

Notes

CREDIT WHERE CREDIT IS DUE: THE LEGAL TREATMENT OF EARLY GREENHOUSE GAS EMISSIONS REDUCTIONS

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INTRODUCTION

An ever-increasing proportion of U.S. business leaders and a number of influential think tanks expect that a nationwide climate change regulatory program will be enacted in the United States within the next ten years. Several factors are increasing the pressure to shift United States climate policy from voluntary programs to mandatory, nationwide regulation of carbon dioxide and other greenhouse gases. First, scientists have reached a near-worldwide consensus that climate change is real and human induced.¹ Second, there has been an upsurge in global warming-related litigation against governmental and corporate actors.² Third, the link between good corporate governance and assessment of climate change risk has gained credibility as insurance companies and investors have begun to demand this information.³

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1. The national science academies of the Group of Eight (G8) nations, which includes the United States, signed a joint statement on climate change that states that the science is now sufficiently clear to justify taking prompt regulatory action at the national level. *Global Response to Climate Change*, STATEMENT (Joint Sci. Acad.), June 7, 2005, at 1–2, available at <http://nationalacademies.org/onpi/06072005.pdf>.

2. See Lori R. Baker, *Global Warming: Attorneys General Declare Public Nuisance*, 27 U. HAW. L. REV. 525, 525–26 (2005) (describing the development of public nuisance suits brought by private “attorneys general” against utility companies with the goal of reducing carbon dioxide emissions); Matthew F. Pawa & Benjamin A. Krass, *Global Warming as a Public Nuisance: Connecticut v. American Electric Power*, 16 FORDHAM ENVTL. L. REV. 407, 408–09 (2005) (describing a trend of public nuisance suits brought against power corporations with the goal of requiring a reduction in emissions).

3. See Elizabeth E. Hancock, Note, *Red Dawn, Blue Thunder, Purple Rain: Corporate*

Most importantly, corporations are facing new regulatory risks related to climate change. U.S. multinational corporations often have operations in nations that have enacted mandatory emissions regulations in accordance with the Kyoto Protocol's⁴ first compliance period, which begins in 2008. Individual U.S. states have also begun enacting their own mandatory greenhouse gas reduction regulations to fill the void left by federal inaction. Such states include the seven northeastern states participating in the Regional Greenhouse Gas Initiative⁵ (RGGI) and California.⁶

These trends have begun to reverse the tide against nationwide greenhouse gas regulation in the United States. The leaders of many corporations consider greenhouse gas regulation inevitable and fear having to comply with a diverse array of regulatory requirements from individual states.⁷ Major businesses leaders have publicly called for a national regulatory program and Congress has begun to respond.⁸ Nearly one hundred climate change-related proposals were introduced in the 108th Congress,⁹ over one hundred were introduced

Risk of Liability for Global Climate Change and the SEC Disclosure Dilemma, 17 GEO. INT'L ENVTL. L. REV. 233, 239 (2005) (noting that an increase in scientific knowledge regarding climate change has correlated with an increase in investors' attention to corporate activities); J. Kevin Healy & Jeffrey M. Tapick, *Climate Change: It's Not Just a Policy Issue for Corporate Counsel—It's a Legal Problem*, 29 COLUM. J. ENVTL. L. 89, 102 (2004) (noting that the world's second largest reinsurance company now inquires into whether corporations seeking directors and officers liability insurance have developed a plan to address the liability risk of climate change); Perry E. Wallace, *Global Climate Change and the Challenge to Modern American Corporate Governance*, 55 SMU L. REV. 493, 513 (2002) (noting that an alliance of "consumer groups, socially responsible investors, labor unions, environmentalists, and human rights activists . . . have begun to agitate against recent changes in the global economy" and have "shifted their attention to multinational firms and international organizations").

4. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 37 I.L.M. 22.

5. Reg'l Greenhouse Gas Initiative, About RGGI, <http://www.rggi.org/states.htm> (last visited Mar. 9, 2007).

6. California Climate Change Portal, <http://www.climatechange.ca.gov/about.html> (last visited Mar. 9, 2007).

7. *Climate Change: EPA Program Preps Companies for Emissions Trading at Home and Abroad*, GREENWIRE, Jan. 26, 2005, <http://www.eenews.net/Greenwire/2005/01/26/#1> (last visited Apr. 16, 2007).

8. *Climate: PG&E CEO Calls for U.S. to Cap Greenhouse Gas Emissions*, GREENWIRE, Oct. 6, 2006, <http://www.eenews.net/Greenwire/2006/10/06/archive/#10> (last visited Apr. 16, 2007).

9. The Pew Center on Global Climate Change, *108th Congress Proposals*, http://www.pewclimate.org/what_s_being_done/in_the_congress/108th.cfm (last visited Jan. 7, 2007).

in the 109th Congress,¹⁰ and several bills that would establish mandatory reductions of greenhouse gas emissions appear poised for introduction in the next session.¹¹ With the dramatic changes in membership in both the Senate and the House of Representatives of the 110th Congress, some in Washington speculate that federal action on climate change could come sooner rather than later.¹²

In the meantime, corporations and other organizations have been participating in voluntary greenhouse gas emission reduction programs to prepare for eventual federal regulations.¹³ These early actors realize that emissions reductions are costly but understand that failing to prepare for mandatory emissions limits will increase their costs of compliance even further. If early movers' current efforts do not comport with yet to be enacted standards, however, early action could in fact increase their costs of compliance. The state and voluntary programs that exist employ a diverse array of standards and requirements, and each of the bills floating in Congress would establish an emissions reduction program with different parameters. Faced with the risk of achieving reductions that will not be credited later, greenhouse gas emitters would no doubt prefer to adopt a wait-and-see strategy for coping with climate change regulation. But if mandatory emissions limits truly are inevitable, postponing action due to regulatory uncertainty is both economically inefficient and environmentally harmful.

If the United States enacts a cap-and-trade system for greenhouse gas emissions, the program will likely acknowledge and reward some emissions reductions achieved before the program formally goes into effect.¹⁴ A future federal program may limit credit for early reductions to those entities that have monitored, verified, and registered the reductions in accordance with a voluntary registry

10. The Pew Center on Global Climate Change, *109th Congress Proposals*, http://www.pewclimate.org/what_s_being_done/in_the_congress/109th.cfm (last visited Jan. 7, 2007).

11. See *infra* note 108 and accompanying text.

12. Charles Babington, *Party Shift May Make Warming a Hill Priority*, WASH. POST, Nov. 18, 2006, at A06; see also Janet Hook & Richard Simon, *Climate Is Changing, Politically: New Attention from Presidential Hopefuls and Others that Global Warming Is Not Just the Democrats' Issue Anymore*, L.A. TIMES, Jan. 31, 2007, at A1 (describing recent bipartisan congressional interest in climate change).

13. See *infra* Part I.

14. Three of the four proposed regulations reviewed in Part III contain explicit provisions for crediting early action, and the fourth leaves the possibility open to the Environmental Protection Agency (EPA) administrator's discretion.

or mandatory state regulatory program. A federal program could also place limits on the types of reduction activities that will be credited or the amount of early credits that can be used for compliance. Early emissions reducers should therefore tailor their current activities to be as closely aligned with the parameters of a future federal program as possible.

This Note aims to inform greenhouse gas emitters and policymakers about the efficiency, equity, and environmental benefits of providing credit for early emissions reductions. Part I presents the emerging belief that federal regulation of greenhouse gas emissions is inevitable. Part II explores the arguments for and against providing early actors with future regulatory credit for their current emissions reductions. Part III explains the lack of a legal basis for providing prospective credit for early emissions reductions and the need to register current emissions reductions in a voluntary registry. Part IV identifies the design elements of a future mandatory cap on greenhouse gas emissions that will affect early emissions reducers' ability to claim credit for past emissions reductions. It then reviews and evaluates the early crediting provisions within several congressionally proposed cap-and-trade systems. In conclusion, this Note advocates a particular legislative method for providing early action credit, suggests guidelines for how emitters should structure their early reduction efforts, and advises early actors to oppose legislation that fails to recognize those early reduction efforts.

