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ITERATIVE FEDERALISM AND CLIMATE CHANGE

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While the federal government has remained on the sidelines, a number of states have produced interesting and innovative programs to reduce greenhouse gas emissions. This Article suggests that though states deserve credit for their climate change leadership, at least two of the most significant state initiatives—California's greenhouse gas mobile source emissions standards and the Regional Greenhouse Gas Initiative—would not have occurred but for the backdrop of federal law. Indeed these two state initiatives are the end product of what the Article terms "iterative federalism." Under iterative federalism schemes, federal law singles out a state or particular group of states for special regulatory power rather than treating all fifty states as legally homogeneous. The result has been an iterative pattern of regulatory innovation, under which the special state "super-regulator" moves to regulate, followed by the federal government, followed in turn by more regulatory innovation by the state super-regulator and so forth.

These schemes of iterative federalism not only produce regulatory innovation and significant environmental success but also shed new light on the long-standing debate about which level of government, state or federal, is the appropriate locus of regulatory power in environmental policy making. Iterative federalism retains some of the chief benefits of devolution—policy experimentation, respect for local preferences and the avoidance of potentially expensive and untested federal mandates. Yet iterative federalism schemes quite effectively address interstate externalities, national product market economies of scale and the race to the bottom often feared by advocates of national environmental policy making. And through the creative deployment of federal law, iterative federalism has bolstered innovative state environmental leadership.

The federal government has remained on the sidelines for the past eight years as scientific evidence has mounted that the earth is warming at an alarming pace. Scientists believe with near certainty that human activity is a central cause of that warming, primarily through the burning of fossil fuels.[1]

Though the federal government has failed to act to regulate greenhouse gas emissions, over the past several years the United States has hardly been idle. Instead,

a surprisingly large number of states have stepped in to fill the policy void.[2] States have enacted renewable portfolio standards; created incentives for carbon capture and sequestration; mandated energy efficiency standards; and established public benefit funds to support energy efficiency and renewable energy.[3] Some states have gone even further, enacting overall greenhouse gas emissions caps,[4] adopting greenhouse gas emissions standards for new automobiles,[5] and capping utility emissions.[6]

But the standard account of state action on climate change misses a large part of the story. Conventional thinking emphasizes how the states have partly filled the regulatory voids created by federal inaction. This thinking, however, misses the critical ways in which the most innovative state responses to climate change are neither simply the product of state regulation nor exclusively federal. Instead, they are the results of repeated, sustained and dynamic lawmaking efforts that involve both levels of government.

"Iterative federalism," I argue, is in fact the best label for describing two of the most significant climate change initiatives to come from the states—California's mobile source emissions standards and the Regional Greenhouse Gas Initiative (RGGI). While the national government has failed to lead, the federal government's long history of environmental policy making has shaped and enabled state responses to climate change. But my claim goes further than this. I argue that without the role played by the federal government in enabling the particular states or regions to act, these two state climate change initiatives would literally not have occurred. To understand how and why, one must look not just at the inactive federal government or its activist state counterparts but at the interaction between state and federal law, at iterative federalism.

First, a clarification. In identifying and analyzing examples of iterative federalism, I mean to distinguish iterative federalism from federalism schemes that involve areas where state and federal areas of jurisdiction merely overlap through independent exercises of policy making authority.[7] Instead, my focus is on schemes of federalism where federal law quite consciously designates a particular and distinct state or group of states to regulate and uses that regulatory arrangement to enhance compliance with federal standards.

The examples I identify of iterative environmental federalism share two characteristics. To start, rather than treating all fifty states as legally homogenous, federal law has singled out a state or group of states for special regulatory power. California's special

status in regulating automobile emissions under the Clean Air Act (CAA)—which it used to enact its greenhouse gas emissions legislation—provides one example.[8] The establishment of the Ozone Transport Commission (OTC) with its ten Northeastern state membership in the 1990 amendments to the Clean Air Act—out of which grew RGGI—provides another.[9] Second, federal law undergirds this special state regulatory power by requiring the state regulator to comply with national environmental standards. Out of this dynamic, in which the federal government has not acted itself but has quasi-deputized a state or region to act while simultaneously regulating its actions, a quite interesting version of federalism emerges. Under it one level of government—either the singled-out state actor or the national government—moves to regulate in a particular environmental policy area. The initial policy making then triggers a series of iterations adopted in turn by the higher/lower level of government and then back to the policy originator and so forth.

In both the California and OTC examples, the regulatory exceptionalism contained in the Clean Air Act has produced a robust series of policy iterations that has resulted not only in large air pollution reductions but has also expanded the initial regulatory experimentation beyond the borders of the super-regulator jurisdictions. And both iterative federalism schemes have produced two ambitious and interesting legislative initiatives to reduce carbon emissions. California has enacted greenhouse gas emissions standards for passenger automobiles and the OTC states have entered a memorandum of understanding to impose a cap and trade scheme on electric utilities to regulate carbon dioxide emissions.[10] And just as the air pollution iterations have expanded beyond the super-regulator's borders, it is likely that the climate change regulatory schemes will do so as well.

