

A COOPERATIVE FEDERALISM PROPOSAL FOR CLIMATE
CHANGE LEGISLATION:
THE VALUE OF STATE AUTONOMY IN A FEDERAL SYSTEM

ALICE KASWAN[†]

TABLE OF CONTENTS

INTRODUCTION	792
I. THE IMPORTANCE OF FEDERAL LEGISLATION	794
II. THE STATE ROLE IN A FEDERAL PROGRAM	797
A. <i>Theoretical Justifications for a Strong State Role</i>	798
1. Arguments in Favor of State Autonomy.....	798
2. Concerns Raised by State Autonomy	801
B. <i>A Case Study on the Value of State Autonomy: California's Environmental Justice Provisions</i>	804
1. Introduction	804
2. Participatory Environmental Justice Provisions	805
3. Substantive Environmental Justice Provisions	805
(a) Provisions Implicating Co-Pollutant Emissions	806
i. Provisions that Prevent Increases in Co-Pollutants.....	806
ii. Provisions Requiring Environmental Co-Benefits.....	809
iii. Mechanisms for Incorporating Environmental Justice	811
(b) Achieving Economic Justice for Disadvantaged Communities	813
4. Conclusion.....	814
III. COOPERATIVE FEDERALISM MODELS	814
A. <i>Proposed Federal Legislation</i>	815
B. <i>Selected Cooperative Federalism Models</i>	816
1. Climate Change Programs.....	816
(a) The Regional Greenhouse Gas Initiative	816
(b) The European Union's Climate Change Program	818
2. The Clean Air Act	821
IV. A PRELIMINARY SKETCH OF A COOPERATIVE FEDERALIST STRUCTURE.....	823
A. <i>Climate Change Goals and Standards</i>	823
1. Climate Change Goals.....	823
2. Efficiency and Emission Standards	825
(a) Product Standards	825

[†] Professor of Law, University of San Francisco School of Law. I am grateful to William Buzbee, Holly Doremus, and Kirsten Engel for their insightful comments, and to Megan Walsh, USF '08, for her excellent research assistance.

(b) Pollution Control Standards.....	828
(c) Building Efficiency Standards.....	829
B. <i>Delegating Program Implementation</i>	829
1. Cap-and-Trade Programs.....	830
2. State Implementation Plans.....	834
CONCLUSION.....	838

INTRODUCTION

There is little doubt that climate change is an urgent problem, requiring urgent attention at all levels of government. Climate change policies are likely to require pervasive technological, economic, and behavioral changes at every level of society, with potentially profound implications. Policymakers will have to determine not only how much to reduce, but how the reductions are to be achieved and with what consequences for whom. Who will make these critical decisions?

Policymakers and scholars alike are struggling with the federalism question: whether climate change regulation should flow from a global, national, state, or local level. In this Article, I provide theoretical and practical justifications for a cooperative federalist approach that strives to avoid the weaknesses and build on the strengths of each level of government. I then provide specific proposals for federal legislation that are designed to garner the advantages of federal regulation while respecting the states' autonomy to set more stringent standards and tailor critical implementation decisions to state-specific conditions.

Part I establishes the fundamental importance of federal legislation. Collective action and leakage concerns will undoubtedly necessitate overarching global and national approaches. Moreover, given mismatches in the costs and benefits of climate change regulation experienced by individual states, under-regulation by the states is likely. Federal legislation would also offer greater economies of scale and consistency than state-level approaches.

Notwithstanding the importance of federal legislation, Part II addresses the states' critical role within a federal structure in light of the pervasive local impacts of climate change, the significant political, economic, and environmental implications of alternative regulatory approaches, and the local nature of many potential climate change strategies. Moreover, a federal monopoly on regulatory authority could create institutional inertia and would fail to provide a check on interest group capture.

After reviewing the theoretical justifications for allowing a state role, Part II turns to a case study on the environmental justice provisions in California's climate change legislation that illuminates several key state interests. California's innovative climate legislation not only estab-

lishes ambitious greenhouse gas reduction goals, it also requires that those goals be achieved in ways that protect and enhance air quality in polluted communities. If national legislation creates federal goals and implementation structures that explicitly preempt such state initiatives, or if the courts interpret future federal statutes to implicitly preempt state laws, then the states will have lost the power to control the impacts of climate change regulation. More broadly, the nation will have lost the “laboratories” of innovation that the states could otherwise have provided.

Part III evaluates existing cooperative federalism models. It notes that the most significant federal legislation proposed to date, the Warner-Lieberman bill, provides only a limited role for the states. Other climate change and domestic environmental law programs provide greater insights on model cooperative federalist structures. In the climate change context, I consider the relatively decentralized approaches taken by the Regional Greenhouse Gas Initiative and the European Union’s Emissions Trading System. On the domestic front, I consider the Clean Air Act, which gives the federal government the authority to establish minimum goals but gives states the discretion to adopt stricter environmental goals and shape implementation to respond to state-specific political and economic needs. While these models have not operated with full success, they suggest options worthy of further consideration.

Part IV provides a preliminary sketch of a cooperative federalist structure for federal climate change legislation and analyzes the specific benefits of shared federal and state responsibilities. It argues that the federal government should set minimum goals and standards, but that, in most cases, it should not preempt state efforts to set more stringent goals or standards. It then turns to program implementation, and argues that, in light of the key environmental, political, and economic implications of cap-and-trade programs, states should be allowed (but not required) to administer such programs subject to minimum federal standards. State autonomy over critical decisions is worth some potential loss in consistency and efficiency.

In addition, I suggest that state implementation planning, similar to that employed under the Clean Air Act, would facilitate the achievement of both federal and state goals. Federal emission reductions goals could be allocated to the states, and state implementation plans could then be required to show how each state will integrate federal minimum requirements and adopt its own initiatives to achieve its required reductions. Federal goals will not be achievable without state-directed actions, like land use and transportation controls. Moreover, the states’ unique circumstances and preferences are likely to prompt differing strategies for reaching climate change goals. State implementation plans could provide a critical mechanism for demonstrating how federal and state measures will be combined to achieve the nation’s overall objectives.

I. THE IMPORTANCE OF FEDERAL LEGISLATION

In the absence of U.S. participation in the Kyoto Protocol and the absence of a comprehensive federal regulatory approach,¹ the states have taken the lead in adopting significant climate change initiatives.² California's Global Warming Solutions Act³ and the northeastern states' Regional Greenhouse Gas Initiative,⁴ as well as several other less specific or developed state and regional programs, have been critical.⁵ However, initiatives to date are unlikely to reduce emissions sufficiently to address the threat of climate change.⁶ Furthermore, given the global nature of climate change, future state initiatives are unlikely to provide a sufficient response.

In determining the appropriate jurisdictional level for regulation, scholars frequently refer to the "matching principle": that the jurisdictional level should match the scale of the environmental problem in question.⁷ Local environmental problems should be resolved at a local level, problems that cross state lines should be resolved nationally, and, presumably, problems that cross national boundaries, like climate change, should be resolved internationally.⁸ Matching the jurisdiction to the problem means that the jurisdiction can fully account for the net costs and benefits of regulation. Otherwise, perverse results would ensue.

1. See Alice Kaswan, *The Domestic Response to Global Climate Change: What Role for Federal, State, and Litigation Initiatives?*, 42 U.S.F.L. REV. 39, 42-45 (2007) (describing weak federal initiatives).

2. See Randall S. Abate, *Kyoto or Not: Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 CORNELL J.L. & PUB. POL'Y 369, 372 (2006) (describing a wide range of state programs); J.R. DeShazo & Jody Freeman, *Timing and Form of Federal Regulation: The Case of Climate Change*, 155 U. PA. L. REV. 1499, 1521-30 (2007) (same); Kirsten Engel, *State and Local Climate Change Initiatives: What is Motivating State and Local Governments to Address a Global Problem and What Does This Say About Federalism and Environmental Law?*, 38 URB. LAW. 1015, 1016-29 (2006) (same); 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, 76-84 (2007) (listing state programs).

3. CAL. HEALTH & SAFETY CODE §§ 38500-99 (West 2007).

4. See REGIONAL GREENHOUSE GAS INITIATIVE, MEMORANDUM OF UNDERSTANDING (Dec. 20, 2005), available at http://www.rggi.org/docs/mou_final_12_20_05.pdf [hereinafter MEMORANDUM].

5. See Abate, *supra* note 2, at 372; DeShazo & Freeman, *supra* note 2, at 1521-30; Engel *supra* note 2, at 1016-29 (listing sources that describe state programs). The Pew Center for Global Climate Change provides up-to-date information on state programs. See Pew Center on Global Climate Change, *What's Being Done . . . in the States*, http://www.pewclimate.org/what_s_being_done/in_the_states/ (last visited Mar. 27, 2008).

6. See Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L.Q. 183, 220-23 (2005); Jonathon B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961, 1966-67 (2007).

7. See Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Federal Authority*, 14 YALE L. & POL'Y REV. 23, 25 (1996). See, e.g., Engel & Saleska, *supra* note 6, at 191-92 (describing "matching principle").

8. See Wiener, *supra* note 6, at 1964.

For example, in the context of global climate change, states may be unwilling to regulate sufficiently because the costs of regulation—all internal—could exceed the benefits—benefits necessarily shared with the rest of the globe.⁹ Leaving action solely to the states also creates the risk of free riders, who hope to benefit from other states' regulation but are unwilling to assume the costs themselves.¹⁰ States acting alone consistently fear "leakage": that state regulation to control greenhouse gas emissions will drive economic activity to unregulated states, merely relocating rather than reducing emissions.¹¹ If the emissions simply shift location, then the regulating state would not have achieved its reduction goal and could, in the meantime, have suffered adverse economic consequences from its regulation. Leakage concerns are thus likely to chill state action. A related concern is the race to the bottom, in which states forego or weaken desired environmental regulation because they fear it could drive away business.¹²

In addition, in the climate change context, different states perceive different internal cost/benefit alignments. Some states might perceive significant benefits from controlling greenhouse gases and not experience significant costs from its regulation.¹³ California, for example, is deeply concerned about the impact of climate change on its coastline, its

9. See DeShazo & Freeman, *supra* note 2, at 1518; Barry G. Rabe, Mikael Roman & Arthur N. Dobelis, *State Competition as a Source Driving Climate Change Mitigation*, 14 N.Y.U. ENVTL. L.J. 1, 7 (2005); Wiener, *supra* note 6, at 1965. Similarly, Professor Engel notes that, where pollution crosses state boundaries, states will pollute too much because they can externalize the environmental costs while retaining economic benefits. See Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159, 164 (2006).

10. See Kaswan, *supra* note 2, at 72; Wiener, *supra* note 6, at 1965.

11. See DeShazo & Freeman, *supra* note 2, at 1532 (describing leakage risk in the context of state renewable energy requirements); Wiener, *supra* note 6, at 1967-73. Professor Wiener notes that leakage could take several forms. Under the "price effect," regulation could lead to higher prices, prices which would shift consumer demand to products made in states or countries lacking controls. *Id.* at 1967-68. The "slack off" effect is a form of the free rider problem: if states see other states taking aggressive measures, they might slack off their own efforts. *Id.* at 1968. The "capital relocation" effect could occur if industries respond to regulation by relocating to unregulated states or countries. *Id.* at 1968. Professor Wiener provides a thoughtful analysis of the factors that could influence the potential net emissions consequences of these forms of leakage. *Id.* at 1969-73.

12. See DeShazo & Freeman, *supra* note 2, at 1518-19; Wiener, *supra* note 6, at 1965. Academics have debated the validity of the race-to-the-bottom theory. See Kaswan, *supra* note 2, at 62 n.122. Professor Revesz has argued that states engage in competition for both businesses and citizens that allows them to choose the balance of environmental and economic amenities that best suits their preferences. See Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1211 (1992). The dynamics of interstate competition in any given instance are complicated, but it is conceivable that, at least in some instances, the fear of losing business would deter a state from enacting desired environmental regulation. See Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "To the Bottom"?*, 48 HASTINGS L.J. 271, 303-04 (1997) (providing empirical data suggesting that states fear that their environmental regulations could deter economic investment).

In California, regulators confront the risk of economic flight as they develop their climate change regulations. Entities likely to be subject to the state's climate change regulation have stated that they will move their operations outside the state if the state's regulations are too onerous. See Matthew Yi, *Dems. Governor Spar Over Road to Clean Air*, S.F. CHRON., July 17, 2007, at A1.

13. Kaswan, *supra* note 1, at 66-67.

water supply system, and its air quality.¹⁴ In addition, given its strong technology sector, California anticipates net economic benefits from climate change regulation, as the state develops the innovative technology necessary to transition away from a carbon-intensive economy.¹⁵ Moreover, California's control costs could be less than those of other states because it is not heavily dependent on coal, a significant source of greenhouse gases.¹⁶ Other states might foresee fewer short-term benefits from controlling greenhouse gas emissions, but expect significant costs.¹⁷ For example, a state that relies heavily on coal mining or burning is responsible for significant emissions, but would experience high costs of control and, at least in the short-term, might not find the benefits of regulation worth the costs.¹⁸

These disconnects between the causes and consequences of emissions, and the disconnects between the distribution of the costs and benefits of control, suggest that reliance on the states could lead to significant under-regulation.¹⁹ In light of the United States' unwillingness to take a global approach by ratifying the Kyoto Protocol,²⁰ the next-best approach, under the matching principle, would be federal regulation. A federal approach would require all states to address the out-of-state con-

14. See CALIFORNIA CLIMATE CHANGE CENTER, OUR CHANGING CLIMATE: ASSESSING THE RISKS TO CALIFORNIA (2006), <http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF>.

15. See Kaswan, *supra* note 1, at 66 (describing California's expectation of economic benefits arising from its climate change legislation); Rabe, Roman & Dobelis, *supra* note 9, at 37-41 (describing states' interest in economic development opportunities associated with climate change regulation).

16. See CALIFORNIA ENERGY COMMISSION, INTEGRATED ENERGY POLICY REPORT 2007 (EXECUTIVE SUMMARY) 11 (2007) (indicating, in Figure 6, that only 8 percent of California's energy comes from coal), available at <http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF-ES.PDF>.

17. See McKinstry & Peterson, *supra* note 2, at 92 (observing that some states are likely to experience greater costs from climate change regulation than others).

18. See Rabe, Roman, & Dobelis, *supra* note 9, at 11 (observing that states with significant economic investments in carbon-producing industries are reluctant to address climate change); cf. Zachary Coile, *Energy Bill Draft Splits House Dems: It's Pelosi's Greens Against Industry Protectionists*, S.F. CHRON., June 8, 2007, at A7 (noting, in the context of support for federal legislation, that lawmakers from coastal states have favored deep emissions cuts while those "from states producing automobiles, coal and oil favor a go-slow approach"). States may also fail to act due to agency capture. Powerful interests within a state could influence state policy in a manner ultimately deemed inconsistent with that state's best interests. See Robert L. Glicksman, *From Cooperative to Inoperative Federalism: The Perverse Mutation of Environmental Law and Policy*, 41 WAKE FOREST L. REV. 719, 734-35 (2006) (discussing potential for "capture" of state government).

19. This is not to say that the states do not have any motivation for taking action; the presence of so many significant state initiatives demonstrates that states have found sufficient political, economic, and environmental justifications for action. See Kirsten Engel, *State and Local Climate Change Initiatives: What is Motivating State and Local Governments to Address a Global Problem and What Does This Say about Federalism and Environmental Law*, 38 URB. LAW. 1015, 1016-21 (2006); Kaswan, *supra* note 1, at 65-68. That said, however, the states' collective efforts are unlikely to be sufficient.

20. See Engel & Saleska, *supra* note 6, at 186.

sequences of their emissions and would reduce leakage among the states.²¹

Other arguments, in addition to the matching principle, support federal regulation. Rather than having each state explore the greenhouse-gas-reduction potential of each sector, it would be more efficient for the federal government to research technological and operational opportunities.²² The federal government also has more resources at its disposal.²³ In addition, although I argue for allowing state flexibility, the existence of a federal approach is likely to reduce the multiplicity of approaches to greenhouse gas regulation around the country. To the extent that many states simply follow the federal approach, without adding state-specific implementation measures, the number of diverse approaches would be reduced in comparison with a purely state-based approach.²⁴ Finally, to the extent the federal government adopts a cap-and-trade program, a larger market could lower costs²⁵ and increase the fluidity of the market by creating more trading opportunities and smoothing out the consequences of local events.²⁶ The nation thus needs a federal approach to climate change.

