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# States (and Cities) as Actors in Global Climate Regulation: Unitary vs. Plural Architectures

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This essay argues that U.S. States, cities, and other sub-national actors (SNAs) in the U.S., as well as other jurisdictions, can and should play important long-term roles in climate regulation at both the domestic and global levels, even after strong national and international climate regulatory regimes have been adopted. Part I briefly summarizes the current activities of U.S. SNAs, and shows how they have thereby become global climate regulatory players.[1] Part II poses the questions whether SNAs can and should play a significant long-term regulatory role after the adoption of strong federal and global regulation, or whether current SNA initiatives are likely to be or should be largely transient. Part II.A examines the positive political economy of independent SNA regulation. It concludes that while some of the incentives for current SNA regulatory measures may largely disappear, other incentives for independent SNA initiatives will persist. Part II.B argues for adopting legal and institutional arrangements that favor

[1] This essay addresses the roles of governmental authorities. Non-governmental bodies, and hybrid bodies that include both governmental and non-governmental participants, play a significant role in climate regulation but are beyond the scope of this essay.

independent SNA climate regulation if they will on balance advance climate protection without imposing major collateral harms.

Part III of the essay examines two basic models for global and domestic climate regulatory architecture and the scope that they provide for SRA measures. A unitary global architecture would involve single overarching international emissions trading system built on national limitations commitments. This design is justified by the common pool character of the atmospheric resource and the powerful economic and environmental advantages of a single trading market. The corresponding unitary domestic system would involve a single federal cap and trade system to implement the United States' international commitments. Under the unitary design, there would be no international role for the states, and only a very subsidiary domestic regulatory role. The plural model domestically would provide ample space for SRA measures that exceed or differ from federal regulation in scope or stringency. The plural model at the global level would recognize a variety of multilateral, plurilateral, regional and bilateral climate regulatory arrangements. The most expansive version of plural model would accommodate SNA initiatives internationally as well as domestically.

Part IV applies the Part II.B normative criteria to examine whether or not significant independent SNA climate regulatory initiatives are desirable, and accordingly, whether a unitary or plural regulatory architecture should be adopted. It examines the advantages and potential drawbacks of independent SNA regulation, and concludes in favor of a plural legal regulatory model that would accommodate significant SNA regulation both domestically and globally, subject to the availability of federal legislation to regulate or limit the role of States or local authorities where appropriate.

## I. Globally Significant U.S. State and City Climate Regulatory Initiatives

U.S. cities, states, and other sub-national actors in the U.S. as well as elsewhere are undertaking a variety of steps to limit greenhouse gas (GHG) emissions.[2] While these activities vary widely in coverage and ambition, collectively they represent significant initiative, especially when considered against the background of the failure thus far of the federal government to undertake any climate regulation. By virtue of these initiatives, U.S. SNAs have become significant global climate regulatory actors.

*First*, a substantial number of States or groups of States are globally significant greenhouse gas (GAG) emitters and are taking regulatory steps to limit their emissions. They have also brought litigation against major emitters in other states and against the federal government to force additional limitations. State regulation may also stimulate technology development and have demonstration effects that will facilitate further reductions and create public and political support, including in other jurisdictions, for such reductions all of these initiatives promise global climate benefits, both directly by reducing emissions and by stimulating adoption of additional regulatory measures.

California, which is responsible for roughly 7% of total U.S. GHG emissions and 1.1% of total global GHG emissions,[3] has adopted legislation to restrict CO2 emissions from new motor vehicles and to limit stationary source emissions with the goal of reducing GHG emissions to 1990 levels by 2020.[4] California's motor vehicle regulations are especially significant because its regulation of conventional pollutants has historically been the

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[2] For an extensive listing of such initiatives, see Robert B. McKinstry Jr. and 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, Pacific McGeorge Global Bus. L. & Develop. Jl 61 (2007). See also J.R. DeShazo and Jody Freeman, Timing and Form of Federal Regulation: The Case of Climate Change (2007).

[3] See California Greenhouse Gas Emissions and Sink Summary: 1990 to 2004, available at http://www.climatechange.ca.gov/policies/greenhouse_gas_inventory/index.html, estimating total state emissions in 2004 at 484 MMTCO2E; E.P.A, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005, estimating total U.S. GHG emissions in 2004 at 7,204. 484/7204=6.7%. Total global non-CO2 emissions in 2005 (2004 not available): 10,197 MMTCO2e. See EPA, Global Anthropogenic Non-CO2 Greenhouse Gas Emissions: 1990-2020, at Appendix A-1, available at http://www.epa.gov/climatechange/economics/downloads/GlobalAnthroEmissionsReport.pdf. In 2000, CO2 accounted for 77% of global GHG emissions. Id. Using same percentage, total emissions in 2005 would be 44,335 MMTCO2e (10,197/.23). CA therefore emits roughly 1.1% of total global emissions.

[4] See Global Warming Solutions Act of 2006, Cal. Health & Safety Code §38550.

leading edge of vehicle emissions technology forcing and regulation globally.[5] Thus far 18 "piggyback" states have adopted or plan to adopt California's proposed motor vehicle regulations.[6] The Regional Greenhouse Gas Initiative (RGGI), a group of ten northeastern and mid-Atlantic States (possibly to be joined by California[7]) responsible for more emissions than all of Germany,[8] has agreed to reduce CO2 emissions through a regional cap-and-trade program for power plants.[9] In 2006, Arizona and New Mexico launched the Southwest Climate Change Initiative, an agreement to collaborate on emissions reductions, promote clean technology, and advocate for regional and national climate programs.[10] In addition, more than two thirds of the states have completed or are working on Climate Action Plans and have signed the Climate Registry, a national plan to track emissions, and more than 25 have mandated that utility companies make use of renewable energy sources.[11] These regulatory initiatives have global significance because they promise to make an appreciable dent in emissions growth and may well stimulate similar action by jurisdictions elsewhere. For example, the goal in California AB 32 of reducing emissions to 1990 levels by 2020 has been endorsed by a variety of jurisdictions and other actors.[12]

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[5] *See, e.g.*, Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295, 344-49 (D.Vt. 2007) (providing historic overview of California's longstanding role as "proving ground for new technology"); Hari M. Osofsky, *Climate Change Litigation as Pluralist Legal Doctrine*, 26 Stanford Env. L.J. 181 (2007) (noting international aspects/implications of CA (and other) climate change litigation, including section titled "California as International Lawmaker?"); William Sweet, *Clean Air, Murky Precedent*, NY Times, Sept. 29, 2006, at A23, editorial, describing CA as "world leader in green technologies").