I. THE INEVITABILITY OF FEDERAL REGULATION

There is no federal regulation requiring the reduction of greenhouse gas emissions within the United States, but many industry analysts and think tanks believe that is likely to change soon. A joint report released by Citigroup Investment Research and the World Resources Institute in June of 2006 states that pressures on the U.S. government to regulate greenhouse gases are nearing a "tipping point."¹⁵ Point Carbon, a market analyst and forecasting company for power, gas, and carbon markets believes that there is a "high likelihood" that the U.S. federal government will establish a

15. CITIGROUP INV. RESEARCH & WORLD RESOURCES INST., *INVESTING IN SOLUTIONS TO CLIMATE CHANGE 6* (2006) (on file with the *Duke Law Journal*).

regulatory system before 2013.¹⁶ In October of 2006, the Pew Center on Global Climate Change released the results of a survey of twenty-four leading American companies about the possibility of federal regulation of greenhouse gases.¹⁷ Twenty-two responded that federal regulation was “imminent,” and, of these, sixteen believed that it would come between 2010 and 2015.¹⁸ The reports cite state and regional regulatory initiatives, growing concern among the general public, pressure from corporations, institutional investors, and insurance companies, and even private lawsuits as the catalysts for change at the federal level.¹⁹

These predictions are borne out by recent action in the United States Congress. Although the 109th Congress voted down a bill that would have created a federal cap-and-trade system for greenhouse gases,²⁰ it approved a nonbinding “Sense of the Senate” resolution that Congress should enact “mandatory, market-based limits” on greenhouse gas emissions.²¹ In April of 2006, the Senate Committee on Energy and Natural Resources, led by Senators Pete V. Domenici and Jeff Bingaman, solicited the opinions of industry, nonprofit, and academic thinkers on a white paper entitled “Design Elements of a Mandatory Market-Based Greenhouse Gas Regulatory System.”²² No fewer than six separate proposals for climate change legislation were introduced in the 109th Congress,²³ several of which could be

16. Point Carbon, *Carbon Trading in the US: The Hibernating Giant*, CARBON MARKET ANALYST Sept. 13, 2006, at 14, available at http://www.pointcarbon.com/getfile.php/fileelement_86516/CMA_US_ETS_Sept06_hkh9gtpd_1f.pdf.

17. ANDREW J. HOFFMAN, GETTING AHEAD OF THE CURVE: CORPORATE STRATEGIES THAT ADDRESS CLIMATE CHANGE (2006), available at <http://www.pewclimate.org/docUploads/PEW%5FCorpStrategies%2Epdf>.

18. *Id.* at 1–3.

19. *Id.*

20. This bill was the McCain-Lieberman Climate Stewardship and Innovation Act of 2005, discussed *infra* Part IV. S. 1151, 109th Cong. (2005).

21. 151 CONG. REC. S7033–37 (daily ed. June 22, 2005) (Sense of the Senate on Climate Change, amending H.R. 6, 109th Cong. (2005)).

22. *Climate Change: Conf. Before the S. Comm. on Energy & Natural Res.*, S. REP. NO. 109-420 (2006) (Conf. Rep.), available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_senate_hearings&docid=f:28095.wais; see also White Paper, Sen. Pete V. Domenici & Jeff Bingaman, *Design Elements of a Mandatory Mkt.-Based Greenhouse Gas Regulatory Sys.* (Feb. 2006) (on file with the *Duke Law Journal*) (discussing a potential national regulatory program for greenhouse gases).

23. See Global Warming Reduction Act of 2006, S. 4039, 109th Cong. (2006); Global Warming Pollution Reduction Act, S. 3698, 109th Cong. (2006); Clean Air Planning Act of 2006, S. 2724, 109th Cong. (2006); Keep America Competitive Global Warming Policy Act of 2006, H.R. 5049, 109th Cong. (2006); 151 CONG. REC. S7090–98, (daily ed. June 22, 2005) (proposing

reintroduced or serve as models for proposals during the 110th Congress. Senator Barbara Boxer, the incoming chairwoman of the Senate Environment and Public Works Committee in 2007 and a cosponsor of a previous climate change bill, has already created two new subcommittees with jurisdiction over climate change.²⁴

Emitters of greenhouse gases in the United States that anticipate the enactment of such legislation have already begun to account for their emissions, to achieve emissions reductions, and to participate in federal, state, and private voluntary initiatives. As of October of 2006, over one hundred companies had voluntarily agreed to inventory and reduce their carbon emissions through the Environmental Protection Agency's Climate Leaders Program.²⁵ The number of companies submitting emissions data to the Department of Energy (DOE) in 2004 as part of its Voluntary Reporting of Greenhouse Gases Program (1605(b) Program) reached 226.²⁶ Similarly, the Chicago Climate Exchange, a private carbon emissions trading market that also imposes mandatory emissions limitations upon participants, has over 150 members from both the public and private sectors.²⁷

Companies participating in such initiatives believe that their early efforts will help to reduce their future costs, serve as positive publicity, and provide them with a stronger voice in the design of federal climate change policy.²⁸ Many also believe that innovation in response to climate change will become a source of considerable profit for certain forward-thinking companies.²⁹ As state level regulatory programs come into effect, many more companies will be accounting for reductions in greenhouse gas emissions prior to the institution of a federal regulatory regime. Future federal legislation

an amendment, the Climate and Economy Insurance Act of 2005, to H.R. 6, 109th Cong. (2005)); Climate Stewardship and Innovation Act of 2005, S. 1151, 109th Cong. (2005).

24. *Senator Boxer Reorganizes Environment Panel, Naming Two Global Warming Subcommittees*, 37 ENV'T REP. (BNA) 46 (2006).

25. Press Release, EPA, Companies Set Aggressive Greenhouse Gas Emissions Reduction Goals (Oct. 12, 2006), available at <http://yosemite.epa.gov/opa/admpress.nsf/a8f952395381d3968525701c005e65b5/abaf76a31c93d2e685257205006305cb!OpenDocument>.

26. ENERGY INFO. ADMIN., DEPT. OF ENERGY, VOLUNTARY REPORTING OF GREENHOUSE GASES 2004 ix (2006), available at [http://tonto.eia.doe.gov/FTP/ROOT/environment/0608\(04\).pdf](http://tonto.eia.doe.gov/FTP/ROOT/environment/0608(04).pdf).

27. Chicago Climate Exchange, Members of the Chicago Climate Exchange, <http://www.chicagoclimatex.com/about/members.html> (last visited Mar. 7, 2007).

28. CITIGROUP INV. RESEARCH & WORLD RESEARCH INST., *supra* note 15, at 6.

29. *Id.*

will therefore have to consider how to treat these early emissions reductions.

II. THE EQUITY, EFFICIENCY, AND ENVIRONMENTAL BENEFIT OF EARLY ACTION CREDIT

Although it appears likely, credit for early emissions reductions under future climate change legislation is by no means certain. Even if such legislation provides credit, it may also place severe restrictions on the amount or use of early action credits. This Part seeks to inform greenhouse gas emitters and policymakers about the equitable, efficiency, and environmental benefits that would accrue from providing broad credit for early action.

Calling actions “early” is somewhat of a misnomer—some amount of climate change is already certain to result from past emissions.³⁰ It remains crucial, however, that greenhouse gas emitters not wait until a mandatory regime is put in place to reduce their emissions. Greenhouse gases remain in the atmosphere long after they are emitted,³¹ so present emissions reductions are highly important for realizing the goal of the United Nations Framework Convention on Climate Change (UNFCCC): “to achieve . . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”³² Scientists predict that a doubling of the concentration of carbon dioxide (CO₂) in the atmosphere from preindustrial levels will have dramatic consequences for the earth’s climate.³³ Failure to achieve modest reductions in the short term may require more severe measures over the long term to avoid doubling atmospheric concentrations of CO₂.³⁴

30. UNEP & UNFCCC, CLIMATE CHANGE INFORMATION KIT 5 (2002), available at http://unfccc.int/resource/docs/publications/infokit_2002_en.pdf.

31. CEDRIC PHILIBERT & JONATHAN PERSHING, INTERNATIONAL ENERGY AGENCY, BEYOND KYOTO 13 (2002).

32. United Nations Framework Convention on Climate Change art. 2, May 9, 1992, S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 107.

33. Ann P. Kinzig & Daniel M. Kammen, *National Trajectories of Carbon Emissions: Analysis of Proposals to Foster the Transition to Low-Carbon Economies*, 8 GLOBAL ENVTL. CHANGE 183, 184 (1998).

34. *Id.*

Early action is also an economically efficient means to smooth society's transition into a carbon-capped world.³⁵ Greenhouse gas emitters will bear transaction costs in adapting to any new regulatory regime.³⁶ Market-based regulatory instruments, such as emissions trading, will lower the economic costs of regulation only if the transaction costs imposed upon regulated entities do not exceed other efficiency gains.³⁷ Transaction costs of such systems include "search and information costs, negotiation costs, approval costs, [and] monitoring and enforcement costs."³⁸ Indeed, the level of transaction costs imposed upon regulated entities can heavily influence the success of an emissions trading scheme. Early experimentation in emissions reduction and trading helps reduce overall societal transaction costs by overcoming socioeconomic inertia to invest in emissions abatement³⁹ and by providing society with a wealth of knowledge gained from "learning-by-doing."⁴⁰

Such early action will only take place if greenhouse gas emitters have an incentive to reduce emissions prior to regulation. Emitters' diminished effort levels reflect their uncertainty over their obligations within a future federal regulatory program.⁴¹ They hesitate to reduce their emissions prior to the enactment of legislation because if the program is not designed to recognize early emissions reductions, conscientious early actors will effectively be penalized relative to those that continue emitting at business-as-usual levels.⁴² Assurance that the future federal program will provide some level of recognition for early action is therefore necessary to encourage greenhouse gas emitters to begin reducing emissions prior to the effective date of the

35. Haoran Pan & Denise Van Regemorter, *The Costs & Benefits of Early Action Before Kyoto Compliance*, 32 ENERGY POL'Y 1477, 1478 (2004).

