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ARTICLE

FEDERAL CLIMATE CHANGE LEGISLATION AND PREEMPTION

*William L. Andreen**

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* Edgar L. Clarkson Professor of Law, University of Alabama School of Law. Earlier versions of this article were presented at a Symposium on U.S. Climate Change Legislation at the University of Houston Law Center on February 11, 2008 and at a Symposium on States as Laboratories for Social Change at Temple University's James E. Beasley School of Law on October 20, 2007. I am grateful for the comments I received from the participants at both gatherings and from my colleague, Shahar Dillbary. Finally, I would like to thank the University of Alabama Law Foundation for its faithful support of my work through the years.

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I. INTRODUCTION

After years of inaction, Congress stands on the brink of passing legislation to regulate greenhouse gas (“GHG”) emissions. Not only were numerous bills introduced and hearings held during the course of the 110th Congress,¹ but one bill, the Lieberman-Warner Climate Security Act, was reported out of committee in December 2007,² and the Senate held floor debate on Senator Barbara Boxer’s substitute amendment to that bill³ in early June 2008.⁴ Although the bill was withdrawn before the Senate voted on the measure,⁵ it is likely that climate change

1. JAMES E. MCCARTHY, CONG. RES. SERV., CLEAN AIR ISSUES IN THE 110TH CONGRESS: CLIMATE CHANGE, AIR QUALITY STANDARDS, AND OVERSIGHT 1, 4 (2007), available at <http://www.cnie.org/NLE/CRS/abstract.cfm?NLEid=1792>.

2. Steven D. Cook, *Senate Environment Committee Backs Emissions Cap-and-Trade Legislation*, Pub. No. 48, 38 ENV’T REP. (BNA) 2601 (Dec. 7, 2007).

3. See Lieberman-Warner Climate Security Act, S. 3036, 110th Cong. (2008) (referencing America’s Climate Security Act, S. 2191, 110th Cong. (2007)).

4. See John M. Broder, *Senate Opens Debate on Politically Risky Bill Addressing Global Warming*, N.Y. TIMES, June 3, 2008, at A16.

5. The Senate leadership pulled the bill from further consideration after the Senate failed to invoke cloture by a vote of 48 to 36 (60 votes were necessary to end debate) and bring the bill to a vote. Juliet Eilperin, *Senators Pull Measure on Climate*, WASH. POST, June 7, 2008, at A03, available at http://www.washingtonpost.com/wp-dyn/content/article/2008/06/06/AR2008060600333_pf.html. Even if the Senate had passed the bill, it was unlikely that Congress would have enacted climate change legislation in

will find itself at the top of the congressional agenda when the 111th Congress convenes in January of 2009.

Congressional action is long overdue. Although the Senate ratified the United Nations Framework Convention on Climate Change (“UNFCCC”) in 1992,⁶ President Clinton never transmitted the Kyoto Protocol to the Senate for ratification due to overwhelming opposition in the Senate.⁷ During the past eight years, the Bush Administration has been steadfast in its opposition to Kyoto⁸ and to the concept of mandatory national reductions in GHG emissions.⁹ Congress, for its part, has been largely disengaged—consistently ignoring or rejecting, at least until recently, a long series of proposals to cap GHG gas emissions.¹⁰

The states, on the other hand, have not been so reluctant to act. To fill the vacuum created by federal inaction, many states have taken some initial steps to reduce GHG emissions.¹¹ As of January 2008, thirty-three states had formulated climate change action plans or planned to complete such plans by the end of 2008.¹² These plans vary widely, some focusing more on indirect strategies such as improved energy efficiency through improved

2008. Not only was the House of Representatives well behind the Senate on climate legislation, but any such bill would have faced a near-certain veto by President Bush. Kate Sheppard, *Just Around the Corner: Lieberman-Warner Climate Bill Hitting the Senate Floor*, GRISTMILL, June 2, 2008, <http://gristmill.grist.org/story/2008/5/30/15512/3699> (last visited Nov. 15, 2008).

6. Framework Convention on Climate Change, *Status of Ratification of the United Nations Framework Convention on Climate Change*, U. N. Doc. FCCC/1996/INF.3 (Dec. 6, 1996). FCCC/1996/INF.3, available at <http://unfccc.int/resource/docs/1996/sbsta/inf03.pdf>.

7. Matthew Visick, *The California Global Warming Solution Act of 2006: California's Final Steps Toward Comprehensive Mandatory Greenhouse Gas Regulation*, 13 HASTINGS W. NW. J. ENVTL. 249, 251 (2007). In anticipation of the Kyoto negotiations, the Senate passed a resolution by a vote of ninety-five to zero declaring that the United States should not sign any agreement limiting GHG emissions in the developed world unless it also contained schedules to limit emissions in the developing world over the same period of time. See LARRY B. PARKER & JOHN E. BLODGETT, CONG. RES. SERV., U.S. GLOBAL CHANGE POLICY: EVOLVING VIEWS ON COST, COMPETITIVENESS, AND COMPREHENSIVENESS 12 (2008), available at <http://ncseonline.org/NLE/CRS/abstract.cfm?NLEid=596>.

8. See PARKER & BLODGETT, *supra* note 7, at 13.

9. BARRY RABE, THE BROOKINGS INST., SECOND GENERATION CLIMATE POLICIES IN THE AMERICAN STATES: PROLIFERATION, DIFFUSION, AND REGIONALIZATION 1 (2006), available at http://www.brookings.edu/papers/2006/08energy_rabe.aspx.

10. *Id.*

11. CONFERENCE ON DEFINING THE ROLE OF STATES AND LOCALITIES IN FEDERAL GLOBAL WARMING LEGISLATION, NAT'L ASS'N. OF CLEAN AIR AGENCIES, DISCUSSION PAPER #1: PRESERVING THE RIGHT OF STATES AND LOCALITIES TO SET MORE STRINGENT GREENHOUSE GAS REDUCTION REQUIREMENTS THAN THE FEDERAL PROGRAM 9 (2008), available at <http://www.4cleanair.org/documents/GWConferenceMaterials.pdf> [hereinafter NACAA DISCUSSION PAPER #1].

12. *Id.*

building codes and the promotion of renewable energy sources such as wind and solar through the establishment of renewable portfolio standards.¹³ Other plans are more comprehensive and recommend an array of efforts, including programs aimed directly at reducing GHG emissions.¹⁴ Based in part upon this kind of planning process, seventeen states have actually established GHG emission-reduction targets, which—if the targets are met—would stabilize GHG emissions in the United States at 2010 levels by the year 2020.¹⁵

This bottom-up approach to the mitigation of GHG emissions is an indication that our federalist system can work well. States can serve as laboratories of innovation¹⁶ in which new ideas and regulatory approaches can take root, some of which may eventually serve as templates for other jurisdictions, even the federal government. Not all of our states, however, have been innovators. Most states have failed to address GHG emissions from either power plants or the transportation sector.¹⁷ Furthermore, “there is little guarantee or binding regulation to assure” that the states that have set emission reduction targets will actually achieve them.¹⁸ Moreover, even if their targets are met, they fall “far short” of the cuts needed to stabilize the global climate.¹⁹

There is a pressing need, therefore, for federal legislation to address climate change. Only federal regulation (in conjunction with global efforts) can achieve the kind of overall reduction in GHG emissions that is necessary to mitigate the harsher impacts of climate change.²⁰ However, state action is still important. Not only do the states’ actions serve as models for other governments to learn from, but they have encouraged energy efficiency and the use of renewable energy sources. In

13. See JONATHAN L. RAMSEUR, CONG. RES. SERV., CLIMATE CHANGE: ACTION BY STATES TO ADDRESS GREENHOUSE GAS EMISSIONS 3-5 (2007), available at <http://www.cnie.org/NLE/CRS/abstract.cfm?NLEid=1849>; David Hodas, *State Initiatives*, in GLOBAL CLIMATE CHANGE AND U.S. LAW 353 (Michael B. Gerrard ed., 2007).

14. RAMSEUR, *supra* note 13, at 5.

15. Nicholas Lutsey & Daniel Sperling, *America’s Bottom-up Climate Change Mitigation Policy*, 36 ENERGY POL’Y 671, 683 (2008).

16. *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting) (referring to states as “laboratories of democracy for social and economic experiments”).

17. See J.R. DeShazo & Jody Freeman, *Timing and Form of Federal Regulation: The Case of Climate Change*, 155 U. PA L. REV. 1499, 1532 (2007); see also Lutsey & Sperling, *supra* note 15, at 683 (stating that “about half the US states have not yet meaningfully engaged in climate change mitigation”).

18. Lutsey & Sperling, *supra* note 15, at 674-75.

19. See *id.* at 683.

20. DeShazo & Freeman, *supra* note 17, at 1538.

doing so, they have lessened the nation's contribution to climate change and have set the stage for more significant reductions in the future.

State action has also increased the pressure for federal legislation. It has demonstrated, as well as galvanized, a growing consensus in the nation that action is necessary to deal with climate change.²¹ For years many environmentalists, while advocating state action, have recognized that state action alone would not be enough because far too many states are not involved in the effort and, in too many instances, state action has been far from stringent enough.²² Many state officials also support federal action because it is necessary to increase the nation's aggregate reductions in GHGs.²³ One component of the gathering force favoring federal legislation, however, is perhaps rather surprising. A number of U.S. businesses, including major energy and manufacturing firms, have joined together to advocate federal cap-and-trade legislation to cut GHG emissions.²⁴

Whereas many businesses only a few years ago challenged mainstream science's conclusions on climate change and led the

21. A recent opinion poll found that seventy-one percent of Americans are convinced that global warming is occurring and that fifty-seven percent believe that it is due primarily to human activity. Anthony Leiserowitz, American Opinions on Global Warming: Summary, Yale Univ. Gallup & ClearVision Inst., <http://environment.yale.edu/news/Research/5310/american-opinions-on-global-warming-summary/> (summarizing the results of a poll conducted by Yale University, Gallup, and the ClearVision Institute). The survey also found that a large majority, sixty-two percent, consider global warming "an urgent threat requiring immediate and drastic action." *Id.*

22. See, e.g., Eileen Claussen, President, Pew Ctr. on Global Climate Change, Forum on the State and Development of the Greenhouse Gas Market at the Int'l Emissions Trading Ass'n. Annual Conference (Dec. 5, 2002) (transcript available at Pew Ctr. on Global Climate Change <http://www.pewclimate.org/print/1018>) [hereinafter Claussen].

23. See Press Release, Nat'l Ass'n of Regulatory Util. Comm'rs, In Major Action NARUC Supports Federal Climate Legislation, Spells Out Policy Options (Nov. 14, 2007), <http://www.naruc.org/News/default.cfm?pr=61> [hereinafter NARUC Press Release]; NAT'L ASS'N OF CLEAN AIR AGENCIES, NACAA GLOBAL WARMING PRINCIPLES (May 1, 2007), <http://www.4cleanair.org/Documents/NACAAGlobalWarmingPrinciples050107FINAL.pdf> [hereinafter NACAA GLOBAL WARMING PRINCIPLES]. DeShazo and Freeman have also speculated that some state officials from states that have already acted to curtail GHG emissions may be motivated by a desire to spread the cost of GHG reductions to all states, "in order to relieve the burden on state industries that might otherwise be disadvantaged vis-à-vis their out-of-state competitors." DeShazo & Freeman, *supra* note 17, at 1538. They have also suggested that some of these same officials may favor federal regulation in order to increase market demand for energy-saving products or technology that their states may be well-positioned to produce. *Id.*

24. Dean Scott, *Businesses Call on Congress to Act in 2007*; Bingaman, Specter Circulate Latest Draft Bill, DAILY ENV'T REP., Jan. 23, 2007, at A1; MCCARTHY, *supra* note 1, at 2 n.4; DeShazo & Freeman, *supra* note 17, at 1552-53.

domestic opposition to ratification of the Kyoto Protocol,²⁵ many now recognize that the scientific debate about anthropogenic climate change is over.²⁶ So, while it is undoubtedly true that most businesses would prefer to see no regulation of GHGs,²⁷ the question today is no longer whether there will be regulation, but what kind of regulation it will be. Although federal regulation may not be particularly palatable to them, it appears preferable to a wide range of inconsistent and increasingly stringent regulation at the state level.²⁸

State action, therefore, has convinced many industries that a federal GHG cap-and-trade program is a better option than a patchwork of state and local approaches²⁹—as long as the federal program preempts conflicting state programs.³⁰ Many other industries either oppose federal cap-and-trade legislation or have not taken a position, but they are nevertheless united in advocating the preemption of state programs.³¹ Industry's

25. See, e.g., Marc Gunther, *Exxon Mobil Greens Up Its Act*, CNNMONEY.COM, Jan. 26, 2007, http://money.cnn.com/2007/01/25/magazines/fortune/pluggedin_gunther_exxonmobil.fortune/index.htm (last visited Nov. 15, 2008) (noting the company's opposition to Kyoto and funding for think tanks to challenge the conclusions of mainstream science).