[6] *See* Environmental Defense, *Other States Adopt Law, Leading to More Pollution Cuts*, http://www.environmentaldefense.org/page.cfm?tagID=15503 (listing 18 states); John M. Broder & Felicity Barringer, *E.P.A. Says 17 States Can't Set Greenhouse Gas Rules for Cars*, N.Y. TIMES, Dec. 20, 2007, at A1.

[7] *See* The Associated Press, *California May Join Emission Alliance; Under the plan to cut greenhouse gases, power plants can trade credits with Northeast facilities*, L.A. TIMES, Oct. 17, 2006, at C3.

[8] See Pew Center on Global Climate Change, RGGI Index, available at http://www.pewclimate.org/what_s_being_done/in_the_states/rggi/; Steven Mufson, *Warming Trend is Hatching a Business*, Wash. Post, Sept. 28, 2006, at D1.

[9] *See* Regional Greenhouse Gas Initiative, http://www.rggi.org/about.htm (last visited Jan. 31, 2008).

[10] Pew Center, Regional Initiatives, available at http://www.pewclimate.org/what_s_being_done/in_the_states/regional_initiatives.cfm.

[11] *See* Pew Center on Global Climate Change, , at Learning from State Action on Climate Change, http://www.pewclimate.org/docUploads/States%20Brief%20Template%20_November%202007_.pdf (providing a roundup of state actions through Dec. 2007).

[12] *See, e.g.*, John M. Broder & Felicity Barringer, *E.P.A. Says 17 States Can't Set Greenhouse Gas Rules for Cars*, N.Y. TIMES, Dec. 20, 2007, at A1.

*Second*, these State initiatives have made it appreciably more likely that Congress will enact climate regulation. Such legislation will in turn promote U.S. reentry to serious international climate regulatory negotiations, which is prerequisite for post-Bali international progress. These initiatives have provided a catalyst for domestic public attention and support and enhanced the likelihood that Congress will at last act on climate regulation and probably adopt significant measures, including some form of national cap and trade system. They have also provoked claims by industry that State regulation of motor vehicle CO2 emissions are preempted by federal law.[13] Preemption claims may be asserted against other state initiatives as well. Especially given courts' rejection thus far of these preemption claims, it is likely that industry will seek some form of congressional action, further increasing the likelihood that Congress will address the underlying regulatory issues on the floor.[14] States have also successfully instituted litigation to force EPA CO2 regulation of motor vehicles, have brought similar litigation against EPA to regulate CO2 emissions from new stationary sources, and have also sued the auto industry and refiners on public nuisance claims.[15] These actions also enhance the probability of federal climate regulation. These various state initiatives are globally significant, because they are political and legal engines pushing U.S. adoption of significant climate regulation, which is in turn indispensable for international agreement on additional climate regulatory commitments by the Kyoto developed country parties and greater engagement of developing countries in emissions limitations.

*Third,* States have become de jure global climate actors, not just by attending the Bali talks and through meetings between State governors and leaders of other countries but also by initiating agreements and cooperative arrangements with provinces in Canada and jurisdictions in Europe to limit emissions and/or engage in international carbon trading.

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[13] *See, e.g.*, Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295 (D.Vt. 2007); Central Valley Chrysler-Jeep, Inc. v. Goldstone, 2007 WL 4372878 (E.D. Cal. 2007).

[14] For discussion of how state regulation may trigger efforts by affected industry to have Congress enact preemptive legislation, in general and in the climate context in particular, see Rick Hills, Against Preemption: How Federalism Can Improve the National Legislative Process, 82 N.Y.U. L. Rev. 1 (2007); J.R. DeShazo and Jody Freeman, Timing and Form of Federal Regulation: The Case of Climate Change (2007); Barry G. Rabe, Mikael Roman and Arthur N. Dobelis, State Competition as a Source Driving Climate Change Mitigation (2005)(defensive preemption theory).

[15] *See, e.g.*, Massachusetts v. EPA, California v. General Motors, 2007 WL 2726871 (N.D. Cal. 2007); Connecticut v. American Elec. Power, Co., 406 F.Supp.2d 265 (S.D.N.Y. 2005).

Six Midwestern states, including Illinois and Michigan, have signed a regional agreement with the Canadian province of Manitoba calling for emissions reductions of 60 to 80% in the long term;[16] the Conference of New England Governors and Eastern Canadian Premiers (NEG-ECP) has formed a regional, cross-border plan to reduce GHG emissions to 1990 levels by 2010 and to 10% below 1990 levels by 2020;[17] six western states and two Canadian provinces formed the Western Climate Initiative, calling for reductions in CO2 and other GHG emissions to 15% below 2005 levels in the next 13 years and the creation of market-based mechanism to force reduction;[18] An international group including California and other members of the Western Climate Initiative, northeastern states from the RGGI, European Union member states, and the United Kingdom formed the International Carbon Action Partnership last year to work toward a global cap-and-trade carbon market.[19] The agreement came one year after California Governor Arnold Schwarzenegger issued an executive order urging state officials to begin developing a market-based program that "permits trading with the European Union, the Regional Greenhouse Gas Initiative and other jurisdictions." California is also in active discussion with the EU on coordinating regulatory policies with respect to biofuels for motor vehicles. As number of these examples show, SNAs in other nations as well as member states of the EU are also becoming direct global regulatory players.