36. *Id.*

37. *Id.*

38. *Id.*; see also DANIEL J. DUDEK & JONATHAN BAERT WIENER, ORG. FOR ECON. COOPERATION AND DEV., JOINT IMPLEMENTATION, TRANSACTION COSTS, AND CLIMATE CHANGE 15 (1996), available at <http://www.oecd.org/dataoecd/17/33/2392058.pdf> (noting the transaction costs of alternative climate change policies).

39. Richard B. Stewart & Jonathan B. Wiener, *The Comprehensive Approach to Global Climate Policy: Issues of Design and Practicability*, 9 ARIZ. J. INT'L & COMP. L. 83, 111 (1992).

40. Pan & Regemorter, *supra* note 35, at 1478.

41. ROBERT R. NORDHAUS ET AL., ANALYSIS OF EARLY ACTION CREDITING PROPOSALS 6 (1998), available at <http://www.pewclimate.org/docUploads/pol%5Fearly%2Epdf>.

42. See *id.* ("[M]any companies are concerned that current emissions reductions may not be recognized in a future regulatory program.").

regulation and thereby smooth the transition of the economy and benefit the global environment.⁴³

For example, if the federal government adopts a cap-and-trade system for greenhouse gas emissions, it will place a cap on the nation's total emissions for a given year and then allocate the emissions budget among regulated entities in the form of tradable permits. Entities covered by the program will only be allowed to emit a quantity of greenhouse gases equal to the amount of permits they hold. Because the number of permits is limited, a fundamental component of any such program is to determine how to allocate the permits among covered entities.⁴⁴ Typically, permits are provided for free to emitters in an amount proportionate to their historical level of emissions during some period of time, called their "baseline."⁴⁵ The baseline of an entity regulated under a cap-and-trade system effectively defines that entity's entitlement to valuable emissions rights, so emitters are quite concerned about the method by which it is set.

Early emissions reducers have good reason to be especially concerned about their baselines. If a company achieved emissions reductions through voluntary programs at a time before the period that will determine its baseline, it will be allotted fewer permits than if it had continued doing business as usual.⁴⁶ It will therefore have to accomplish even further reductions or purchase extra permits on the market to meet its compliance obligations. Taking into account the law of diminishing returns and the fact that the entity may have already picked the low-hanging fruit, early emissions reductions can lead to much higher marginal costs of compliance for regulated entities if they are ignored when setting an entity's baseline.

43. *Id.* at 6.

44. Robert R. Nordhaus & Kyle W. Danish, *Assessing the Options for Designing a Mandatory U.S. Greenhouse Gas Reduction Program*, 32 B.C. ENVTL. AFF. L. REV. 97, 134–42 (2005).

45. Inho Choi, *Global Climate Change and the Use of Economic Approaches: The Ideal Design Features of Domestic Greenhouse Gas Emissions Trading with an Analysis of the European Union's CO₂ Emissions Trading Directive and the Climate Stewardship Act*, 45 NAT. RESOURCES J. 865, 920–21 (2005).

46. Axel Michaelowa & Marcus Stronzik, *Early Crediting of Emissions Reductions—A Panacea or Pandora's Box?*, in EFFICIENCY AND EQUITY OF CLIMATE CHANGE POLICY 185, 186 (Carlo Carraro ed., 2000).

Emitters of any substantial quantity of greenhouse gases are likely aware that early action may increase compliance costs.⁴⁷ Accordingly, if they are not able to predict how their baseline will be calculated under a future emissions regime, they will be less motivated to achieve early emissions reductions.⁴⁸ Furthermore, if the baseline period is set to a time after early emissions reductions have taken place, an early actor's compliance costs will be higher than an entity that undertakes no emissions reductions until regulation is in place.⁴⁹ Because early actors help reduce overall emissions and transaction costs for society, punishing such behavior would be inequitable and inefficient.⁵⁰ Setting a company's baseline to a time before it achieves emissions reductions will move the emitter closer to meeting its emissions budget under a future cap, thereby producing a more equitable and more efficient result.⁵¹

The effect of early emissions reductions on the total national permit budget also raises important questions of equity and efficiency. When a program allocates early action credits they must be subtracted from the total permit budget to ensure the integrity of the overall emissions cap.⁵² To illustrate, assume that the national cap for the compliance period is set at ten million metric tons of CO₂ and that there are only two covered entities with identical historical baselines, so each is allocated five million metric tons. Assume further that Company A can prove with certainty that it reduced its emissions from a business-as-usual scenario by one million metric tons of CO₂ before the compliance period. If Company A is provided credit for its early reduction and thus allowed to emit six million metric tons of CO₂, Company B's permit allocation must be reduced to four million to ensure that the total emissions for Company A and B remain within the cap. Some have questioned the equity of redistributing permit allocations in favor of early actors in this way.⁵³

It is vital to note, however, that this hypothetical ignores the question of how the cap of ten million metric tons of CO₂ was

47. *Id.*

48. *Id.*

49. *Id.* at 185.

50. *See supra* notes 35–49 and accompanying text.

51. *See* Michaelowa & Stronzik, *supra* note 46, at 186 (“To encourage reductions prior to the first commitment period without risking a comparative disadvantage one could think of granting credits which can be used against future obligations.”).

52. *Id.* at 189–90.

53. *Id.* at 192–93.

derived. Assume that dangerous climate change will occur if the United States emits more than 200 million metric tons of CO₂ over a twenty year period.⁵⁴ Further assume that it took the United States ten years to develop a regulatory program, during which time 100 million metric tons of CO₂ were emitted into the atmosphere, leaving 100 million available to be emitted during the second ten-year period. If Company A had not voluntarily reduced its emissions by 1 million metric tons prior to regulation, only 99 million would have been available at the start of the compliance period. Therefore, if the total emissions budget is simply set at 10 million per year and divided evenly between Companies A and B, Company B will receive a windfall of permits for one-half million metric tons of CO₂. It will have proceeded with business as usual at the expense of Company A. If, on the other hand, a budget of 99 million metric tons is divided between Companies A and B, but Company A is also allowed to claim and use or sell permits equal to its early reductions, the total budget will remain the same but the benefits will inure solely to the early actor.

The central argument against early action credit is that the emissions reductions claimed by corporations and other entities are of questionable credibility, and therefore providing credit for such reductions will unnecessarily reduce the amount of permits available to other entities and increase the overall societal costs of emissions reductions⁵⁵ This argument carried greater force in the late 1990s, when greenhouse gas accounting and reporting procedures were in their infancy. In contrast, each of the four major greenhouse gas emissions reductions registries used in the United States⁵⁶ is based

54. In reality, to stabilize atmospheric concentrations of carbon at less than twice preindustrial levels, total accumulated CO₂ emissions between the years 2001 and 2100 must be reduced between 365 and 735 gigatons of carbon (GtC) and the emissions per year must fall below 1990 levels by 2040. PHILIBERT & PERSHING, *supra* note 31, at 25. What portion of this budget should be allocated to the United States is quite obviously a very controversial subject.

55. Raymond Kopp et al., *A Proposal for Credible Early Action in U.S. Climate Policy*, WEATHERVANE, Feb. 16, 1999, http://www.rff.org/~kopp/popular_articles/feature060.html (“[Early action crediting] risks distributing too many credits for questionable early reductions. The only way to reduce this risk is to thoroughly examine each project and evaluate the true reductions incurred—a cumbersome and potentially expensive administrative process.”).

56. Three of the four registries, the DOE’s 1605(b) Program, the Climate Leader’s Program, and the California Climate Action Registry, are discussed *infra* Part III. The fourth is the Eastern Climate Registry, which underlies the RGGI program. See EASTERN CLIMATE REGISTRY, EASTERN CLIMATE REGISTRY VOLUNTARY REPORTING REQUIREMENTS vi (2006), available at http://www.easternclimateregistry.org/documents/ECR%20Voluntary%20Reporting%20Requirements_Sept_2006.pdf.

upon a widely accepted protocol developed by the World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI) that ensures that reported reductions are real, verifiable, and additional.⁵⁷ California and the RGGI's registries will contain highly credible records of reductions achieved pursuant to state laws,⁵⁸ and the DOE's registration requirements under the 1605(b) Program were revised in April of 2006 to "enhance the measurement accuracy, reliability and verifiability of information reported."⁵⁹ As long as credits are only available for emissions reductions registered under such advanced reporting programs, there is less need for concern that credits will be provided for nonadditional reductions, reductions that would have occurred in the absence of the program.

Although arguments for the equity, efficiency, and environmental benefits of early action crediting provide no guarantee that such credit will ultimately be bestowed, it is highly likely that a future federal regulatory program will provide some form of valuable recognition for the achievements of early actors. With RGGI and California implementing mandatory emissions reductions programs that will cover large segments of the economy, hundreds of the nation's most important companies participating in voluntary reductions programs, and accounting and verifiability methods increasing in accuracy, the case is simply too strong and the stakes too high not to give credit where credit is due.