II. THE STATE ROLE IN A FEDERAL PROGRAM

Notwithstanding the need for federal legislation, the states have a vital interest in establishing their own climate change goals and in asserting at least limited control over key implementation decisions. In this Part, I justify a cooperative federalist approach²⁷ that sets significant federal minimum standards and then provides states with considerable autonomy to exceed federal minimums and implement greenhouse gas

21. A federal approach would not, however, address the risk of international leakage: the risk that federal domestic legislation could shift emissions to countries that are not regulating greenhouse gas emissions. See Wiener, *supra* note 6, at 1967-68 (describing leakage caused by single-country regulation in the absence of a global agreement).

22. See generally Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 614-15 (1996) (describing greater efficiency of federal regulation).

23. *Id.* at 585-86.

24. See McKinstry & Peterson, *supra* note 2, at 105 (suggesting that minimum federal standards would establish floors that would lead to more uniform standards than a purely state-based approach).

25. Lower costs are beneficial if they allow regulatory authorities to set higher emissions caps than they would if reductions were more expensive. See ENVTL. PROT. AGENCY, TOOLS OF THE TRADE: A GUIDE TO DESIGNING AND OPERATING A CAP-AND-TRADE PROGRAM FOR POLLUTION CONTROL (2003), <http://www.epa.gov/airmarkets/resource/docs/tools.pdf>. Lower costs could also alleviate the economic costs of addressing climate change. That said, however, lower costs are beneficial only to a point. If costs are too low, then regulated entities and the technology sector will not receive a sufficient price signal to invest in alternative emission-reducing technologies.

26. See Engel & Saleska, *supra* note 6, at 228.

27. Scholars have historically focused on dual federalism: the respective roles of the states *versus* the federal government. See Engel, *supra* note 9, at 163-66, 175. Recent scholarly attention has focused on the idea of cooperative federalism, which embodies shared powers and, at times, overlapping federal and state roles. *Id.* at 175-76 (noting scholarly literature on “dynamic federalism,” “empowerment federalism,” “polyphonic federalism,” “interactive federalism,” and “vertical regulatory competition”).

reduction strategies. The appropriate balance between federal and state responsibility depends, of course, on the nature of the regulatory strategy, a subject I address in the context of specific proposals in Part IV, below.

After describing the theoretical justifications for creating a cooperative federalism approach, I use the environmental justice provisions in California's climate change legislation as a case study on the practical importance of allowing state implementation autonomy.

A. Theoretical Justifications for a Strong State Role

1. Arguments in Favor of State Autonomy

The "matching principle" provides important insights into why a regulatory jurisdiction should match the scale of the environmental problem, and why climate change requires a global and national solution.²⁸ But that is not the end of the story. Additional "matches" suggest the suitability of multiple levels of regulation.²⁹

Environmental problems are not one-dimensional: global problems like climate change have local manifestations that could shape the nature of a locality's desired response. Thus, as suggested above, a state like California, that perceives significant risks from climate change, could be willing to establish more stringent goals than the federal government.

Similarly, the consequences of climate change regulation are local. Climate policies that require local industries to reduce greenhouse gases will have local economic consequences, both positive and negative, that will depend upon the nature of the industry, the ease of making reductions, and the chosen regulatory mechanism for requiring reductions.³⁰ Local reductions will also have local environmental consequences: reductions in greenhouse gases generally (although not necessarily) lead to reductions in harmful co-pollutants.³¹ The rate and distribution of greenhouse gas reduction requirements could thus impact the local distribution of harmful co-pollutants. Due to the economic and environmental implications of regulatory strategies, states thus have an interest in the stringency of direct regulation as well as in the relative role of a cap-and-

28. See William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1604-06 (2007).

29. See *id.* at 1604-05, 1617 (critiquing the matching principle for its heavy focus on the location of pollution, and arguing that other factors, including the benefits and harms of regulation, should influence jurisdictional choice).

30. See McKinstry & Peterson, *supra* note 2, at 87-88 (observing that states can better devise climate change programs to address their particular regional characteristics and industries).

31. See MARKET ADVISORY COMMITTEE TO THE CALIFORNIA AIR RESOURCES BOARD, RECOMMENDATIONS FOR DESIGNING A GREENHOUSE GAS CAP AND TRADE SYSTEM FOR CALIFORNIA 13 (2007) (observing that production changes that reduce greenhouse gases tend to reduce co-pollutant emissions as well) [hereinafter MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD.].

trade program and its operational features. While the global scale of climate change requires an international and national response, the local implications of climate change policies provide a justification for allowing some state flexibility in determining how to implement national goals.

A state role within a federal system is further justified by familiar principles of democratic theory.³² As Professor Kirsten Engel has stated, federal preemption “cuts short the lawmaking process and products of an entire level of democratic government.”³³ If states wish to achieve more demanding goals, or to control the economic and environmental consequences of climate change policies, then allowing states the latitude to do so allows them to fulfill their citizens’ preferences.³⁴

Federal minimums which prevent states from setting lower goals or standards may appear, at first blush, to prevent some states from realizing their preference for lower standards.³⁵ But the federal minimum would allow other states to meet their democratic preferences, since race to the bottom and leakage concerns might have prevented some states from adopting their ideal standards.³⁶ One state’s democratic loss is another’s democratic gain. Moreover, the democratic argument has limits: a state’s choice not to control its emissions is less compelling where that choice has adverse consequences for other states or, in this instance, for the globe.³⁷ Democratic theory thus supports having federal minimums, but allowing states to exceed them.

State initiatives may also be more amenable to “bottom-up” participation by affected constituencies.³⁸ Including stakeholders in policy development can provide policy makers with critical information that could lead to more tailored and effective programs and could, potentially, increase “stakeholder buy-in.”³⁹ (However, since the states are as vul-

32. See Esty, *supra* note 22, at 609-10 (describing democratic theory in favor of decentralized decision-making).

33. Engel, *supra* note 9, at 184.

34. See Esty, *supra* note 22, at 610 (stating democratic justification for state-level jurisdiction); Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1210 (1976-77) (same); see also DeShazo & Freeman, *supra* note 2, at 1519-20 (observing that state climate change initiatives have been a response to their citizens’ fears about climate change); Engel, *supra* note 2, at 1025; Glicksman, *supra* note 18, at 779 (noting that recent state environmental initiatives have been a response to state citizen desires for environmental protection).

35. See Buzbee, *supra* note 28, at 1581, 1586.

36. *Id.* at 1580 (noting that federal minimums help states meet their preferences by dampening the race to the bottom).

37. See Butler & Macey, *supra* note 7, at 33 (observing that, in the case of interstate pollution spillovers, pure state regulation would lead to political failure since the victim state would have no capacity to control the polluting state’s pollution); Stewart, *supra* note 35, at 1227 (stating that “a state should not be entitled to invoke the principle of local self-determination against federal controls where that state generates significant spillovers which impair the corresponding ability of sister states to determine the environmental quality they shall enjoy.”).

38. See McKinstry & Peterson, *supra* note 2, at 73, 87.

39. *Id.*

nerable to political capture as the federal government, federal minimum standards remain essential.⁴⁰⁾

Another familiar argument in favor of retaining state flexibility is that allowing the states to adopt alternative approaches fosters technological and regulatory innovation.⁴¹ The states can act as “laboratories for invention” by exceeding minimum federal product, production, or renewable portfolio standards, thereby promoting technological innovation that could provide models for other industries or jurisdictions.⁴² Differing regulatory approaches, like direct regulation, variants on cap-and-trade programs, or new approaches to land use regulation, could likewise test and provide models for other jurisdictions. Allowing state experimentation is particularly appropriate where the problem to be addressed is new and where policymakers are uncertain about the best mechanisms for addressing it.⁴³ In the climate change context, Professor William Buzbee has stated that “[i]n settings of volatility and diversity of conditions, especially where knowledge is incomplete and evolving rapidly, room for pragmatic adjustment and experimentation is critical.”⁴⁴ A cooperative federalist approach that establishes basic federal parameters but allows states to diverge could provide the best of all worlds; it takes advantage of the economies of scale of a federal approach, while allowing state experimentation.

Allowing a diversity of requirements and approaches also helps counteract potential defects in legislative and regulatory processes.⁴⁵ Federal preemption of divergent state approaches lodges complete power in a single federal decision-maker.⁴⁶ Once federal decision-makers act, they could fail to review and assess the standards or approaches they have adopted.⁴⁷ They could develop a significant institutional investment in the status quo.⁴⁸ Allowing states to develop more demanding or divergent standards and approaches would create a diversity of players simultaneously working to solve similar problems, stimulating continual interaction, challenge, debate, reexamination, and inquiry.⁴⁹ While that

40. See Glicksman, *supra* note 18, (discussing risk of agency capture at the state level).

41. See Engel, *supra* note 9, at 182-83.

42. Under the Clean Air Act, for example, California is allowed to adopt vehicle emission standards that differ from federal requirements, so long as EPA waives the normally-applicable federal preemption provision. See 42 U.S.C.A. § 7543(b) (West 2008). The differing requirements have prompted technological innovation. See Ann E. Carlson, *Federalism, Preemption, and Greenhouse Gas Emissions*, 37 DAVIS L. REV. 281, 313-18 (2003).

43. See Buzbee, *supra* note 28, at 1619; Engel, *supra* note 9, at 182.

44. Buzbee, *supra* note 28, at 1619.

45. See *id.* at 1597; Engel, *supra* note 9, at 178-81.

46. See Buzbee, *supra* note 28, at 1597.

47. *Id.* at 1594-95.

48. *Id.* at 1595, 1608-09.

49. *Id.* at 1588-89, 1597; Butler & Macey, *supra* note 7, at 53 (observing that centralized decision making impedes the detection of policymaking errors); Engel, *supra* note 9, at 170-73 (describing the dynamic innovation encouraged by the interplay of state and federal standard-

conflict may not always be comfortable, having a multiplicity of players is more likely to lead to continuing assessment and improvement in technological requirements and regulatory programs than a preemptive federal approach.

Having a multiplicity of players could also ameliorate the risk of agency capture, at both the federal and state levels.⁵⁰ If Congress or implementing agencies are heavily influenced by particular interest groups to the detriment of the public interest,⁵¹ and the federal law preempts divergent state approaches, then there is no antidote for the political failure.⁵² Without attempting to resolve the fine line between “capture” and the appropriate operation of the political process in balancing diverse needs, one could imagine that interests heavily invested in the short-term future of coal or the existing state of the automobile industry could influence legislative or regulatory processes in ways that (arguably) under-regulate in light of the long-term risks posed by climate change and the general public interest. Given the risk of federal agency capture, the states could retain the authority to impose more demanding requirements.⁵³

A state role may also be necessary to address issues that are better suited to state and local resolution than federal resolution. Without essentializing the nature of “federal” versus “state” activities, certain governmental decisions, like land use and building codes, have traditionally been under state control. This is not to say that the federal government should be precluded from addressing these areas. Even so, the federal government could be more successful at meeting national goals if it enlisted the states’ assistance and cooperation in areas traditionally within their control.⁵⁴

2. Concerns Raised by State Autonomy

In the context of regulatory standards and the operation of a cap-and-trade program, inconsistency is a significant consequence of allowing states to diverge from federal standards and giving them implementa-

setting); *see also infra* notes 239 to 248 and accompanying text (describing the dynamic tension between state and federal appliance efficiency and vehicle emission standards).

50. *See* Buzbee, *supra* note 28, at 1594-95; Engel, *supra* note 9, at 161, 178-81.

51. *See* Buzbee, *supra* note 28, at 1590-91, 1609.

52. *See* Butler & Macey, *supra* note 7, at 53; Engel, *supra* note 9, at 163.

53. In theory, there is also the risk of agency capture by environmentalists, leading to overly restrictive regulation at the federal or state level. For example, if environmentalists captured the federal legislative process, then arguably states should be allowed to set standards below the federal level to provide an antidote to environmentalists’ control at the federal level. In light of the relative power of the interest groups, and the diffuse nature of the public’s concern about climate change in comparison to the intense interest of the regulated community, this risk appears less compelling than the risk of industry capture.

54. *See* John P. Dwyer, *The Practice of Federalism under the Clean Air Act*, 54 MD. L. REV. 1183, 1218 (1995)

tion discretion.⁵⁵ Nationwide industries could encounter differing standards in different states, leading to inefficient production and management.⁵⁶ If states could impose their own requirements on a cap-and-trade program, the program's transactions costs would increase. From a participatory standpoint, industries and public interest groups would have to monitor and participate in proceedings around the country, rather than focusing their resources on federal legislative and regulatory process.⁵⁷

Consistency is an important, but not necessarily determinative, factor. The virtues of consistency must be weighed against the benefits of a diversity of approaches. The significance of consistency is also dependent upon the type of regulation at issue.⁵⁸ For example, inconsistent product standards could adversely impact industrial efficiency.⁵⁹ In contrast, overarching environmental goals have relatively little impact on industrial efficiency, and do not present a compelling case for preemption.⁶⁰ Process and performance standards, permitting structures, and other regulatory options fall somewhere in between.⁶¹ I discuss these issues in the climate change context more specifically below, in Part IV.

A cooperative federalist approach would also pose less risk of inconsistency than a pure reliance on state initiatives. A federal approach that gave states the option, but did not mandate, state divergence or implementation would likely limit the degree of diversity. Under existing cooperative federal approaches, many states do not choose to deviate from the federal minimums.⁶²

In addition to inconsistency, another potential risk of state action is that states could develop requirements that favor their own interests and jeopardize out-of-state interests. Climate change policy could thus become a protectionist vehicle.⁶³ State product standards pose this risk if

55. See Buzbee, *supra* note 28, at 1600.

56. See Carlson, *supra* note 42, at 313-14; DeShazo & Freeman, *supra* note 2, at 1530-31.

57. See Engel, *supra* note 9, at 181 (noting that most interest groups would prefer federal policies so that they could avoid having to lobby in all fifty states); *cf.* Stewart, *supra* note 35, at 1213-15 (noting that, relative to industry, environmental groups are likely to have more power at the federal level, given their relative lack of resources).

58. See Buzbee, *supra* note 28, at 1603-04 (arguing that the nature of the regulatory target is a key factor in determining whether preemption—and its accompanying consistency—is appropriate).

59. See *id.* at 1603; Kaswan, *supra* note 1, at 82-83. Federal statutes addressing product standards are more likely to preempt state approaches than other federal regulatory statutes. See Buzbee, *supra* note 28, at 1561-64; Engel & Saleska, *supra* note 6, at 224-26.

60. Kaswan, *supra* note 1, at 82.

61. See Buzbee, *supra* note 28, at 1603-04; Kaswan *supra* note 1, at 81-83 (discussing the benefits and drawbacks to preemption for a number of types of regulatory efforts).

62. Some states have gone so far as to pass legislation preventing their states from exceeding federal standards. See 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, 1375-95 (1995).

63. In other words, states could engage in a form of "cost externalization" by imposing constraints on out-of-state interests for the benefit of in-state interests. See generally Butler & Macey, *supra* note 7, at 45-47 (describing cost externalization risk of state-level regulatory action). More broadly, this theory suggests that states imposing external costs might fail to comprehensively ana-

they are designed to favor in-state industries and are not otherwise environmentally justified.⁶⁴ On the other hand, states may be unable to prevent leakage and meet their goals without establishing policies that have some impact on out-of-state interests. For example, California has enacted an environmental performance standard for electricity that essentially prevents the state from using electricity generated by traditional coal-fired power plants,⁶⁵ a standard that will have little impact within the state, due to its lack of coal-fired power, but that is likely to reduce certain electricity imports.⁶⁶ Without the ability to impose the standard on electricity imports, California's greenhouse reduction goals could be undermined by utilities' switching from California energy sources that must meet the standard to out-of-state sources that are not subject to it. So long as they are environmentally justified, states should be allowed to develop product or production criteria to meet their objectives, even if such measures have an incidental impact on out-of-state industries. Moreover, such restrictions often impose higher costs on in-state residents, thus providing a check on the risk of protectionist and self-serving legislation.⁶⁷ In such inter-state conflicts, there is no obvious reason why the regulating state's interests should cede to the impacted state's interests.

