to go into effect well before the Lieberman-Warner or Bingaman-Specter bills' effective date of 2012,⁵³ and another – the Midwest Greenhouse Gas Accord – will at least be developed if not fully implemented.⁵⁴ There is reason to believe that the third, WCI, will also be in effect by 2012, as that is the deadline by which California law requires that state to begin achieving emissions reductions.⁵⁵ A federal climate policy will need to specify whether these markets can continue operating after a national climate regime is in place, and what, if anything, will happen to unused regional/state emissions allowances. A plan to integrate the regional markets presents a compromise between outright preemption and subjecting companies to the inefficiencies of multiple, overlapping cap-and-trade programs. With proper forethought, policymakers could design a federal market that creates a level playing field, rewards states for taking the lead, rewards companies who have taken early action, and, at the same time, does not put companies operating in states without carbon markets at a disadvantage.

53. S. 2191, 110th Cong. § 1201(a).

54. *Midwestern Energy Security & Climate Stewardship Summit, Midwestern Greenhouse Gas Accord*, Midwestern Governors Ass'n 4 (2007), <http://www.midwesterngovernors.org/resolutions/GHGAccord.pdf>.

55. Cal. A.B. 32, 2006 Cal. Stat., § 38562.