III. THE LEGAL BASIS OF EARLY ACTION CREDIT

The issue of providing legal entitlements for early emissions reductions first became an important topic of debate after the United States signed the Kyoto Protocol. Climate change commentators quickly realized that greenhouse gas emitters would have no legal assurance that a future federal regulatory regime would recognize or credit their early emissions reductions unless Congress explicitly

57. WORLD RES. INST., THE GREENHOUSE GAS PROTOCOL: A CORPORATE ACCOUNTING AND REPORTING STANDARD 4 (Rev. Ed., 2004), *available at* http://pdf.wri.org/ghg_protocol_2004.pdf.

58. California Global Warming Solutions Act of 2006, Assemb. B. No. 32 (to be codified at CAL. HEALTH & SAFETY CODE § 38530 (2006)); Regional Greenhouse Gas Initiative, Model Rule, Subpart XX-8 (2007), <http://www.rggi.org/modelrule.htm> (last visited Mar. 25, 2007).

59. Guidelines for Voluntary Greenhouse Gas Reporting, 71 Fed. Reg. 20,784, 20,785 (Apr. 21, 2006) (codified at 10 C.F.R. § 300.1 (2006)).

provided for it by statute.⁶⁰ Several nonprofit organizations offered proposals regarding early action credits, and a number of legislators introduced bills regarding early action credits in Congress.⁶¹ Ultimately, no early action legislation was passed and the topic died along with the prospect of implementing the Kyoto Protocol when the United States withdrew from the treaty in 2001.⁶² With the recent revival of federal interest in climate change regulation, the debate over creating legal entitlements for early actors has begun to resurface. This section identifies the current lack of a legal basis for providing early action credit and discusses the use of voluntary emissions registries as a means of increasing the future verifiability of present emissions reductions.

Congress could provide credit for early emissions reductions either prospectively or retroactively. Under a prospective approach, legislation would create legal entitlements for current emissions reductions that could be used once a federal cap-and-trade program is enacted. Alternatively, Congress could wait until it enacts a cap-and-trade program and include provisions that award credits retroactively for past emissions reductions. A prospective approach is preferable because it provides greater certainty to emitters and therefore stimulates more early emissions reductions. Unfortunately, it also requires Congress to act under the assumption that a future emissions cap will be enacted, which makes it less politically viable than the retroactive approach.⁶³

The only piece of prospective early action credit legislation introduced in the 109th Congress was the Climate Change Technology Deployment and Infrastructure Credit Act of 2005.⁶⁴ Senator Chuck Hagel introduced this bill to amend the Energy Policy Act of 1992.⁶⁵ The original version contained provisions that would

60. See NORDHAUS ET AL., *supra* note 41, at 18 (“If [an early action credit] program is to have binding effect, then it will have to be authorized by law.”).

61. See, e.g., S. 547, 106th Cong. (1999) (authorizing the provision of regulatory credit for voluntary early greenhouse gas emissions); H.R. 2520, 106th Cong. (1999) (same).

62. The United States withdrew from the Kyoto Protocol in 2001 after George W. Bush became president. See Greg Kahn, Note, *The Fate of the Kyoto Protocol Under the Bush Administration*, 21 BERKELEY J. INT’L L. 548, 549–56 (2003) (chronicling the events leading up to and the Bush administration’s reasons for withdrawing from the treaty).

63. See NORDHAUS ET AL., *supra* note 41, at 17–21 (summarizing approaches that Congress could take to provide early action credit).

64. Climate Change Technology Deployment and Infrastructure Credit Act of 2005, S. 388, 109th Cong. (2005).

65. *Id.*

have provided the DOE with legal authority to issue early emissions reduction credits.⁶⁶ Specifically, in section 1612 the bill provided the secretary of energy with authority to enter into “voluntary agreements” with entities willing to report and reduce their emissions.⁶⁷ The act stated that the Secretary “shall” provide transferable credits to such an entity with “certified emissions reductions relative to [their] baseline level that . . . shall be applicable toward any incentive, market-based, or regulatory program determined by Congress to be necessary and feasible to reduce the risk of climate change and effects of climate change.”⁶⁸ These provisions sparked some controversy among groups opposed to federal action on climate change,⁶⁹ and Senator Hagel subsequently introduced another version lacking the early action credit provisions.⁷⁰ Neither bill made it out of committee.⁷¹

Federal and state agencies administering voluntary emissions reporting and reduction programs have provided some indication that a future federal regulatory program could recognize early reductions.⁷² In relation to the DOE’s 1605(b) Program, the DOE Guidelines for Voluntary Greenhouse Gas Reporting provide that if an entity meets all the registration requirements for emissions reductions, the Energy Information Administration will notify it that the reductions have been “credited” as “registered reductions” that can be held “for use (including transfer to other entities) in the event a future program that recognizes such reductions is enacted into law.”⁷³ This provision provides no legal claim to early emissions credits without subsequent action by Congress. It does, however,

66. *Id.*

67. *Id.* § 1612(a)(6).

68. *Id.* § 1612(e)(1)(D).

69. Letter from Marlo Lewis, Jr., Competitive Enterprise Institute, to Senator Domenici, Chairman, Comm. on Energy & Natural Res. (Mar. 22, 2005), <http://www.cei.org/gencon/019,04447.cfm> (last visited Mar. 18, 2007).

70. *See* Climate Change Technology Deployment and Infrastructure Credit Act of 2005, S. 887, 109th Cong. (2005) (containing no early action credit provisions).

71. The Library of Congress THOMAS, <http://www.thomas.gov/cgi-bin/bdquery/z?d109:SN00388:@@L&summ2=m&> (last visited Mar. 19, 2007) (tracking the first version); The Library of Congress THOMAS, <http://www.thomas.gov/cgi-bin/bdquery/z?d109:SN00887:@@L&summ2=m&> (last visited Mar. 19, 2007) (tracking the second version).

72. *See, e.g.*, Voluntary Greenhouse Gas Reporting: General Guidelines, 10 C.F.R. § 300.12 (2006) (referencing the possibility that a future federal regulatory program would recognize early action credits).

73. *Id.*

express the DOE's confidence that the standards and procedures contained in its newly revised reporting guidelines have progressed to a level where emissions reductions can be recorded with sufficient accuracy to warrant allocation of entitlements.

The Environmental Protection Agency (EPA) also administers a voluntary emissions reporting and reduction program called Climate Leaders.⁷⁴ The Climate Leaders program documentation only indirectly intimates that registered reductions may evolve into credits in the future.⁷⁵ It defines a greenhouse gas "credit" as "a convertible and transferable instrument usually bestowed by a [greenhouse gas] program"⁷⁶ and specifically points out that "future financial accounting standards may treat [greenhouse gas] emissions as liabilities and emissions allowances/credits as assets."⁷⁷ The program, however, provides no indication that future federal regulations will credit or recognize emissions reductions properly registered according to its guidelines. Despite the program's silence on the subject, it is clear that at least some participants expect that their efforts may be convertible into some form of credit in the future.⁷⁸

A third voluntary greenhouse gas emissions registry is the California Climate Action Registry, which the state established in 2000.⁷⁹ California created the registry in part "[t]o ensure that participating organizations receive appropriate consideration for certified emissions results under any future state, federal or international regulatory regime relating to [greenhouse gas] emissions."⁸⁰ To this end, "[t]he State of California has promised to

74. *Climate Leaders*, FACT SHEET (U.S. Env'tl. Protection Agency), Mar. 2007, at 1–2, available at http://www.epa.gov/stateply/docs/partnership_fact_sheet.pdf.

75. See generally U.S. ENVTL. PROTECTION AGENCY, CLIMATE LEADERS GREENHOUSE GAS INVENTORY PROTOCOL: DESIGN PRINCIPLES 5 (2005) (explaining how disclosure leads to more effective management, thereby increasing the likelihood of greater program efficiency).

76. *Id.* at 83.

77. *Id.* at 11.

78. For example, Frito-Lay, Inc. states on the Climate Leaders website: "Realizing that GHG reductions represent a corporate asset that the company wanted to protect, Frito-Lay chose a highly transparent, rigorous, and credible reporting process . . . Frito-Lay also believes it is important to register its GHG emission reductions to allow the company to take credit for its accomplishments in the event that tougher regulations are enacted in the future." EPA, Climate Leaders, Partners, <http://www.epa.gov/climateleaders/partners/partners/fritolayinc.html> (last visited Feb. 23, 2007).

79. CAL. CLIMATE ACTION REGISTRY, GEN. REPORTING PROTOCOL pt. 1, 2 (2003), available at <http://www.climateregistry.org/docs/PROTOCOLS/General%20Reporting%20Protocol%20DRAFT%20Oct03.pdf>.

80. *Id.*

use its best efforts to ensure that reported emissions receive appropriate consideration in the event of future [greenhouse gas] regulation.”⁸¹ Although there is no reason to doubt that California will honor this promise in good faith, its commitment is less than legally binding upon it or the federal government.