Climate change is unquestionably a global problem, and strong federal minimums are necessary. But the states have a vital interest in the consequences of climate change and a major stake in the economic and environmental consequences of climate change regulation itself. The states could foster innovation and avoid the risk of federal complacency and inertia. Allowing states to exceed federal minimums could also provide a structural antidote to potential agency capture at the federal level. As Professor Kirsten Engel has stated, "[p]reemption . . . is the real boogeyman of public interest lawmaking because it prevents the political process from policing itself."⁶⁸

lyze the costs and benefits of regulation. Using the example of a non-coal state imposing restrictions on the use of coal, the theory posits that states might impose restrictions that provide them with environmental benefits but whose costs they do not have to endure. See *id.* at 45, n.45 (quoting E. Donald Elliott et al., *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313, 329 (1985)). As Butler and Macey go on to note, however, the restricting state's consumers generally experience higher costs from the regulation, even if its industries are not directly affected. See Butler & Macey, *supra* note 7, at 47. In many situations, costs are not, in fact, "externalized" in a manner that would lead to political failure. *Id.*

64. Butler & Macey, *supra* note 7, at 45-48.

65. See Patricia Weisselberg, *Shaping the Energy Future in the American West: Can California Curb Greenhouse Gas Emissions from Out-of-State, Coal-Fired Power Plants Without Violating the Dormant Commerce Clause?*, 42 U.S.F. L. REV. 185 (2007).

66. See *id.* at 213 (describing utility argument that the burden of the California standard will fall heavily on out-of-state coal-fired power plants).

67. See Butler & Macey, *supra* note 7, at 47.

68. Engel, *supra* note 9, at 163.

B. A Case Study on the Value of State Autonomy: California's Environmental Justice Provisions

1. Introduction

The environmental justice provisions in California's climate change legislation help illuminate the value of retaining state autonomy within a federal system. While the case study does not raise all of the relevant issues, it reveals: (1) the local political, environmental, and economic implications of climate change regulation; (2) the expression of uniquely state-level political preferences that are unlikely to be manifested in federal legislation; and (3) critical state interests that could arise in the operation of a cap-and-trade program, the type of program that many assume operates best at a national if not an international scale. The environmental justice case study highlights the states' strong interest in shaping regulatory processes to meet state-specific goals and needs.

In 2006, California enacted one of the nation's first comprehensive climate change statutes,⁶⁹ the Global Warming Solutions Act, commonly referred to as AB 32.⁷⁰ The statute requires the state to reduce its greenhouse gas emissions to 1990 levels by 2020.⁷¹ Although it provides relatively little detail about how to achieve the required reductions, the law explicitly includes parameters to achieve environmental justice, regardless of the specific regulatory programs the state chooses to adopt.⁷²

The environmental justice implications of potential implementation strategies were a key issue in legislative deliberations. The Governor strongly supported a cap-and-trade program while many legislators, concerned about the environmental justice implications of market-based systems, were opposed.⁷³ As a consequence, the law permits but does not require the creation of a market mechanism.⁷⁴ In addition, the law requires the state's regulations to serve environmental justice through provisions designed to enhance participation in the development of implementing regulations, substantive environmental protections for polluted areas, and provisions designed to direct economic opportunities to disadvantaged communities.

69. Several northeastern states preceded California. See Abate, *supra* note 2, at 377-81. But California's size and influence gave California's legislation greater national and international significance.

70. CAL. HEALTH & SAFETY CODE §§ 38500-99 (West 2007).

71. *Id.* § 38550.

72. See *infra* notes 75 to 111 and accompanying text.

73. See Mark Martin, *Nunez Slams Governor on Emission Law*, S.F. CHRON., Oct. 17, 2006, at B1 (describing legislature's rejection of the Governor's proposal to mandate a cap-and-trade program).

74. CAL. HEALTH & SAFETY CODE § 38570(a).

2. Participatory Environmental Justice Provisions

Citizens' participation in decisions affecting their communities is a central value in the environmental justice movement.⁷⁵ Participation is necessary (though not sufficient) to empower disadvantaged communities in decision making processes that have historically failed to serve their interests. Participation also helps government agencies obtain first-hand information about conditions in the communities their decisions will affect.⁷⁶

AB 32 explicitly encourages broad participation in the development of its implementing regulations and participation by disadvantaged communities in particular.⁷⁷ The law requires the California Air Resources Board (CARB), the agency with primary implementation authority, to consult a wide range of stakeholders in developing its regulations, including "the environmental justice community, industry sectors, business groups, academic institutions, [and] environmental organizations."⁷⁸ It requires the creation of an Environmental Justice Advisory Committee (EJAC) whose members are to be drawn from the state's most polluted areas, "including, but not limited to, communities with minority populations or low-income populations."⁷⁹ In addition, as it develops its regulatory scoping plan, the law requires CARB to hold public workshops in regions of the state suffering from poor air quality, once again including, but not limited to, minority and low-income communities.⁸⁰

3. Substantive Environmental Justice Provisions

Substantively, distributive justice is a key goal of the environmental justice movement.⁸¹ The movement seeks to redress the current inequity in the distribution of pollution and its effects.⁸² Numerous studies have documented substantial disparities in the distribution of polluting facilities, which are more likely to be concentrated in of-color and low-income communities.⁸³ In California, many areas of the state have failed to at-

75. See Alice Kaswan, *Distributive Justice and the Environment*, 81 N.C. L. REV. 1031, 1045-47 (2003) (describing claim in terms of "political justice").

76. See Stephen M. Johnson, *Economics v. Equity: Do Market-Based Environmental Reforms Exacerbate Environmental Injustice?*, 56 WASH. & LEE L. REV. 111, 159 (1999).

77. By "disadvantaged," I am referring to disadvantages such as disproportionate exposure to undesirable land uses, to poverty, and to a lack of political power, conditions that are often correlated with race and income.

78. CAL. HEALTH & SAFETY CODE § 38501(f) (West 2007).

79. CAL. HEALTH & SAFETY CODE § 38591(a) (West 2007). The Environmental Justice Advisory Committee has been constituted and includes representatives from a range of environmental justice organizations around the state. See Cal. Evtl. Prot. Agency Air Res. Bd., Global Warming Environmental Justice Committee, <http://www.arb.ca.gov/cc/ejac/ejac.htm> (committee website, listing members).

80. CAL. HEALTH & SAFETY CODE § 38561(g) (West 2007).

81. See Kaswan, *supra* note 74, at 1043-44.

82. *Id.* at 1037-39 (summarizing theories of distributive justice).

83. *Id.* at 1069-77.

tain the nation's ambient air quality standards (NAAQS) and attainment remains a far-off goal.⁸⁴

Although carbon dioxide does not cause local environmental consequences,⁸⁵ climate change regulation nonetheless implicates local pollution because the chief source of greenhouse gas emissions, combustion, generates not only carbon dioxide, but a host of problematic co-pollutants.⁸⁶ These co-pollutants can include nitrogen oxides, sulphur oxides, particulates, mercury, volatile organic compounds, and, in some cases, an array of other hazardous air pollutants. While not directly correlated, policies to reduce greenhouse gas emissions are likely to have the co-benefit of reducing co-pollutants.⁸⁷ Similarly, policies that allow greenhouse gas emissions to remain the same will not generate co-pollutant reduction benefits, and policies that allow greenhouse gas emissions to increase in local areas (presumably offset by decreases elsewhere) could cause at least some degree of local increases in co-pollutants.

In the ensuing subsections, I first consider provisions addressing co-pollutant emissions, including provisions that are designed to prevent increases in pollution and provisions that are designed to ensure that the state reaps environmental and economic co-benefits from climate change regulation. Next, I briefly consider how such provisions could affect the development of climate change regulations. Finally, I consider the provision designed to channel potential economic opportunities arising from climate change regulation to disadvantaged communities and its policy implications.

(a) Provisions Implicating Co-Pollutant Emissions

i. Provisions that Prevent Increases in Co-Pollutants

AB 32 states generally that CARB must “[e]nsure that the activities undertaken to comply with [its] regulations do not disproportionately impact low-income communities.”⁸⁸ The statement is broad, and could include both economic and environmental impacts. From an environmental standpoint, it suggests that measures that could create “hot spots” by increasing air pollutants in already-burdened areas would violate this provision. For example, if the state's emerging low-carbon fuel standard

84. Maps indicating the California regions that are in and out of attainment for particular criteria pollutants are available on the following website: ENVTL. PROT. AGENCY, REGION 9, AIR QUALITY MAPS, (Mar. 7, 2008), http://www.epa.gov/region09/air/maps/maps_top.html.

85. See A. DENNY ELLERMAN ET AL., EMISSIONS TRADING IN THE U.S.: EXPERIENCE, LESSONS, AND CONSIDERATIONS FOR GREENHOUSE GASES 40-41 (2003), available at http://www.pewclimate.org/global-warming-in-depth/all_reports/emissions_trading/.

86. See Alice Kaswan, *Environmental Justice and Domestic Climate Change Policy*, ENVTL. L. REP. NEWS & ANALYSIS 10287, 10298 (forthcoming May 2008).

87. See MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD. *supra* note 31 and accompanying text.

88. CAL. HEALTH & SAFETY CODE § 38562(b)(2) (West 2007).

led to a net increase in problematic co-pollutants from mobile sources that would most impact residents in low-income areas,⁸⁹ the law could require the state to impose additional vehicle emission controls.⁹⁰

The greatest controversy has concerned the potential adoption of a cap-and-trade program for greenhouse gas emissions.⁹¹ A cap-and-trade program could have significant distributional consequences, since some facilities might reduce on behalf of others, who might not reduce at all or could, subject to existing limits discussed below, increase their greenhouse gas emissions through purchasing allowances. If allowances are auctioned, some facilities would purchase less than existing emissions, some would maintain emissions, and some could potentially purchase enough allowances to increase emissions (subject to existing limits).

AB 32 addresses the risk of hot spots. The law specifically states that CARB must consider potential “direct, indirect, and cumulative emission impacts . . . including localized impacts in communities that are already adversely impacted by air pollution” before adopting a market mechanism.⁹² CARB must not only evaluate such impacts; it must design market mechanisms “to prevent any increase in the emissions of toxic air contaminants or criteria pollutants.”⁹³

That raises the key question: would a greenhouse gas trading program lead to localized increases in co-pollutant emissions, notwithstanding aggregate reductions? The answer is complicated. For the most part, a greenhouse gas trading program would not be the legal *cause* of co-pollutant increases. Co-pollutants are subject to existing regulatory programs and a carbon trading program would not, presumably, displace existing regulations. However, existing regulatory programs generally allow emissions to increase up to a certain point.⁹⁴ Most facilities are not bound by absolute caps on their emissions; instead, they are subject to

89. The public health consequences of renewable fuels, and ethanol in particular, are contested. A recent study suggests that, notwithstanding some environmental benefits, high ethanol use could lead to a net increase in respiratory illnesses and deaths in certain regions due to synergistic effects between ethanol-related emissions and existing pollutants. See Mark Z. Jacobson, *Effects of Ethanol (E85) versus Gasoline Vehicles on Cancer and Mortality in the United States*, 41 ENVIRON. SCI. & TECH'Y 4150 (2007). Switching from gasoline to diesel, due to diesel's lower carbon content, could also create environmental concerns due to the health risks associated with diesel's high particulate emissions. See CAL. AIR RES. BD., FACT SHEET: HEALTH EFFECTS OF DIESEL EXHAUST PARTICULATE MATTER 4-5 (2006), http://www.arb.ca.gov/research/diesel/dpm_draft_3-01-06.pdf.

90. If additional vehicle emission controls are needed to address pollutants created by ethanol, California would once again have to assert its unique authority under the Clean Air Act to adopt mobile source standards that diverge from federal standards, and would once again have to request an EPA waiver of the Clean Air Act's customary preemption provision. 42 U.S.C.A. § 7543(b) (West 2008).

91. Under a cap-and-trade program, a cap on total emissions for the regulated sector would be set and pollution allowances would be distributed, for free or by auction, to regulated facilities. In a traditional cap-and-trade program, facilities that reduced emissions could trade excess allowances to facilities that did not receive enough allowances to cover their emissions.

92. CAL. HEALTH & SAFETY CODE § 38570(b)(1) (West 2007).

93. *Id.* § 38570(b)(2).

94. See Kaswan, *supra* note 86, at 10299-301.

emission rate limitations.⁹⁵ As long as the permissible rate of emissions does not exceed their permit limits, they can increase the absolute quantity of their co-pollutant emissions.⁹⁶ Actual amounts of co-pollutants could increase up until the increase is deemed a “significant increase” that triggers the Clean Air Act’s rigorous pollution control requirements for modified sources (“new source review” or NSR).⁹⁷ Increases could be locally problematic even if they did not trigger NSR.⁹⁸ In addition, if absolute increases in emissions are caused by an increase in hours of operation or production, and not by a physical change to a facility, then NSR would not be triggered notwithstanding a facility’s significant increase in emissions.⁹⁹ Thus, a cap-and-trade program would not preclude emissions increases that are already permissible under the existing regulatory system.

In a narrow set of circumstances, a cap-and-trade system could be a more direct cause of emissions increases.¹⁰⁰ It is conceivable that a large company with multiple facilities would make production decisions based, in part, on the costs of greenhouse gas controls. It might choose to lower production at facilities with lower costs of control. It might then use the freed-up allowances to increase production, up to the constraints imposed by existing co-pollutant permits, at facilities facing higher costs of control. In this situation, the carbon trading system would have directly motivated, not simply facilitated, increased co-pollutant emis-

95. Under the Clean Air Act, the new source-related standards, like the New Source Performance Standards, Lowest Achievable Emission Rate standard for new sources in nonattainment areas, and Best Available Control Technology Standards for new sources in attainment areas, are all presumptively emission rate standards. *Id.* at 10300 n.131. Hazardous air pollutants standards are also presumptively emission rate standards. *Id.* The standards are often framed in terms of emissions per unit of production, pollutant concentrations per unit of emissions, or a rate of pollution over time. *Id.* at 10300 n.132. Where smaller facilities seek to avoid being designated as “major” sources subject to stringent pollution control regulation, however, they sometimes accept an absolute cap on emissions so that their emissions will not exceed the “major” threshold. *Id.* at 10300 n.129.

96. *See id.* at 10299-300.

97. *See, e.g.,* DAVID WOOLEY & ELIZABETH MORSS, CLEAN AIR HANDBOOK § 1:111 (2007) (providing general description of NSR program for modified facilities).

98. The threshold for triggering NSR requirements differs by pollutant and by an air district’s degree of nonattainment. *See id.* § 1:113 (indicating threshold for criteria pollutants). Thresholds from fifteen to forty tons per year are common. *See id.* Increases of this magnitude could, depending upon local circumstances and the number of facilities engaging in increases, create local concerns. Moreover, the increases can be more dramatic than the rule suggests. In determining the baseline from which to measure an emissions increase, facilities can choose the average emissions during any two year period within the preceding ten years, even if recent emissions were considerably lower. *See* 40 C.F.R. § 52.21(b)(48)(ii)(c) (2008). As a practical matter, facilities could therefore increase their emissions considerably more than the threshold amount if their recent emissions have been lower than they were during the preceding ten years.

99. NSR applies only to “modifications” to existing facilities that result in a significant increase. *See, e.g.,* 42 U.S.C.A. § 7501(4) (West 2008) (defining modification for facilities in nonattainment areas by reference to the standard used for the New Source Performance Standards, which defines modifications by reference to physical changes that significantly increase emissions). If the emissions increase does not result from a physical change in the facility, it is not subject to NSR. *See* 40 C.F.R. § 51.166(b)(2)(iii)(f) (2008) (stating that an increase in hours of operation or in the production rate does not equal a physical change in operation).

100. *See* MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD., *supra* note 31, at 13.

sions.¹⁰¹ In addition, while greenhouse gas reduction measures are generally assumed to reduce co-pollutant emissions, some reduction measures could result in higher harmful emissions. For example, if a market mechanism created an incentive to switch from gasoline to diesel due to diesel's greater efficiency, the associated co-pollutants could increase, subject only to the partial controls imposed by the existing regulatory structure.¹⁰²

Thus, a cap-and-trade program would allow facilities to buy greenhouse gas allowances that could incidentally lead to increases in existing co-pollutant emissions up to the level allowed by existing co-pollutant controls, and would therefore allow, and sometimes cause, increases in criteria and toxic pollutants. A cap-and-trade program's flexibility would allow co-pollutant emissions increases that a traditional approach to greenhouse gas regulation would not.¹⁰³ Presumably, a more traditional approach would require all facilities to reduce greenhouse gases, a reduction that would likely (although not certainly) reduce co-pollutant emissions at all facilities and thereby avoid the potential increases that a trading system could allow. These observations do not preclude the state from adopting a cap-and-trade program, but they suggest that the state must design the program to avoid co-pollutant emissions increases.