*Cities*, U.S. cities and counterparts in other nations are also become important climate regulatory players. For example, a coalition of more than 500 U.S. mayors have pledged to cut greenhouse gas emissions 7 percent below 1990 levels by 2012, in keeping with the United States' Kyoto Protocol target, as part of the U.S. Mayors Climate Protection Agreement.[20] Internationally, the Large Cities Climate Leadership Group comprises more than 35 of the world's largest cities (renamed "C40"), including Chicago, Houston, Los

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[16] *See* Pew Center, Regional Initiatives, available at http://www.pewclimate.org/what_s_being_done/in_the_states/regional_initiatives.cfm.
[17] Id.
[18] *See* Margot Roosevelt, *Regional Pact Caps Emissions: Leaders of Six States and Two Canadian Provinces Agree to Cut Greenhouse gases to 15% below 2005 levels*, L.A. TIMES, Aug. 23, 2007, at B1; Western Climate Initiative, http://www.westernclimateinitiative.org/.
[19] BNA, International Environment Daily, *International Coalition Formed in Lisbon To Establish Cap-and-Trade Carbon Market*, Oct. 30, 2007.
[20] *See* Anthony Faiola & Robin Shulman, *Cities Take Lead On Environment As Debate Drags At Federal Level; 522 Mayors Have Agreed To Meet Kyoto Standards*, WASH. POST, June 9, 2007, at A1.

Angeles, New York, and Philadelphia.[21] This group has partnered with the Clinton Climate Initiative to find ways to reduce energy use and GHG emissions at the local level.[22] The group, spearheaded by London Mayor Ken Livingston, has held two global climate summits.

## II. Can and Should There be a Continuing Role for Independent State and Local Climate Regulation?

### A. The Positive Political Economy of Climate Regulation

Are the SNA regulatory activities outlined in Part I largely transient phenomena that will be superseded by strong U.S. federal and international climate regulatory programs? Or, as this essay concludes, can and should there be a continuing and even expanded role for independent State and local climate regulatory measures? Even if such initiatives have only temporary significance, they can nonetheless be applauded in succeeding, in accordance with Madison's vision of competitive federalism, in addressing neglected problems of public concern, and eventually stimulating national political action to address them; [23] Federal initiatives will in turn stimulate stronger global regulatory measures. On this scenario, State and local climate regulation should cede any significant climate regulatory role to higher-level jurisdictions and assume honorable semi-retirement. But positive political economy analysis indicates that the withering away of independent SNA regulation is not inevitable. They are significant incentives for SNAs to persist in independent regulation if climate regulatory architecture is designed to accommodate them.

Given the character of the global atmospheric resource, the State and local climate regulatory initiatives taken to date seem paradoxical from the perspective of positive

[21] See C40 Large Cities, at http://www.c40cities.org/cities/.
[22] See C40 Cities and the Clinton Climate Initiative, at http://www.c40cities.org/; Jennifer Steinhauer, *Clinton Foundation to Work to Reduce Greenhouse Gases*, N.Y. Times, Aug. 2, 2006, at A16.
[23] State litigation against the federal government, such as Massachusetts v. EPA, requiring it to take national regulatory action, appears however inconsistent with the competitive vision, at least where (as here) the state is claiming independent regulatory authority over the same subject.

political economy. . Currently, the earth's atmosphere is essentially a common pool resource for GHG emissions that is being massively overused by the various jurisdictions and emissions sources from around the world.[24] If a single jurisdiction undertakes unilaterally to reduce to emissions, it will bear all of the costs but enjoy only a fraction of the benefits. The resulting disparity in costs and benefits, which are compounded by the various components of emissions leakage from jurisdictions that regulate GHG to those that do not,[25] makes it irrational for a single jurisdiction to regulate unless the damages are very large, its share of emissions are very large, and the costs of significant limitations on those emissions are suitably low. This logic applies to nations, and even more powerfully to SNAs.

The GHG emissions of individual SNAs, even California's, represent only a very small fraction of the global total. The reductions that it might be able to achieve in those emissions over the next several decades is an even smaller fraction of total global business-as-usual (BAU) emissions during that period. Any climate benefits that California might get from such initiatives are so small as to be undetectable. Even when psychic benefits from climate protection measures are included, they are unlikely to be sufficiently strong and durable to outweigh the costs of unilateral action, including the costs associated with leakage and loss of competitiveness to other jurisdictions. True, there may well be significant variations among states in the intensity of citizen preference for climate protection and in other factors affecting the balance of among climate regulatory costs and benefits, resulting in higher benefits and lower costs in some jurisdictions relative to the national average.[26] But the net benefits for even the outlier states with the most favorable cost-benefit balance would remain overwhelmingly negative.  California and other SNAs are attempting to spread the costs, reduce leakage, and increase benefits by entering into cooperative climate regulatory agreements with

[24] By contrast, the Vienna Convention, Montreal Protocol, and subsequent international agreements to curtail emissions of ozone-depleting chemicals have transformed the global atmospheric resource with respect to such chemicals into a system of strictly regulated national property rights.
[25] See Jonathan B. Wiener, Think Globally, Act Globally: The Limits of Local Climate Policies 155 U.Pa. L. Re 1961 (2007)(discussing leakage mechanisms).
[26] See Alice Kaswan, The Domestic Response to Global Climate Change: What Role for Federal, State and Litigation Initiatives? (2007).

other SNAs. But here arrangements, even if they are implemented by the parties, do not fundamentally change the fact that the expected costs to those SNAs that adopt significant regulation will far exceed any climate benefits.