26. Steven Mufson & Juliet Eilperin, *Energy Firms Come to Terms with Climate Change*, WASH. POST, Nov. 25, 2006, at A1 (quoting the President of Shell Oil saying "[w]hen 98 percent of scientists agree, who is Shell to say, 'Let's debate the science?'").

27. See E. Donald Elliott, Bruce A. Ackerman & John C. Millian, *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313, 326 (1985) (discussing the perspective of the automobile and coal industry on the eve of the enactment of federal air pollution control laws in the 1960s).

28. See *id.*; DeShazo & Freeman, *supra* note 17, at 1530-31, 1533-36.

29. The U.S. Climate Action Partnership, a collaboration of over a dozen major manufacturing and energy corporations including Alcoa, BP America, Caterpillar Inc., Duke Energy, DuPont, General Electric, Florida Power & Light, PG&E, Chrysler, General Motors, and Ford, has endorsed a mandatory federal cap-and-trade system which would reduce U.S. emissions by sixty to eighty percent by 2050. See MCCARTHY, *supra* note 1, at 2 n.4. This development, in which a piecemeal, state-by-state approach to climate policy would create pressure for uniform federal legislation, was envisioned by Eileen Claussen, the President of the Pew Center on Global Change, as early as 2002. Claussen, *supra* note 22.

30. See, e.g., Mufson & Eilperin, *supra* note 26, at A1 (quoting the President of Shell Oil); Ian Hoffman, *State Pushing Feds on Climate Change*, OAKLAND TRIB., April 26, 2006, at A1 (quoting representatives of Duke Energy and PG&E). As DeShazo and Freeman point out, industry will achieve a "double win" in the event that federal legislation "turns out to be weaker than the more aggressive state standards, and if preemption prevents any deviation." DeShazo & Freeman, *supra* note 17, at 1505.

31. See Press Release, Nat'l Ass'n of Mfrs., *NAM Urges Senators to Oppose Economically Damaging Climate Change Legislation* (Dec. 5, 2007) (on file with the Nat'l Ass'n of Mfrs.); Am. Coal. for Clean Coal Elec., *Mission Statement* (adopted April 4, 2008), http://www.cleancoalusa.org/docs/beyond/ACCCE_Climate_Strategy_and_Legislative_Principles.pdf (last visited Nov. 15, 2008); Statement of Bus. Roundtable on S. 2191, *The Lieberman-Warner Climate Security Act of 2008* (as Modified by S. 3036), (June 2, 2008),

position favoring a nearly exclusive federal regulatory program represents a complete reversal in less than ten years in industry's approach to state environmental programs. During the 1990s, industry joined many states and commentators in advocating for the transfer or devolution of many aspects of federal environmental law from Washington to the state level.³² In doing so, they sought the greater regulatory flexibility that many state programs offered, including more reliance upon voluntary action and a more relaxed attitude toward environmental enforcement.³³

As a result, industry has abruptly switched from being an advocate of state programs in the 1990s to being an opponent in the context of climate change. The only thread of consistency in that altered course is industry's pursuit of self-interest. In the 1990s, industry wanted relief from what was perceived as a tough federal approach to pollution control, or at least a tougher approach than was the case in many states.³⁴ Today, by contrast, industry is seeking relief from the more stringent state programs, as well as from what it views as a cumbersome assortment of standards and initiatives.³⁵

Countering industry on the question of preemption are

http://www.businessroundtable.org/sites/default/files/06.02.08_Senate_Letter_on_S.2191.pdf (supporting preemption but taking no position on the whole of the Climate Security Act).

32. See Andrew Hecht, Note, *Obstacles to the Devolution of Environmental Protection: States' Self-Imposed Limitations on Rulemaking*, 15 DUKE ENVTL. L. & POL'Y F. 105, 107-08 (2004-05). For academic commentary favoring some degree of devolution or transfer of regulatory authority to the state level, see Jonathan H. Adler, *Let 50 Flowers Bloom: Transforming the States Into Laboratories of Environmental Policy*, 31 ENVTL. L. REP. 11,284 (2001); Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principles: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE L. & POL'Y REV. 23 (1996); James E. Krier, *On the Topology of Uniform Environmental Standards in a Federal System—and Why It Matters*, 54 MD. L. REV. 1226 (1995); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992); Bruce Yandle, *Mr. Lomborg and the Common Law*, 53 CASE W. RES. L. REV. 285, 295 (1992).

33. See CLIFFORD RECHTSCHAFFEN & DAVID L. MARKELL, *REINVENTING ENVIRONMENTAL ENFORCEMENT & THE STATE/FEDERAL RELATIONSHIP* 2, 149-156 (Env'tl. Law Inst.) (2003).

34. See Hecht, *supra* note 32, at 107-08 (observing that industry groups were seeking "friendlier state rule" to replace existing federal rules).

35. WILLIAM L. ANDREEN, ROBERT GLICKSMAN, NINA MENDELSON, RENA STEINZOR, & SHANA JONES, CTR. FOR PROGRESSIVE REFORM, *COOPERATIVE FEDERALISM AND CLIMATE CHANGE: WHY FEDERAL, STATE, AND LOCAL GOVERNMENTS MUST CONTINUE TO PARTNER* 16 (2008) [hereinafter *COOPERATIVE FEDERALISM*], available at <http://www.progressivereform.org/whitepapers.cfm> ("Put simply, industry favors the weakest standards—and will press for whatever forum—local, state, or federal—it perceives to be most aligned with its deregulatory agenda.").

environmental organizations³⁶ and many state officials who oppose the displacement of state programs that are more stringent than an eventual federal program.³⁷ The position these organizations and officials take is consistent with a more cooperative approach found in most of the federal environmental statutes that have been passed since 1970. Those statutes generally reserve important roles for the states to play, including the authority to enact laws and promulgate regulations that are more protective of the environment than federal law would provide.³⁸ The forces opposing a one-size-fits-all approach are formidable, as are the forces that champion a uniform federal program.

Preemption, therefore, will be a contentious issue as Congress debates climate change legislation. The question will basically be posed as a choice between two starkly different approaches to the federal-state relationship. Should the legislation utilize floor preemption, which, while preempting less stringent state programs, would preserve room for state creativity by permitting states to adopt additional or more stringent measures that directly or indirectly produce greater reductions in the emission of GHGs? Or should it impose ceiling preemption, barring any more protective action by the states?

This article will analyze the arguments for displacing, on the one hand, or retaining, on the other, the power of state governments to craft climate change programs that go beyond the confines of federal law. Before doing so, however, the article will set the stage, briefly addressing climate change itself and the regional variations that will likely develop in both the nature and magnitude of its adverse impacts. Second, the article will summarize the history of both the federal and state responses to climate change. That discussion will also address the factors that lie behind the apparent turn-about in state regulatory fervor—contrasting the relative laxity that led to the calls for devolution with the more recent flurry of activity surrounding climate change. The article will then weigh, in detail, the merits of ceiling preemption versus floor preemption in the context of

36. See Sheppard, *supra* note 5.

37. NARUC Press Release, *supra* note 23; NACAA GLOBAL WARMING PRINCIPLES, *supra* note 23; Carl Tubbesing, *The Reflecting Pool*, STATE LEGISLATURES: THE NAT'L CONFERENCE OF STATE LEGISLATURES, Aug. 30, 2007, available at <http://www.ncsl.org/magazine/RP083007.htm> (reporting on a policy statement adopted by the National Conference of State Legislatures at its 2007 business meeting).

38. See, e.g., Clean Water Act § 510, 33 U.S.C. § 1370 (2000); Clean Air Act § 116, 42 U.S.C. § 7416 (2000); Resource Conservation and Recovery Act § 3009, 42 U.S.C. § 6929 (2000).

climate change regulation. While neither approach is problem-free, the article concludes that, on balance, the merits of utilizing a more-accommodating, traditional approach to state environmental programs, namely floor preemption, are far stronger than the merits favoring a monolithic federal structure.

II. THE CRISIS OF CLIMATE CHANGE

The climate of the earth is warming,³⁹ and most of that warming is “very likely due” to increased concentrations of human-generated GHGs like carbon dioxide (“CO₂”) and methane.⁴⁰ The level of CO₂ in the atmosphere has now risen to 379 parts per million (“ppm”)—the first time in the last 650,000 years that it has exceeded 300 ppm. In fact, during the prior 650,000 years, CO₂ had always remained within a band of between 180 and 300 ppm.⁴¹ The rise in methane concentrations has been even more dramatic. Today, atmospheric concentrations of methane are 1,774 parts per billion (“ppb”), more than twice as high as at any time in the previous 650,000 years.⁴² As a result, the world is warming at a rapid rate,⁴³ and this trend will intensify even if the world community is able to stabilize GHG emissions at current levels because of the time it takes for the climate system to reach equilibrium.⁴⁴ According to the Intergovernmental Panel on Climate Change (“IPCC”), the continuation of GHG emissions at or above current rates will likely produce a 3.5 to 8 degree Fahrenheit rise in global

39. WORKING GROUP I, FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL BASIS 5 (Susan Solomon et al. eds., 2007), [hereinafter IPCC 2007] available at <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>.

40. *Id.* at 10. By “very likely,” the authors of the IPCC report mean an assessed likelihood, using expert judgment, of over ninety percent. *Id.* at 3 n.6.

41. *Id.* at 2. The primary source of the increased levels of atmospheric CO₂ is the burning of fossil fuel, with land-use change, especially deforestation, providing a smaller contribution. *Id.* Current CO₂ concentrations are “likely” higher than at any point in the past twenty million years. WORKING GROUP I, THIRD ASSESSMENT REPORT, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS 39 (J.T. Houghton et al. eds., 2001).

42. IPCC 2007, *supra* note 39, at 3.

43. *Id.* at 5 (reporting evidence of recent increases in average air and ocean temperatures; an increase in atmospheric water vapor content; widespread melting of glaciers, ice caps, and snow cover; and a rising global average sea level).

44. COMM. ON ENVTL. AND NATURAL RES., NAT’L SCI. AND TECH. COUNCIL, SCIENTIFIC ASSESSMENT OF THE EFFECTS OF GLOBAL CHANGE ON THE UNITED STATES 3-7 (2008) [hereinafter EFFECTS OF GLOBAL CHANGE ON THE U.S.], available at <http://www.climate-science.gov/Library/scientific-assessment/Scientific-AssessmentFINAL.pdf>.

temperature by the end of the 21st century,⁴⁵ with all the attendant environmental and social disruption that such an unprecedented change would bring in its wake—melting ice caps and glaciers, rising sea level, widespread changes in precipitation levels, and more extreme weather conditions such as droughts, heat waves, heavy rainfall events, and intensified tropical cyclones.⁴⁶

A. Variations in Regional Impact

The impact of global warming will not be uniform. Some geographical areas will experience more warming than others, and some regions will experience increases in precipitation, while others experience more extensive droughts.⁴⁷ In the United States, maximum summer temperatures are likely to increase more than average in the Southwest, while minimum winter temperatures are likely to rise more than the average in the Northern states. While annual average precipitation is very likely to increase in the Northeast, precipitation will likely decrease in the Southwest.⁴⁸ In fact, a recent study concluded that the Southwest will receive ten to twenty percent less rain and snow by the end of the 21st century.⁴⁹ The situation in places like southern California and Arizona, therefore, might well resemble a perpetual drought.⁵⁰ Moreover, it is likely those

45. IPCC, CLIMATE CHANGE 2007, *supra* note 39, at 13. Almost all of the models used in the IPCC study project average warming in the United States of over 3.6 degrees Fahrenheit by the end of the century, with one-fourth of the models predicting average warming of over 7.2 degrees Fahrenheit. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 4.

46. IPCC, CLIMATE CHANGE 2007, *supra* note 39, at 15-16, 122.

47. *Id.* at 849-51.

48. *Id.* at 850; EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 91. For a concise, general discussion of why climate changes will vary from region to region, despite the fact that GHGs like CO₂ are evenly distributed around the world. See IPCC, CLIMATE CHANGE 2007, *supra* note 39, at 865. The IPCC report also contains a more specific treatment of the reasons for these variations in projected temperature levels and precipitation. *Id.*, at 887-91.

49. Tony Davis & Dan Sorenson, *Study Predicts Dust-Bowl Southwest*, ARIZ. DAILY STAR, Apr. 6, 2007, at B1, available at <http://www.azstarnet.com/allheadlines/177194>. The study, conducted by scientists from Columbia, Princeton, the National Oceanic and Atmospheric Administration, Tel Aviv University, and the National Center for Atmospheric Research, ran simulations using the nineteen climate models that participated in the Fourth Assessment Report of the IPCC and found that a broad consensus of them (18 out of 19) indicated “a drying trend in the American Southwest, and they consistently become drier throughout the century.” Richard Seager et al., *Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America*, 316 SCIENCE 1181, 1181 (2007).