There is already some evidence that the law's environmental justice provisions are shaping implementation principles.¹⁰⁴ To jumpstart a market-based approach, Governor Schwarzenegger established a "Market Advisory Committee" (the Committee) shortly after AB 32 was passed.¹⁰⁵ The first guiding design principle articulated by the committee was that a California cap-and-trade program should "[a]void localized and disproportionate impacts on low-income and disadvantaged communities or communities already adversely impacted by air pollution."¹⁰⁶

ii. Provisions Requiring Environmental Co-Benefits

Preventing increases in co-pollutants is not the only environmental justice issue presented by climate change regulation. Since climate

101. See *id.* ("It is conceivable that . . . the flexibility afforded by trading could cause a firm to shift production from one facility to another in order to reduce GHG emissions at a lower overall cost and that, because of differences in the industrial processes involved, this could lead to an increase in emissions of a local pollutant at one facility.")

102. In addition, new power plant technologies are reportedly being developed that would reduce greenhouse gas emissions but increase harmful particulate emissions.

103. See Kaswan, *supra* note 86 at 10301.

104. MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD., *supra* note 31, at 10 (stating that the Committee intended to recommend a system that was responsive to environmental justice concerns).

105. The Market Advisory Committee was created by Executive Order shortly after AB 32 was adopted. See Exec. Order No. S-20-06 ¶ 3 (Oct. 18, 2006), available at <http://gov.ca.gov/index.php?executive-order/4484>.

106. MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD., *supra* note 31, at 11; see also *id.* at 16 (noting that, since some greenhouse gas mitigation strategies could implicate co-pollutant emissions, CARB should "anticipate and address concerns about emissions hotspots").

change regulation will produce a net decrease in greenhouse gas emissions and, presumably, their associated co-pollutants, another key issue is the distribution of the co-pollutant reduction benefits.¹⁰⁷ AB 32 contains relevant provisions.

The above-noted requirement to consider impacts on low-income areas¹⁰⁸ would include the requirement to consider whether greenhouse gas regulations decreased co-pollutant emissions in such areas. More specifically, AB 32 repeatedly requires the state to maximize the co-benefits of climate change regulation, including its environmental co-benefits. For example, the statute establishes the legislature's intent to "maximize[] additional environmental . . . co-benefits for California, and complement[] the state's efforts to improve air quality."¹⁰⁹ The special provisions guiding the design of a market-based system, if adopted, also state that CARB should "[m]aximize additional environmental and economic benefits for California, as appropriate."¹¹⁰ Arguably, decreasing co-pollutant emissions is of greatest importance, and provides the greatest benefit, in the state's most polluted areas. In addition, AB 32 states that climate change regulations should complement "efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions."¹¹¹ AB 32 could thus require the state to implement its climate change programs to maximize co-pollutant reductions in the state's most polluted areas, where reductions would help the state achieve its air quality goals and provide the greatest environmental co-benefit.

AB 32's co-benefit requirements have influenced the principles articulated by the Market Advisory Committee in its recommendations for implementing a cap-and-trade program in California. The Committee's second guiding design principle states that a cap-and-trade program should "[a]void interference with the achievement of state and federal ambient air quality standards,"¹¹² suggesting that it should lead to reductions, not increases, in co-pollutant emissions in nonattainment areas. The Committee's third guiding design principle states, more generally, that a cap-and-trade program should maximize co-benefits, "including reducing other air pollutant emissions"¹¹³ More specifically, the report states that California should distribute pollution allowances "in a manner that . . . advances the state's broader environmental goals by

107. See Kaswan, *supra* note 86, at 10302.

108. See *supra* note 88 and accompanying text.

109. CAL. HEALTH & SAFETY CODE § 38501(h) (West 2007); see also CAL. HEALTH & SAFETY CODE § 38562(b)(6) (West 2007) (requiring CARB to consider the implementing regulations' "overall societal benefits, including reductions in other air pollutants . . . and other benefits to the economy, environment, and public health.").

110. CAL. HEALTH & SAFETY CODE § 38570(b)(3) (West 2007).

111. *Id.* § 38562(b)(4).

112. MKT. ADVISORY COMM. TO THE CAL. AIR RES. BD., *supra* note 31, at 11.

113. *Id.*

ensuring that environmental benefits accrue to overburdened communities”¹¹⁴

iii. Mechanisms for Incorporating Environmental Justice

The most complex environmental justice issues are raised by cap-and-trade programs, since they focus on aggregate pollution reductions that could lead to an uneven distribution of co-pollutant emissions.¹¹⁵ In this section, I briefly outline the ways in which the state’s environmental justice provisions could shape the ultimate implementation of a cap-and-trade program.¹¹⁶ While it is too soon to see how California will implement its program, this summary suggests the significance that state-specific environmental justice policies could have on the implementation of climate change mitigation strategies.

One option for dampening the risk of co-pollutant increases and ensuring an equitable distribution of co-pollutant reduction co-benefits would be to impose traditional control requirements in addition to adopting a market-based system.¹¹⁷ The regulatory agency could assess feasible control strategies and simply require that they be undertaken.¹¹⁸ That approach could reduce greenhouse gas and associated co-pollutant emissions at all facilities at the outset, thereby avoiding emissions increases and widely distributing the co-pollutant reduction benefits of the regulatory system.¹¹⁹ Thereafter, a cap-and-trade program could allow some variation in emissions among facilities, but all of the facilities would be starting from a lower baseline of co-pollutant emissions than would have been the case if a market-based system were the exclusive control mechanism.¹²⁰

In addition, California’s environmental justice provisions could be met by imposing conditions on trades to prevent increases and encourage decreases in co-pollutant emissions in areas suffering from serious air

114. *Id.* at 55.

115. *See* Kaswan, *supra* note 86, at 10294.

116. I have elaborated more fully on these potential mechanisms in other scholarship. *See* Kaswan, *supra* note 86, at 10304-08.

117. *See id.* at 10304-05 (discussing approach). Others have addressed this combination of trading and traditional approaches in the context of trading programs for non-greenhouse gas pollutants. *See* Richard Toshiyuki Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles’ Failed Experiment in Air Quality Policy*, 9 DUKE ENVTL. L. & POL’Y F. 231, at 284-85 (1999); Johnson, *supra* note 75, at 162, 165; ENVTL. PROT. AGENCY, *supra* note 25, at 3-22, 3-25.

118. Kaswan, *supra* note 86, at 10304.

119. *Id.*

120. This approach could serve goals in addition to distributional justice. Trading programs to date have experienced difficulty in generating emission reduction incentives, since they have frequently set caps too high or distributed too many allowances. *See* Kaswan, *supra* note 86, at 10295-96. A traditional approach would ensure that all feasible reductions are undertaken, without waiting for the market to incentivize such steps. A market-based system could, thereafter, be used to create incentives for facilities to reduce emissions in new and innovative ways. *Id.* at 10304-05.

quality problems.¹²¹ In a cap-and-trade system, the state could identify the areas suffering from adverse air quality and prohibit or limit trades of allowances into those areas.¹²² Trades could be limited by increasing allowance prices for emissions in polluted areas, or by requiring a greater than one-to-one ratio of allowances to cover emissions, similar to the offset program for nonattainment areas.¹²³

An additional mechanism by which the state could address the impact of a trading system on co-pollutant emissions would be to establish a fund to finance co-pollutant reductions in communities where emissions have remained the same or increased as a consequence of trading. Such a mitigation fund could be financed by auction proceeds.¹²⁴ The fund could be used to finance facility reductions, finance less-polluting public transit, or finance other mechanisms to reduce co-pollutants.¹²⁵

California's environmental justice provisions could also implicate additional program parameters. Since allowances purchased from outside California do not result in in-state co-pollutant emission reductions, the state could consider some limitations on out-of-state allowance purchases.¹²⁶ (Such a restriction would be particularly controversial in the context of a national trading program.) In addition, the state could consider limiting the use of offsets from carbon sequestration activities, such as tree planting, since biological carbon sequestration activities do not lead to co-pollutant emission reductions.¹²⁷ Finally, the state could consider limitations on emissions banking, since emissions banking could allow facilities to save allowances for later use, resulting in higher co-pollutant emissions in the future.¹²⁸

It is too soon to determine whether California's environmental justice provisions will actually lead to the integration of any of these pro-

121. See Kaswan, *supra* note 86 at 10305-06. In considering mechanisms for limiting the adverse distributional impacts of a cap-and-trade program, others have noted the possibility of geographic limitations. See Drury et al., *supra* note 117, at 284; Johnson, *supra* note 75, at 162; Lejano & Hirose, *supra* note 123, at 375; ENVTL. PROT. AGENCY, *supra* note 25, at 3-22.

122. Regulatory agencies could also address adverse distributional impacts by reviewing and conditioning individual trades. See Kaswan, *supra* note 86 at 10305 (describing option). However, the additional administrative resources required for that approach would likely cause a significant interference with the market system's efficiency. Limiting trades based upon predetermined geographic boundaries would provide a more efficient mechanism for increasing distributional fairness. *Id.*

123. *Id.* at 10306. The Clean Air Act requires new or modified sources in nonattainment areas to obtain offsets for their emissions. 42 U.S.C.A. § 7503(c) (West 2008). The offsets generally exceed the proposed emissions, and, for ozone nonattainment areas, the ratio depends upon the severity of the nonattainment area. See, e.g., 42 U.S.C.A. § 7511a(a)(4) (West 2008) (setting offset ratio for a marginal ozone nonattainment area). In that way, new facilities lead to a net benefit in air quality.

124. See Kaswan, *supra* note 86, at 10306; MARKET ADVISORY COMMITTEE, *supra* note 31, at 57.

125. See Kaswan, *supra* note 86 at 10306.

126. See *id.* at 10307.

127. See *id.* .

128. See *id.* at 10308..

posals.¹²⁹ AB 32's environmental justice provisions may, however, have influenced the state's decision to adopt multiple early action measures that represent the state's commitment to a traditional regulatory approach.¹³⁰ In addition, the state's Market Advisory Committee proposed the mitigation fund option for reducing co-pollutants in its recommendations for a California cap-and-trade program.¹³¹

(b) Achieving Economic Justice for Disadvantaged Communities

AB 32 addresses not only the environmental implications of climate change policy for disadvantaged communities, but its economic implications as well. Climate change policies are expected to generate a variety of economic opportunities, including new technology development¹³² and new employment opportunities associated with increasing the energy efficiency of our existing infrastructure.¹³³ To the extent possible, AB 32 requires the state to "direct public and private investment toward the most disadvantaged communities in California."¹³⁴ Achieving greenhouse gas reductions could require labor-intensive efforts to increase the energy efficiency of existing buildings, install solar or wind power, and take any number of additional steps.¹³⁵ Currently, there is a shortage of trained workers.¹³⁶ The state could "direct investment toward disadvantaged communities" by facilitating green-collar job training programs for unemployed workers in poor communities. In addition, meeting the technological demands for a new green society will require new industries. Green enterprise zones could be established in poor communities.¹³⁷

129. The state is just beginning to develop its scoping plan for implementing AB 32, and held its first public workshop on potential policy mechanisms, such as direct regulation and market mechanisms, on January 16, 2008. The agency must adopt the scoping plan by January 1, 2009. CAL. HEALTH & SAFETY CODE § 38561(a) (West 2007).

130. See CAL. ENVTL. PROT. AGENCY, AIR RES. BD., CLIMATE CHANGE EARLY ACTION ITEMS, <http://www.arb.ca.gov/cc/ceea/ceea.htm> (last visited Mar. 27, 2008) (describing initial regulatory measures to achieve AB 32's goals). In its workshops on developing a scoping plan for AB 32 implementation, agency officials have emphasized direct regulation as an important component of the scenarios it is likely to consider. See Overview of Compliance Mechanisms for Emissions Reductions, http://www.arb.ca.gov/cc/scopingplan/meetings/1_16slides/session3mechanismsoverview.pdf (last visited Mar. 27, 2008) (stating that "[d]irect regulations are a major part of AB 32 implementation").

131. See MARKET ADVISORY COMMITTEE, *supra* note 31, at 57.

132. See Press Release, Office of the Governor, Gov. Schwarzenegger Signs Landmark Legislation to Reduce Greenhouse Gas Emissions (Sept. 27, 2006), <http://gov.ca.gov/index.php?print-version/press-release/4111/>.

133. See generally Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 BUFF. L. REV. (forthcoming 2008) (describing need for green jobs in disadvantaged communities).

134. CAL. HEALTH & SAFETY CODE § 38565 (West 2007).

135. See generally Burkett, *supra* note 133, at 33-39 of draft (proposing mechanisms for creating green jobs in disadvantaged communities).

136. David R. Baker, *State Has Serious Green-Collar Labor Shortage*, *Summit Attendees Say*, S.F. CHRON., Jan. 15, 2008, at C1.

137. See Burkett, *supra* note 133, at 37-38 of draft.

4. Conclusion

This is not the place to evaluate the strengths and weaknesses of the proposed mechanisms for achieving environmental and economic justice. Policymakers will have to consider multiple factors in meeting AB 32's environmental justice provisions as part of an overarching efficient and effective greenhouse gas reduction strategy. What the list of proposals makes clear, however, is that a state's additional political and environmental goals could have a significant impact on the implementation of a cap-and-trade program specifically and greenhouse gas reduction policies more generally.

III. COOPERATIVE FEDERALISM MODELS

Having addressed the importance of federal legislation and the simultaneous importance of a vital state implementation role, the next issue is how to design federal legislation to address federalism concerns. Two key issues are presented by federal legislation: (1) who sets goals and standards (and whether federal legislation preempts state efforts); and (2) delegation of program authority.

Federal preemption of state goals, standards, or program parameters is a significant issue in federal climate change policy debates.¹³⁸ Facing the prospect of diverse state approaches, some industries have supported federal legislation as a mechanism for increasing consistency, and hence support preemptive provisions.¹³⁹ In contrast, states that have developed their own approaches are generally wary of state preemption.¹⁴⁰ If Congress decides not to explicitly preempt state efforts, the absence of an explicit preemption provision may not be sufficient to eliminate the risk of preemption. The courts have shown some tendency to find that Congress has implicitly preempted state efforts.¹⁴¹ To avoid the risk of implied preemption, federal legislation must therefore include explicit savings provisions that preserve the states' ability to adopt more stringent standards.

A second critical federalism issue is the degree to which more general implementation authority is devolved to the states. Federal legislation would need to clarify both the limits to and the breadth of the state's implementation flexibility. Otherwise, questions could arise regarding the extent to which state-level initiatives conflict with the overarching federal program.

138. See DeShazo & Freeman, *supra* note 2, at 1536 n.135 (discussing debate over preemption clause in cap-and-trade bill).

139. See Buzbee, *supra* note 28, at 1569-70; DeShazo & Freeman, *supra* note 2, at 1533-36.

140. See DeShazo & Freeman, *supra* note 2, at 1536 n.135 (observing that a preemption provision in draft federal climate change legislation was dropped due to lobbying from California officials trying to preserve their legislation).

141. See Glicksman, *supra* note 18, at 787-92 (describing courts' tendency to find implicit preemption).

This Part analyzes the cooperative federalist features of proposed federal legislation, two existing climate change programs, and the federal Clean Air Act.

A. Proposed Federal Legislation

Of the many climate change bills introduced in the 110th Congress,¹⁴² Senators Warner and Lieberman introduced the bipartisan bill receiving the most attention: America's Climate Security Act of 2007.¹⁴³ The bill establishes a federal emissions reduction goal for the covered sectors,¹⁴⁴ but explicitly preserves the rights of states to adopt and enforce their own greenhouse gas standards and requirements, so long as they are no less stringent than the bill's provisions.¹⁴⁵ By allowing states to set more demanding goals and standards, the bill gives the states the autonomy to realize state citizen preferences and fosters innovation, albeit at the cost of national consistency.

In terms of implementation, however, the bill is highly centralized. The heart of the bill is a national cap-and-trade program.¹⁴⁶ Under the bill, the federal government controls allowance allocation and is responsible for ensuring that facilities have sufficient allowances to cover their emissions.¹⁴⁷ The bill also establishes detailed parameters for the use of offsets,¹⁴⁸ international trading,¹⁴⁹ emissions banking,¹⁵⁰ and emissions borrowing.¹⁵¹

While the bill's savings clause allows states to impose more demanding regulatory standards,¹⁵² it does not appear to provide states with

142. At least six significant bills have been introduced in the Senate, and two in the House of Representatives. See LARRY PARKER & BRENT D. YACOBUCCI, GREENHOUSE GAS REDUCTION: CAP-AND-TRADE BILLS IN THE 110TH CONGRESS 2 (Cong. Research Serv. 2007), available at <http://ncseonline.org/NLE/CRSreports/07Nov/RL33846.pdf>. The Pew Center for Global Climate Change's website provides up-to-date information on proposed federal legislation. See Pew Center on Global Climate Change, *Climate Action in Congress*, http://www.pewclimate.org/what_s_being_done/in_the_congress/ (last visited Mar. 27, 2008).