What reasons -- apart for Quixotic, useless altruism – might account for SNA climate regulatory measures in the face of such an unfavorable cost-benefit structure? First, the measures may be largely symbolic initiatives by local political entrepreneurs for short-term political gain, but will simply not be implemented once significant costs become apparent. Second, they may be strategic moves to stimulate adoption, by catalyzing defensive preemption initiatives by other affected states or industry, of federal regulation.[27] Federal regulation may in turn lead to stronger international measures. Triggering higher-level regulation will eventually provide significant benefits and distribute costs broadly.[28] Third, the costs of 'easy' reductions maybe negative. Fourth, reductions may yield local non-climate environmental benefits. It is quite plausible that all four of these factors have explanatory power, and that they reinforce each other. But they also indicate that independent SNA initiatives will not be carried beyond the point, which is likely to be reached before very long, where net economic costs become significant and outweigh local environmental benefits. Also, by establishing a new, higher regulatory floor, a strong federal program will reduce the benefits of existing SNA regulatory measures initiatives and raise the costs of additional measures because of rising marginal limitations costs. States and cities may play a substantial but subordinate role within a national climate regulatory program because they are best situated to implement national polices with respect to certain aspects of the energy, housing, land use, transportation and other sectors. But the analysis above strongly indicates that any major independent SNA climate regulation, seeking to force the overall

[27] See Rick Hills, Against Preemption: How Federalism Can Improve the National Legislative Process, 82 N.Y.U. L. Rev. 1 (2007); J.R. DeShazo and Jody Freeman, Timing and Form of Federal Regulation: The Case of Climate Change (2007); Barry G. Rabe, Mikael Roman and Arthur N. Dobelis, State Competition as a Source Driving Climate Change Mitigation (2005)(defensive preemption theory).

[28] This is most obvious in the case of litigation undertaken by states to force adoption of federal regulation or require power plants and vehicle manufacturers to reduce emissions. Compared to adoption of regulatory controls on in-state emissions, such litigation initiatives are cheap.

pace of GHG limitations, will be a largely transient phenomenon. Much of the legal scholarship on the state role in climate regulation seems to take this view.[29]

Nonetheless, there are other factors, not considered in the analysis thus far, that would explain and support a prediction of a continuing independent SNA role in climate regulatory initatives.

First, outlier SNAs that will obtain relatively higher climate protection benefits and have relatively lower limitations costs may continue to take regulatory initiatives, even after federal and stronger international regimes are adopted, in an effort to continue to promote, through demonstration, technology-forcing, and other domino effects, more stringent regulation by higher level jurisdictions.

Second, States and localities may achieve collateral economic benefits as a consequence of climate regulatory measures through a "race to the top" dynamic. [30] Climate regulatory measures will stimulate investment in and market demand for emissions limitation technologies. Jurisdictions that are climate regulatory leaders can reap the "learning by doing" benefit of early development and application of such technologies, so that when, in part as a result of political domino effects triggered by the initiatives of climate regulatory leaders, other jurisdictions adopt GHG emissions limitations, the leader jurisdictions can grab a large share of the expanded market. Thus, Governor Schwarzenegger has justified California's climate regulatory initiatives on the ground that they will help California become a global leader in a future hydrogen economy. Renewable energy requirements may similarly drive states' development of comparative advantage in renewable energy sources. Other types of collateral local benefits can include enhanced energy security and lower energy prices by stimulating development of local energy sources. Cities may obtain other collateral economic and amenity benefits,

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[29] See, e.g., Kristen Engel, State and Local Climate Change Initiatives: What is Motivating States and Local Governments to Address a Global Problem and What Does it Say about Federalism and Environmental Law?, 38 Urb. Law. 1015 (2006).
[30] See generally David Vogel, Trading Up : Consumer and Environmental Regulation In A Global Economy (1995). This dynamic, of course, is directly contrary to the "race to the bottom" theories used to justify environmental regulation by higher-level jurisdictions.

including improved transportation infrastructure, building efficiency, air quality, and traffic. Creating more green space can at once reduce emissions and allow for faster economic and residential growth.[31]

Third, states with significant share of product or service markets may be able to leverage their market position by adopting regulatory controls on those products or services that will induce adoption of GHG limitations on products and services sold elsewhere. In order to comply with such regulation and maintain scale economies or otherwise efficiently adapt, manufacturers may adopt GHG limitations measures for products or services sold in other markets. This dynamic is illustrated by California's s strategic position in the motor vehicle market, magnified by the markets in other States that have piggybacked on California's regulatory standards for emissions of conventional pollutants. By adopting successively more stringent regulatory control, California has not only forced control technology but also stimulated the adoption by manufacturers and the federal government of progressively stronger controls that have in turn been followed in Europe and elsewhere. Thus, the "California effect" has had worldwide ramifications. Applied in the climate context, such use of market/regulatory leverage could multiple the benefits of California initiatives many fold.[32] Moreover, a substantial portion of the regulatory costs are imposed on manufacturers and consumers in other jurisdictions, reducing leakage and also enhancing the likelihood that those jurisdictions will follow California's regulatory lead. States may be able use fuel or renewable electricity energy regulation in a similar fashion, and in doing so also confer advantages on local industry.[33]

States can use all three of these mechanisms to make climate regulation an effective part of their competitive strategy portfolio.[34] The exact nature of a State's strategy will depend on the character of its industry and economy generally, the position of its firms in

[31] *See, e.g.,* New York's PLANYC report, Introduction, at 13 (noting that collectively, various initiatives to improve city infrastructure will also "address the greatest challenge of all: global warming"), available at http://www.nyc.gov/html/planyc2030/downloads/pdf/report_introduction.pdf.
[32] See DeShazo & Freeman, supra; Rabe, Roman and DeBelis, supra.
[33] See Rabe, Roman and DeBelis, supra.
[34] For discussion and analysis of the competitive strategy portfolio concept in the climate regulatory context, see Rabe. Roman and Dobelis, supra.

national and international markets, its current and anticipated future GHG emissions profiles, and relevant non-climate regulation as well as climate regulation adopted by other States, the federal government, and relevant foreign governments. The three mechanisms can be mutually reinforcing. Successful market/regulatory leverage can accelerate the race to the top and the promise of local technological leadership. Both will lower the relative costs and promote adoption of additional local regulatory initiatives, which in turn will stimulate market leverage and technological leadership, potentially producing an environmentally virtuous cycle of progressively stronger SNSA environmental legislation. These effects in turn may lead through the operation of political and market domino effects, lead to stronger regulation horizontally by other SNAs and vertically by higher level jurisdictions.[35]

Accordingly, significant SNA regulatory initiatives may well persist if climate regulatory architecture is designed to accommodate and even encourage them. The questions, then, are the role for independent SNA regulation in alternative regulatory architectures, and the normative criteria for choosing among those architectures.