50. See Seager, *supra* note 49, at 1181 (concluding that, if the models are right, “the levels of aridity in the recent multiyear drought or the Dust Bowl and the 1950s droughts will become the new climatology of the American Southwest within a time frame of years to

drought conditions will be exacerbated by earlier and lower spring snowmelts.⁵¹ Wildfires, along with the problems they pose to air quality and human health, are likely to increase in frequency and severity in the West, the Intermountain West, and the Southeast.⁵²

Likely rises in rainfall, wind speed and storm surge associated with hurricanes will increase coastal vulnerabilities along the Gulf Coast and in the other Southeastern states.⁵³ It is virtually certain that our coastal states will lose a considerable amount of low-lying area, including coastal wetlands and barrier islands, due to inundation and erosion,⁵⁴ while inland states will not. The coastal states will also likely experience increased intrusion of salty water into their groundwater supplies.⁵⁵ Meanwhile, states with cold-water fisheries like salmon will suffer from the likely decline of those fisheries, while states with warm-water fisheries will generally benefit from climate change.⁵⁶ So, while climate change is a problem of the global commons—we all contribute to it and we will all suffer—some regions will suffer more than others, and the nature and magnitude of that suffering will vary depending upon one's geographical location.

III. THE GOVERNMENTAL RESPONSE IN THE UNITED STATES TO CLIMATE CHANGE

A. *The Federal Response*

The federal government has thus far eschewed a direct regulatory program for reducing GHG emissions.⁵⁷ During the course of the Bush administration, both Congress and the Executive branch have consistently favored voluntary reduction efforts and more research over direct regulation.⁵⁸ This pattern

decades"). See generally Jon Gertner, *The Future is Drying Up*, N.Y. TIMES, Oct. 21, 2007, §6 (Magazine) at 68 (discussing the dislocations and conflicts that may arise from water shortages in the American Southwest due to reduced snowpack, higher temperatures, and lower rainfall).

51. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 155.

52. *Id.* at 15-16.

53. *Id.* at 14.

54. *Id.* at 10, 96.

55. *Id.* at 12.

56. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 133-34.

57. See Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L.Q. 183, 186 (2005).

58. U.S. DEP'T OF STATE, USA ENERGY NEEDS, CLEAN DEVELOPMENT AND CLIMATE CHANGE: PARTNERSHIPS IN ACTION (2006), available at

has been interrupted, on occasion, by some efforts to use regulation to increase energy efficiency in the United States. For example, Congress recently acted to increase the average fuel efficiency of cars and light trucks. The increases, however, are modest; they are not slated to begin until 2011 and the target of thirty-five miles per gallon is not scheduled to be achieved until 2020.⁵⁹ There is, in short, little indication so far that Washington recognizes either the dimensions or imminence of the crisis we face.

Viewed from a longer-term historical perspective, this kind of inaction is somewhat surprising. During the past half century, the federal government has clearly been the most prominent and important supporter of climate research in the world.⁶⁰ The United States was a driving force behind the creation of the IPCC in 1988, and the federal government has provided a substantial amount of the funding to support the panel's work.⁶¹ Ten years before the IPCC was created, however, Congress was moving forward on climate change research. The National Climate Program Act of 1978 created an office in the National Oceanic and Atmospheric Administration to help the nation and the world understand and respond to climate change. To that end, the program was directed to coordinate and fund research on the mechanics and effects of climate change.⁶² Nine years later, Congress expanded the scope of this program. The Global Climate Protection Act of 1987 called for an investigation of ways

<http://www.state.gov/g/oes/rls/or/2006/75337.htm>; U.S. CLIMATE CHANGE TECHNOLOGY PROGRAM, VISION AND FRAMEWORK FOR STRATEGY AND PLANNING (2005), available at <http://www.climatetechnology.gov/vision2005>.

59. Energy Independence and Security Act of 2007, 110 P.L. 140 §102(b), 121 Stat. 1492 (2007) (directing the National Highway Traffic Safety Administration to increase the fuel economy of passenger vehicles and light trucks starting no sooner than 2011 and to reach a combined average fleet target of thirty-five miles per gallon by 2020). At the same time, Congress also required an approximate twenty-five percent increase in energy efficiency for light bulbs, phased in from 2012 to 2014, thus effectively banning the sale of most types of common incandescent bulbs. See *id.* § 321.

60. ELIZABETH KOLBERT, FIELD NOTES FROM A CATASTROPHE: MAN NATURE, AND CLIMATE CHANGE 161 (2006).

61. Harold K. Jacobson, *Climate Change: Unilateralism, Realism, and Two-Level Games*, in MULTILATERALISM & U.S. FOREIGN POLICY: AMBIVALENT ENGAGEMENT 415, 418 (Steward Patrick & Shepard Forman eds., 2002).

62. National Climate Program Act of 1978, Pub. L. No. 95-367, 92 Stat. 601 (1978) (codified at 15 U.S.C. §§2901-08 (2006)). In a similar vein, the White House requested the National Academy of Sciences to convene a study group of experts in 1979 to assess whether climate change might occur as the result of anthropogenic releases of CO₂. The study group concluded that "We now have incontrovertible evidence that the atmosphere is indeed changing and that we ourselves contribute to that change. . . . If carbon dioxide continues to increase, [we find] no reason to doubt that climate changes will result and no reason to believe that these changes will be negligible." NAT'L ACAD. OF SCIENCES, CARBON DIOXIDE & CLIMATE: A SCIENTIFIC ASSESSMENT vii-viii (1979).

to mitigate the adverse impacts and ordered the U.S. Environmental Protection Agency (“EPA”) to coordinate national policy on climate change. The act also directed the Secretary of State to focus on multilateral diplomatic activities to combat global warming.⁶³ Then, in 1990, Congress stepped up the pace of research with the passage of the Global Change Research Act, which established a ten-year research program on global climate issues, called for research into energy efficiency and renewable energy sources, and required the preparation of periodic reports examining both the effects of and current trends in climate change.⁶⁴

The United States, however, would soon cede its leadership position on climate change. Despite the fact that the United States had played a leading role in the drafting of the UNFCCC, faced with concerns in the White House about the cost of complying, President George H.W. Bush made it clear rather late in the process that he would not attend the 1992 United Nations Conference on Environment and Development (“UNCED”) in Rio de Janeiro, where the convention would be concluded, if it contained firm targets for cutting GHG emissions.⁶⁵ His threat succeeded; the negotiators accepted the United States position.⁶⁶ The convention, cleansed of any binding commitment to reduce emissions by a date certain, was signed and ratified by the United States in 1992.⁶⁷

Support for binding targets was undermined at the White House by concerns about scientific uncertainty regarding climate change.⁶⁸ Those concerns were likely driven or, at least, amplified by anxiety about the cost of compliance and its possible impact upon the competitive position of the United States.⁶⁹ That fear was strong; it persisted despite the conclusion of a 1991 report by the National Academy of Sciences that “[t]he United States could reduce or offset its greenhouse gas emissions by between 10 and 40 percent of 1990 levels at low cost, or at some net savings, if proper policies are implemented.”⁷⁰

63. Global Climate Protection Act of 1987, Pub. L. No. 100-204, 101 Stat. 1408 (1987) (codified at 15 U.S.C. §§ 2901-08 (2006)).

64. Global Change Research Act of 1990, Pub. L. No. 101-606, § 103, 104 Stat. 3096, 3098-3100 (1990) (codified at 15 U.S.C. §§ 2921-61 (2006)).

65. Jacobson, *supra* note 61, at 419.

66. See *id.*; Rose Gutfeld, *Earth Summitry: How Bush Achieved Global Warming Pact with Modest Goals*, WALL ST. J., May 27, 1992, at A1.

67. PARKER & BLODGETT, *supra* note 7, at 1.

68. *Id.*

69. *Id.* (referring to concerns expressed on the floor of the Senate during debate on the ratification of the UNFCCC).

70. NAT'L ACAD. OF SCIENCES, POLICY IMPLICATIONS OF GREENHOUSE WARMING 73-

That same fear, reinforced by a massive advertising campaign undertaken by American industry,⁷¹ doomed any chance that the Kyoto Protocol had for success on the Senate floor. Not only did the Senate unanimously urge the President not to sign any agreement that threatened “serious harm to the economy” or that did not mandate reductions in the developing world,⁷² but Congress subsequently passed a number of bills that barred the EPA from implementing the Protocol⁷³—which President Clinton had signed in 1998, the Senate reservations notwithstanding.⁷⁴ Then, in 2001, the administration of George W. Bush abandoned both Kyoto and its negotiating process. Kyoto, in his view, would produce layoffs and higher prices, was based upon arbitrary targets, and was unfair in the way it distinguished between the developed and the developing world.⁷⁵

The federal government, in short, has been unable to make the transition from study to a real commitment. As a consequence, the United States is far from meeting its Kyoto target of reducing GHG emissions to ninety-three percent of 1990 levels by 2008-2012. Instead of declining, U.S. GHG emissions actually climbed over fifteen percent between 1990 and 2006.⁷⁶ Furthermore, U.S. emissions of CO₂, which account for approximately eighty-five percent of total U.S. GHG emissions, are expected to grow at a 1.1 percent annual pace up through 2030.⁷⁷

B. State Responses

This unwillingness or inability at the federal level to truly

74 (1991).

71. JOHN M. KLINE, ETHICS FOR INTERNATIONAL BUSINESS: DECISIONMAKING IN A GLOBAL POLITICAL ECONOMY 211 (2005) (referring to the \$13 million advertising campaign that the Global Climate Coalition, a business-financed group, mounted against the Kyoto Protocol).

72. S. Res. 98, 105th Cong. (1997).

73. Pub. L. No. 105-276, 112 Stat. 2461 (1998); Pub. L. No. 106-74, 113 Stat. 1047 (1999); Pub. L. No. 106-377, 114 Stat. 1441 (2000).

74. Kyoto Protocol Status of Ratification, http://unfccc.int/files/kyoto_protocol/status_of_ratification/application/pdf/kp_ratification.pdf (containing reference to signatures as well as ratifications).

75. George W. Bush, President of the U.S., President Bush Discusses Global Climate Change (June 11, 2001) (transcript available at <http://www.whitehouse.gov/news/releases/2001/06/20010611-2.html>).

76. ENERGY INFO. ADM’N, U.S. DEP’T OF ENERGY, EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2006, at 1 (2007), available at [http://www.eia.doe.gov/oiaf/1605/ggrrpt/pdf/0573\(2006\).pdf](http://www.eia.doe.gov/oiaf/1605/ggrrpt/pdf/0573(2006).pdf) (reporting that U.S. emissions in 2006 stood at 7,075.6 million metric tons of CO₂ equivalent compared to 6,146.7 in 1990).

77. *Id.* at 6.

commit to reducing GHG emissions has prompted many states to act. They have done so in a myriad of ways.⁷⁸ In fact, the wide array of initiatives at the state level is precisely the kind of thing that makes industry “nervous.”⁷⁹

- Eighteen states have set statewide targets for GHG emissions. Most of these states are located along the Pacific coast or in the Northeast.⁸⁰ The targets, when compared to the target Kyoto would have applied to the United States, are “relatively modest.”⁸¹ Moreover, the targets are mandatory in only three of the states—California, New Jersey, and Hawaii. The targets in those three states seek emission reductions from several economic sectors, and are not limited to electricity generation.⁸²
- Many of the states that have set reduction targets are involved in one of three multi-state initiatives. The Regional Greenhouse Gas Initiative (“RGGI”) is an effort aimed at reducing CO₂ emissions from fossil-fuel-fired electric generating facilities in ten Northeastern states.⁸³ It would also establish the first cap-and-trade program for CO₂ in the nation. The goal is to stabilize emissions by 2011 and produce a ten percent reduction by 2019.⁸⁴ Seven western states, meanwhile, have entered into a Western Regional Climate Action Initiative, which aims at setting a multi-sector reduction target and the creation of a regional cap-and-trade program.⁸⁵ Finally, six states have entered into a Midwestern Regional Greenhouse Gas Reduction Accord. The agreement does not establish any specific targets but requires the states to set their own targets and calls for the development of a cap-and-trade

78. PEW CTR. ON GLOBAL CLIMATE CHANGE, CLIMATE CHANGE 101: STATE ACTION (2006) [hereinafter CLIMATE CHANGE 101], available at http://www.pewclimate.org/docUploads/101_States.pdf; PEW CTR. ON GLOBAL CLIMATE CHANGE, LEARNING FROM STATE ACTION ON CLIMATE CHANGE (May 2008) [hereinafter LEARNING FROM STATE ACTION], available at [www.pewclimate.org/docUploads/states%20Brief%20\(May%202008\).pdf](http://www.pewclimate.org/docUploads/states%20Brief%20(May%202008).pdf); Hodas, *supra* note 13.

79. DeShazo & Freeman, *supra* note 17, at 1521.

80. See RAMSEUR, *supra* note 13, at 6.

81. *Id.*

82. *Id.* at 12-13.