Because early actors lack any prospective legal commitment to receive credit for present emissions reductions, they must rely upon the verifiability of their reductions and a retroactive provision of credit by future congressional legislation. A company’s ability to ensure that its emissions reductions are verifiable is complicated by the fact that there are several independent state and federal systems for accounting for and reporting emissions reductions. Although each of the four major greenhouse gas emissions reductions registries is based upon WBCSD-WRI protocol,⁸² there are differences among the registries that could affect the provision of credit under future federal legislation.

The DOE’s 1605(b) Program, for example, distinguishes between emissions that are merely “reported” and those that are “registered.”⁸³ Only emissions that are “registered” are eligible for credit under a future regulatory program,⁸⁴ and so must meet more stringent accounting requirements than those that are merely “reported.” Each reporting entity must establish an emissions inventory that accounts for its direct, indirect, and sequestered emissions for a specified year.⁸⁵ The DOE’s Technical Guidelines for the program identify various emissions estimation methods and assign each a numerical rank: 4.0 (for A-rated methods) to 1.0 (for D-rated methods).⁸⁶ Those wishing to register emissions reductions must use estimation methods to produce their emissions inventory that achieve an average score of 3.0.⁸⁷ Alternatively, they can have their emissions inventory independently verified by a qualified auditor.⁸⁸ Reporting entities must calculate their registered emissions reductions with

81. *Id.*

82. *See supra* note 57 and accompanying text.

83. Voluntary Greenhouse Gas Reporting Program: General Guidelines, 10 C.F.R. § 300.1(b)–(c) (2006).

84. *Id.* § 300.12.

85. *Id.* § 300.6.

86. *Id.*

87. *Id.*

88. *Id.*

reference to a baseline year no earlier than 1996 and must achieve them no earlier than 2002.⁸⁹

California's registry is quite different than the DOE's. It makes no distinction between reported and registered emissions reductions. Rather, an entity must calculate its inventory of emissions for any given year using specified methodologies for each type of emissions producing activity.⁹⁰ The entity must then have its calculations certified by an approved third-party.⁹¹ An entity's baseline for calculating emissions reductions can be any year, starting with 1990, for which a certified emissions inventory exists.⁹²

Because of the differences in methodologies used to estimate emissions, certification requirements, and baseline restrictions, emissions that qualify for registration under 1605(b) may not be recognized under California's system, and vice versa. For instance, emissions reductions achieved from 1990 through 2001 can be registered under California's system, but not under the 1605(b) Program.⁹³ In contrast, emissions reductions receiving an average B quality rating, and therefore registrable under the 1605(b) Program, may not be registered under California's program if the prescribed methods were not used or if the reductions were not independently certified.⁹⁴ Early emissions reducers therefore must choose between incurring the cost of complying with more than one registry's requirements, or identifying the single registry that maximizes their chances for future recognition of emissions reductions. On the one hand, the data contained in California's registry is highly credible because of its stringent registration requirements and its breadth of coverage.⁹⁵ On the other hand, given that the 1605(b) Program was revised specifically to increase the verifiability of registered emissions reductions⁹⁶ and now includes a provision on potential future credit, it

89. *Id.* § 300.5(b)(1)–(2).

90. CAL. CLIMATE ACTION REGISTRY, *supra* note 79, at pt. 1, 17.

91. *Id.* at pt. 1, 18.

92. *Id.* at pt. 3, 2.

93. *Id.* (allowing registration of reductions from 1990 to 2001); *see also* Voluntary Greenhouse Gas Reporting: General Guidelines, 10 C.F.R. § 300.1(c)(1) (2006) (“To be eligible for registration, a reduction must [generally] have been achieved after 2002.”).

94. CAL. CLIMATE ACTION REGISTRY, *supra* note 79, at pt. 1, 2.

95. *See id.* at pt. 1, 2–4 (describing the California registry's requirements and coverage).

96. *See* source cited *supra* note 59 and accompanying text.

would be a mistake to forego participation in this federal registry.⁹⁷ As the next Part will show, choosing between registries is but one of many concerns for greenhouse gas emitters seeking to realize the benefits of their early reduction efforts through retroactive crediting legislation.

IV. CREDIT FOR PAST REDUCTIONS IN PROPOSED CLIMATE CHANGE LEGISLATION

Certain design elements of a mandatory greenhouse gas emissions cap will determine whether and to what extent early emissions reducers can claim credit for their past emissions reductions. This Part first identifies those design elements and then proceeds to describe and evaluate how four leading legislative proposals have addressed early action credit.

A. Design Elements of the Future Carbon Cap

Federal legislation could place a number of restrictions on the provision of credit for early emissions reductions. Such legislation could, for example, provide credit only for reductions achieved during a specified period, or limit how many credits a covered entity can use to meet its compliance obligations.⁹⁸ A future federal cap-and-trade system's method for calculating entity baselines and allocating the overall emissions budget will also affect early actors' emissions-related entitlements.⁹⁹ Choice of registry is also significant to early actors because future congressional legislation may restrict which registries' emissions reductions will receive credit.¹⁰⁰ Table 1 and the following discussion summarize the importance of various aspects of cap-and-trade systems to early emissions reducers.¹⁰¹

97. *See id.* § 300.12 (referencing the possibility that a future federal regulatory program would recognize early action credits).

98. Regulations that cap the amount of early action credit that can be applied to compliance obligations do so presumably to mitigate the effect that such credit has on the overall emissions cap. However, as explained in Part II, this is an inequitable transfer of benefits from early actors to organizations that proceed with business-as-usual.

99. *See supra* Part II.

100. *See infra* Part IV.B.

101. Table 1 summarizes factors already introduced in Parts I–III of this Note. It also summarizes several new factors that will be introduced in Part IV. A comprehensive treatment of each factor is beyond the scope of this Note. Attention is drawn to these factors to alert the reader to their importance in evaluating future climate change legislation.

Table 1. Elements of Future Greenhouse Gas Regulation Affecting Early Actors and Their Importance

Factor	Importance to Early Actors
Credit for early reductions	To encourage early emissions reductions, legislation should expressly provide early emissions reduction credits and should not impose percentage limits on their use. The emissions reduction registration method must ensure verifiability without needlessly restricting eligibility for credit.
Baseline calculation method	Calculation method should allow setting entities' baselines to some year before emissions reductions were achieved.
Allocation of overall emissions cap	Cap should not indirectly include verified emissions reductions attributable to early actors or, if it does, early actors should have first priority in permit allocation.
Regulated greenhouse gases	Early actors should concentrate on gases covered by a future regulatory regime. Greenhouse gases with higher global warming potentials may yield more credits.
Provisions on offsets	To encourage early investment in third party emissions reductions, legislation should provide credit for verifiable offsets and should not impose percentage limitations on their use. Early actors should note restrictions on project types (sequestration, destruction) and locations (domestic, international).
6.Covered entities	Entities inside cap should invest in reductions to bank for future compliance. Entities outside cap should seek investment from entities inside the cap and sell offsets.

Another consideration is which greenhouse gases will be covered by the regulation. There are six major greenhouse gases covered by domestic emissions registries: (1) carbon dioxide (CO₂), (2) methane (CH₄), (3) nitrous oxide (N₂O), (4) hydrofluorocarbons (HFCs), (5) perfluorocarbons (PFCs), and (6) sulfur hexafluoride (SF₆).¹⁰² Early emissions reductions in greenhouse gases that are not covered by

102. CAL. CLIMATE ACTION REGISTRY, *supra* note 79, at xiv.

future regulation will not yield credits. More significantly, each greenhouse gas has a different degree of effect upon global warming, called a “global warming potential.”¹⁰³ Assuming that Congress chooses to regulate gases with higher global warming potentials more stringently, reducing emissions of such gases could yield more credits.

Entities considering whether to reduce their greenhouse gas emissions should also consider what kinds of emitters the proposed regulations will cover. Based upon industry segment, quantity of emissions, and other factors, each regulation will separate all greenhouse gas emitters into two groups—those that fall inside and those that fall outside of the cap. Entities within the cap will want to seek credits that they can apply toward their permit budget, whereas entities outside the cap could potentially sell credits to entities within the cap. For example, if a proposed cap-and-trade system caps emissions from electric power generators but not from agricultural sources, electric power generators could purchase the rights to emissions reductions achieved by agricultural sources. The availability of this strategy depends, however, on the provision of “offset” credits within the cap-and-trade system.

Entities can also reduce emissions within their own operations by improving energy efficiency or changing industrial processes (“ordinary emissions reductions”).¹⁰⁴ Alternatively, an entity can contract with outside actors to achieve greenhouse gas reductions (“offsets”). A simple example would be to pay another company to reduce its emissions and acquire the legal rights to those reductions by contract. These are sometimes referred to as “off-system” reductions,¹⁰⁵ but are more commonly known as “offsets”¹⁰⁶ because a company is not actually reducing its own emissions, but rather offsetting them with reductions elsewhere that are equally beneficial to the global atmosphere. A cap-and-trade system can encourage corporations to begin investing in reductions by third parties by providing credit for offset reductions achieved before implementation of the cap.

103. The “global warming potential” of a given greenhouse gas is defined as “[t]he ratio of radiative forcing (degree of harm to the atmosphere) that would result from the emission of one unit of a given [greenhouse gas] to one unit of CO₂.” *Id.*

104. HOFFMAN, *supra* note 17, at 16.

105. *Id.* at 18.