**B. The Normative Criteria for Evaluating the Role of SNA Regulation**

I urge a frankly instrumentalist view of the institutional arrangements for climate regulatory policy. There are deeply embedded structural obstacles to the adoption and implementation of measures that will meet the huge challenge, at both the domestic and international levels, of stabilizing GHG emissions at levels that will avoid risks of far reaching and potentially catastrophic disruptions to natural and social systems.

Domestically, these challenges include the political hurdles posed by long time horizons, requiring mobilization of broad support for major near term investments in order to avoid harms in the distant future. These hurdles are compounded by significant uncertainties regarding future warming and its impacts. Further, entirely new legal and institutional

[35] But note that these initiatives may well impose unwonted costs on other SNAs with lower climate protection benefits and hence be an economically vicious cycle from their perspective. But it may also confer spillover non-climate air pollution or other environmental benefits

systems must be developed and implemented to regulate the myriad of activities that generate GHG, many of them undertaken by individuals or small businesses, and to successfully manage the transition to a low carbon economy. In order to drive the long-term private sector R&D investment necessary to develop the new technologies required, there must be long-term, credible regulatory commitments to continuing emissions reductions, which poses additional political and institutional challenges. A further political problem in the U.S. is that it will be less adversely affected by climate change than most developing countries or Europe, so that a major share of the benefits of emissions limitations undertaken by the U.S. will accrue to other countries. Also, the U.S. system of political representation and congressional decisionmaking gives strong veto powers to organized economic interests opposed to climate change. When combined with the Bush's administration's climate policies, the result has been political logjam on federal climate regulation.

Globally, the challenge is to overcome free riding incentives and competitiveness pressures in order to secure agreement by all major emitting jurisdictions to successively more stringent limitations and successfully implement such commitments. This will require inclusive international cooperation on an unprecedented scale, made more difficult by the very uneven geographic distribution of the benefits of climate protection measures and the North-Side divide on climate issues. Winning participation by major developing countries will require that a great part of the costs of limitations in those countries must be financed by the developed countries, creating additional pressures on domestic political systems in those countries and posing further institutional challenges.

In these circumstances, we need to build institutions best calculated to overcome the obstacles to strong and effective climate regulation. The place of SNAs in climate regulation should be evaluated primarily by this criterion. Established legal and institutional principles, including harmonization of product regulation and judicial doctrines of implied preemption, should give way if SNA regulatory initiatives will, on balance, advance climate protection. This imperative is reflected in the Supreme Court's Massachusetts v. EPA decision, which broadened standing by recognizing climate risks

as “injury in fact” requirement and expansively read the Clean Air Act to effectively mandate EPA regulation of CO2 motor vehicle emissions.[36] Judicial recognition of the value of SNA regulation is reflected in the two district court decisions rejecting the auto manufacturers’ claims of federal preemption of the California motor vehicle CO2 regulation.[37] SNA measures, however should be subject to regulation by Congress to prevent wholly disproportionate economic burdens on other states or national industries or to safeguard the effective operations of federal climate regulatory programs or the federal role in foreign affairs.

## III. Two Models of Climate Regulatory Architecture

As a first approximation, one may posit two ideal type models of climate regulatory architecture – a unitary model and a plural model – that can be applied at either the domestic or global levels.[38] The unitary model affords no space for significant independent SNA regulation, whereas the plural model does. The construct and basic rationales for each model are as follows, followed by a preliminary evaluation.

The corresponding unitary domestic system would involve a single federal cap and trade system to implement the United States’ international commitments under the global system. Under the unitary design, there would be no international role for the states, and only a very subsidiary domestic regulatory role.

### A. Unitary Architecture

Global Unity. A unitary global architecture would involve a single overarching international emissions trading system built on national limitations commitments. The

[36] See Massachusetts v. EPA
[37] See Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295 (D.Vt. 2007); Central Valley Chrysler-Jeep, Inc. v. Goldstone, 2007 WL 4372878 (E.D. Cal. 2007).
[38] For discussion of global climate regulatory architectures, see Joseph Aldy and Robert N. Stavins, eds. Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World (2007). For discussion of the interaction between global and domestic environmental regulatory instruments and strategies, see Richard B. Stewart, Instrument Choice, in Oxford Handbook of International Environmental Law (2007).

common pool character of the atmosphere requires unitized management through a single global regulatory regime. The instrument of choice for doing so is a global emissions cap and trade system involving all significant emitting nations. Only such a system or harmonized emissions taxes can ensure the cost-effectiveness that will be needed to achieve and maintain limitations of the magnitude required. For several key political and administrative reasons, including the need to engage developing countries in emissions limitations, a global cap-and-trade system dominates taxes and other instruments.[39] The UNFCC and the Kyoto Protocol are initial steps towards such a regime, which would realize the powerful economic and environmental advantages of a single trading market. For reasons of political achievability and operational success, the governmental participants in such a system should be limited to nations

SNAs should not be able independently to engage in international agreements with other nations or SNAs. Such arrangements would introduce additional complexity in international negotiations and regulation, making achievement of a single cap and trade emissions trading system that more difficult. For example, separate SNA emissions trading systems, including credit and offset systems, would likely result in different specifications and requirements for the GHG commodities traded than those developed among nations. Other independent SNA regulatory requirements, including command regulatory requirements, would limit the scope for trading and the economic and environmental efficiencies of a global cap and trade system.