143. S. 2191, 110th Cong. (2007).

144. *Id.* § 1201(d).

145. *Id.* § 9004(a) (any state can "adopt or enforce—(1) any standard, cap, limitation, or prohibition relating to emissions of greenhouse gas; or (2) any requirement relating to control, abatement, or avoidance of emissions of greenhouse gas") and § 9004(b) (stating, as an exception, that the states cannot adopt any such standards or requirements if they are less stringent than those imposed by the bill). The law also encourages states to adopt more demanding emissions limitations by allocating extra allowances to such states and permitting them to use the auction revenue for certain designated purposes. Two percent of the total allowances are to be distributed among states whose reduction targets exceed the federal targets and that have imposed more stringent limitations on their facilities. *Id.* § 3402. The states are entitled to use the proceeds from the sale of these allowances for a variety of designated purposes. *Id.* § 3403(c)(1).

146. See *id.* §§ 1101-3504 (outlining the federal cap-and-trade program).

147. *Id.* § 1201 (establishing allowances to be allocated each year, effectively establishing each year's cap); § 1202 (requiring facilities to demonstrate compliance to EPA).

148. *Id.* §§ 2401-11 (Title II, Subtitle D, on offsets).

149. *Id.* §§ 2501-02 (Title II, Subtitle E, on international credits).

150. *Id.* §§ 2201-02 (Title II, Subtitle B, on banking).

151. *Id.* §§ 2301-03 (Title II, Subtitle C, on borrowing).

152. See *id.* § 9004 (outlining states' authority to set more stringent standards).

the authority to establish conditions on trades to control their potentially adverse distributional impacts and could prevent states from controlling other key political and economic variables. For example, the bill determines the ratio of free versus auctioned allowances,¹⁵³ a highly contested issue with significant ramifications. The federal government also controls most of the auction revenue.¹⁵⁴

By including an explicit savings clause for state goals, the Warner-Lieberman bill takes a step toward cooperative federalism. The bill does not, however, provide a significant role for state implementation, or provide much guidance on how the federal government and the states can together achieve climate change goals.¹⁵⁵ Federal climate change legislation would benefit from more sustained consideration of how to enlist the strengths of each jurisdictional level.

B. Selected Cooperative Federalism Models

1. Climate Change Programs

The northeastern states' Regional Greenhouse Gas Initiative (RGGI) and the European Union's Emissions Trading System offer examples of climate change programs that are more decentralized than proposed federal legislation.¹⁵⁶ While a full examination of the role of federalism in the success or failure of these programs is beyond the scope of this article, the programs provide models worthy of further consideration.

(a) The Regional Greenhouse Gas Initiative

Under the RGGI program, a number of northeastern states have agreed to develop a regional cap-and-trade program for electric utilities,¹⁵⁷ slated to begin operation in 2009.¹⁵⁸ The Memorandum of Understanding (MOU) embodying the agreement includes a mix of centralized and decentralized features. It establishes a regional emissions cap¹⁵⁹ and then translates the regional goal into state-specific caps.¹⁶⁰ The MOU does not explicitly preempt the states from setting more rigorous state-specific reduction goals if they so choose, but the states are unlikely to

153. *Id.* § 3201 (listing the percentage of allowances to be auctioned each year from 2012 through 2050, referred to as "Allocation for Annual Auctions").

154. *See, e.g., id.* § 4302 (specifying the distribution of proceeds from the federal government's annual auction). Although the bill does allocate some allowances to states and provide them with a wide range of choices over how to spend the revenue from the sale of those allowances, *id.* §§ 3401-03, the vast majority of the allowances are controlled by the federal government.

155. Nor have any of the other bills proposed in the 110th Congress addressed the state role. *See* Robert B. McKinstry, Jr., John C. Dernbach, & Thomas D. Peterson, *Federal Climate Change Legislation as if the States Matter*, 22 NAT. RESOURCES & ENV'T 3, 3-4 (2008).

156. *See* MEMORANDUM, *supra* note 5; *see also*, EUROPA, EMISSION TRADING SCHEME (EU ETS), <http://ec.europa.eu/environment/climat/emission.htm> (last visited Mar. 27, 2008).

157. *See* MEMORANDUM, *supra* note 5.

158. *Id.* § 3(C).

159. *See id.* § 2(B).

160. *Id.* § 2(C).

set more stringent goals since their interests were presumably already embodied in the state caps they negotiated under the MOU.¹⁶¹

The MOU, as well as the Model Rule the states negotiated to provide a template for each states' implementing regulations,¹⁶² allows the states some implementation discretion. The MOU gives the states considerable discretion in the politically sensitive determination of how to allocate allowances. While it requires the states to auction a minimum of twenty-five percent of the allowances and to allocate the proceeds to a "consumer benefit or strategic energy purpose,"¹⁶³ the MOU does not otherwise appear to place constraints on the states' allocation rules and implicitly gives them the discretion to determine whether to auction or distribute the remaining seventy-five percent of their allowances. The states also retain permitting authority.¹⁶⁴

In contrast, the MOU takes a highly centralized approach on other design features. For example, it requires all states to allow emissions banking "without limitation,"¹⁶⁵ and also requires the states to set a three-year compliance period.¹⁶⁶

Other operational parameters appear to establish minimum requirements, without explicitly precluding states from taking a more stringent approach. For example, the RGGI program imposes limitations on the use of offsets, but does not explicitly prevent the states from imposing additional limitations.¹⁶⁷ Nor does the MOU or Model Rule address whether states could impose limits on trading to help achieve co-pollutant reductions in heavily polluted areas.

Although the MOU and Model Rule do not explicitly preempt most state implementation variations, the states are nonetheless seeking consistency. One of the program's "guiding principles for program design" states that "[t]he program will emphasize uniformity to facilitate interstate trading in GHG allowances"¹⁶⁸ According to a New York

161. See Regional Greenhouse Gas Initiative, *Overview of RGGI CO₂ Budget Trading Program* 3 (Oct. 2007), available at http://www.rggi.org/docs/program_summary_10_07.pdf (observing that the state caps embodied in the MOU were negotiated among the states).

162. See Regional Greenhouse Gas Initiative Model Rule (Jan. 5, 2007), available at http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf

163. MEMORANDUM, *supra* note 4, § 2(G)(1).

164. *Overview of RGGI CO₂ Budget Program*, *supra* note 161, at 3.

165. MEMORANDUM, *supra* note 4, § 2(I).

166. *Id.* § 2(E)(1). In other words, every three years, sources must prove that they had enough allowances during the preceding three-year period to cover their emissions.

167. The MOU establishes "minimum," not final, offset eligibility requirements. *Id.* § 2(F)(1)(a). It indicates the type of offset projects that "may," not "must" be approved by a state, and indicates the terms under which offset allowances "may" be obtained from elsewhere within the United States, not that they "must" be accepted. *Id.* §§ 2(F)(1)(b), (2). The MOU also appears to give the states the authority to allow greater use of offsets as a "safety valve"—that is, to allow states to use more offsets if allowance prices increase past a certain point, rather than requiring them to allow the greater use of offsets. *Id.* § 2(F)(3)-(4).

168. Regional Greenhouse Gas Initiative, *Goals and Guiding Principles*, available at <http://www.rggi.org/goals.htm>.

State official, notwithstanding the MOU's potential flexibility, the states' are currently striving for as much uniformity as possible.¹⁶⁹

The MOU indicates that if a comparable federal program is adopted, "the Signatory States will transition into the federal program."¹⁷⁰ However, one participating official indicated that the RGGI states do not want federal legislation to prevent them from meeting their unique goals or to undercut their implementation decisions.¹⁷¹

The RGGI program could provide important insights for future federal legislation. While the participating states have perceived the desirability of uniformity in a cap-and-trade program, the program nonetheless suggests that state-specific caps and allowing states to control allowance allocation are potential design options.

(b) The European Union's Climate Change Program

Under the Kyoto Protocol, the European nations agreed to reduce greenhouse gas emissions to eight percent below 1990 levels by 2012.¹⁷² To meet their collective Kyoto Protocol goal, the European Union initially developed a "burden-sharing agreement" that establishes emissions goals for each state.¹⁷³ To address carbon dioxide emissions from certain energy-intensive sectors comprising about forty-five percent of European emissions, the European Union established an Emissions Trading System (ETS).¹⁷⁴ The program commenced trading in 2005.¹⁷⁵

The current ETS approach embodies a relatively decentralized cooperative federalist approach.¹⁷⁶ The European Commission provides centralized principles and oversight but leaves key decisions to the member states.¹⁷⁷ Under the first two phases of the ETS, each state had the authority to establish its own emissions cap and to distribute allowances to covered sources,¹⁷⁸ subject to certain criteria established by the European Commission (EC).¹⁷⁹ In addition, the states can develop various

169. Personal communication with Peter Iwanowicz, Director, Climate Change Office, New York State Department of Environmental Conservation (March 28, 2008).

170. MEMORANDUM, *supra* note 4, § 6(C).

171. Personal communication, Peter Iwanowicz, *supra* note 169.

172. LARRY PARKER, CONG. RESEARCH SERV., CLIMATE CHANGE: THE EU EMISSIONS TRADING SCHEME (ETS) GETS READY FOR KYOTO 2 (2007).

173. See PEW CTR. ON GLOBAL CLIMATE CHANGE, THE EUROPEAN UNION EMISSIONS TRADING SCHEME (EU-ETS) INSIGHTS AND OPPORTUNITIES 4-5 (2005), <http://www.pewclimate.org/docUploads/EU-ETS%20White%20Paper.pdf>. The percentage reductions for each country differ considerably, reflecting underlying economic and political circumstances in each state.

174. PARKER, *supra* note 177, at 1.

175. *Id.*

176. See JOSEPH KRUGER, WALLACE E. OATES, AND WILLIAM A. PIZER, DECENTRALIZATION IN THE EU EMISSIONS TRADING SCHEME AND LESSONS FOR GLOBAL POLICY 5 (Feb. 2007) (Resources for the Future Discussion Paper, RFF DP 07-02).

177. *See id.*

178. *See* PARKER, *supra* note 172, at 3.

179. *Id.*

conditions determining sources' eligibility for allowances, like requiring them to adopt existing greenhouse gas reduction technologies as a prerequisite to receiving allowances,¹⁸⁰ as well as other policies.¹⁸¹ The states emissions goals, allocation decisions, and trading policies must be embodied in a National Allocation Plan, which must comply with a number of EC criteria and be approved by the EC.¹⁸²

In addition to establishing certain general criteria and oversight over National Allocation Plans, the European Commission has largely dictated the choice between auctions and the free distribution of allowances, allowing states to auction only five percent in Phase 1 of the program (2005-08), increasing to ten percent in Phase 2.¹⁸³ Otherwise, however, the programs are generally quite decentralized in their central attributes.

As one commentator has noted, giving countries the authority to develop their own allocation plans has allowed them "to maintain substantial control over energy policy and related economic investment"¹⁸⁴ Decentralized state control has been controversial.¹⁸⁵ While it has allowed states to control decisions of critical political and economic importance, the member states have not been successful at reducing actual emissions.¹⁸⁶ Some states had inaccurate data on actual emissions and included overly optimistic growth projections, resulting in caps that were too high, flooding the market with allowances and failing to drive real reductions.¹⁸⁷ In addition, states distributed allowances in a manner that favored in-state businesses and created competitive distortions.¹⁸⁸

In designing Phase 3 of the European Union's program, slated to begin in 2013, the European Commission has recently proposed substantially revising the cooperative federalist approach to its trading pro-

180. *Id.* at 18. The practice of imposing threshold technology-based requirements has been termed "benchmarking." Given the difficulties of determining appropriate technologies, however, states have not generally pursued this option. *Id.* at 18. There is also some evidence that states have manipulated the technology requirements to favor in-state resources. For example, Germany imposed technology requirements that favor domestic coal and provide no incentive to switch to less-polluting fuels. *Id.* at 18-19.

181. The states can also set their own policies regarding how to allocate allowances to new sources, *id.* at 15, and on the marketability of emissions from facilities that have shut down. *Id.* at 17-18.

182. *Id.* at 3.

183. *See id.* at 13-14. States have varied in their use of auctions, with only a few choosing to auction any allowances in Phase 1 or Phase 2. *Id.*

184. *Id.* at 19.

185. *See id.* at 19-20; KRUGER, OATES, & PIZER, *supra* note 176.

186. *See* PARKER, *supra* note 172 at 6.

187. *Id.* at 5-6. Thus, the cause of the ETS' initial failure could be partially attributable to inaccurate data, not the system's decentralized nature.

188. *See* Press Release, Europa, Questions and Answers on the Commission's Proposal to Revise the EU Emissions Trading System 2 (noting competitive distortions from state allocations) and 3 (noting that the decentralized approach led states to favor their own industries) (Jan. 23, 2008), <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/35&format=HTML&aged=0&language=EN&guiLanguage=en> [hereinafter *Europa*].

gram,¹⁸⁹ although it has retained a strong state role for other aspects of its climate change program.¹⁹⁰ According to a proposed plan issued in January 2008, the program will become more centralized. Rather than relying on the states to set their own caps, the European Commission will set a European Union-wide cap and eliminate the NAP process.¹⁹¹ The states would remain responsible for distributing and auctioning allowances, but would do so under EU-wide rules and based upon EU-wide equity considerations.¹⁹²

While the European Commission proposal for Phase 3 centralizes a formerly decentralized trading system, other aspects of the proposal continue to rely on member state actions. Since the trading program covers only about one-half of the European Union's emissions, with the remainder coming from sectors like buildings, agriculture, waste, and small facilities, the EC has set a European Union-wide emissions goal for the non-trading sector, but then intends to set more specific non-ETS reduction targets for each state.¹⁹³ The states would, however, be responsible for determining how to meet the target.¹⁹⁴ The European Union has also set a national renewable energy goal, but has then used numerous equitable and practical factors to determine state-specific goals.¹⁹⁵ The states themselves are to develop national action plans for meeting the EU's state-specific renewable energy goals.¹⁹⁶

The EU's recent renunciation of a decentralized trading system suggests that determining the appropriate mix of federal requirements and state flexibility in a trading program requires care to ensure that state flexibility does not undermine federal objectives. Rather than eliminating the state role entirely, the ETS's difficulties could perhaps have been avoided by having the federal government, not the states, set each state's trading sector cap,¹⁹⁷ and by having stronger federal minimum requirements. The EU's proposed approach to the non-trading sector, in which it will establish state-specific goals but rely on the states to determine how to achieve them, could provide a useful model for the United States' domestic climate change policy.

189. *See id.*

190. *See* COMMISSION OF THE EUROPEAN COMMUNITIES, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE, AND THE COMMITTEE OF THE REGIONS 7 (Jan. 23, 2008), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0030:FIN:EN:PDF>.

191. *See Europa*, *supra* note 188, at 3.

192. *See* COMMISSION OF THE EUROPEAN COMMUNITIES, *supra* note 190, at 6

193. *See id.* at 7.

194. *See id.*

195. *Id.*

196. *Id.* The European Council has articulated the importance of letting member states decide their own energy policy.

197. *Cf. KRUGER, ET AL.*, *supra* note 176, at 7 (indicating the complexity of determining the relative economic efficiency of having the Member States or the European Union establish each state's trading-sector cap).

2. The Clean Air Act

Cooperative federalism is nothing new in U.S. pollution policy: the nation's primary pollution control statutes, the Clean Air Act (CAA) and the Clean Water Act (CWA), rely on a cooperative federalist approach.¹⁹⁸ In this section, I focus primarily on the Clean Air Act because it provides a highly relevant model for future climate change legislation.¹⁹⁹

The CAA establishes minimum federal air quality goals,²⁰⁰ criteria pollutant controls for new sources everywhere and for existing sources in nonattainment areas,²⁰¹ and hazardous pollutant controls for both new and existing sources.²⁰² On the preemption front, it preserves state autonomy by explicitly allowing states to adopt more rigorous air quality goals and source controls.²⁰³

More broadly, the CAA devolves significant implementation authority to the states, giving the states the ultimate responsibility for achieving national air quality goals. The states must develop state implementation plans (SIPs) that demonstrate how the states will achieve federal goals through applying federal minimum requirements, applying more stringent source controls as necessary, and taking other measures that may not be directly required under federal law.²⁰⁴ This structure gives states the autonomy to respond to state-specific environmental conditions and preferences.²⁰⁵ To provide a "check" on the state's implementation process, the federal government must approve the SIPs.²⁰⁶

The Clean Air Act experience also offers two models for cap-and-trade programs. The Acid Rain Program to address the long-distance transport of sulphur and nitrogen oxides is a highly centralized national program in which EPA controls the nature and distribution of allow-

198. See Robert V. Percival, *Environmental Federalism: Historical Roots and Contemporary Models*, 54 MD. L. REV. 1141, 1174 (1995).