83. DeShazo & Freeman, *supra* note 17, at 1525.

84. RAMSEUR, *supra* note 13, at 15.

85. *Id.* at 13-14.

program to help meet those targets.⁸⁶

- A few states already require GHG emissions reporting as an integral part of their emissions reduction program, while a number of others are in the process of developing such a reporting component. Four additional states have mandatory reporting obligations that are not linked to a mandatory reduction program.⁸⁷ Other states have created voluntary state registry programs aimed at encouraging facilities to inventory their emissions. Perhaps the most important incentive for participation in such voluntary programs is the hope that the reductions that they report will count as emissions credits in any future cap-and-trade program.⁸⁸ Thirty-nine states have now joined The Climate Registry, a collaboration intended to create a common system for GHG emissions reporting.⁸⁹
- Two states—Oregon and Washington—have established programs requiring new power plants to cut CO₂ emissions or obtain offsets.⁹⁰
- Two other states—Massachusetts and New Hampshire—have set emissions caps for existing power plants, although the CO₂ aspect of the program will be superseded when RGGI is implemented in 2009.⁹¹
- In 2002, California enacted legislation requiring cuts in GHG emissions from motor vehicles manufactured in model year 2009 and thereafter.⁹² The California Air Resources Board, in turn, promulgated regulations that would require incremental reductions in average fleet GHG emissions until 2016 when the reductions would reach thirty percent below model year 2002 levels.⁹³

86. *Id.* at 14-15.

87. *See id.* at 11.

88. DeShazo & Freeman, *supra* note 17, at 1528-29. Emissions sources may also voluntarily report their GHG emissions and emission reductions through a database established in 1994 by the Energy Information Administration at the U.S. Department of Energy. *See id.* at 1528.

89. *See* LEARNING FROM STATE ACTION, *supra*, note 78, at 5.

90. *See* DeShazo & Freeman, *supra* note 17, at 1513-24.

91. *See* RAMSEUR, *supra* note 13, at 16.

92. Assem. 1493, 2002 Leg., Reg. Sess. (Cal. 2002).

93. BRENT D. YACOBUCCI, CONG. RES. SERV., REGULATION OF VEHICLE GREENHOUSE GAS EMISSIONS: STATE AND FEDERAL STANDARDS 1 (2008), *available at*

California estimates that its program would produce better fuel efficiency than the new federal standard—approximately forty-three miles per gallon in 2020 compared to the federal standard of thirty-five miles per gallon.⁹⁴ Sixteen other states have indicated that they would follow California's standard.⁹⁵ California's program, however, as well as the standards in those other states, is dependent upon EPA granting California a waiver from Clean Air Act preemption of state motor vehicle emission standards.⁹⁶ Despite the fact that such waivers have been granted fifty-three times since 1967,⁹⁷ the EPA denied California's request on February 29, 2008.⁹⁸

- Two states, California and Washington, have passed statutes that impose a GHG emission performance standard upon certain electric generating facilities.⁹⁹ Once the standards become applicable (and existing commitments expire), consumers in California and Washington will be effectively prohibited from using electricity generated by traditional coal-fired generating plants.¹⁰⁰
- Twenty-seven states and the District of Columbia have required that their electric utilities generate some energy

<http://fpc.state.gov/documents/organization/99459.pdf>.

94. CAL. AIR RESOURCES BD., COMPARISON OF GREENHOUSE GAS REDUCTIONS FOR THE UNITED STATES AND CANADA UNDER U.S. CAFE STANDARDS AND CALIFORNIA AIR RESOURCE BOARD GREENHOUSE GAS REGULATIONS vii (2008) [hereinafter CARB, COMPARISON OF GREENHOUSE GAS REDUCTIONS], available at http://www.arb.ca.gov/cc/ccms/reports/pavleycafe_reportfeb25_08.pdf. On the other hand, EPA Administrator Johnson has claimed that California's standards would produce only a 33.8 miles per gallon average. YACOBUCCI, *supra* note 93, at 4.

95. LEARNING FROM STATE ACTION, *supra* note 78, at 10. These states, together with California, contain forty-four percent of the total population of the United States. JAMES E. MCCARTHY & ROBERT MELTZ, CONG. RES. SERV., CALIFORNIA'S WAIVER REQUEST TO CONTROL GREENHOUSE GASES UNDER THE CLEAN AIR ACT 1, 7 (2008), available at <http://ncseonline.org/NLE/CRSreports/08Feb/RL34099.pdf>.

96. Clean Air Act § 209(b), 42 U.S.C. § 7543(b) (2000). (pertaining to California standards). Other states may adopt standards identical to California's, provided the EPA has granted California a waiver under section 209(b). *Id.* § 177, 42 U.S.C. § 7507.

97. MCCARTHY & MELTZ, *supra* note 95, at 1-2.

98. U.S. Env'tl. Prot. Agency, California State Motor Vehicle Pollution Control Standards; Notice of Decision Denying a Waiver of Clean Air Act Preemption, 73 Fed. Reg. 12,156 (Mar. 6, 2008) [hereinafter EPA California Waiver Denial].

99. RAMSEUR, *supra* note 13, at 19.

100. *Id.*

from renewable sources such as solar or wind power.¹⁰¹ Most of these programs have created renewable portfolio standards (“RPSs”), which force their electric utilities to generate a certain minimum percentage of power from renewable sources.¹⁰² The RPSs vary a good deal in the amount of renewable energy that must be produced, in the definition of renewable energy, and in the deadlines for compliance.¹⁰³ Iowa, for example, requires the generation of only 105 megawatts (“MW”) of renewable power, whereas Texas requires 5880 MW by 2015.¹⁰⁴

- Nearly half of the states have funds that are dedicated to promoting energy efficiency and renewable energy projects.¹⁰⁵ Even more of the states have at least one utility that permits customers to sell electricity back to the utility, a practice known as net metering.¹⁰⁶
- There are many other state initiatives that indirectly reduce GHG emissions.¹⁰⁷ These programs run from more energy efficient building codes¹⁰⁸ to product efficiency standards¹⁰⁹ to incentives promoting “greener” vehicles.¹¹⁰

Despite what appears to be a tremendous amount of activity, most states have actually done very little to reduce GHG emissions.¹¹¹ Approximately half of the states have not adopted RPSs, and some of the programs which have been created are quite modest.¹¹² Most states have failed to set GHG reduction targets, and most of the targets that have been set are non-

101. LEARNING FROM STATE ACTION, *supra* note 78, at 7.

102. *Id.*

103. *Id.*

104. DeShazo & Freeman, *supra* note 17, at 1523.

105. LEARNING FROM STATE ACTION, *supra* note 78, at 8.

106. *Id.*

107. RAMSEUR, *supra* note 13, at 3.

108. Twenty-six states have commercial building codes that are more stringent than federal efficiency standards, and twenty-two have residential codes that are tougher than federal efficiency standards. *Id.* at 3 n.9.

109. The federal government has set energy efficiency standards for about twenty kinds of appliances and commercial products. At least eight states, however, have gone further and set standards for some appliances that are not covered by federal standards. LEARNING FROM STATE ACTION, *supra* note 78, at 10.

110. CLIMATE CHANGE 101, *supra* note 78, at 5-6.

111. DeShazo & Freeman, *supra* note 17, at 1532.

112. *Id.*

binding as well as modest.¹¹³ Some of the state climate action plans, moreover, appear to be nothing more than a collection of relatively minor suggestions made by academics working pursuant to federal grants.¹¹⁴ Many states, most in fact, are not as far out in front as one might think from all of the attention that has been lavished on state initiatives. Much of what they have done is “more show than substance.”¹¹⁵ On the other hand, a number of the state programs are fairly tough such as the California GHG emission standards for motor vehicles, some of the GHG targets,¹¹⁶ some of the RPSs, and the programs that regulate CO₂ from electric power plants.

The sheer level of independent state activity, however, is impressive. It is also unusual. Since 1970, the federal government has generally been in the forefront of the fight against pollution.¹¹⁷ The states, by contrast, have often been lethargic. Most states, for example, were reluctant to establish Total Maximum Daily Loads and the waste load allocations and load allocations that are necessary for the full implementation of water quality standards.¹¹⁸ Many states chose voluntary and largely ineffective mechanisms for controlling non-point source water pollution.¹¹⁹ Many states were prepared to forgive regulatory violations as long as a polluter reported them, no matter how late the report or how serious the violation.¹²⁰ State

113. *Id.*

114. See WILLIAM J. HERZ, ET AL., POLICY PLANNING TO REDUCE GREENHOUSE GAS EMISSIONS IN ALABAMA (1997), available at http://www.epa.gov/climatechange/wycd/stateandlocalgov/downloads/Alabama_action_plan.pdf; JOHN NOLLER, MISSOURI ACTION OPTIONS FOR REDUCING GREENHOUSE GAS EMISSIONS (2002), available at <http://www.dnr.mo.gov/pubs/pub1447.pdf>; HUGH T. SPENCER, CLIMATE CHANGE MITIGATION STRATEGIES FOR KENTUCKY: POLICY OPTIONS FOR CONTROLLING GREENHOUSE GAS EMISSIONS THROUGH THE YEAR 2020 (1998), available at http://www.epa.gov/climatechange/wycd/stateandlocalgov/downloads/ky_2_fin.pdf.

115. Engel & Saleska, *supra* note 57, at 215.

116. While California starts slowly, for example, requiring reductions to 1990 levels by 2020, it does envision eighty percent reductions from 1990 levels by 2050. RAMSEUR, *supra* note 13, at 7.

117. Robert L. Glicksman, *From Cooperative to Inoperative Federalism: The Perverse Mutation of Environmental Law and Policy*, 41 WAKE FOREST L. REV. 719, 747 (2006).

118. OLIVER A. HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION 5, 63 (2d ed. 2002); Linda A. Malone, *The Myths and Truths That Ended the 2000 TMDL Program*, 20 PACE ENVTL. L. REV. 63, 78-81 (2002).

119. William L. Andreen, *Water Quality Today — Has the Clean Water Act Been a Success?*, 55 ALA. L. REV. 537, 545 n.42. (2004).

120. RECHTSCHAFFEN & MARKEL, *supra* note 33, at 156-59. The EPA found that such state audit privilege and immunity statutes are “unnecessary, undermine law enforcement, impair protection of human health and the environment, and interfere with the public’s right to know of potential and existing environmental hazards.” U.S. Envtl. Prot. Agency, Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 65 Fed. Reg. 19,618, 19,623 (Apr. 11, 2000).

environmental enforcement efforts also declined dramatically during the 1990's and at least during the first years of the 21st century.¹²¹

States, moreover, have not made frequent use of the authority that they generally have under federal law to establish and enforce more stringent environmental regulations. With regard to water pollution, for instance, at least seventeen states have prohibited their environmental agencies from promulgating standards that are tougher than federal minimum requirements or have imposed additional procedures that must be satisfied before such requirements become effective.¹²² Even the states that are permitted to adopt more stringent water pollution standards seldom do so.¹²³ And at least twenty-six state agencies are wholly or partially forbidden, either by state law or by policy, from setting stricter air pollution regulations.¹²⁴ Furthermore, only fourteen of the twenty-four state agencies that are not precluded from adopting more stringent air pollution standards reported that they have actually adopted more stringent standards at a rate higher than "infrequently."¹²⁵

The difference with climate change as opposed to more typical environmental issues is the sense of global crisis which surrounds it. Climate change is a much more salient issue than less transparent issues like regulatory enforcement. People are aware of the problem, they are concerned about its implications,¹²⁶ and so are many of their politicians.¹²⁷ Much of

121. William L. Andreen, *Motivating Enforcement: Institutional Culture and the Clean Water Act*, 24 PACE ENVTL. L. REV. 67, 75 (2007) [hereinafter Andreen, *Motivating Enforcement*]. Many state enforcement programs suffer from serious flaws including a "failure to carry out inspections, failure to take timely and appropriate enforcement actions, and failure to obtain meaningful penalties, including penalties that recover the economic benefit of noncompliance." Clifford Rechtschaffen, *Enforcing the Clean Water Act in the Twenty-First Century: Harnessing the Power of the Public Spotlight*, 55 ALA. L. REV. 775, 784 (2004). A few states, however, have actually strengthened their enforcement programs in recent years. *Id.* at 785.

122. See Hecht, *supra* note 32, at 116; Jerome M. Organ, *Limitations on State Agency Authority to Adopt Environmental Standards More Stringent than Federal Standards: Policy Considerations and Interpretive Problems*, 54 MD. L. REV. 1373, 1376-86 (1995).

123. 1 KENNETH A. MANASTER & DANIEL P. SELMI, STATE ENVIRONMENTAL LAW § 11:10 (2007).

124. STATE & TERRITORIAL AIR POLLUTION PROGRAM ADM'RS & ASS'N OF LOCAL AIR POLLUTION CONTROL OFFICIALS, RESTRICTIONS ON THE STRINGENCY OF STATE AND LOCAL AIR QUALITY PROGRAMS 1 (2002), available at <http://www.4cleanair.org/stringency-report.pdf>. Of the twenty-four states that are not precluded from adopting more stringent state requirements, ten states either have to provide in-depth justifications for doing so or must overcome procedural obstacles that make it difficult to do so. *Id.* at 2.