106. Voluntary Greenhouse Gas Reporting Program: General Guidelines, 10 C.F.R. § 300.2 (2006) (“Offset means an emission reduction that [is included in a 1605(b) report and] meets the requirements of this part, but is achieved by a party other than the reporting entity.”).

Measurement and verification of offsets is not necessarily different from ordinary emissions reductions; they can consist of the exact same activity with the exact same resultant reduction in greenhouse gas emissions. The off-site location of the reduction, however, typically causes most regulatory schemes to treat offsets differently than ordinary emissions reductions to ensure that a net reduction in emissions has actually taken place.¹⁰⁷ For example, where international offsets are allowed in a country that has not capped its overall greenhouse gas emissions, there is a risk that emissions reductions achieved by one entity will simply result in an increase in emissions by another entity, resulting in no net emissions reduction. Regulations therefore place restrictions on the location of offsets, specify verification procedures for offset reductions, and limit the amount of the compliance obligation that can be met through offset credits.

B. Early Action Credit Provisions in Four Senate Bills

Each of these design elements takes a different form in the cap-and-trade systems that have been proposed in the Senate. This Section introduces and explains four of the most noteworthy proposed programs.¹⁰⁸ The next Section evaluates these bills in terms of equity and effectiveness in inducing early emissions reductions through early action credit.

1. *The McCain-Lieberman “Climate Stewardship and Innovation Act of 2005.”*¹⁰⁹ In 2003, Senators John McCain and Joseph Lieberman introduced this bill, which was defeated by a relatively narrow vote of 55 to 43. It was reintroduced as the “Climate Stewardship and Innovation Act” in 2005 and was again defeated, but

107. See Choi, *supra* note 45, at 934–40 (describing offset activities and explaining the attendant inventory, monitoring, and verification problems).

108. In addition to the bills discussed below, Senator Feinstein has announced and circulated a draft bill entitled “The Strong Economy and Climate Protection Act.” Although it is widely believed that Senator Feinstein will introduce this bill in the 110th Congress, the bill itself was not publicly available for review at the time of writing this Note. A general outline of its provisions is available on the Senator’s website. Sen. Diane Feinstein, Senator Feinstein Outlines New Legislation to Curb Global Warming, Keep Economy Strong (Mar. 20, 2006), <http://www.feinstein.senate.gov/06releases/r-global-warm320.htm> (last visited Mar. 18, 2007).

109. Climate Stewardship and Innovation Act of 2005, S. 1151, 109th Cong. (2005).

by a somewhat wider margin, 60 to 38.¹¹⁰ Senator John McCain has stated that he intends to introduce the bill for a third time and believes that chances are “pretty good” that it could pass in the 110th Congress.¹¹¹

The Climate Stewardship Act proposed capping greenhouse gas emissions by covered entities after the year 2010 at less than “5896 million metric tons,” measured in carbon dioxide equivalents.¹¹² This capped emissions at 1990 levels in accordance with the UNFCCC’s Article 4,¹¹³ as well as its Article 2 goal of preventing “dangerous anthropogenic interference with the climate system.”¹¹⁴ To ensure the adequacy of the cap in meeting this goal, the Act called on the secretary of commerce to review it biennially.¹¹⁵ It defined greenhouse gas emissions to include all six major greenhouse gases.¹¹⁶ The Act’s cap included all entities in the electric power, industrial, or commercial sectors of the economy that emitted 10,000 metric tons of greenhouse gases per year.¹¹⁷ It also included all refiners or importers of petroleum products for transportation, and all producers or importers of HFCs, PFCs, and SF₆ that emitted more than 10,000 metric tons of greenhouse gases per year upon consumption.¹¹⁸ Noticeably absent was any inclusion of emissions from the agricultural sector.

The Act had extensive early emissions reductions provisions. It proposed the creation of a new National Greenhouse Gas Emissions

110. Pamela Najor, *McCain-Lieberman Amendment Fails Again on Senate Floor in Second Try in Two Years*, 36 ENV’T REP. (BNA) 1277 (2005). It is noteworthy that Senator Boxer voted for the bill in 2003 but against it in 2005 because of the inclusion of provisions on nuclear energy in the bill. 151 CONG. REC. S7018 (2005) (statement of Sen. Boxer) (“I wish that I could support the McCain-Lieberman amendment, as I did 2 years ago. But by making the nuclear industry eligible for yet more subsidies, as a matter of principle, I cannot vote for this year’s version.”). Senator Boxer now chairs the Senate Environment & Public Works Committee. *Senator Boxer Reorganizes Environment Panel, Naming Two Global Warming Subcommittees*, 37 ENV’T REP. (BNA) 46 (2006).

111. Amena H. Saiyid, *McCain, Lieberman to Reintroduce Bill Requiring Reductions in Greenhouse Gases*, 37 ENV’T REP. (BNA) 2382 (2006). Senator McCain made this announcement on November 16, 2006, at the opening of the Washington, D.C., office of Duke University’s Nicholas Institute for Environmental Policy Solutions. *Id.*

112. S. 1151 § 331(a)(1).

113. United Nations Framework Convention on Climate Change, *supra* note 32, art. 4.

114. *Id.* art. 2.

115. S. 1151 § 334(a)(3).

116. *Id.* § 3(9).

117. *Id.* § 3(5)(B).

118. *Id.* § 3(5)(A)–(B).

Database.¹¹⁹ The Database was to include emissions reductions achieved by regulated entities after 1990 and before 2010, and achieved by unregulated entities at any time after 1990.¹²⁰ Under the Act, entities had four years from the enactment of the law to register emissions reductions achieved before the establishment of the national database.¹²¹

To register an emissions reduction, the Act required an entity to establish a baseline and report to the administrator all of its greenhouse gas emissions for each year in which reductions took place.¹²² The Act did not specify a methodology for calculating an entity's baseline. It simply defined "baseline" as "the historic greenhouse gas emissions levels of an entity," but qualified that the administrator would adjust the baseline upward "to reflect actual reductions that [were] verified" according to the relevant regulations.¹²³ The administrator was to review the entity's report to ensure that it indicated "actual reductions in direct greenhouse gas emissions" relative to the entity's historic emissions levels, "after accounting for any increases in indirect emissions."¹²⁴ The methods and standards used in this review would have been promulgated by the administrator through rulemaking in coordination with the secretary of energy and the secretary of agriculture.¹²⁵

The Act required that the administrator first allocate permits to entities that had registered emissions reductions in the national database prior to the first year that compliance was mandated, which was 2010. If an entity elected to use a registered, pre-2010 emissions reduction to comply with its budget in a given year, the Act directed the administrator to award the entity with permits equal to those registered reductions and to subtract that amount from the total permit budget for the year.¹²⁶ Entities covered by state mandatory greenhouse gas reduction programs would also have been entitled to priority allocation of permits if the state's program was at least as

119. *Id.* § 201-04.

120. *Id.* § 203(a)(1)-(2).

121. *Id.* § 203(c)(2)(B)(i).

122. *Id.* § 203(c)(1).

123. *Id.* § 3(2).

124. *Id.* § 203(c)(3)(A)-(B).

125. *Id.* § 204(a)(1).

126. *Id.* § 335(a)(1)(A)-(C).

stringent as that created by the Act.¹²⁷ Any permits remaining after the early actors' elections had been satisfied would have been distributed according to a process created by the administrator. The bill specifically instructed the administrator to ensure that the process would "not penalize a covered entity for emissions reductions made before 2010 and registered with the database,"¹²⁸ and to consider "binding state actions in making the final determination of allocation[s]" to covered entities.¹²⁹

Finally, the Act allowed covered entities to meet 15 percent of their compliance obligations through offsets.¹³⁰ These included credits obtained from another nation's markets for greenhouse gas emissions, credits from a registered net increase in carbon sequestration by another entity, and credits from emissions reductions registered in the database by entities not covered under the Act.¹³¹

2. *The Bingaman "Climate and Economy Insurance Act of 2005."*¹³² Senator Jeff Bingaman, chairman of the Senate Energy and Natural Resources Committee, initially drafted this act as an amendment to the Energy Policy Act of 2005, but it was never introduced. The senator intends to introduce climate change legislation, believing that it would be a mistake to wait until President George W. Bush's second term ends in 2008 to create a federal cap-and-trade system.¹³³

Rather than placing an absolute cap on total greenhouse gas emissions, this Act set an emissions cap based upon "emissions intensity," which was to be calculated by dividing the total greenhouse gas emissions for all covered entities in the United States by the Gross Domestic Product (GDP).¹³⁴ Using the intensity metric for 2009 as a starting point, the Act required a 2.4 percent reduction in emissions intensity for covered sectors of the United States

127. *Id.* § 335(b).

128. *Id.* § 333(b)(3).

129. *Id.* § 333(h).

130. *Id.* § 302(b).

131. *Id.* § 302(b)(1)–(3).