199. The Clean Air Act is, of course, not just a model for future climate change legislation, but a potential vehicle for current greenhouse gas controls. See McKinstry et al., *supra* note 155, at 3 (arguing that, with a few modifications, the existing Clean Air Act could be used to address climate change); McKinstry & Peterson, *supra* note 2, at 98-104 (same). Since it is an imperfect vehicle for a global, as compared with a local, pollutant, Congress is likely to choose a new approach to address climate change. I therefore treat the Clean Air Act as a model for future legislation.

200. The CAA requires EPA to establish National Ambient Air Quality Standards to protect the public health and the environment from the most pervasive and ubiquitous pollutants. 42 U.S.C.A. § 7409(b)(1) (West 2008).

201. EPA establishes New Source Performance Standards, minimum technology-based standards for certain categories of new sources. 42 U.S.C.A. § 7411(b)(1)(B) (West 2008). The Clean Air Act establishes additional criteria for permits for new sources, including requiring the Lowest Achievable Emissions Rate in nonattainment areas, 42 U.S.C.A. § 7503(a)(2) (West 2008), and installation of the Best Available Control Technology in attainment areas. 42 U.S.C.A. § 7475(a)(4) (West 2008).

202. 42 U.S.C.A. § 7412(d)(3) (West 2008).

203. 42 U.S.C.A. § 7416 (West 2008) (savings clause).

204. 42 U.S.C.A. § 7410(a)(1) (West 2008).

205. See Dwyer, *supra* note 54, at 1198.

206. Clean Air Act, 42 U.S.C.A. § 7410(k)(1)(C) (West 2008).

ances.²⁰⁷ In contrast, aspects of the cap-and-trade program under the Clean Air Interstate Rule, a rule EPA developed to address the interstate transport of nitrogen oxides, sulfur oxides, and particulates,²⁰⁸ are more decentralized. EPA establishes state-specific caps for each of the three trading programs created by CAIR and then gives states the option of achieving the reductions internally or participating in a regional cap-and-trade program.²⁰⁹ States that choose to meet the nitrogen oxide cap by participating in a regional trading program must comply with model cap-and-trade rules, but retain considerable flexibility under those rules.²¹⁰ States can choose how to allocate allowances (by free distribution or by auction), how often to distribute allowances, the basis for allocating allowances, and can set aside allowances if they choose.²¹¹ The CAIR program's decentralized structure suggests the potential viability of a more decentralized cap-and-trade program model than that currently contemplated by federal climate change legislation.

The Clean Air Act's cooperative federalism experience has not been an unqualified success: Despite general improvements in air quality, the states have often been resistant to federal mandates²¹² and have often failed to develop state implementation plans that achieve federal air quality goals.²¹³ Conceivably, stronger federal minimums could have set the bar higher: the Clean Air Act has not been as rigorous for existing sources as it is for new or modified sources. In addition, notwithstanding the importance of state flexibility in developing SIPs and the history of state resistance to federally-imposed SIP requirements,²¹⁴ the federal government may need to be even more detailed in its requirements and more aggressive in its enforcement. A full analysis of the role of federalism in contributing to the success or failure of the Clean Air Act is beyond the scope of this paper, but would be a fruitful area for further inquiry.

Policymakers therefore have numerous cooperative federalist models to consider in designing future federal climate change legislation. The experience to date suggests that strong federal minimums are essential to effective policies. At the same time, they also suggest that it is

207. 42 U.S.C.A. § 7651 (West 2008).

208. See Mack McGuffey & Gary R. Sheehan, Jr., *Taking Care of CAIR*, 20 NAT. RESOURCES & ENV'T 67 (2005).

209. *Id.*

210. *Id.* The trading program for sulfur oxides is integrated with the nationally run Acid Rain Program. *Id.*

211. *Id.*

212. See Dwyer, *supra* note 54, at 1199-1216 (describing state resistance to EPA's requiring states to address land use, transportation, and automobile inspection and maintenance programs in their SIPs); Percival, *supra* note 198, at 1161.

213. The extent to which many areas of the country continue to fail to attain air quality goals testifies to the states' failure to meet air quality goals. See *supra* note 84 (providing website showing the nation's nonattainment areas).

214. See Dwyer, *supra* note 54, at 1199-1216.

possible, if not necessary, to provide states with some autonomy to address their state-specific goals and develop strategies for sectors that have historically been within their control.

IV. A PRELIMINARY SKETCH OF A COOPERATIVE FEDERALIST STRUCTURE

In this Part, I indicate how a national policy could establish a strong minimum federal response while retaining state autonomy. I first consider the goals and standards question, and argue that the federal government should set strong minimum goals, such as emission reduction goals and renewable portfolio standards,²¹⁵ but allow the states to exceed those goals. In addition, I argue that the federal government should set strong emission control standards but, again, generally allow states to exceed them (with some qualifications where consistency is a particular concern).

Setting goals and emissions standards alone are not likely to solve the problem of climate change, however. A cap-and-trade program could operate instead of or in addition to direct source controls. In this section, I analyze the particular federalism issues raised by a cap-and-trade program. But, since standards and/or a cap-and-trade program will only go so far in meeting the nation's emissions reduction goals, I consider the other mechanisms necessary to reduce emissions. The states could be key players in addressing the mix of state-specific strategies, including but not limited to standards and emissions trading. I thus discuss the potential role of state implementation planning as a key attribute of a cooperative federalist model.²¹⁶ These preliminary ideas are intended to generate an on-going discussion about how to design a cooperative federalist structure that maximizes the benefits of our federal structure.

A. *Climate Change Goals and Standards*

1. Climate Change Goals

National action to set federal reduction goals is essential. Ideally, the national goal should reflect the level necessary to reduce net emissions to a sustainable level. However, federal legislation might focus only on reduction goals in particular sectors, not on setting an overall national goal.²¹⁷ Moreover, even if a bill were to set a national goal,

215. A renewable portfolio standard is a legislative mandate which requires utilities to provide a minimum percentage of electricity from renewable energy sources. See DeShazo & Freeman, *supra* note 2, at 1523.

216. Many other implementation issues must, of course, be resolved, including permitting enforcement, and the like. I have focused on two of the most controversial issues in this article.

217. For example, the Warner-Lieberman bill, discussed above, establishes the goal of reducing emissions sufficiently to "avert the catastrophic impact of global climate change," S. 2191, 110th Cong. § 3(1) (2007), but it does not set a national reduction goal; it simply sets a cap on allowances for the following facilities covered under the cap-and-trade program: large facilities in the electric power sector, industrial sector, transportation fuel sector, and nonfuel chemical sector. See *id.* §§

opinions differ as to the necessary level.²¹⁸ Therefore, federal legislation should allow states to set their own reduction goals, as long as they are at least as stringent as the federal goal. As noted above, the Warner-Lieberman bill not only allows, but encourages, such an approach.²¹⁹

Other goal-oriented federal programs, like renewable portfolio standards, could be designed similarly. The federal government could establish minimum national goals, but individual states could choose higher goals in light of their citizen preferences and state-specific renewable energy opportunities. Many states have already developed RPSs, and federal law could capitalize on that momentum.²²⁰

Federalism principles support strong federal minimum goals. As discussed above, states could fail to take sufficient action based on state-specific cost-benefit analysis, an analysis that could fail to take their impact on other states into consideration.²²¹ A strong national minimum would also overcome the other impediments to state action: the free rider problem, the race to the bottom, and the states' concerns about leakage.²²²

The importance of federal minimums does not, however, erase the significance of allowing states to set pollution reduction goals above a federal minimum. That would enable states to meet their citizens' preferences for strong action,²²³ and provide a structural antidote to potential political failure at the federal level.²²⁴ Since the goals themselves do not directly implicate national industrial operations, they do not raise the consistency concerns that might arise in connection with other types of

4(7) (defining "covered facility"), 1201(d) (establishing progressively declining cap for the covered facilities). A bill proposed by Senator Feinstein is even more limited, focusing solely on a cap-and-trade program for the electricity sector. The Electric Utility Cap and Trade Act of 2007, S. 317, 110th Cong. (2007).

218. For example, the bills introduced by Senators Kerry and Snowe, on the one hand, and by Senators Boxer and Sanders, on the other, both seek to stabilize atmospheric concentrations of carbon dioxide at 450 parts per million. See Global Warming Reduction Act of 2007, S. 485, 110th Cong. § 702(a)(1)(A) (2007) (Kerry-Snowe bill); Global Warming Pollution Reduction Act of 2007, S. 309, 110th Cong. § 702(1)(B) (2007) (Sanders-Boxer bill). However, the Sanders-Boxer bill assumes that emissions must be reduced to eighty percent below 1990 levels to achieve that goal, S. 309, § 704(c)(3), while the Kerry-Snowe bill assumes that goal can be achieved by reducing emissions only sixty-two percent below 1990 levels. S. 485, § 702(a)(1)(B) (establishing a goal of reducing to sixty-five percent below 2000 levels). The Pew Center on Global Climate Change has concluded that a sixty-five percent reduction below 2000 levels is equivalent to a sixty-five percent reduction below 1990 levels. See PEW CTR. ON GLOBAL CLIMATE CHANGE, ECONOMY-WIDE CAP-AND-TRADE PROPOSAL IN THE 110TH CONGRESS, <http://www.pewclimate.org/docUploads/110th%20Congress%20Economy-wide%20Cap&Trade%20Proposals%2001-30-2008%20-%20Chart.pdf> (last visited March 8, 2008).

219. S. 2191, § 3402 (providing that states that set more stringent reduction goals could receive additional allowances).

220. See DeShazo & Freeman, *supra* note 2, at 1523.

221. See *supra* notes 17 to 18 and accompanying text (discussing likelihood that some states might find that the short-term costs of addressing climate change exceed its benefits)

222. See *supra* notes 11 to 12 and accompanying text.

223. See *supra* note 34 and accompanying text.

224. See *supra* notes 45 to 53 and accompanying text.

regulatory measures. Leakage concerns may well deter the states from enacting more stringent goals, but that does not mean that the law should deprive them of that opportunity.

2. Efficiency and Emission Standards

(a) Product Standards

In the climate change context, a sampling of the types of product standards at issue includes appliance efficiency standards, vehicle emission standards, and, arguably, biofuels standards.²²⁵ Federal legislation already addresses all of these areas and, in some cases, addresses preemption. Federal legislation in the 1970s gave the federal government the authority to set appliance efficiency standards, and that federal authority has been amended several times since.²²⁶ The states can develop standards for products not covered by a federal standard.²²⁷ Although federal law presumptively preempts state standards for appliances covered by federal standards, the states can develop more stringent efficiency standards if they obtain a preemption waiver from the Department of Energy.²²⁸ Somewhat similarly, the Clean Air Act preempts state vehicle emission standards,²²⁹ but allows California to adopt divergent standards if it obtains a preemption waiver from EPA.²³⁰ Federal energy legislation has set biofuels standards for the nation's fuel supply, but does not preempt the states' ability to set their own biofuels standards. Since future climate change legislation may revisit these standards and the preemption question, the discussion remains relevant.

As with federal emission reduction goals, federal minimum standards are appropriate due to the myriad potential political obstacles to

225. Vehicle emission standards are already addressed under the federal Clean Air Act, which preempts all states except California from adopting their own state standards, Clean Air Act, 42 U.S.C.A. § 7543(a) (West 2008), although it gives other states the choice of adopting the national or the California standard. 42 U.S.C.A. § 7507 (West 2008). California must, however, obtain a waiver of preemption from EPA before it can implement its own standards, § 7543(b), a waiver request that was rejected when California attempted to establish carbon dioxide emissions limits for mobile sources. See Zachary Coile et al., *EPA Blocks California Bid to Limit Greenhouse Gases from Cars*, S.F. CHRON., Dec. 20, 2007, at A1.

226. See John C. Dernbach, *U.S. Policy*, in GLOBAL CLIMATE CHANGE AND U.S. LAW 61, 69-71 (Michael B. Gerrard ed., 2007); APPLIANCE STANDARDS AWARENESS PROJECT, APPLIANCE EFFICIENCY STANDARDS IN THE 2007 ENERGY BILL: KEY FACTS (Dec. 2007), http://www.standardsasap.org/documents/2007EnergyBill_Standardsfactsheet.pdf.

227. APPLIANCE STANDARDS AWARENESS PROJECT, LEADING THE WAY: CONTINUED OPPORTUNITIES FOR NEW STATE APPLIANCE AND EQUIPMENT EFFICIENCY STANDARDS iv (2006) (observing that states can develop standards for products not governed by federal efficiency standards), available at <http://www.standardsasap.org/documents/a062execsum.pdf>.

228. See Dernbach, *supra* note 226, at 70; David Hodas, *State Initiatives*, in GLOBAL CLIMATE CHANGE AND U.S. LAW 343, 363 (Michael B. Gerrard ed., 2007). The state must demonstrate that its more stringent regulation is needed to meet "unusual and compelling State or local energy" needs. See *id.* at 363-64.

229. Clean Air Act, 42 U.S.C.A. § 7543(a).

230. *Id.* § 7543(b).

sufficient state action.²³¹ In addition, the federal government may have more resources to engage in research,²³² and having all fifty states conduct the same research would be inefficient.²³³

Moreover, as discussed above, product standards, particularly for products in national commerce, do raise consistency concerns, since they could require individual plants to develop separate production lines to market their products in different states.²³⁴ In addition, some states might develop product standards that are intended to protect state industries rather than the environment.²³⁵

Nonetheless, preemption has its costs: if the federal government is captured by special interests, it could fail to develop standards that some states believe possible and necessary.²³⁶ Federal standards, once developed, might languish, rather than continually evolving.²³⁷ In addition, companies operating in a global marketplace have survived the inconsistencies presented by differing countries' standards.²³⁸ Thus, the best balance could be some form of limited, rather than complete, preemption. Federal control, through a waiver requirement, could control the multiplicity of standards. It could also provide a check against purely protectionist state standards.

The history of appliance efficiency and motor vehicle standards suggests that allowing limited state autonomy might be desirable, notwithstanding consistency concerns.²³⁹ After appliance efficiency standards were federalized in the 1970s, the federal government was slow to adopt standards.²⁴⁰ Progress continued, however, because states—like California—continued to adopt stringent appliance efficiency standards.²⁴¹ Thus, innovation continued notwithstanding the federal paraly-

231. See *supra* notes 9 to 19 and accompanying text.

232. See *supra* note 23 and accompanying text.

233. See *supra* note 22 and accompanying text.

234. See *supra* note 56 and accompanying text.

235. See Rabe, Roman & Dobelis, *supra* note 9, at 32-33 (discussing potential for state fuel standards to serve protectionist purposes). Mixed motives are, of course, possible. A state that promotes efficiency is likely to generate industries that achieve it. The issue would be whether the standard is a pretext that fails to achieve efficiency, not whether the standard would incidentally favor state industry.

236. See *supra* notes 47 to 49 and accompanying text.

237. For example, U.S. automakers face a variety of vehicle emissions standards in the global marketplace.

238. See McKinstry & Peterson, *supra* note 2, at 90.

239. See Engel, *supra* note 9, at 170-72.

240. See U.S. Gov't Accountability Office, Energy Efficiency: Long-standing Problems with DOE's Program for Setting Efficiency Standards Continue to Result in Forgone Energy Savings, GAO Rep. No. 07-42, at 9 (2007), available at <http://www.gao.gov/new.items/d0742.pdf>; see also See Engel & Saleska, *supra* note 6, at 225 (observing that the federal government did not set any efficiency standards because it did not believe they were economically justified); *Appliance Efficiency Standards in the 2007 Energy Bill*, *supra* note 226 (noting that the first federal appliance efficiency standards were not set until 1987).

241. APPLIANCE STANDARDS AWARENESS PROJECT, *supra* note 227, at iii.

sis.²⁴² Over time, increasing state activity created political pressure for uniform national efficiency standards, prompting federal efficiency standards for some products.²⁴³ The cycle of diverse state standards prompting federal action was repeated recently, as states developed new standards in the early 2000s, leading Congress to require additional federal standards in the Energy Policy Act of 2005.²⁴⁴ The states have thus served as laboratories of invention that have ultimately inspired national action.