125. *Id.*

126. See note 21 and accompanying text.

127. See Kirsten H. Engel & Barak Y. Orbach, *Micro-Motives and State and Local*

this concern derives from ethical and moral beliefs.¹²⁸ From a more utilitarian perspective, a state may realize that it is inevitable that very significant steps will eventually have to be taken to address climate change; thus, small, early efforts are prudent in order to reduce the overall cost of change and lessen any possible disruption to a state's economy.¹²⁹ Such early steps should also improve the efficiency of a state's economy and might even position the state to take advantage of the growing economic opportunities for energy-efficient products and technology.¹³⁰ Many states, moreover, are undoubtedly concerned about the unique problems such as increased drought or more severe storms that climate change will bring,¹³¹ and they may believe that some contribution to the solution is better than doing nothing.¹³² From a public choice perspective, climate change also offers forward-thinking state officials an attractive political opportunity to demonstrate leadership on a pressing public issue¹³³—in brilliant contrast to the inaction of the Bush administration. In short, state action has certainly not been “crowded out” by a vigorous federal reaction to climate change.¹³⁴

The partial turn-about in regulatory fervor at the state level has produced a “domino effect” making federal regulation much more likely.¹³⁵ One reason for the push for federal regulatory intervention is that many industries are seeking federal preemption to protect themselves from the more stringent state programs and to create more investment certainty in an area where they are facing the likelihood of increasingly

Climate Change Initiatives, 2 HARV. L. & POL'Y REV. 119, 134 (2008).

128. See e.g., HODAS, *supra* note 13, at 346; NAT'L COUNCIL OF CHURCHES OF CHRIST, FAITH PRINCIPLES ON GLOBAL WARMING (2008), available at <http://www.ncccojustice.org/climateprinciples.html>; UNITED CHURCH OF CHRIST ECOACTION, A RESOLUTION ON CLIMATE CHANGE (2007), available at <http://ucccocoaction.org/Warming07.html>; GENERAL ASSEMBLY OF THE PRESBYTERIAN CHURCH (USA), PRESBYTERIANS TO LIVE CARBON NEUTRAL LIVES (2006), available at http://www.ncrlc.com/presbyterian_neutrality.html; Unitarian Universalist Association of Congregations, *Threat of Global Warming Climate Change: 2006 Statement of Conscience* (updated 2008), available at <http://www.uua.org/socialjustice/socialjustice/statements/8061.shtml>.

129. See Hodas, *supra* note 13, at 346.

130. RAMSEUR, *supra* note 13, at 2.

131. *Id.*

132. Engel & Saleska, *supra* note 57, at 233 (concluding that “unilateral action by subglobal actors is better than none; that a glass ‘half empty’ is also a glass ‘half full’”).

133. *Id.* at 216.

134. See Jonathan H. Adler, *When Is Two a Crowd? The Impact of Federal Action on State Environmental Regulation*, 31 HARV. ENVTL. L. REV. 67, 69 (2007) (claiming that federal regulation may at times “crowd out” state regulation “by reducing the net benefits of state-level initiatives”).

135. See Engel & Saleska, *supra* note 57, at 189, 223.

disparate demands at the international, national, and local levels.¹³⁶

This kind of domino effect has been observed before.¹³⁷ In 1959, California adopted mandatory controls for motor vehicle emissions,¹³⁸ and two other large states in the mid-1960s were considering the creation of similar programs, one of which promised to be even more stringent than California's.¹³⁹ The automobile industry, therefore, in an about-face from its previous position opposing federal regulation, privately supported federal legislation in 1965 in an effort to preempt state programs more stringent than California's,¹⁴⁰ and the industry lobbied for an even stronger preemption provision in 1967.¹⁴¹ Although industry might be expected to generally favor state level regulation over federal regulation,¹⁴² the automobile industry is an exception. It is their product, rather than their manufacturing facilities, that produce the most pollution, and those products were being subjected to regulation by states in which the automobile companies had no manufacturing facilities.¹⁴³ Hence, politicians in those jurisdictions did not have to concern themselves with the kind of economic and political clout which those companies could wield in their own state capitals.¹⁴⁴

While that analysis may explain support for preemptive federal regulation by companies that sell polluting products in a

136. See DeShazo & Freeman, *supra* note 17, at 1531 (stating that companies operating in multiple states are facing different approaches that make it "difficult to plan for new plant construction, plant expansions and retrofits, product expansion into new consumer markets, and compliance in current markets").

137. See generally RICHARD N.L. ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY* 209 (1999) (discussing industry's historical predilection for "clearly preemptive federal control at a 'moderate' level to the likelihood of diverse and sometimes tougher state and local laws.").

138. See JAMES E. KRIER & EDMUND URSIN, *POLLUTION AND POLICY: A CASE ESSAY ON CALIFORNIA AND FEDERAL EXPERIENCE WITH MOTOR VEHICLE AIR POLLUTION 1940-1975* 103 (1977).

139. See Elliott et al., *supra* note 27, at 330. Automobile emissions bills were pending in both the Pennsylvania and New York legislatures, and the New York bill was tougher than California's approach. *Id.*

140. See *id.* at 331 (referring to legislation which was eventually enacted as the Motor Vehicle Pollution Control Act of 1965).

141. See DeShazo & Freeman, *supra* note 17, at 1512 (referring to efforts made while Congress was considering the 1967 Air Quality Act).

142. See Elliott et al., *supra* note 27, at 330; William L. Andreen, *The Evolution of Water Pollution Control in the United States — State, Local, and Federal Efforts, 1789-1972: Part I*, 22 STAN. ENVTL. L.J. 145, 155 (2003). Industry, of course, would undoubtedly prefer no regulation in most instances, but I am assuming that option is not available.

143. Elliott et al., *supra* note 27, at 330.

144. See *id.* (stating that these local officials could act "without fear of being accused of putting their constituents out of work").

national market, what explains the support of other manufacturing companies for defensively-oriented federal legislation? These manufacturing concerns would typically favor state regulation since few state politicians are “immune to the charge that a proposal will harm a local, job-creating industry.”¹⁴⁵ There are examples, however, of exceptions to the general rule. For instance, DeShazo and Freeman argue that Congress’s enactment of an acid rain program in 1990 “was precipitated in part by regulatory activity in the states.”¹⁴⁶ A number of states had already begun to regulate sulfur dioxide emissions, a precursor of acid rain, and some others had imposed taxes upon sulfur dioxide emissions.¹⁴⁷ Not only did this concern those who produced different kinds of coal (such as high sulfur content coal from the Midwest), but it also produced great uncertainty about how to plan for the future—thus leading industry to seek federal intervention and the establishment of national standards.¹⁴⁸ DeShazo and Freeman conclude, therefore, that industry is more likely to demand a federal program containing uniform federal ceilings “(1) where heterogeneous state regulation threatens to require costly product differentiation for industries that produce national (or at least regional) products, or (2) when the price of regulatory uncertainty for capital intensive industries is so high that federal clarification become a priority.”¹⁴⁹

The most stringent of the state climate programs and the prospect of more such programs clearly worry industries that produce automobiles and those that are heavily invested in stationary sources of air pollution. This anxiety has prompted many businesses from both sectors to support federal legislation as long as it preempts the more troublesome state programs.¹⁵⁰ Hence, the question of preemption will surely be addressed when Congress returns to the issue in 2009, with many states and the environmental community advocating floor preemption and industry pushing for a more uniform federal approach based on ceiling preemption.

145. *Id.*

146. DeShazo & Freeman, *supra* note 17, at 1514-15.

147. *Id.* at 1514-15.

148. *See id.* at 1515.

149. *Id.* at 1515-16.

150. *See* MCCARTHY, *supra* note 1; Claussen, *supra* note 22; The U.S. Climate Action Partnership, *supra* note 29; Mufson & Eilperin, *supra* note 26; Hoffman, *supra* note 30; DeShazo & Freeman, *supra* note 17.

IV. U.S. CLIMATE CHANGE LEGISLATION

The battle is likely going to focus on at least two kinds of state programs—the programs that promise to produce the most overall progress in reducing GHG emissions: the regional cap-and-trade programs and California’s GHG vehicle standards. The most likely federal approach will involve caps on GHG emissions and a trading program, much like the bill that was debated by the Senate in early June 2008.¹⁵¹ The creation of such a federal program would clearly pose a serious question about how it would mesh, if at all, with state cap-and-trade programs. State programs, for example, might wish to adopt more ambitious reduction targets or deadlines. States might want to apply their programs to somewhat smaller facilities than those covered by the federal program, and they might wish to include additional economic sectors within their regulatory matrix.¹⁵²

Federal cap-and-trade legislation will also provide the domestic automobile industry with an opportunity to revisit the issue of California’s authority to adopt stricter emission limits for motor vehicles and perhaps eliminate or, at least, limit it further.¹⁵³ At the present time, it does not seem likely that Congress will opt for a national renewable energy portfolio or require the promulgation of GHG performance standards for fossil fuel-fired electric generating plants. So, preemption of these kinds of state programs ought to be off the table. There is a concern, however, that any state program which lowers carbon emissions more than required by the federal cap would raise the price of federal carbon credits if the states were permitted to retire federal credits equal to those additional reductions.¹⁵⁴

151. See Boxer Amendment, *supra* note 3 (citing the Boxer substitute to the Lieberman-Warner Climate Security Act which would have capped GHG emissions from the electric generation, industrial, and transportation sectors); see also LARRY PARKER & BRENT D. YACOBUCCI, CONG. RES. SERV., GREENHOUSE GAS REDUCTION: CAP-AND-TRADE BILLS IN THE 110TH CONGRESS (2008) (comparing the nine cap-and-trade bills that were introduced during 2007).

152. See NACAA DISCUSSION PAPER #1, *supra* note 11, at 12.

153. See COOPERATIVE FEDERALISM, *supra* note 35, at 3; see also STAFF OF H. COMM. ON ENERGY AND COMMERCE, APPROPRIATE ROLES FOR DIFFERENT LEVELS OF GOVERNMENT 9, 19, 23 (February 2008) (raising concerns about the way in which California’s tailpipe standards may burden interstate commerce) [hereinafter Dingell Preemption White Paper], available at http://energycommerce.house.gov/Climate_Change/white%20paper%20st-lcl%20roles%20final%202-22.pdf. The House Committee on Energy and Commerce was chaired by John D. Dingell of Michigan during most of the 110th Congress.

154. See Dingell Preemption White Paper, *supra* note 153, at 15. If the states were not permitted to retire these federal credits, the credits could be sold to polluters in other states with the effect that more stringent state programs could not produce any net

These state programs, therefore, may well find themselves caught in the cross-hairs of a broader effort to preempt state climate change efforts. In fact, the only state programs that may escape targeting are those that deal with economic sectors outside of a federal cap-and-trade program—programs involving, for example, better land use planning and improved building codes.¹⁵⁵

For purposes of preemption, federal environmental law typically differentiates between products such as automobiles or pesticides sold in interstate commerce and stationary sources of pollution such as power plants. While the use of some form of ceiling preemption is not uncommon in federal programs regulating product design, Congress has traditionally refused to displace more stringent state standards for stationary sources.¹⁵⁶ The distinction is rooted in common sense since manufacturers could not realistically be expected to design dozens of different products for use in dozens of different jurisdictions, whereas stationary sources will just be governed, in effect, by the most stringent applicable standard. This article, therefore, will similarly bifurcate its analysis of the merits of ceiling versus floor preemption addressing first stationary sources of GHGs and then motor vehicles.

A. Stationary Sources

1. Critiquing Arguments for Ceiling Preemption

a. More Stringent State Programs Will Have a Trivial Impact on Climate Change

Some contend that since the individual states contribute but a small fraction of total global GHG emissions, no state program, regardless of how stringent, is likely to produce a discernable effect upon global concentrations.¹⁵⁷ It is true that it will take reductions in all fifty states, as well as concerted global

reduction in GHG emissions. *Id.*

155. *See id.* at 21-22. It has also been suggested that it would be more efficient to authorize the states to conduct compliance inspections for the federal cap-and-trade program. *Id.* at 18, 25.

156. *See* William W. Buzbee, *Interaction's Promise: Preemption Policy Shifts, Risk Regulation, and Experimentalism Lessons*, 57 EMORY L.J. 145, 147 (2007) [hereinafter Buzbee, *Interaction's Promise*].

157. *See* Engel & Saleska, *supra* note 57, at 192 (referring to comments on the California regulation of GHG emissions from motor vehicles).

action, to adequately deal with the crisis of climate change. So action by the federal government is absolutely necessary in order to approach the kind of aggregate reductions the United States should make and to eliminate the problem of free-riding by non-regulating states. That does not mean, however, that the contribution of more stringent state programs would be trivial.