Domestic Unity. Internally, climate regulation requires comprehensive and far-reaching changes in technologies and market practices that can best be achieved by federal government through a uniform nationwide cap and trade program implementing the global trading regime.[40] Independent state regulation, whether in the form trading systems or command and control, would undermine the coherence and efficacy national scheme for the same reasons as noted above in the global context. Where nationally (and globally) marketed products are involved, there is and even stronger case for uniform

[39] See Richard B. Stewart and Jonathan B. Wiener, Beyond Kyoto: Restructuring Global Climate Policy (2003)
[40] Discussion of EU and problems in ETS from subsidiarity

federal rule. SNAs may appropriately play a subsidiary role in certain aspects of climate regulation, for example in the renewable energy, housing, transportation infrastructure, and forestry and land use sectors, under the umbrella of the federal cap and trade system. But the SNAs' role should be specified and supervised by the federal government.

Externally, the U.S. needs to speak with one voice in international negotiations, in order to efficiently and effectively advance the nation's interest. State engagement in global regulation would undermine the federal government's bargaining leverage and the negotiation of beneficial agreements. SNA measures, especially if undertaken in alliance with SNAs in other nations, could also complicate the federal government's ability to comply with its international obligations and expose it to potential sanctions because of uncoordinated state behavior.

**B. Pluralist Architecture**

Global Pluralism. Pluralism at the global level has two related dimensions. The first relates to the design of the regulatory architecture. Should there be one encompassing international climate regulatory scheme, such as a global cap and trade system, or multiple agreements involving varying participants and embodying different regulatory strategies and agreements? The other dimension relates to the participants in international regulatory agreements. Should they be limited to nations, or also include SNAs?

While a single overarching global climate regulatory/trading regime should remain a longer term goal, there are serious practical obstacles to achieving such a regime in the near term. These include the urgent need to bring the U.S. and also major developing countries into international limitations agreements. It will not be feasible to simply slot these nations into the current Kyoto framework, which includes over 150 nations. The engagement of the US and developing countries must proceed stepwise, most likely through a series of bilateral, plurilateral, and regional agreements involving limited numbers of participants. These confidence-building agreements may include cap and trade arrangements, which could be limited to certain sectors such as electricity

generation, or credit or offset systems. They could also include agreement to adopt common command regulatory measures or harmonized policies on such matters as renewable energy, energy efficiency, motor vehicle emissions, or motor vehicle fuels as well as cooperation on technology development and sharing of best practices. Some of these non-universal agreements on climate regulatory cooperation could usefully continue in operation as a valuable supplement after a global cap and trade system emerges.

Another important justification for a plural approach to regulatory design is uncertainties about the best design of regulatory regimes. We are still in the early learning process with trading systems as exemplified by the uneven experience with the Kyoto Clean Development Mechanism and the EU CO2 emissions trading system. Experimentation and experience with various approaches at the international as well as domestic levels will be beneficial. Different international trading and other regulatory arrangements will facilitate benchmarking and comparative assessment of performance. Market arbitrage will promote eventual convergence among different trading systems.

Finally, a plural regulatory design would allow greater scope for regulatory initiatives by jurisdictions that, for environmental or economic reasons, to adopt more ambitious measures that those that emerge in a multilateral Kyoto successor. Enabling them to do so through agreements with other like-minded jurisdictions can reduce leakage problems and support such efforts, which will advance the overall goal of climate protection.

A plural global regulatory design could limit participation to nations. But allowing SNAs to participate would increase the extent of transnational regulatory experimentation and promote cooperative learning by doing and comparative evaluation of different approaches, especially in sectors where SNAs often enjoy a comparative advantage over national governments. The fast-emerging international cooperation among cities on climate-related energy, housing, and transportation issues is illustrative. Further, SNA participation would allow greater scope for important jurisdictions, like California, that have strategic market/regulatory leverage, to cooperate with other similarly situated

jurisdictions to drive climate protection forward. The developing cooperation between California and the EU on motor vehicle fuels is an example.

Domestic Pluralism. Allowing wide scope for domestic SNA climate regulatory initiatives is desirable for many of the reasons already discussed in the global context. Development of different regulatory approaches, including different designs for various forms of trading systems including credit and offset systems, will promote experimentation, benchmarking, mutual learning, and performance evaluation.[41] Some aspects of climate regulation, relating to buildings, energy supply and regulation, and transportation, may be best handled at the state or local levels. Furthermore, an encompassing single federal cap and trade system will not be built overnight. As reflected in the climate regulatory bills currently before Congress, any national cap and trade system will initially be limited to certain gases and sectors, and gradually extended to others.[42] SNA regulation can play useful role in extending the operation of trading, including by developing credit and offset systems to include in trading systems sectors and gases not covered by the federal regime. SNA initiatives can also help force the pace and stringency of national regulation.

One could allow SNAs a substantial independent role in domestic regulation while limiting participation in international regulatory agreements to nations. But this would foreclose international partnerships between U.S. SNAs and other jurisdictions abroad, which would be beneficial for reasons discussed above.

**C. Ideal and Non-Ideal Analysis.**

On ideal assumptions, adopting a unitary model at the global level, and possibly also at the domestic level, could well be desirable. At the global level, the ideal would include early adoption of a single global cap and trade regulatory system involving all major emitting jurisdictions; successful design and functioning of such a system; effectiveness

[41]For elaboration of these virtues, see Charles Sabel, Democratically Deliberative Polyarchy.
[42] New Zealand is the only country that is undertaking a cap and trade GHG system that includes all gases and major sectors of the economy.

in inducing the development and adoption of technologies and shifts in production and consumption patterns that will achieve emissions stabilization. There are similar arguments for a similar unitary single national system on ideal assumptions; independent state measures would produce added complexity and transactions costs, without adequate offsetting benefits. They could also impede the ability of national government successfully to negotiate and implement international climate regulatory agreements. On ideal assumptions, Jonathan Wiener is quite right that independent SNA regulation is suboptimal.[43] Independent national regulation is as well.