Limited state autonomy has been productive in the automobile emissions context as well.²⁴⁵ California has frequently taken advantage of its unique authority to set stricter vehicle emission standards.²⁴⁶ As a consequence, the state has spurred innovation in the automobile industry that would not have occurred with a single federal standard.²⁴⁷ Although EPA denied California's recent request for a waiver for its carbon dioxide vehicle emissions standards, commentators believe that EPA acted contrary to statutory provisions requiring that the waiver be granted and that the courts are likely to reverse the decision (if it is not reversed by administrative or legislative action before the courts act).²⁴⁸ These considerations are likely to be relevant to the future preemption fate of state-set biofuels requirements, like California's low-carbon fuel standard,²⁴⁹ as the federal government increasingly sets national renewable fuels standards.²⁵⁰

The appliance efficiency and automobile standards cases indicate that allowing states to adopt their own standards, subject to federal oversight through a waiver provision, could prompt technological innovation

242. See Engel, *supra* note 9, at 170-72.

243. See APPLIANCE STANDARDS AWARENESS PROJECT, *supra* note 227, at iii; Engel & Salekska, *supra* note 6, at 225-26.

244. APPLIANCE STANDARDS AWARENESS PROJECT, *supra* note 227, at iv.

245. See Carlson, *supra* note 42, at 311-18 (discussing the value of California's autonomy to develop its own vehicle emission standards); Engel, *supra* note 9, at 187.

246. See CAL. ENVTL. PROT. AGENCY, AIR RESOURCES BOARD, FREQUENTLY ASKED QUESTIONS: EMISSION REDUCTION STANDARDS FOR VEHICLES, <http://www.arb.ca.gov/cc/factsheets/ccfaq.pdf> (last visited Mar. 27, 2008). California has set more stringent standards many times, and has almost always received a waiver from EPA to do so. *Id.*

247. Engel, *supra* note 9, at 187.

248. See Zachary Coile, *Behind EPA's Rejection of State Emission Rules*, S.F. CHRON., Jan. 24, 2008, at A-1. The recent motor vehicle saga suggests that waiver provisions should clearly set forth the circumstances in which waivers must be granted, rather than leaving the decision to pure federal administrative discretion. Otherwise, the states have no recourse against federal capture or inertia.

249. See Exec. Order No. S-01-07 (Jan. 18, 2007), available at <http://gov.ca.gov/index.php?print-version/executive-order/5172>.

250. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492. At present, the federal renewable fuels requirements and California's low-carbon fuel standard are quite different, since California's standard is intended to reduce lifecycle carbon emissions and the renewable fuels standards do not directly address carbon emissions. In fact, given the carbon intensity associated with generating corn ethanol, the federal standard might not be a low-carbon standard. See BRIAN T. TURNER ET AL., CREATING MARKETS FOR BIOFUELS 38 (2007), available at <http://repositories.cdlib.org/its/tsrc/UCB-ITS-TSRC-RR-2007-1/> (concluding that ethanol from coal-fired facilities generates the same or more greenhouse gases as gasoline).

and provide an antidote to the federal government's failure to act. Allowing limited state autonomy would also generate a more dynamic inquiry into what is technologically possible, countering potential bureaucratic inertia once standards are set.

(b) Pollution Control Standards

In light of the Supreme Court's 2006 ruling, in *Massachusetts v. EPA*, that greenhouse gases are "pollutants" under the Clean Air Act,²⁵¹ EPA likely already has the authority to control greenhouse gases by setting pollution control standards, like New Source Performance Standards and the standards associated with New Source Review.²⁵² As noted above, the Clean Air Act explicitly allows the states to set more stringent source controls.²⁵³ Nonetheless, it is possible that a newly-proposed cap-and-trade program could preempt efforts to establish direct source controls for facilities covered by the cap-and-trade program.²⁵⁴ It is also possible that the federal government will consider comprehensive climate change legislation that could explicitly or implicitly preempt state greenhouse gas controls, notwithstanding the savings clause in the Clean Air Act. The federalism issues presented by state pollution control standards therefore require consideration.

Ideally, federal legislation would establish federal minimums for existing and new facilities to ensure that all facilities adopt available mechanisms to reduce greenhouse gas emissions.²⁵⁵ Such federal standards would help avoid leakage concerns that the states might otherwise encounter were they to consider state-level regulation.²⁵⁶

Even if the federal government chooses to reduce emissions through a cap-and-trade program rather than direct regulation, federal legislation should grant states the power to establish direct greenhouse gas emission controls on stationary sources. States would thereby retain the ability to couple the trading system with direct regulations, based on both prudential²⁵⁷ and equity concerns.²⁵⁸ Allowing divergent state standards would

251. *Massachusetts v. EPA*, 127 S. Ct. 1438, 1460 (2007).

252. See McKinstry & Peterson, *supra* note 2, at 101 (regarding new source performance standards).

253. Clean Air Act, 42 U.S.C.A. § 7416(b) (West 2008).

254. For example, an early version of a bill to create a cap-and-trade program for the electricity sector would have explicitly exempted state regulation of that industry. DeShazo & Freeman, *supra* note 2, at 1536 n. 135. Although deleted, the issue is likely to arise again. *Id.*

255. Unlike the federal Clean Air Act, federal legislation should direct EPA to set standards for all existing facilities, avoiding the federal loophole for existing facilities in attainment areas. See *supra* note 201 and accompanying text. In that respect, climate legislation could thus be modeled more on the Clean Water Act, which sets federal minimum standards for all existing sources. Clean Water Act, 42 U.S.C.A. § 1311 (West 2008).

256. See McKinstry & Peterson, *supra* note 2, at 101.

257. The primary prudential concern is that the market would be ineffective at prompting facilities to take already-feasible steps to reduce emissions. See Kaswan, *supra* note 86, at 10295-96.

allow states to meet more stringent goals (if they have them), allow them to operate as laboratories of invention, avoid bureaucratic inertia on the issue of what limitations are feasible, and provide an antidote to the risk of federal capture in setting federal standards.

The case for preempting more stringent production process standards is less compelling than that for product standards. In the product context, one industrial plant could face the specter of having to produce differing products to serve differing state requirements.²⁵⁹ With production process requirements, in contrast, a facility located in one state would simply have to meet the requirements in that state, not a multiplicity of requirements.²⁶⁰

As with product standards, leakage concerns may make states reluctant to exercise their power to exceed federal pollution control standards. Nonetheless, I argue that they should retain the option to do so if they choose.

(c) Building Efficiency Standards

Building efficiency standards present one last example of a standard that could play a key role in greenhouse gas reductions. While the federal government would, ideally, set minimum standards, local variations in weather conditions and materials suggest that state and local entities should retain their long-standing authority to set more stringent standards. The building industry has long tolerated divergent local building standards, and federal consistency is less important for inherently decentralized building activities. Moreover, state and local governments are in a better position to enforce such broadly-applicable and dispersed standards.

B. Delegating Program Implementation

Federalism issues arise not only in connection with goals and standards, but in connection with program implementation. Many program parameters are implicated: If federal legislation seeks to meet emission reduction goals through a cap-and-trade program in addition to or instead of through direct source regulation, then the legislation must address the respective federal and state roles in operating the program. Since federal emission reduction goals are unlikely to be achievable solely through direct source regulation and/or a cap-and-trade program, and are likely to require state and local action, then some mechanism, like state implementation plans, will be necessary to stimulate the necessary state and local action and to determine how regulatory actions at multiple levels

258. The equity concerns raised by a cap-and-trade program are those discussed *supra* notes 88 to 114 and accompanying text.

259. See *supra* note 56 and accompanying text.

260. See DeShazo & Freeman, *supra* note 2, at 1508.

will ultimately achieve federal goals. In this paper, I focus on these two parameters, but note that federal legislation will have to address other critical implementation issues as well, including permitting and enforcement systems.

1. Cap-and-Trade Programs

Federal legislation has generally envisioned a nationally-operated cap-and-trade program.²⁶¹ While there are undoubtedly benefits to having a national-scale trading program, those benefits do not erase the states' critical interest in the design and operation of cap-and-trade programs. A national cap-and-trade program could implicate the states' abilities to achieve state-specific emission reduction goals, their decisions about the most effective way to accomplish emission reductions, their decisions about how to reconcile environmental justice and economic efficiency goals, and their judgment about how to distribute the economic benefits and costs that could result from a trading program.

First, unlike RGGI or the European Union's initial ETS, I propose a presumptively national trading program. It is unlikely that all states would have the resources and will to set up their own programs.²⁶² Nonetheless, I suggest that states be given the option of establishing their own programs, subject to certain limitations. I propose that the federal government determine the state's maximum cap, rather than leaving full discretion to each state. Having a maximum cap set by the federal government rather than allowing states to freely set their caps would help avoid the inflated state-set caps experienced in the initial phases of the ETS.²⁶³

Certain other features would likely need to be federally-controlled. Whether administered at the national or state level, a national registry of emissions, with a standard protocol for registering emissions, is likely to be necessary.²⁶⁴ Ideally, monitoring protocols should be standardized, and the public should have easy access to information about all national trades.²⁶⁵ With those federal parameters in place, a state could then be given discretion to decide how many of the allocated allowances it chooses to distribute and how.

261. See PEW CTR. ON GLOBAL CLIMATE CHANGE, *supra* note 224.

262. Cf. Rabe, Roman, & Dobelis, *supra* note 9, at 11 (discussing some states' unwillingness to address climate change generally).

263. See *supra* note 187 and accompanying text (discussing excess allowances issued by European states).

264. The states have recognized this reality. More than half the states have agreed to participate in an emissions registry. Janet Wilson, *31 States to Track Warming: They Form A Climate Registry That Will Measure and Compile Greenhouse Gas Emissions by Industry*, L.A. TIMES, May 9, 2007, at A23.

265. In the event that federal legislation establishes weak monitoring protocols or does not require transparent information on trading, however, I would argue that states should have the authority to establish more rigorous requirements.

State control over allowance distribution, and the ability to retire certain allowances, is critical to the state's autonomy to set its own goals and standards. Without such control, all of the flexibility to set varying standards discussed in the preceding section could be undermined. Unless a state can retire unnecessary allowances, a state that set a lower cap and required its sources to reduce by more than the national goal²⁶⁶ would simply free up allowances that other states' sources could use, undermining the restrictive state's more demanding goals. In addition, if a state chose to regulate some sources directly instead of relying solely on a cap-and-trade program, it would similarly free up allowances that sources in other states would then use, undermining the reductions the state hoped to achieve through direct regulation.²⁶⁷ A state could also be concerned that the national cap would be too high, and allowances too numerous, to create a strong enough price signal to prompt reductions and technological innovation. A state could therefore choose to retire some allowances in order to create higher allowance prices and further stimulate innovation.²⁶⁸ Due to monitoring and enforcement concerns, a state might also choose a narrower sectoral scope for its trading program than that used in a federal program. If so, the state would want the discretion to retire the allowances associated with the sectors that were not included in the state's program. Thus, a state's ability to retire allowances is necessary to give states real authority to adopt more demanding goals or standards.

State control over allowance distribution would also allow the state to control key political and economic variables—variables that could differ by state. States that chose to administer their own programs could retain some discretion about the degree to which allowances should be distributed for free or auctioned. Many factors are likely to influence a state's decision about how much and to whom to auction. The impacts of auctioning could vary considerably by industry, with differences in industries' ability to pass costs along to consumers. Different industries could also face differing competitiveness constraints, and pose varying

266. States could, alternatively, achieve more stringent state goals by requiring their facilities to obtain or purchase a higher ratio of allowances for each ton of emissions. That would effectively "retire" the excess allowances. It is also theoretically possible that reductions to be achieved as a consequence of more stringent state goals, or reductions achieved through state standards rather than trading, could be subtracted from the national cap rather than retired by individual states. *See* McKinstry et al., *supra* note 155, at 4 (observing that reductions achieved outside of a cap-and-trade program must be subtracted from the cap). Such an effort would, however, raise a number of complex practical and policy questions that would render it difficult to administer.

267. California, for one, is already engaging in regulatory efforts. *See supra* notes 93-99 (describing role of regulation in California's implementation of AB 32). While it may ultimately adopt a cap-and-trade program, the reductions to be achieved through the cap-and-trade program are likely to be less than would have been necessary had the state not combined the program with a regulatory effort.

268. Unless a state has a strong technology sector that hopes to benefit from such an approach, interstate competitiveness concerns are likely to render this approach unlikely. Ideally, the national cap would be low enough to set an appropriate nationwide price signal.

risks of “flight” in reaction to auctioning.²⁶⁹ States may also differ in their commitment to the “polluter pays” principle underlying an auction approach. Some states may also be concerned that distributing allowances for free could provide undeserved corporate profits.²⁷⁰

In order to allow states the freedom to auction, however, the federal government may need to establish strong minimum auction levels so that states do not fear that the decision to auction will undermine their competitiveness or generate leakage.²⁷¹ Under the RGGI program, for example, all states are required to auction a minimum of twenty-five percent of allowances.²⁷² Politically, however, the slowly increasing auction levels specified in proposed federal legislation may be all that can be expected.²⁷³ States should thus retain the ability to auction more than the federal minimum.²⁷⁴

Auction revenues could also provide states with a key mechanism for addressing climate change and its regulatory impacts, including, for example, energy efficiency assistance to low-income consumers, worker training and retraining programs, research and development for new technologies, and adaptation financing.²⁷⁵ Given the critical needs that could be filled with auction revenues, some federal guidance in the state’s use of auction revenues would be useful.²⁷⁶ Nonetheless, federal legislation could provide states that administer their own programs and choose to auction with some discretionary authority over how to use a portion of the auction revenues.

State control over a cap-and-trade program would also allow states to address the environmental justice implications of such programs in the event that federal legislation does not include sufficient protections. As discussed above, environmental justice provisions could, potentially, have a significant impact on the contours of a trading program.²⁷⁷ States should therefore retain the ability to include trading limitations that achieve environmental co-benefits in disadvantaged neighborhoods. The

269. See *supra* note 11 and accompanying text (discussing risk of leakage).

270. See Kaswan, *supra* note 86, at 10295. Complaints about “windfall profits” have tainted the European Union’s trading system. See PARKER, *supra* note 172, at 14.

271. In the European Union’s trading program, for example, few states have auctioned even the minimum five percent allowable in Phase 1, and few plan to auction up to the minimum ten percent in Phase 2. See PARKER, *supra* note 172, at 13-14. One of the innovations in Phase 3’s more centralized program is to establish progressively increasing auction levels for the EU trading program. See Press Release, *Europa*, *supra* note 188, at 3.

272. See MEMORANDUM, *supra* note 5, § 2(G)(1).

273. See America’s Climate Security Act, S. 2191, 110th Cong. § 3201 (2007).

274. Many of the RGGI states are planning to auction well over the required twenty-five percent. See *Overview of RGGI CO₂ Budget Program*, *supra* note 161, at 4.

275. See, e.g., Kaswan, *supra* note 86, at 10312 (describing certain environmental justice goals that could be met with auction revenues)

276. See, e.g., America’s Climate Security Act, S. 2191, 110th Cong. § 3403.

277. See discussion *supra* Part II.B. States might couple trading with direct regulation, limit trading into heavily-polluted areas, or take other measures to maximize the co-pollutant reduction benefits of climate change regulation. *Id.*

limitations could include limits on trading into disadvantaged areas, limits on the use of offsets, and limits on international allowances that do not achieve domestic reductions.²⁷⁸

Unless federal legislation explicitly allows these types of restrictions, the courts could find that they conflict with the terms and goals of the national trading program and are therefore preempted.²⁷⁹ For example, when New York attempted to regulate trades under the national acid rain program due to air quality concerns, the Second Circuit held that the state's efforts were preempted by the national acid rain trading system, which did not impose geographic trading limitations.²⁸⁰

State implementation of a trading system could also help detect and prevent violations of traditional air permits. The states have the primary authority for administering air pollution permits under the Clean Air Act.²⁸¹ Separating the management of greenhouse gases from the control of harmful co-pollutants could increase the likelihood of undetected and unlawful increases in co-pollutant emissions. If the same agency were responsible for both greenhouse gases and their co-pollutants, it would be easier to confirm that changes in greenhouse gas emissions accomplished through a trading program did not violate co-pollutant permit requirements. Given the critical environmental consequences at stake, states should have the autonomy to control the operation of cap-and-trade programs and to harmonize them with the states' other environmental objectives.