132. 151 CONG. REC. S7090–98, (daily ed. June 22, 2005) (proposing an amendment, the Climate and Economy Insurance Act of 2005, to H.R. 6, 109th Cong. (2005)).

133. Dean Scott, *U.S. PIRG Report Says Bingaman's Approach Would Do Little to Halt Increased Emissions*, 37 ENV'T REP. (BNA) 547 (2006).

134. 151 CONG. REC. at S7090 (proposing § 1512(4)).

economy for each year between 2010 and 2019.¹³⁵ The total permit budget for each year was calculated by multiplying the emissions intensity target for that year by the projected GDP.¹³⁶ The Act would have covered emissions of all six major greenhouse gases.¹³⁷ It targeted CO₂ emissions by regulating fuel distributors, cement and lime producers, and aluminum smelters without a minimum quantity of emissions threshold.¹³⁸ Manufacturers and importers of HFCs, PFCs, SF₆, and N₂O also would have been regulated regardless of how much they emitted.¹³⁹ Only coal mines were subject to an emissions threshold; mines would have been included within the cap only if they emitted more than 35 million cubic feet of CH₄ in 2004.¹⁴⁰

The Act directed the secretary of energy to devise a system to allocate permits to regulated entities and “affected nonregulated entities” based on their historical emissions levels, the “mitigation of significant and disproportionate burdens,” and the avoidance of “windfalls.”¹⁴¹ It required the program to include a means of allocating credits for early emissions reductions to any entity that reported its reductions under the DOE’s 1605(b) Program, the EPA’s Climate Leaders Program, or a state or privately administered registry.¹⁴² Permits for early emissions reductions, however, were limited to 1 percent of the year’s total allowance allocation.¹⁴³

Under the Act, certain specified offset activities would have produced credits that regulated entities could purchase to meet their compliance obligations. Within the United States, credits were to be allocated to entities for sequestering CO₂ or destroying HFCs, PFCs, SF₆, or N₂O before it was emitted.¹⁴⁴ The Act provided no limitation on the amount of such credits that a regulated entity could submit in lieu of permits. It also directed the secretary of energy to establish a program for crediting offsets from international projects.¹⁴⁵ The Act allowed regulated entities to submit credits earned from international

135. *Id.* (proposing § 1513(a)(1)–(2)).

136. *Id.* (proposing § 1513(a)(3)).

137. *Id.* (proposing § 1512(6)).

138. *Id.* (proposing § 1512(8), (12)).

139. *Id.* (proposing § 1512(8)).

140. *Id.* (proposing § 1512(8)).

141. *Id.* at S7091 (proposing § 1514(a)(4)).

142. *Id.* at S7093 (proposing § 1520(c)).

143. *Id.* at S7091 (proposing § 1514(c)).

144. *Id.* at S7092 (proposing § 1518(2), (5)).

145. *Id.* at S7093 (proposing § 1519(d)).

offsets projects only to meet a specific percentage of their compliance obligation, starting at 3 percent in 2010 and rising gradually to 10 percent in 2020.¹⁴⁶

3. *The Carper “Clean Air Planning Act of 2006.”*¹⁴⁷ The content of Senator Tom Carper’s bill was not strictly limited to climate change, but rather proposed a number of emissions regulations to reduce pollution from power plants.¹⁴⁸ The bill nevertheless included substantial provisions outlining a trading system for CO₂ emissions. It capped only CO₂ emissions, leaving other greenhouse gases uncapped.¹⁴⁹ It also only capped emissions from fossil fuel-fired facilities that generated electricity for sale and had the capacity to produce more than 25 megawatts.¹⁵⁰ Under Senator Carper’s bill, the cap for CO₂ in 2010 equaled the total emissions from covered entities in 2006.¹⁵¹ In 2015, the cap would have been lowered to 2001 emissions levels.¹⁵² The Act specified the method by which the EPA administrator was to allocate emissions permits to covered entities. The total quantity of permits allocated in a given year was first to be reduced by a certain amount to create a “new unit reserve” and a reserve to provide incentives for advanced clean coal technology.¹⁵³ The Act then allocated the remaining permits to covered entities according to their proportionate share of total electricity generation in the United States during the prior three years.¹⁵⁴

Although the cap only applied to CO₂ emissions, the Act instructed the administrator to promulgate regulations to provide credit for offsets and early reductions of all six major greenhouse gases.¹⁵⁵ Early reduction credits would have been available for greenhouse gas emissions reductions or sequestration projects that took place in the United States between the year 2000 and 2010, and

146. *Id.* at S7091 (proposing § 1514(c)).

147. Clean Air Planning Act of 2006, S. 2724, 109th Cong. (2006).

148. Steven D. Cook, *Carper Reintroduces Bill to Cut Emissions from Power Plants, Including Carbon Dioxide*, 37 ENV'T REP. (BNA) 937 (2006).

149. S. 2724 § 701(1)(B).

150. *Id.*

151. *Id.* § 705(c)(1).

152. *Id.* § 705(c)(2).

153. *Id.* § 705(f)(2)(B).

154. *Id.* § 705(f)(2)(A).

155. *Id.* § 705(g)(1), (h)(1). “Greenhouse gas” is defined to include all six major greenhouse gases. *Id.* § 701(6). See *supra* text accompanying note 102 (identifying the six gases).

that were reported under the DOE's 1605(b) Program or a state or regional greenhouse gas registry.¹⁵⁶ Though the Act did not make clear how those credits were to fit into the specified permit allocation procedures, it stated that they were not to exceed 10 percent of the cap for 2011.¹⁵⁷ This implies that early reduction credits would have either been added to or subtracted from the overall emissions cap. The Act was also ambiguous about whether early reduction credits would have been available for years after 2011, perhaps leaving this to the discretion of the administrator.

Under Senator Carper's plan, offset credits were available for projects that achieved reductions that were "real, surplus, enforceable, verifiable, permanent," and that were monitored, reported, and verified in accordance with the administrator's regulations.¹⁵⁸ The administrator's regulations were to consider offsets issued by California, RGGI, or any other state with a comparable offset program.¹⁵⁹ The Act contained no limits on the amount of credits from offsets projects that a covered entity could use to meet its compliance obligations.

4. *The Kerry-Snowe "Global Warming Reduction Act of 2006."*¹⁶⁰ Senators John Kerry and Olympia J. Snowe introduced this bill in October of 2006, just before Congress's recess.¹⁶¹ It is the least specific plan considered in this Note, leaving a great deal of discretion to the EPA administrator. It placed a cap on emissions of the six major greenhouse gases in the United States, requiring a 1.5 percent reduction from 2000 levels in 2010, a 2.5 percent reduction from 2000 levels in 2020, and a 3.5 percent reduction from 2000 levels in 2030.¹⁶² Under the Act, the administrator had full discretion to decide which sectors of the economy were to be responsible for achieving this cap, subject only to the requirement that covered sectors be those with the greatest emissions and the most cost-effective opportunities for

156. S. 2724 § 705(h)(1)-(2).

157. *Id.* § 705(h)(3).

158. *Id.* § 705(g)(2)(B), (D).

159. *Id.* § 705(g)(3).

160. Global Warming Reduction Act of 2006, S. 4039, 109th Cong. (2006).

161. Darren Samuelsohn, *Sens. Kerry, Snowe Introduce Global Warming Bill*, E&E NEWS PM, Oct. 3, 2006 (on file with the *Duke Law Journal*), available at <http://www.eenews.net/eenewspm/print/2006/10/03/2> (last visited Mar. 17, 2007).

162. S. 4039 § 702(b)(1).

reductions.¹⁶³ The president, in consultation with the administrator, was to create a plan to allocate permits to covered entities. The Act explicitly would have forbidden the plan from resulting in windfall profits to any covered entity and required it to be approved by Congress.¹⁶⁴ The contours of the emissions trading program, such as potential credit for early emissions reductions or offsets, was left to the discretion of the administrator.¹⁶⁵

C. Evaluation of Early Action Credit Provisions in Four Senate Bills

Each of the four bills discussed in this Note incorporated different design elements that would have affected early emissions reducers' ability to claim credit for their past emissions reductions. Table 2 summarizes the differences between each of these proposed cap-and-trade systems.¹⁶⁶

Of the four proposals, the McCain-Lieberman Climate Stewardship and Innovation Act of 2005 was by far the most favorable to early emissions reducers. The bill ensured that entities that proceeded with business as usual would not reap the benefits of early reducers' efforts. It did so by giving priority allocation of permits to entities with registered early emissions reductions,¹⁶⁷ and by requiring an entity's baseline to be set in a manner that would not penalize it for early reductions.¹⁶⁸ The Act also provided early reducers in all registries with a fair chance to prove that their early emissions reductions were real and verified. This was accomplished by directing the EPA administrator to create a new registry and to consult with the DOE about methods for verifying the accuracy of the information.¹⁶⁹ The Act further instructed the administrator to consider emissions reductions achieved under mandatory state and regional programs.¹⁷⁰ Emissions achieved as far back as 1990 were

163. *Id.* § 703(b).

164. *Id.* § 703(d).

165. *Id.* § 703(a).