The world we face, however, is far short of the ideal. Institutional imperfections and barriers, political obstacles and logjams, and limits to our knowledge must be confronted. A diversified, pluralist approach to regulatory design and learning will achieve less than a unitary approach under ideal circumstances, and involve greater complexities and transactions costs. But in the world as it is, a pluralist design is likely to achieve more climate protection. (This does not mean that efforts to achieve the most inclusive possible emissions trading system should be abandoned.) Determining the appropriate scope and terms for SNA regulation under a plural architectural approach requires, however, further analysis and specification, which is undertaken in Part IV.

## IV. The Appropriate Role for Independent SNA Regulation: Striking the Balance

Drawing on the analysis in Parts II.A and III, this Part presents a balance sheet, summarizing the advantages and then the disadvantages of significant independent SNA regulation, both domestically and globally, in the longer term. It then applies the normative criteria sketched in Part II.B to evaluate the overall desirability of independent SNA regulation, taking into account the safeguards available through legal disciplines on SNA regulatory activities by the courts  by Congress.

### A. Benefits of Independent SNA Regulation

[43] See Wiener, supra.

For the reasons discussed in Part II.A. the SNAs most likely to initiate significant independent climate regulation measures – the leader SNAs --are those that will enjoy relatively high benefits (including psychic benefits) from climate protection and face relatively low costs in reducing emissions; gain significant economic or environmental co-benefits from such measures; enjoy market/regulatory leverage in relevant product and service markets; and win market opportunities for local firms from stimulating a regulatory "race to the top." Several of these factors may operate in give jurisdictions, and may be mutually reinforcing. Domestic and international climate regulatory initiatives by these "leader" SNAs are likely to produce climate protection benefits through a variety of mechanisms that include the following:

Reducing emissions in leader SNAs. The direct effect of independent SNA regulatory initiatives will reduce emissions in the jurisdictions that adopt them.[44] Cooperative agreements, whether domestic or transnational, among SNAs to adopt common regulatory measures will increase the amount of reductions achieved and ameliorate leakage.

Fostering adoption of stronger climate regulation by other SNAs and the federal government. The indirect effects on regulatory policies at the national and international levels and in other SNAs may be more powerful than the direct effects. Successful SNA regulatory measures will demonstrate that it is feasible to reduce emissions at acceptable or even negative cost. They may also demonstrate that jurisdictions that initiate such measures may reap competitive advantages or other co-benefits. This demonstration effect can stimulate stronger climate regulation in other SNAs and at the federal level by helping to build public awareness of and support for their adoption, perhaps lessen industry or other opposition, and provide templates for initiative by political or governmental policy entrepreneurs. These "radiator" effects may help build a foundation for successive rounds of regulatory initiatives by leader SNAs. Even where strong federal measures are adopted, the structural political barriers discussed above will mean that they will almost inevitably be inadequate. Accordingly, the prod and stimulus of regulatory

[44] These reductions will to some extent be offset by leakage, discussed below.

initiative by leader SNAs will continue to be needed. Stronger national regulations by the U.S. are likely to lead in turn to strengthened global regulation.

Filling regulatory gaps and extending the operation of trading systems. Because of the characteristics of national and international climate political processes and of centralized regulation, gaps in federal regulation are inevitable. These will include large gaps in the coverage of trading programs. SNA measures can fill those gaps, including by extending the operation of trading through offset and credit systems, providing models and experience to inform subsequent extensions of federal regulation.

Regulatory innovation and experimentation. While there may be economies of scale in research and analysis and other aspects climate regulation design and implementation, regulation at the national or international level can also involve greater difficulties in reaching agreement on new measures, mobilizing national or international bureaucracies, and the like. SNA regulation can be more nimble and often more innovative. Also, decentralized regulation allows for many more different measures and policies to be tried out. Experience with a diversity of approaches can advance knowledge about the best regulatory approaches. A single federal or global experiment, however thoughtfully designed, may turn out to be costly failure.

Benchmarking and comparative learning. The adoption of different climate regulatory measures in different SNAs facilitate mutual learning by providing a foundation for horizontal mutual learning and sharing of best practices. The comparative performance of different measures in similar jurisdictions allows benchmarks to be established and to evaluate and improve regulatory approaches.

Regulatory comparative advantage. Important parts of the regulatory and institutional reform initiatives needed for effective climate regulation can be better designed and implemented by SNAs. These include energy regulation, building energy efficiency transportation infrastructure and development patterns. Generic regulatory measures adopted at the national level, including emissions trading systems, must be carefully

linked with functionally related local regulatory programs (e.g., building codes, state electric utility regulation) and institutional arrangements. These linkages can not be designed in a wholly top down fashion; there must be room for local initiative and learning, which can feed back iteratively with regulatory design at higher levels.

**B. Drawbacks of Independent SNA regulation**

Leakage. Jonathan Wiener has pointed out that state climate regulatory initiatives create leakage effects that would reduce the limitations achieved in regulating state and increase emissions elsewhere.[45] While such effects will occur, they are a problem with any climate regulation that is not global, universal, and uniform. The leakage problem is in some measure self correcting in that it will tend to damp the level of independent regulatory initiative by individual jurisdictions. But the adverse impacts of leakage on aggregate emissions reductions and the welfare the regulating jurisdictions can be outweighed by the other effects of local initiative, including market leverage, race-to-the-top, and demonstration effects. Local jurisdictions will presumably not undertake independent climate regulation unless they expect that that the economic and environmental benefits will outweigh the costs, including leakage costs. And, in that event, positive external benefits may also outweigh external costs.