First, many of our states are not insignificant GHG emitters. Thirty-four out of the seventy-five largest GHG emitters in the world are U.S. states.¹⁵⁸ Texas is the seventh largest emitter of CO₂ in the world—emitting more CO₂ than the United Kingdom—while California is the twelfth—emitting more than France.¹⁵⁹ Many of the state programs will produce far-ranging improvement. New York's RPS, for example, stipulates that twenty-five percent of its electricity will be produced from renewable sources by 2013, while California requires twenty percent by 2010.¹⁶⁰

Second, it would be a mistake to evaluate the impact of individual state programs without taking into account their value as catalysts for change, producing models which are subsequently emulated in other jurisdictions.¹⁶¹ If California's waiver to regulate GHG emissions from motor vehicles had been approved, the new California standards would have reduced CO₂ equivalent emissions in California 100 percent more than the new federal standards by the year 2020, a savings of seventy-nine million metric tons—no trivial amount. When twelve of the states that have adopted California's standards are factored into the mix, the savings mushroom to 204 million metric tons—an improvement of eighty-nine percent over the federal standards.¹⁶² A similar domino effect has also been at work in the adoption of other kinds of state climate programs, once again magnifying the impact that the states responsible for creating the models have

158. Center for Climate Strategies, National Impact of State Actions, 2008, http://www.climatestrategies.us/National_Impact.cfm.

159. Hodas, *supra* note 13, at 345.

160. U.S. Dept. of Energy, Energy Efficiency and Renewable Energy, State Partnerships, 2008, http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm. The implementation of California standards by these states, combined with California, would be the equivalent of eliminating twenty-two million vehicles from the road or approximately ten million more vehicles than the federal standard would remove. See Press Release, Office of the Governor, Governor Schwarzenegger Issues Statement after U.S. EPA Rejects California's Tailpipe Emissions Waiver Request (Dec. 19, 2007), available at <http://www.gov.ca.gov/index.php?press-release/8353>.

161. See William L. Andreen, *Delegated Federalism Versus Devolution: Some Insight from the History of Water Pollution Control*, in PREEMPTION CHOICE: THE THEORY, LAW, AND REALITY OF FEDERALISM'S CORE QUESTION 257, 257 (William W. Buzbee ed., 2008).

162. CARB, COMPARISON OF GREENHOUSE GAS REDUCTIONS, *supra* note 94, at vii.

had. There is every reason to believe that this catalytic reaction would continue, at least to some extent, even after the federal government enters the field.

State programs have also often served as useful models and proving grounds for the federal government. California, for example, has been responsible for demonstrating the effectiveness of many emission control technologies, which were later adopted in comparable form at the national level.¹⁶³ Catalytic converters, cleaner fuels, leaner carburetors, carbon canisters, electronic fuel injection systems, and many other improvements were launched in this fashion.¹⁶⁴ Some state programs, therefore, have benefited the entire nation by serving, within their own jurisdictions, as laboratories for technological and regulatory innovation. There is every reason to believe that this kind of “technology and regulatory transfer process” would continue even after the federal government begins to regulate GHG emissions.¹⁶⁵

Third, vigorous and dynamic state programs are well-positioned to motivate their citizens to take personal actions to reduce their carbon-footprints.¹⁶⁶ From the use of compact fluorescent lighting to better insulation, the purchase of hybrid vehicles to more efficient appliances, the public can be encouraged to begin making the kinds of small, incremental adjustments that are essential aspects of an effective climate program.¹⁶⁷ Eventually, however, more far-ranging lifestyle changes will have to occur if we are going to make the “economic and societal transformations that will be necessary to achieve very large reductions in carbon.”¹⁶⁸ Individual commitment will be a crucial ingredient in that transformation, and state and local governments can play a vital role in spurring the public to act.¹⁶⁹

163. See NAT'L RES. COUNCIL, STATE AND FEDERAL STANDARDS FOR MOBILE-SOURCE EMISSIONS 3-5 (2006).

164. See *id.* at 94-5; MCCARTHY & MELTZ, *supra* note 95, at 2.

165. Any national scheme for mitigating climate change will likely become a program in adaptive management. As we learn more, the federal program will likely evolve into a more finely-tuned instrument, which, more likely than not, will include more stringent or innovative regulatory tools and a tighter federal cap on GHG emissions. If that is true, it would seem reasonable not to preempt more stringent state programs at the present time.

166. COOPERATIVE FEDERALISM, *supra* note 35, at 12.

167. As David Hodas so aptly wrote, “[s]mall, early steps, compounded into the future, will lessen both the cost of change and the rate of transition.” Hodas, *supra* note 13, at 346.

168. Lutsey & Sperling, *supra* note 15, at 674.

169. See Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework Is Useful for Addressing Global Warming*, 50 ARIZ. L. REV. 799, 827-28 (2008) [hereinafter Doremus & Hanemann,

b. Climate Change Is Not a Local Problem

Climate change is the product of global emissions of GHGs. Due to the long atmospheric life of GHGs and the way in which they mix, atmospheric concentrations of GHGs are basically uniform across the earth.¹⁷⁰ Consequently, it matters not where GHG emissions occur or, for that matter, where reductions occur. Emissions from any place on earth contribute to a relatively homogeneous global pool of GHGs, and reductions in any one place will simply lower the overall global concentration of GHGs.¹⁷¹ The fact that local emissions do not produce local problems (except to the extent that local emissions contribute to higher global concentrations) has led some to suggest that state governments should not be permitted to adopt and enforce a program for GHG emissions that is more stringent than a federal program.¹⁷²

The argument is not persuasive. First, the trans-boundary nature of GHG pollution is not a unique characteristic. Many activities produce pollutants that overflow state boundaries, and, hence, are not exclusively or even predominately local in nature. This commonly occurs along many interstate waterways, in air sheds that are shared by two or more states, and in the case of acid rain, the impact of which is felt hundreds of miles downwind. Although special federal approaches have been devised to deal with such spillover effects,¹⁷³ none of the major federal environmental statutes preempt state authority to set more stringent regulatory requirements for their stationary sources that have extra-jurisdictional impact.

Second, while it is true that individual state GHG reductions will not substantially mitigate the climate change problems confronting their residents, it is also true that no single national government has that ability either. It will take collective, global action. However, since there is no supranational jurisdiction capable of addressing the problem, we must depend upon smaller jurisdictions taking steps,

Cooperative Federalism].

170. EPA California Waiver Denial, *supra* note 98, at 12,160.

171. *Id.*

172. See Dingell Preemption White Paper, *supra* note 153, at 12.

173. See, e.g., Clean Water Act § 402(b)(5), 33 U.S.C. § 1342(b)(5) (2000) (permitting any state whose waters may be affected by a permit granted by another state to submit recommendations); Clean Air Act § 505(1), 42 U.S.C. § 7661d (2000) (permitting states whose air quality may be affected by a permit or which is located within fifty miles of the facility to submit recommendations); *id.* §§ 401-16, 42 U.S.C. §§ 7651-7651o (acid deposition control).

incremental though they may be, to mitigate the problem. Thus, there appears to be no reason, on this ground at least, to forbid our states from being an additional part of the solution.

Many states, moreover, have unique, local reasons to be more protective than the federal government. While climate change is a global phenomenon and GHGs are evenly distributed around the globe, the nature of the impacts of climate change and their severity will vary from place to place, sometimes significantly.¹⁷⁴ The Southwestern states and the central Gulf Coast, for instance, are two areas that will likely experience different and more severe impacts than many other areas in the country.

Summer temperatures are likely to increase more in the Southwest than elsewhere in the country.¹⁷⁵ At the same time, annual precipitation will most likely decrease in the Southwest—possibly a ten to twenty percent drop by the end of the century.¹⁷⁶ The resulting stress on water resources will be intensified by an earlier and smaller spring mountain snowmelt,¹⁷⁷ which would substantially reduce stream flows from April through September.¹⁷⁸ By the 2020s, in fact, forty-one percent of the water supplying southern California “is likely to be vulnerable” due to the loss of snowpack in the Colorado River basin and the Sierra Nevada mountains.¹⁷⁹

Air pollution in the Southwest, especially in Southern California, is also likely to intensify more than elsewhere. Ground-level ozone concentrations (commonly referred to as smog) correlate strongly with higher summer temperatures¹⁸⁰ due to increased emissions, stagnant air conditions, and

174. See *supra* notes 47-56 and accompanying text.

175. See IPCC, *CLIMATE CHANGE 2007*, *supra* note 39; *supra* note 48 and accompanying text. See generally STEPHEN SAUNDERS, ET AL., *HOTTER AND DRIER: THE WEST'S CHANGED CLIMATE* (Rocky Mountain Climate Organization and The National Resources Defense Council, March 2008) (discussing the ways in which the West is being affected more by a changed climate than most other regions in the United States).

176. See *supra* notes 48-50 and accompanying text.

177. See *supra* note 51 and accompanying text.

178. See EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 12, 153; see also Holly Doremus & Michael Hanemann, *The Challenges of Dynamic Water Management in the American West*, 26 UCLA J. ENVTL. L & POL'Y 55, 58 (2008) [hereinafter Doremus & Hanemann, *Dynamic Water Management*].

179. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 155. Agriculture in California could lose as much as twenty-five percent of the water supply that it needs to produce crops. See also CALIF. CLIMATE CHANGE CTR., *OUR CHANGING CLIMATE: ASSESSING THE RISKS TO CALIFORNIA 7* (July 2006) [hereinafter *ASSESSING THE RISKS TO CALIFORNIA*].

180. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 179.

accelerated chemical processes.¹⁸¹ Higher temperatures, in short, increase the number of days that are conducive to ozone creation.¹⁸² According to a recent study, if temperatures rise to a medium warming range in Southern California, the number of days with weather conducive to ozone formation could rise by seventy-five to eighty-five percent in two areas that already experience extremely high levels of ozone pollution—Los Angeles and the San Joaquin Valley.¹⁸³ Even if temperatures remain within a lower warming range, the number of days meteorologically favorable to ozone formation would still grow by twenty-five to thirty-five percent.¹⁸⁴

Air quality in the Southwest will likely be further degraded by significant increases in the frequency, severity, and length of wildfires.¹⁸⁵ Under a medium-high warming scenario, the risk of large wildfires in California could swell by nearly thirty-five percent by 2050 and by fifty-five percent toward the end of the century.¹⁸⁶ This higher risk of wildfire is propelled, in part, by the lengthening of the wildfire season and the fact that climate change very likely increases the number of insect outbreaks and tree mortality that help fuel Southwestern wildfires.¹⁸⁷ Not only will these wildfires result in additional pulmonary distress,¹⁸⁸ particularly in children,¹⁸⁹ but they will also produce a great deal of additional property and resource loss as well as extra expenditures on wildfire suppression.

Like all other coastal states, California will suffer from rising sea levels over the course of the next century. Not only will this damage beaches,¹⁹⁰ but rising sea levels will also result

181. CALIF. CLIMATE CHANGE CTR., SCENARIOS OF CLIMATE CHANGE IN CALIFORNIA: AN OVERVIEW 27 (Feb. 2006), available at <http://www.energy.ca.gov/2005publications/CEC-500-2005-186/CEC-500-2005-186-SF.PDF> [hereinafter CLIMATE CHANGE IN CALIFORNIA]. Increased emissions of the two precursors of ozone would occur from power plants which have to produce more electricity to meet air conditioning demands (thus emitting more nitrogen oxides) and from higher emissions of volatile organic compounds from motor vehicles. *Id.* Overall demand on fossil fuel-fired power plants would also be rising because decreased snowmelt will jeopardize hydroelectric generation. In fact, hydropower production in California could fall by thirty percent if temperatures rise to the mid-level warming level and rainfall drops by ten to twenty percent. EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 154, 191.

182. ASSESSING THE RISKS TO CALIFORNIA, *supra* note 179, at 5.

183. *See id.*; CLIMATE CHANGE IN CALIFORNIA, *supra* note 181, at 28.

184. *See* CLIMATE CHANGE IN CALIFORNIA, *supra* note 181, at 28.

185. *See* EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 16.

186. *See* CLIMATE CHANGE IN CALIFORNIA, *supra* note 181, at 22.

187. *See* EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 10.

188. *See id.* at 15-16; CLIMATE CHANGE IN CALIFORNIA, *supra* note 181, at 30.

189. *See* EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 182.

190. *See* ASSESSING THE RISKS TO CALIFORNIA, *supra* note 179, at 13.

in higher levels of saltwater intrusion into coastal aquifers like those in Orange County and Monterey County.¹⁹¹ In addition, sea level rise also threatens the viability of the levee system in the San Francisco Bay Delta, which protects freshwater supplies and a network of Delta islands.¹⁹² The levees are frail, and higher sea levels combined with storm and/or flood risks could result in massive flooding and the introduction of saltwater into a pumping system that supplies water to approximately twenty million people and three million acres of cropland.¹⁹³

The gravest coastal threats, however, appear to be reserved to the states located along the central Gulf Coast. Much of the land in this area is already sinking on account of sediment compaction.¹⁹⁴ Due to this subsidence and the fact that the projected rate of sea level rise for this area is higher than the global average,¹⁹⁵ the central Gulf Coast faces “much higher increases in relative sea level rise” than other places in the country.¹⁹⁶ In fact, relative sea level is “very likely” to rise at least 0.3 meters across the region and up to two meters in some places between 2050 and 2100.¹⁹⁷ Under this scenario, large swaths of the Gulf Coast between Houston and Mobile may be flooded in the relatively near future.¹⁹⁸ Of course, barrier islands in the area will continue to erode, and coastal wetlands will continue to be lost.¹⁹⁹ But the area’s vulnerability to permanent flooding extends much further. Sea level rise of between 0.6 and 1.2 meters—a realistic scenario for this area—would place up to twenty-seven percent of the major roads in the area, nine percent of the rail lines, and seventy-two percent of the ports at risk of inundation.²⁰⁰

The central Gulf Coast faces even more devastating impacts from storm surge. Due to its low-lying terrain, rising sea level, and the loss of much of its protective ecosystem—barrier islands and wetlands—the area is likely to suffer more storm damage than most other areas in the country.²⁰¹ Climate change, moreover, may worsen the area’s vulnerability because warmer

191. See Doremus & Hanemann, *Dynamic Water Management*, *supra* note 178, at 59.

192. See *ASSESSING THE RISKS TO CALIFORNIA*, *supra* note 179, at 12-13.

193. See Doremus & Hanemann, *Dynamic Water Management*, *supra* note 178, at 59.

194. See *EFFECTS OF GLOBAL CHANGE ON THE U.S.*, *supra* note 44, at 197.

195. See *id.* at 92.

196. *Id.* at 197.