From a federalism standpoint, a decentralized cap-and-trade program is more controversial than decentralized goals, pollution control standards, or developing state implementation plans for climate action. An unencumbered national allowance market would likely be easier to administer than one that is national with respect to trading in some states and subject to state-based limitations in others. In addition, having different rules in different states would complicate the market's operation and have some impact on the market's economic efficiency goals. State-imposed constraints could impede some industries' ability to take advantage of nationally available low-cost emission reduction opportunities. The difficulties experienced in the European Union's decentralized trad-

278. In order to encourage actual reductions within the regulated sector, the RGGI program places limits on the use of offsets. *See supra* note 167.

279. Since the restrictions would likely reduce the cost-savings from trading, they could be found to conflict with a national goal of facilitating the lowest-cost reductions.

280. *Clean Air Mkts. Group v. Pataki*, 338 F.3d 82, 89 (2d Cir. 2003). State restrictions on national trades could also be found invalid under the dormant commerce clause. The district court in *Clean Air Markets* addressed this issue. *Clean Air Mkts. Group v. Pataki*, 194 F. Supp. 2d 147, 160 (N.D.N.Y. 2002). This constitutional question deserves attention but is beyond the scope of this paper.

281. *Clean Air Act*, 42 U.S.C.A. § 7401 (West 2008); 40 C.F.R. § 70.1 (2006).

ing system suggest the need for caution in allowing state variation within a national market.²⁸²

At the same time, a national cap-and-trade program that precluded state limitations would sacrifice critical state prerogatives. States would, in effect, lose control over their individual reduction goals or standards, which could be thwarted if they simply lead to the increased availability of allowances elsewhere. They would be unable to control the price signals that could prompt in-state technological innovation and development. And they would not be able to control the co-pollutant consequences of trading and the general distribution of environmental co-benefits. Not having control over whether to auction or freely distribute allowances would curtail their ability to address the economic impacts of trading, and, if they chose, their ability to adopt the “polluter pays” principle. Nor could they control the auction revenue stream.

These incursions on state autonomy are a high price to pay for national efficiency. Moreover, the proposal above would not lead to as much inefficiency as a purely state-centered approach; it would give states the option, not require them, to run their cap-and-trade programs. It is not clear how many states would accept the opportunity.²⁸³ If relatively few, then allowing some state autonomy would not have as large an impact on efficiency as fifty individual programs.

2. State Implementation Plans

Even a highly centralized federal program is likely to require a role for the states in achieving federal goals. Once federal legislation establishes a national emissions reduction goal, a key issue remains: how will it be achieved? First, many critical sectors are within state, not federal control, and a state implementation plan could demonstrate how the states will contribute their part to meeting national goals.²⁸⁴ Second, in light of the delegation of standard-setting and program operations I propose, state implementation plans could provide a vehicle for collecting information on the state programs and providing federal oversight.

Although some policymakers appear to presume that a cap-and-trade program will provide a sufficient solution, a more multi-faceted approach is necessary.²⁸⁵ The federal government cannot simply set the

282. See *supra* notes 185 to 188 and accompanying text.

283. Of course, if state-centered trading created control over auction revenues, it might provide states with a strong incentive to adopt their own programs. Those programs could use minimum federal guidelines, however, so state control over auctioning would not necessarily result in a multiplicity of inconsistent state rules. See *supra* note 192 and accompanying text (describing European Union’s Phase 3 centralized rules coupled with decentralized auctions). This is not to advocate for centralizing rules to the extent proposed in the EU. But if minimum federal rules are adopted, then most states are likely to follow the federal rules, reducing the multiplicity of approaches that full decentralization could engender.

284. See McKinstry et al., *supra* note 155, at 4-6.

285. See *id.*; McKinstry & Peterson, *supra* note 2, at 100-01.

cap at the targeted reduction level and expect the market's invisible hand to efficiently guide the nation toward the required reductions.²⁸⁶ Not all sectors are amenable to cap-and-trade: to operate efficiently and effectively, cap-and-trade programs are likely to be limited to major sectors in which emissions contributions can be effectively monitored. A cap-and-trade program is therefore unlikely to address small sources or sources where monitoring is difficult.

A cap-and-trade program is also unlikely to be a tool that could guide major components of a greenhouse gas reduction policy. To accomplish certain goals, like reducing consumer electricity demand, direct standards like building or appliance efficiency standards are likely to be more effective than relying on the market to trigger the necessary emission reduction incentives.²⁸⁷ Since buildings consume seventy percent of the nation's electricity, increasing building standards could be a key mechanism for reducing greenhouse gases, and relying exclusively on the market to trigger private incentives for building green would be less predictable and effective than developing standards.²⁸⁸ Increasing appliance efficiency is likewise unlikely to emerge effectively through a cap-and-trade program, except through the clumsy mechanism of increasing energy costs.

Other key sources of greenhouse gases, like agriculture, land use patterns, and landfill practices, may similarly be less amenable to a cap-and-trade program, in part due to monitoring and verification difficulties.²⁸⁹ Land use is the key driver of the nation's transportation-related emissions.²⁹⁰ Transportation constitutes almost twenty-eight percent of the nation's greenhouse gas emissions.²⁹¹ Even as cars have grown more efficient, the number of vehicle miles traveled has continued to increase,

286. See McKinstry et al., *supra* note 155, at 6 (describing market imperfections that are likely to prevent a cap-and-trade program from sending sufficient market signals to induce changes in consumer demand).

287. See *id.* (discussing why a cap-and-trade program is unlikely to be sufficient to reduce consumer demand).

288. Arguably, a cap-and-trade program that drives up energy costs could provide a private incentive for green buildings, without requiring a regulatory approach. However, operational costs are often less significant than capital costs in design decisions, dampening the impact of rising energy prices on building design.

289. See McKinstry et al., *supra* note 155, at 7. The agriculture and landfill sectors could conceivably be addressed by allowing facilities in a cap-and-trade program to purchase offsets from these sectors to meet their emission reduction targets. However, such programs are likely to be beset by significant permanence and verification issues that could preclude the use of offsets from the agricultural sector.

290. See Oliver A. Pollard, III, *Smart Growth and Sustainable Transportation: Can We Get There from Here?* 29 FORDHAM URB. L.J. 1529, 1531-32 (2002) (observing the role of post-World-War-II suburban sprawl in increasing motor vehicle use).

291. U.S. DEP'T OF TRANSP., CTR. FOR CLIMATE CHANGE AND ENVTL. FORECASTING, PERCENTAGE OF U.S. GREENHOUSE GAS EMISSIONS, 2005, <http://www.climate.dot.gov> (last visited Mar. 27, 2008).

largely as a consequence of continued sprawl.²⁹² Reducing vehicle miles traveled through smart growth requirements and improved public transit is likely to be an essential component of an effective climate change policy,²⁹³ and one that cannot be accomplished through a cap-and-trade program.

If setting a cap in a cap-and-trade program will not assure achievement of a national net reduction goal, then additional mechanisms will be necessary. However, many of the sectors that are not amenable to cap-and-trade are sectors that have historically been within state and local control, such as building standards, land use, and agricultural policy.²⁹⁴ While minimum federal standards are appropriate where possible, the states should arguably be given a significant role in implementing policies over which they have had traditional control. For example, on both a political and a practical front, it is difficult to imagine how the federal government could establish and administer land use policy.

The federal government thus needs state planning to achieve federal goals.²⁹⁵ The Clean Air Act's State Implementation Plans (SIPs) could provide a model.²⁹⁶ Instead of focusing on achieving local air quality standards, the federal government could determine how much each state must reduce its emissions for the nation as a whole to meet its goals.²⁹⁷ The process would presumably begin with a flat percentage reduction from a baseline. The states will undoubtedly expect other relevant fac-

292. See ROBERT PATERSON ET AL., *TECHNIQUES FOR MITIGATING URBAN SPRAWL* 10 (2003) http://www.utexas.edu/research/ctr/pdf_reports/0_4420_2.pdf (stating that VMT increased by almost 100 percent between 1969-1989, while population increased by only 22.5 percent); U.S. DEP'T OF TRANSP., RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION, BUREAU OF TRANSP. STATISTICS, http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=507&DB_Short_Name=VMT (last visited Mar. 27, 2008) (observing that national VMT increased almost thirty percent from 1990 to 2001).

293. Cf. Pollard, *supra* note 290, at 1549-50 (proposing denser development to reduce driving and its associated environmental impact).

294. See, e.g., Dwyer, *supra* note 54, at 1217 (observing the need for a state role in areas like land use and natural resources law that have long been under state and local controls).

295. A federal law imposing a state planning requirement would have to avoid the constitutional limits on the federal government's ability to require the states to act. See *New York v. United States*, 505 U.S. 144, 175 (1992) (invalidating a state law that "commandeers" states to carry out federal statutes). The legislation could condition state funding on the completion of state plans, or as in the Clean Air Act, it could provide the states with the alternative of having the federal government prepare their plans for them. See Dwyer, *supra* note 54, at 1198-99 (observing that a state that failed to follow state requirements retains the "exit option" of having EPA assume responsibility).

296. See 42 U.S.C.A. § 7410 (West 2008); see generally, Kenneth A. Manaster & Daniel P. Selmi, *Federal Standards and State Implementation—State Implementation Plans*, 1 STATE ENVTL. L. § 6.5 (2007) (providing a basic description of state implementation plans).

297. See generally McKinstry et al., *supra* note 155, at 7-8 (describing numerous potential variables for determining state reduction obligations). The process could be similar to the development of the "burden-sharing agreement" developed within the European Union, in which the European nations determined emissions goals for each state in light of the collective European goal established under the Kyoto Protocol. See PEW CENTER ON GLOBAL CLIMATE CHANGE, *THE EUROPEAN UNION EMISSIONS TRADING SCHEME (EU-ETS): INSIGHTS AND OPPORTUNITIES* 4-5 (describing burden-sharing agreement) (2005), available at <http://www.pewclimate.org/docUploads/EU%20DETS%20White%20Paper%2Epdf>.

tors to be taken into consideration, including some sort of credit for states that have already taken emission reduction steps,²⁹⁸ as well as some recognition of the extent to which emissions are generated for the use of other states (a likely concern for power-generating states). The process is likely to be contested, but this article is not the place to resolve how each state's allocation should be set. It is also possible that setting state-specific allocations would be so contested that it would not be politically feasible.

Whether state-specific reduction targets are established or not, state planning to meet federal goals would nonetheless serve many useful functions, and would build upon the climate change planning efforts many states have already undertaken.²⁹⁹ In a state implementation plan, the states could indicate how they have adopted any minimum federal standards or programs that have been established. Since federal minimum standards and programs are unlikely to be sufficient to reach federal emission reduction goals,³⁰⁰ the states would have to indicate how they plan to address sectors within their control. Given that the sources of each state's greenhouse gas emissions differ markedly, states are likely to develop very different programs and to respond to state-specific conditions and priorities.³⁰¹ States that generate electricity are likely to focus on that sector, and will have to determine whether a national cap-and-trade program will achieve sufficient reductions. States for which transportation is a significant component are more likely to focus on land use changes and public transportation, and to be more likely to adopt measures like California's vehicle emission standards if possible.³⁰²

298. See McKinstry et al., *supra* note 155, at 7 (suggesting that, in allocating emission reduction responsibilities to the states, states should receive early action credit); cf. Nicholas DiMascio, *Credit Where Credit Is Due: The Legal Treatment of Early Greenhouse Gas Emissions Reductions*, 56 DUKE L.J. 1587, 1593-98 (2007) (in the context of industry early action, discussing the general benefits and attributes of credit for early action of emissions reductions).

299. Many states are already creating climate action plans. See, e.g., PEW CTR. ON GLOBAL CLIMATE CHANGE, STATES WITH CLIMATE ACTION PLANS, http://www.pewclimate.org/what_s_being_done/in_the_states/action_plan_map.cfm (last visited Mar. 27, 2008) (map indicating states with climate action plans).

300. See McKinstry et al., *supra* note 155, at 6 (emphasizing the importance of state implementation plans because "as is often the case, uniform national standards are not sufficient to achieve the needed reductions and additional reduction measures need to be undertaken.").

301. See, e.g., Dwyer, *supra* note 54, at 1198 (stating that decisions about how to reduce air pollutants implicate significant political and economic issues); Brent Yarnal & Rob Neff, *Primary Sources of Greenhouse Gases: A Cross-Scale Comparison*, 12 PENN. ST. ENVTL. L. REV. 173, 178 (2004) (using the state of Pennsylvania as an example of how states can vary in their sources of emissions and concluding that a national "mitigation strategy must take into account regional and local differences in emissions.").

302. In California, for example, transportation accounts for thirty-nine percent of emissions and in-state electricity-generation for only fourteen percent. CAL. ENERGY COMM'N, CALIFORNIA'S GROSS GHG EMISSIONS IN 2004, http://www.energy.ca.gov/global_climate_change/inventory/index.html (last visited Mar. 27, 2008). In contrast, the national averages are 27.7 percent for transportation and 33.5 percent for electricity-generation. U.S. DEP'T OF TRANSP., CTR. FOR CLIMATE CHANGE AND ENVTL. FORECASTING, PERCENTAGE OF U.S. GREENHOUSE GAS EMISSIONS, 2005, <http://climate.dot.gov/> (last visited Mar. 27, 2008). Also, the future of California's greenhouse gas emissions standards for vehicles is in limbo, since California did not receive the necessary waiver of

Cold states are more likely to focus on weatherization and energy efficient building codes than warm states. States could address the sectors uniquely within their control, and could play a key role in developing strategies to meet national goals.

In order to address the risk that states will fail to take the planning process seriously and fail to adequately generate reductions from the sectors under their control, the federal government will need to establish minimum SIP expectations. The states should be required to demonstrate regulatory actions in the sectors where change is inevitably necessary, like land use and transportation, notwithstanding the political controversy such controls are likely to generate.³⁰³ Ultimately, the federal government should review and approve the states' implementation plans to ensure that they will lead to promised reductions. Since states may differ in their commitment to real and difficult climate change measures, federal oversight and enforcement is necessary to ensure that the states' plans are sufficient.³⁰⁴

A state planning process accords with federalism principles.³⁰⁵ Minimum federal requirements and oversight could help overcome state inertia or internal political obstacles to state action. But providing the states with a role in determining how to implement reductions would allow those with the relevant information and expertise to devise strategies.³⁰⁶ It would also give states leeway to broker the thorny political and economic challenges that addressing climate change involves.³⁰⁷ Allowing state autonomy could also foster laboratories of invention as states struggle to change long-established patterns, such as unsustainable land use.

CONCLUSION

Federal legislation is clearly necessary to address climate change. The global nature of climate change presents too many obstacles to state action to expect the current momentum driving state programs to continue or to be sufficient.

preemption from the U.S. Environmental Protection Agency. See Coile, *supra* note 240. However, the state has challenged EPA's waiver denial. See Bob Egelko, *State Sues EPA to Force Waiver over Greenhouse Gas Emissions*, S.F. CHRON., Jan. 3, 2008, at A-1.

303. See Dwyer, *supra* note 54, at 1206-08 (describing state resistance to including land use and transportation in their SIPs).

304. Ideally, federal legislation would create a less cumbersome bureaucratic process than the Clean Air Act's SIP review process. See Manaster & Selmi, *supra* note 296, § 6.5 (2007) (describing SIP process).

305. See, e.g., Kaswan, *supra* note 1, at 79-85 (discussing the merits of a cooperative federalist approach).

306. See McKinstry & Peterson, *supra* note 2, at 87-88.

307. See Dwyer, *supra* note 54, at 1198 (indicating the political significance of air pollution control implementation decisions and their impact on land use and economic development) and 1218 (stating that local political support and involvement is essential to the success of national environmental goals).

Federal policymakers may be tempted to design a purely national program by its relative simplicity and in light of strong political pressures for federal consistency.³⁰⁸ But the federal government cannot meet emission reduction goals by itself. The states are better able to address many of the relevant sources and sectors. Moreover, giving the federal government a monopoly over climate change policy would deprive the states of control over key political, economic, and environmental variables, deprive the nation of the technological and regulatory innovation benefits of multiple actors, and fail to provide a check on potential political capture.

A cooperative federalist system, despite its inherent complexity, provides a sounder model for federal climate change legislation. Almost all the nation's environmental laws recognize the importance of distributing power to both the federal government and the states. The fact that climate change is a more global environmental problem does not give the states any less interest in having at least some control over implementation decisions that will inevitably have far-reaching societal impacts.

308. See *supra* note 139 and accompanying text.