Increased transaction costs and complexity. Independent SNA regulation will increase transactions costs and complexity for regulated firms, and create problems of coordination among various regulatory regimes at both the domestic and global levels. These costs, however, may be outweighed by the benefits of regulatory gap-filling, innovation and experimentation, and mutual learning.

Cost externalization. SNA regulation can impose significant economic costs on other jurisdictions and national industries, especially where they exploit market leverage, as California and the piggy-back states have done in the case of motor vehicle emissions

[45] See Jonathan Wiener, supra

controls.[46] This cost externalization provides the political motive power to unblock policy logjams at the national level and put otherwise neglected issues on Congress agenda. In that event, Congress can balance the costs and benefits from an encompassing national perspective. Under the status quo, states dominated by interests opposed to regulation can often logjam the national political process, and thereby impose environmental costs on other states that value climate protection more highly.

Interference with trading markets. Different SNA regulatory requirements may restrict the operation of national or global trading markets by imposing command controls or other requirements that restrict the flexibility of firms to use GHG trading markets to meet their regulatory obligations, undermining the environmental and economic benefits of the trading systems. The advantages of trading systems can also be undermined in a different way by proliferation of different SNA GHG trading regimes that fragment the market. Arbitrage incentives may moderate the latter problem. But there may be a need for higher-level restrictions on SNA measures that significantly adversely affect higher-level trading systems.

The need for a united front in international negotiations. Even purely domestic SNA GHG regulatory initiatives could fragment the U.S. negotiating position in international climate regulation by depriving the federal government of potential bargaining chips. Transnational climate regulatory agreements between U.S. SNAs and foreign jurisdictions could have the same effect and produce a fragmented, uncoordinated U.S. posture that would further undermine the ability of the federal government to pursue and protect the overall national interest. While both of these are genuine risks, there may also be countervailing benefits. SNA regulatory initiatives, including in the form of international commitments, may work as confidence-building measures that enhance the likelihood of successful agreements between the U.S. and other nations, especially

[46] States may also seek to discriminate against out-of-state firms and in favor of their own in when they adopt climate regulations in contexts where they do not enjoy significant market leverage. It does not yet appear, however, that the nature of this problem is different in kind or scope in climate regulation than in any other area of regulation; if so, it can be adequately handled by existing judicial techniques under the dormant commerce clause.

developing nations that are profoundly suspicious of U.S. motives and demand concrete action before entering into serious negotiations. In addition, initiatives by U.S. SNAs may trigger demands for international regulation by U.S. industry in order to impose regulatory requirements on currently unregulated foreign competitors. Both of these effects would probably increase the commitment credibility of the U.S. in international negotiations, strengthening its negotiating position.[47]

**C. Striking the Balance**

My working judgment is that independent SNA climate regulation, both domestically and through global agreements and other cooperative agreements, is quite likely to advance climate protection and therefore should be presumptively accommodated and encouraged within the U.S. legal order. A number of articles have analyzed the possible legal impediments to SNA regulatory agreements with other jurisdictions, domestic and foreign, by the Compact Cause and Constitutional provisions relating to the treaty power and the federal government's authority with respect to foreign commerce as well as judicially-created doctrine regarding the federal foreign affairs power. Other potential impediments may be found in the dormant comer clause, and in implied preemption of state or local action under federal statutes. [48] My basic position of these questions is quite similar to that advocated by Dan Farber. Courts should be extremely reluctant to use any of these implied preemption principles to invalidate SNA climate regulation measures, or forms of international cooperation that do not involve legally binding obligations on States, except in several carefully defined circumstances. As Farber concludes:

[47] See Scott Barrett, the Strategy of Environmental Treaty-Making (2003). See also Daniel Halberstam, The Foreign Affairs of Federal Systems: A National Persective on the Benefits of State Protection, 46 Vill. L. Rev. 1015 (2001). Peter Spiro has argued for a relaxed attitude to the geographical disaggregation of the state in global policy making, pointing to the fact that a significant degree of functional fragmentation has already occurred, as various federal agencies have engaged in various regulatory agreements and other forms of cooperation with foreign counterparts. See Peter J. Spiro, Disaggregating U.S. Interests in International Law, 67 Law and Contemp. Probs. 195 (2004). But logic and potential consequences of the two forms of disaggregation are significantly different, and require full analysis.

[48] Claire Carothers, United We Stand: The Interstate Compact as a Tool for Effecting Climate Change (2006); Edward T. Swaine, Negotiating Federalism: State Bargaining and the Dormant Treaty Power (2000); Daniel Halberstam, supra; Peter J. Spiro, Foreign Affairs Federalism, 70 U. Colo. L. Rev. 1223 (1999). Note, The Compact Clause and the Regional Greenhouse Gas Initiative 120 Harv. L. Rev. 1958 (2007).

> Courts should reject regulations that violate clear statutory preemption clauses, discriminate against interstate commerce, ban transactions under federal trading schemes, or directly interfere with international agreements. In the remaining cases [courts should adopt] a strong presumption of validity for state climate regulation. [49]

Thus, the judges should embrace a pluralist legal architecture for climate regulation. This would be consistent with the other steps they have recently taken to accommodate or even require climate regulation.

Congress, of course, can act explicitly to prohibit, limit, or regulate SNA climate regulatory measures that it judges undesirable be, either because they are inconsistent with federal climate regulatory programs, impose undue economic burdens on other States or on national industries, undermine the U.S. position internationally, or are otherwise contrary to the national interest. It is, of course, often difficult to enact legislation. But it is time to change the default position to favor SNA regulation and climate protection. The burdens of inertia in the Congress and other federal government institutions should not continue to be imposed on the climate, but should be borne by those opposing climate protection.

[49] Daniel A. Farber, Climate Change, Federalism, and the Constitution 3.