197. *Id.*

198. *Id.*

199. See *EFFECTS OF GLOBAL CHANGE ON THE U.S.*, *supra* note 44, at 10, 163.

200. See *id.* at 199.

201. See *id.* at 164, 199.

oceans produce more intense storms. Since the intensity of major tropical storms may increase by five to twenty percent, Category three hurricanes may return more often to the central Gulf Coast.²⁰² In the event of a 5.5 to 7 meter storm surge, over half of the area's major roads, nearly half of the railway lines, twenty-nine airports, and almost every port in the region appear to be at risk to short-term flooding.²⁰³ And low-lying urban areas such as New Orleans are quite vulnerable. Given subsidence and sea level rise, much of the New Orleans area could be an additional meter below sea level by 2100.²⁰⁴ In that case, a storm surge from a Category three hurricane could be six to seven meters above neighborhoods that were densely populated in 2004.²⁰⁵

Other regions will also experience unique problems. Some states with cold-water fisheries, for example, will face the potential loss of this resource,²⁰⁶ while Hawaii faces the loss of scarce land and the extinction of a number of endemic species.²⁰⁷ In short, the impact of climate change will vary considerably across geographic areas. So, while the entire country will experience disruptions of various sorts from climate change, the level and type of pain will often be dictated by local conditions. Climate change, therefore, is more than a global or national problem; the misery it creates will be intensely local. Consequently, it would make perfect sense to permit states to craft regulatory programs, if they so wish, to lessen some of the threats to the well-being of their residents and their environment.²⁰⁸

c. Lower Transaction Costs with a Uniform Federal Program

Overlapping regulatory systems can create a number of problems. Redundant federal and state regulation can lead, as Bill Buzbee has pointed out, "to confusion, high compliance costs, and a drag on otherwise beneficial activities. Such uncoordinated regulation can accrete and create cumulative burdens, even if each regulation or law made sense when

202. See *id.* at 199.

203. See *id.*

204. See EFFECTS OF GLOBAL CHANGE ON THE U.S., *supra* note 44, at 165.

205. See *id.*

206. See *id.* at 11, 133-34.

207. See *id.* at 10, 14.

208. The regulation of GHG emissions would also tend to reduce emissions of a number of harmful co-pollutants. See MARKET ADVISORY COMM. TO THE CAL. AIR RESOURCES BD., RECOMMENDATIONS FOR DESIGNING A GREENHOUSE GAS CAP-AND-TRADE SYSTEM FOR CALIFORNIA 13 (2007).

created.”²⁰⁹ Thus, as the industry has recognized, uniform federal regulation of GHGs would greatly simplify matters and would, in the process, lower transaction costs.²¹⁰ In fact, this virtue of uniformity may well be the strongest point in favor of ceiling preemption.²¹¹

However, the fact that a uniform national approach is more efficient from the point of view of the regulated industry is not necessarily a decisive factor. In this regard, Congress has consistently distinguished between products like mobile sources, where the cost of non-uniformity is especially high and stationary sources, where the transaction costs of non-uniform approaches are considerably lower.²¹² Unlike automobiles, for instance, stationary sources are not mass-produced for sale in fifty different states with potentially fifty different regulatory approaches.²¹³ Stationary sources are subject to a much simpler regulatory environment—they are simply required, in most instances, to comply with the most stringent, applicable regulation, regardless of whether it is federal or state in origin. Not surprisingly, therefore, Congress has generally refused to preempt more stringent state environmental standards for stationary sources,²¹⁴ especially since so many other factors militate in favor of preserving state autonomy. Those factors include the recognition of the traditional state interest in protecting public health and safety, the benefits that can accrue from permitting regulatory change and innovation to occur at the state level, and the value of state action as an antidote to agency failure at the federal level.²¹⁵ As a result, we already

209. William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1610 (2007) [hereinafter Buzbee, *Asymmetrical Regulation*].

210. Such a unitary approach, for example, would lower the costs involved in “battling over regulation in numerous venues.” *Id.* at 1590.

211. Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 NW. U. L. REV. 579, 640 (2008). The creation of a less-disruptive federal program—one preserving the ability of states to be more innovative—would still likely lead to more uniformity since “many states would simply follow the federal approach.” Alice Kaswan, *A Cooperative Federalism Proposal for Climate Change Legislation: The Value of State Autonomy in a Federal System*, 85 DENV. U. L. REV. 791, 797 (2008); see also Robert B. McKinstry, Jr. & Thomas D. Peterson, *The Implications of the New “Old” Federalism in Climate-Change Legislation: How to Function in a Global Marketplace When States Take the Lead*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 61, 105 (2007) (observing that the establishment of a federal floor approach to climate change regulation would produce more uniformity than a pure state-based approach).

212. See Glicksman & Levy, *supra* note 211, at 635.

213. See *id.*

214. See Buzbee, *Interaction’s Promise*, *supra* note 156, at 147-48.

215. See Buzbee, *Asymmetrical Regulation*, *supra* note 209; Glicksman & Levy, *supra*

accommodate the possibility of non-uniform regulation with regard to stationary sources under the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act,²¹⁶ among others, and it is difficult to see why we should treat climate change legislation any differently.

d. More Stringent State Programs Will Produce Higher Prices Outside of the Regulating State

It is likely that a state that prescribes more stringent requirements for GHG emissions from its own electric generating utilities will indirectly impose higher costs upon consumers in other states. This externalization of the regulatory burden would result from the fact that the electric utilities in the country are connected to the interstate power grid and send power to one another, at times over long distances.²¹⁷ Thus, more stringent requirements in one state might well cause electricity prices to rise elsewhere.²¹⁸ We tolerate this kind of effect under most of our existing environmental statutes, however, since the regulation of any industrial facility can create higher consumer prices for the products of those facilities.²¹⁹ And, once again, there appears to be no compelling reason to create a new approach just for GHG regulation.

e. Inefficiencies of More Stringent State Programs Within a Cap-and-Trade Program

A number of states might well decide that a federal cap on GHG emissions is too high and too permissive.²²⁰ In such a case, a state might want to lower the cap on a particular economic sector by setting its own cap. This kind of state action would distort the market for federal allowances because out-of-state

note 211, at 647.

216. See Clean Air Act § 116, 42 U.S.C. § 7416 (2000); Clean Water Act § 510, 33 U.S.C. § 1370 (2000); Resource Conservation and Recovery Act § 2009, 42 U.S.C. § 6929 (2000).

217. Glicksman & Levy, *supra* note 211, at 639.

218. *Id.*

219. Such regulation does not run afoul of the dormant commerce clause as long as the impact is incidental and imposes no unequal burdens on out-of-state residents. *Pike v. Bruce Church, Inc.*, 397 U.S. 137, 142 (1970).

220. In a cap-and-trade program, the total emissions of a particular pollutant are capped, and various facilities are allocated a portion of that total as emission allowances. Those allowances can be used, bought, sold, or traded. The idea is that low-cost pollution avoiders can reduce their emissions and sell their unused allowances to high-cost pollution avoiders, thus promoting an efficient approach to pollution control. Glicksman & Levy, *supra* note 211, at 642 n.300.

sources could purchase (presumably at a lower price) the extra federal allowances that the state cap freed up.²²¹ The entire exercise, furthermore, would produce no net environmental benefit because the additional in-state reductions could be purchased by facilities located out-of-state.²²²

This nonsensical situation could be easily solved if Congress acted to harmonize the federal GHG cap with more stringent state caps. Such a provision would enable states to retire or take out of circulation the number of federal allowances equal to the state program's expected reductions.²²³ Thus a state could achieve a real reduction in the emission of GHG emissions by ratcheting the total number of federal allowances below the overall federal cap.²²⁴

However, two possible economic distortions could still exist. Higher-cost pollution avoiders in a state with a more stringent cap would likely purchase fewer federal allowances than they otherwise would—thereby tending to drive down the price of federal allowances. On the other hand, the lower-cost pollution avoiders would likely have fewer federal allowances to sell—thereby tending to drive the price of federal allowances up. These two effects could cancel each other out completely, but it is also possible that the states enacting more stringent caps would have in the aggregate either more higher-cost pollution avoiders or more lower-cost pollution avoiders and thereby would distort the market, to some degree, in one direction or the other. The economic effect of such a distortion, however, should be negligible since the market in federal allowances ought to have more than enough willing sellers and buyers to keep the marketplace robust.²²⁵

2. Arguments for Floor Preemption

a. Compatibility of More Stringent State Programs with the Future Direction of Federal Legislation

Climate science is characterized by an evolution in

221. *Id.* at 645.

222. *Id.*; Dingell Preemption White Paper, *supra* note 153, at 15.

223. *See* Dingell Preemption White Paper, *supra* note 153, at 15.

224. *See* Glicksman & Levy, *supra* note 211, at 645.

225. The more stringent state programs, however, would likely decrease the demand for federal allowances that are sold at auction and thus reduce to some extent the funding available for a number of auction-financed activities. On the other hand, the number of allowances offered at auction could also be reduced as a result of more stringent state action, thus tending to reduce or completely eliminate the impact of lower demand.

scientific methodology and tools that have supported an ever-expanding amount of research in the area.²²⁶ As a result, our understanding of both the mechanisms and impacts of climate change has grown, and it will undoubtedly continue to grow as the scientific community addresses the gaps and uncertainties that remain in currently available knowledge. This continual refinement in our understanding of climate change has enormous implications for public policy. Whatever steps that are taken today by national or state legislatures should be viewed as first steps that will likely have to be fine-tuned, perhaps time and again, as we learn more about the relationship between human activity and our climate. It is, moreover, not unlikely that these steps will be in the direction of increasing stringency because of the likelihood of initial political compromise, improved scientific data, and the actions or inactions of foreign governments. It would make little sense, therefore, to preempt more stringent state approaches to climate change because future federal action would likely lie in the same direction. Not only may tougher state actions presage the direction of future federal action, but tougher early actions will likely aid the federal program by reducing, at least to some extent, the eventual stringency of that effort.

b. Acknowledgement of the Pioneering Efforts of State Governments and Their Responsibility to Protect Public Health and the Environment, Particularly in View of the Variability of Climate Change Impacts

Floor preemption would also recognize that many of our states were pioneers in this field. Having had the foresight to be the first to act, it would seem highly inappropriate to preempt their efforts to take strong action. There are antecedents for this type of recognition. California's pioneering efforts and experience in dealing with automobile emissions was one reason that Congress created the Clean Air Act waiver provision for California's regulation of automobile emissions.²²⁷ In addition, the floor preemption provisions in our modern environmental statutes, such as the Clean Water Act and the Clean Air Act,²²⁸ recognize the fact that our states have long had primary

226. IPCC, CLIMATE CHANGE 2007, *supra* note 39, at 98.

227. S. Rep. No. 90-403, at 33 (1967) [hereinafter SENATE COMM. REP. ON THE AIR QUALITY ACT OF 1967].

228. See Clean Water Act § 510, 33 U.S.C. § 1370 (2000); Clean Air Act § 116, 42 U.S.C. § 7416 (2000).

responsibility to protect public health and the environment.²²⁹ This responsibility is particularly implicated in the case of climate change because its impacts will likely be so severe and so variable in kind and magnitude from region to region and state to state.²³⁰

c. Permit Innovation to Continue

The use of floor preemption rather than ceiling preemption would also permit states to continue to serve as technological and regulatory innovators.²³¹ This is especially significant in areas that are volatile or characterized by uncertainties, gaps in available data, an evolving state of scientific knowledge, and constantly improving technology.²³² There is considerable value, therefore, in the case of climate change regulation to give states “room for pragmatic adjustment and experimentation”²³³ rather than merely relying upon the wisdom and will to act of a single jurisdiction. “Like biodiversity, which can reduce an ecosystem’s vulnerability to wipe-out risks faced by monocultures, floor preemption’s institutional diversity and related interactions leave a salutary play in the joints and room for ongoing adjustment.”²³⁴ Thus, as Alice Kaswan recently noted, a regulatory scheme that establishes a federal floor but permits states to be more stringent “could provide the best of all worlds; it takes advantage of the economies of scale of a federal approach, while allowing state experimentation.”²³⁵ The real value of experimentation at the state level lies in the portability of its success stories. A new program or a new approach that has been tested and validated in one state can subsequently serve as

229. The Clean Water Act, for example, states that it is the policy of Congress “to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution” Clean Water Act § 101(b), 33 U.S.C. § 1251(5) (2000). Furthermore, the Clean Air Act provides that “air pollution prevention . . . and air pollution control at its source is the primary responsibility of States and local governments.” Clean Air Act § 101(a)(3), 42 U.S.C. § 7401(a)(3) (2000).