166. Table 2 omits the citations to each of the bills' provisions, which can be found in Part IV.B.

167. *See supra* Part IV.B.1.

168. Climate Stewardship and Innovation Act of 2005, S. 1151, 109th Cong. § 335 (2005).

169. *Id.* § 201.

170. *Id.* § 333(h).

Table 2. Proposed Cap-and-Trade Systems: Differences Important to Early Emissions Reducers

Design Element	Cap-and-Trade Proposal			Kerry-Snowe
	McCain-Lieberman	Bingaman	Carper	
Credit for early reductions	Must register reductions achieved 1990–2010. Registration Methods and standards set by EPA.	Pre-2010 reductions reported under 1605(b), Climate Leaders, state or private registry. Limit: 1 percent of obligation.	Credit reductions achieved 2000–2010 and reported under 1605(b) or state/regional registry. Limit: 10 percent of cap.	EPA discretion.
Baseline calculation	Historic emissions levels adjusted upward to reflect verified early reductions.	Historic emissions levels mitigating unfair burden or windfalls.	Proportion of U.S. electricity generation for past three years.	EPA discretion.
Allocation of emissions cap	Priority to entities with registered early reductions or covered by mandatory state programs.	Cap derived from year 2009 intensity, divided among regulated and “affected” entities.	Reduce cap by “new unit reserve” and “clean coal reserve.”	Presidential discretion.
Gases	All.	All.	Only CO ₂ capped.	All.
Offset provisions	15 percent of obligation from other markets or from registered reduction/sequestration by unregulated entity.	Sequestration/destruction: U.S. (no limit); Int'l (3 percent of 2010 obligation, 10 percent in 2020).	EPA system to credit reported and verified offsets. No limit on use. Cal., RGGI, and other state offsets considered.	EPA discretion.
Covered entities	Electric, industrial, & commercial entities; oil refiners & importers; non-CO ₂ gas producers & importers.	Fuel distributors; cement, lime & alum. producers; coal mines; non-CO ₂ gas producers/importers.	Fossil fuel-fired facilities that sell electricity (25 megawatt or greater capacity).	EPA discretion, but must include sectors with greatest emissions and cost-effective reductions.

eligible for credit.¹⁷¹ Finally, the Act's offset provisions encouraged climate friendly investment by allowing regulated entities to purchase credits from unregulated entities that achieved emissions reductions before 2010.

The Bingaman Climate and Economy Insurance Act of 2005 contained two improvements to the McCain-Lieberman Act. It explicitly stated that participants in state and even private registries, such as the Chicago Climate Exchange,¹⁷² could receive credit for their early emissions reductions.¹⁷³ It also required the creation of a system for recognizing and crediting offsets achieved overseas.¹⁷⁴ However, the value of achieving early reductions was severely hampered by several aspects of the Act. It restricted the amount of credit that an entity could use in a given year to 1 percent of its compliance obligation.¹⁷⁵ Furthermore, if a company invested in a project that achieved emissions reductions before the start of the program, it would have been entitled to use only a small percentage of the credits produced.¹⁷⁶ Even more importantly, the Act would have produced inequitable results for early emissions reducers. It used the emissions intensity of the entire U.S. economy to set the emissions cap, and early reducers were not necessarily entitled to priority allocation of permits.¹⁷⁷ This would have allowed less efficient members of the economy to obtain windfall credits.

Obtaining early action credit under the Carper Clean Air Planning Act of 2006 also would have been difficult. It only allocated credit for emissions reductions that were achieved after the year 2000 and that were registered under the 1605(b) Program or a state or regional registry.¹⁷⁸ Even once credit was obtained, the Act restricted the amount of early emissions credits that could be used, and was unclear about the availability of credits after 2011.¹⁷⁹ It did, however, feature a number of positive aspects. For one, early emissions reductions did not affect an entity's baseline because that baseline

171. *Id.* § 203(a)(1)–(2).

172. *See supra* note 27 and accompanying text.

173. 151 CONG. REC. S7090–98, (daily ed. June 22, 2005) (proposing an amendment, the Climate and Economy Insurance Act of 2005, to H.R. 6, 109th Cong. (2005))

174. *Id.* at S7093 (proposing § 1519(d)).

175. *Id.* at S7091 (proposing § 1514(c)).

176. *See supra* Part IV.B.2.

177. 151 CONG. REC. S7090 §1513(a).

178. *See supra* Part IV.B.3.

179. Clean Air Planning Act of 2006, S. 2724, 109th Cong. § 705(h)(3) (2006).

was based upon its proportionate share of the energy market, not on its historical emissions levels. In addition, it did not cap the use of credits from offsets projects. This would have encouraged investments in projects to reduce emissions of non-CO₂ greenhouse gases.

Finally, the Kerry-Snowe Global Warming Reduction Act of 2006 delegated all the details of the cap-and-trade system to the EPA.¹⁸⁰ Early emissions reducers would have had the opportunity to argue for credit during the EPA's notice and comment proceedings. Compared to Congress, the EPA is much more familiar with the specifics of greenhouse gas emissions accounting and registration, and, due to its Climate Leaders program, is aware that substantial emissions reductions are already taking place. On the other hand, delegating so much of the program to the EPA would have likely produced significant delays in creating the cap-and-trade system. In the meantime, uncertainty would have inhibited some emitters from achieving emissions reductions. For this reason, legislation with well-defined parameters is probably preferable.

The proposed legislation considered in this Note demonstrates that a future federal program will most likely contain some form of credit for early action. Only the Climate Stewardship and Innovation Act, however, truly protected the interests of early emissions reducers. The other acts placed heavy restrictions on the recognition and use of early reduction credits to preserve a greater proportion of the cap for distribution among all covered entities. This approach is both inequitable and inefficient. It is inequitable because it transfers the benefit of the early emissions reductions to entities that proceed with business as usual, and it is inefficient because it forestalls investment into emissions reductions until the cap goes into effect. By allowing greater recognition and use of early emissions reductions, the Climate Stewardship and Innovation Act would have encouraged early investment into ordinary emissions reductions, sequestration, and other domestic projects. Future legislative proposals should build upon the model provided by the Climate Stewardship and Innovation Act.

180. Global Warming Reduction Act of 2006, S. 4039, 109th Cong. § 703(a) (2006).

CONCLUSION

Greenhouse gas emitters in the United States have achieved substantial emissions reductions through voluntary programs and compliance with mandatory state regulations. There are several reasons why a federal greenhouse gas emissions program should provide credit for these early reduction efforts. First, reductions must take place soon if the world is to meet the goal of the UNFCCC and thereby avoid dangerous, human-induced changes in the earth's climate without painful disruption to national economies. Second, it would be inequitable to allow emitters that proceed with business as usual to benefit from the costly reduction activities undertaken by early actors. Third, the registration guidelines promulgated by state and federal registries have become accurate enough to verify that emissions reductions are real, additional, and verifiable. Accordingly, given the growing expectation that federal climate change regulations will be promulgated by 2015, a method for crediting emissions reductions that are verified and reported should be developed.

Early actors face several uncertainties with respect to a future federal cap-and-trade system for regulating greenhouse gas emissions. This Note identifies six elements of cap-and-trade systems that can affect early actors' ability to claim emissions reduction credits: (1) what early reduction credits are available, (2) which baseline calculation method is employed, (3) how the overall emissions cap is allocated, (4) which greenhouse gases are regulated, (5) how offsets are treated, and (6) what types of entities are regulated. From the perspective of early emissions reducers, the ideal legislation should prospectively provide credit for present reductions in the event that a cap-and-trade program is enacted. Absent such legislation, a bill providing credit for past emissions reductions would ideally credit verifiable, registered reductions without limitations on the year in which they were achieved or the amount of credits that could be used to satisfy compliance obligations. An entity's baseline should be adjusted for early emissions reductions, and the overall cap should be distributed in such a way that the benefits of early emissions reductions inure solely to early actors. The regulation should cover all major greenhouse gases and emitting industry segments and should allow covered entities to use offsets credits to meet their compliance obligations. If the enactment of such a regulation were foreseeable, greenhouse gas emitters would have strong incentives both to reduce

their own emissions and to invest in reduction, sequestration, and other projects by third parties.

Until such regulation occurs, entities that reduce their emissions should ensure that they accurately account for and register their reductions in a voluntary registry. Reductions registered according to the 1605(b) Program's revised guidelines stand the greatest chance of receiving federal credit due to the explicit crediting language included in the regulation and the more stringent standards it applies to "registered" reductions.¹⁸¹ Emitters should first target emissions of greenhouse gases with high global warming potentials. Emitters should also limit contracts for offsets reductions to domestic projects in areas with established accounting methods under a voluntary registry. Due to the potential for percentage limitations on use of offsets credits, such projects should be secondary to ordinary emissions reductions. Finally, early emissions reducers should be vigilant of a future cap-and-trade system's methods for calculating baselines and allocating the emissions budget. Most legislation allocates considerable discretion to a federal agency to design these components of the system. Accordingly, early actors should rely upon the equitable and efficiency arguments provided in this Note to protect their interests throughout the agency's rulemaking process.

181. *See supra* Part III.