230. See *supra* notes 47-56, 174-208 and accompanying text. The preservation of state authority also furthers the democratic ideal of “allowing states the latitude . . . to fulfill their citizens’ preferences.” Kaswan, *supra* note 211, at 799. In this way, the states retain the ability to respond to popular support for a cleaner environment. See Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1567.

231. See Kaswan, *supra* note 211, at 800; Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1599-1600; see also Doremus & Hanemann, *Cooperative Federalism*, *supra* note 169, at 825 (referring to the fact that many states have as much or more expertise than the federal government in dealing with the problem of climate change).

232. See Buzbee, *Interaction’s Promise*, *supra* note 156, at 153.

233. Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1619.

234. *Id.* at 1589.

235. Kaswan, *supra* note 211, at 800.

a model for other states.²³⁶ It can also, as Rob Glicksman wrote, “be put to good use at the federal level.”²³⁷

d. Institutional Protection against the Risk of Regulatory Failure

Floor preemption, by permitting states to be more protective than federal law, provides for more than just a variety of regulatory approaches. It also allows for more institutional diversity or, in other words, a more plural regulatory system, which can help mitigate the damage caused by possible regulatory and administrative failure at the federal level.²³⁸ The regulatory and administrative risks posed by unitary federal decision-making are substantial. These risks include the possibility of regulatory lethargy or administrative inertia; the possibility that federal regulators will grow too comfortable and chummy with the regulated industry; the possibility that poor initial regulatory choices will be made and not changed; and the possibility, perhaps likelihood, that budgetary resources will be inadequate for the tasks at hand.²³⁹ EPA, for example, has experienced a number of these problems. The agency has suffered from a regulatory agenda and work load that far exceeds the size of its staff and available funding.²⁴⁰ The agency has also been forced to endure administrations that have displayed real antagonism toward some important aspects of the agency’s statutory mission.²⁴¹ Environmental enforcement, for example, plummeted during the early years of the Reagan administration and a similar drop occurred during the early years of the recent Bush administration.²⁴²

236. See *supra* notes 161-62 and accompanying text.

237. Robert L. Glicksman, *Balancing Mandate and Discretion in the Institutional Design of Federal Climate Change Policy*, 102 NW. U. L. REV. 196, 213 (2008); see also *supra* notes 163-65 and accompanying text (discussing California’s contributions to the federal regulation of motor vehicle emissions).

238. See Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159, 164 (2006).

239. See Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1593-95.

240. EPA’s budget in fiscal year 2003, for instance, amounted to \$7.6 billion, a rise of just thirty-eight percent (unadjusted for inflation) from its fiscal-year 1978 budget of \$5.5 billion. U.S. ENVTL. PROT. AGENCY, EPA’S BUDGET AND WORKFORCE, 1970-2003 (2007), available at <http://www.epa.gov/history/org/resources/budget.htm>. EPA’s budget, therefore, has considerably less purchasing power today than in the late 1970s despite the addition of a multitude of new statutory and regulatory duties.

241. See WILLIAM W. BUZBEE ET AL., CTR. FOR PROGRESSIVE REFORM, REGULATORY UNDERKILL: THE BUSH ADMINISTRATION’S INSIDIOUS DISMANTLING OF PUBLIC HEALTH AND ENVIRONMENTAL PROTECTIONS 1 (2005), available at http://www.progressivereform.org/articles/Underkill_503.pdf.

242. See Andreen, *Motivating Enforcement*, *supra* note 121, at 71-74.

Congress anticipated many of these problems when it crafted the modern environmental statutes. These statutes typically limit the exercise of federal administrative discretion through the use of mandatory language, regulatory deadlines, and detailed statutory instructions.²⁴³ Congress also created a redundant institutional approach to enforcement, permitting concurrent enforcement at both the federal and state levels, as well as authorizing the filing of citizen suits.²⁴⁴ Of course, yet another congressional response allows state regulatory authority and state common law—what Buzbee refers to as a “multi-layered” approach²⁴⁵—to fill voids that may result from federal agency failure. Floor preemption gives states that power; ceiling preemption, on the other hand, tends “to exacerbate common forms of regulatory dysfunction”²⁴⁶ because complete policymaking authority is vested in one agency.

B. Mobile Sources

The need for a standard, uniform approach resonates most strongly with regard to the regulation of products where there is a possibility that dozens of different regulatory schemes would be applied to one particular product. Such a balkanized approach would seriously interfere with a business’s ability “to exploit economies of scale and scope.”²⁴⁷ Congress recognized this danger in several federal environmental statutes by utilizing different forms of ceiling preemption to reduce the possibility that multiple state requirements would apply to a single product.²⁴⁸ The Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”), for instance, expressly preempts state requirements that apply to the labeling or packaging of pesticides,²⁴⁹ but preserves the authority of states to regulate sales or use as long as state action does not conflict with federal requirements.²⁵⁰ FIFRA is thus tailored narrowly to preempt

243. See William L. Andreen, *The Evolving Law of Environmental Protection in the United States: 1970-1991*, 9 ENVTL. & PLAN. L.J. 96, 98 (1992).

244. *Id.* at 98-99.

245. Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1589.

246. *Id.* at 1593.

247. Thomas W. Merrill, *Preemption in Environmental Law: Formalism, Federalism Theory, and Default Rules*, in *FEDERAL PREEMPTION: STATES’ POWERS, NATIONAL INTERESTS* 179 (Richard A. Epstein & S. Greve eds., 2007).

248. See Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1561-64.

249. Federal Insecticide, Fungicide and Rodenticide Act of 1947 § 24(b), 7 U.S.C. § 136v(b) (2006).

250. *Id.* § 24 (a), 7 U.S.C. § 136v(a).

only product design.²⁵¹ Design preemption is also found in the Clean Air Act for mobile source emissions; once again, however, it is narrowly crafted.²⁵²

Although Congress, in general, preempted state regulation of motor vehicle emissions,²⁵³ it did create the possibility of two national design standards—one federal and one, more protective standard, originating in state action. To do so, the Clean Air Act gives California an opportunity to seek a waiver from the preemptive authority of federal law for any more stringent emission requirements.²⁵⁴ California received this special treatment in recognition of its pioneering efforts to control automobile emissions and the particularly severe air pollution problems that are found in the state.²⁵⁵ EPA, in turn, is directed to grant the waiver if California satisfies certain conditions.²⁵⁶ Once California obtains a waiver, other states may adopt California's standard.²⁵⁷ Congress enacted this additional exception to complete federal preemption to assist states, other than California, that experience stubborn pollution problems.²⁵⁸ Thus, as Bill Buzbee has noted, there are two preemptive choices available here, one federal and a more stringent state standard.²⁵⁹ Under this approach, the nation is able to benefit from California's leadership in controlling automobile emissions, and the automobile industry, confronted with only one possible variation, is able, as Congress intended, "to minimize economic disruption and therefore provide emission control systems at lower costs to the people of the Nation."²⁶⁰

The availability of two sets of "national" standards was a wise compromise because California has consistently served as a

251. See Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1562-63.

252. Clean Air Act § 209(a)-(c), 42 U.S.C. § 7543(a)-(c) (2000); *id.* § 177, 42 U.S.C. § 7507.

253. *Id.* § 209(a), 42 U.S.C. § 7543(a).

254. *Id.* § 209(b), 42 U.S.C. § 7543(b).

255. See SENATE COMM. REP. ON THE AIR QUALITY ACT OF 1967, *supra* note 227, at 33.

256. Clean Air Act § 209(b), 42 U.S.C. § 7543(b) (2006). The waiver may not be granted if EPA finds (1) that the state's determination as to whether its standards are in the aggregate as protective of human health and welfare is arbitrary and capricious; (2) that the state's standards are not needed to meet compelling and extraordinary conditions; or (3) that the state's standards and enforcement procedures are not consistent with section 202(a) of the Act. *Id.*

257. *Id.* § 177, 42 U.S.C. § 7507.

258. See H.R. Rep. No. 95-294, at 309-11 (1977) [hereinafter HOUSE COMM. REP. ON THE CLEAN AIR ACT AMENDMENTS OF 1977].

259. See Buzbee, *Asymmetrical Regulation*, *supra* note 209, at 1563.

260. SENATE COMM. REP. ON THE AIR QUALITY ACT OF 1967, *supra* note 227, at 33.

model for eventual federal regulation.²⁶¹ Unfortunately, for the first time in forty years,²⁶² EPA recently denied a waiver request from California.²⁶³ The denial involved the adoption and enforcement of California's GHG emission standards. EPA based the decision on a finding that California failed to meet one of the statutory conditions for granting such a variance; namely, that the state standards were needed "to meet compelling and extraordinary conditions."²⁶⁴ The finding was not driven by any factual inadequacy in California's case but by a statutory interpretation of "compelling and extraordinary conditions." In EPA's view, the compelling and extraordinary conditions referred to in the Clean Air Act must be local or regional in nature, whereas climate change is a global problem.²⁶⁵ Secondly, EPA argued that the impacts of climate change in California, compared to the rest of the nation, are not "sufficiently different to be considered 'compelling and extraordinary conditions.'"²⁶⁶

The combination of effects that California is likely to suffer, the close causal ties of those effects to California's geography and climate, and the sheer magnitude of those impacts, including serious aggravation of California's smog problems,²⁶⁷ certainly appear to be extraordinary as that word is used in common parlance. EPA's decision also appears to run counter to Congress' intent in drafting the current version of the waiver provision. The House committee report on the bill stated:

The Committee amendment is intended to ratify and strengthen the California waiver provision and to affirm the underlying intent of that provision, i.e. to afford California the broadest possible discretion in selecting the best means to protect the health of its citizens and the public welfare. . . . The Administrator, thus, is not to overturn California's judgment lightly. Nor is he to substitute his judgment for that of the State. There must be clear and compelling evidence that the State acted

261. See *supra* notes 163-65 and accompanying text.

262. California had previously sought a total of fifty-three waivers for new or amended motor vehicle emission standards and, in addition, had requested determinations on forty-two occasions as to whether a new regulation was within the scope of a previously granted waiver. MCCARTHY & MELTZ, *supra* note 95, at 11. All of those previous requests were granted in whole or in part—none were ever completely denied. *Id.* at 14-15.

263. EPA California Waiver Denial, *supra* note 98.

264. Clean Air Act § 209(b), 42 U.S.C. § 7543(b).

265. EPA California Waiver Denial, *supra* note 98, at 12,156-58, 12,160-61.

266. *Id.* at 12,168.

267. See *supra* notes 175-93 and accompanying text.

unreasonably in evaluating the relative risks of various pollutants in light of the air quality, topography, photochemistry, and climate in that State, before EPA may deny a waiver.²⁶⁸

EPA's decision is currently on judicial review.²⁶⁹ If the EPA prevails,²⁷⁰ Congress should certainly consider enacting statutory language that would reverse EPA's interpretation and direct the agency to return to its prior practice of examining "compelling and extraordinary conditions" in terms of California's overall need to have its own emission control program rather than whether any particular standard is necessary to meet such conditions.²⁷¹

V. CONCLUSION

The case in favor of preserving the authority of state government to enact more protective GHG regulation is compelling. Not only would such an approach continue to afford states an opportunity to address the concerns of their citizens about climate change and its diverse local impacts, but the use of floor preemption would also provide the nation with considerable programmatic and institutional benefits. States could still produce and experiment with innovative ways to minimize the impact of global warming, thus presenting other jurisdictions, including the federal government, with models for possible future application. In addition, the institutional diversity preserved by floor preemption would offer the nation a multiplicity of venues in which policy choices could be explored as well as some protection against the risk of regulatory failure. Ceiling preemption operates in precisely the opposite direction. It actually increases the risk of regulatory failure because all policymaking power is vested in one federal agency—an agency which could grow lethargic, an agency where regulation could be frozen in time. The diversity made possible by the use of floor preemption, therefore, offers real advantages to the nation in contrast to the substantial risks inherent in a unitary federal approach.

268. HOUSE COMM. REP. ON THE CLEAN AIR ACT AMENDMENTS OF 1977, *supra* note 258, at 301-02.

269. See MCCARTHY & MELTZ, *supra* note 95, at 5-6.

270. The case would be mooted, of course, if the new Obama administration signs the waiver.

271. See *id.* at 13 (referring to a number of prior EPA waiver determinations).