In order to put the regulatory efforts of California and the Ozone Transport Commission into context, a bit of brief background about the operation of the Clean Air Act is necessary. The basic framework for controlling air pollution since the enactment of the modern Clean Air Act in 1970 is one of cooperative federalism: the Environmental Protection Agency, through its delegated authority under the Act, has issued National Ambient Air Quality Standards (NAAQS) for harmful air pollutants. The EPA has designated six "criteria" pollutants for which NAAQS are established, including carbon monoxide, lead, nitrogen dioxide, ozone and particulate matter. The standards (set as allowable parts per million) are designed to protect human health and, in some instances, the physical environment.[11]

The CAA delegates to states the authority to implement the NAAQS through the

adoption of State Implementation Plans (SIPs).[12] States are given a fair amount of discretion to devise their plans in a manner that takes into account local geographical and economic conditions, voter preferences and the like, so long as a state's SIP contains measures that will either attain or maintain the NAAQS and, importantly, mitigate the transport of interstate air pollution.[13] Though states were supposed to meet the NAAQS by 1975, Congress has twice extended the NAAQS deadlines and numerous areas of the country—principally the cities of the Northeast, parts of Texas and California—remain out of compliance for ozone and particulate matter.[14] In addition to the central features of the CAA, two provisions are of special interest to my claims here. One grants California special authority to regulate motor vehicle standards. The other provision establishes the Northeast's Ozone Transport Commission. I describe these special provisions and the resulting regulatory activity next.

1. Iterative Federalism and Motor Vehicle Standards

California is the only state in the country authorized to enact its own vehicle emissions standards. All other states are preempted from doing so under the federal Clean Air Act.[15] Other states can, however, opt into the California standards or remain subject to federal standards, which are typically less stringent than California's.

The California experience as a "super-regulator" under a scheme of iterative federalism has been a rather remarkable one, leading to at least nine separate iterations of emissions standards. Typically, the pattern has been that California enacts ambitious motor vehicle standards and within a year or two the federal government follows suit. A number of states, typically in the Northeast and Pacific Northwest, have opted into the California standards.

The various iterations include the first tail pipe standards in the mid-1960s, which were tightened numerous times between that time and 1990. Over that twenty-five year period California's efforts led to standards that cut nitrous oxide, carbon monoxide and hydrocarbons emissions by more than 90 percent.[16] Post 1990 California shifted its mode of regulation to create extremely low emissions vehicles based on fleet standards. The regulatory program has been so successful that the state's Air Resources Board chairman describes them as follows: "We've seen the near impossible accomplished with gasoline vehicles: zero evaporative emissions, exceedingly clean exhaust—cleaner, in some cases, than the outside air entering the cabin for ventilation purposes and emission control systems that are twice as durable as their conventional forebearers, forecasted to last an astonishing 150,000 miles."[17]

Slightly less stringent low emissions vehicle standards—modeled after the California program—have been adopted at the federal level.

2. Iterative Federalism and Cap and Trade Schemes

While California has been the first mover on mobile source emissions standards, the northeastern part of the country has quite successfully experimented with regulating air pollution by adopting cap and trade schemes. Generally speaking these schemes set an overall cap on a particular pollutant and then allocate to major polluters allowances or credits. Each credit, typically, allows its holder to emit one ton of the regulated pollutant. If a polluter pollutes less than the amount its credits allow, the polluter can sell excess credits to polluters who need more. If a polluter lacks sufficient numbers of credits it can purchase unused credits.

Unlike with mobile source emissions, the first level of government to enact a cap and trade program was the federal government in passing the 1990 Acid Rain Program. The Acid Raid Program regulates sulfur dioxide. Based on that experience and under authority granted to them by a separate provision of the Clean Air Act, 11 Northeastern states and the District of Columbia enacted a cap and trade program to regulate ozone pollution. These states, acting under the auspices of the Ozone Transport Commission, worked together in an attempt to combat cross border ozone pollution. The cap and trade scheme they adopted was a smashing success by virtually all measures. Each year of the program—from 1999 through 2002—saw double digit declines in the percent of unused allowances below the total cap (20 percent in 1999, 11 percent in 2000, 12 percent in 2001, and 11 percent in 2002).[18] Moreover, emissions fell during peak ozone season and on particularly hot days (a problem for smog formation not only because of the temperature but because electricity generation soars as temperatures increase).[19] The emissions trading program also achieved almost perfect compliance rates and very little "leakage"—emissions migrating from a regulated area to a non-regulated area—as a result of the program.[20] The program was so successful that it led to a third iteration, called the NOx Budget Trading Program. The NOx Budget Trading Program, adopted by the EPA, used the Ozone Transport Commission's cap and trade program and expanded it to include eleven states in addition to the Northeastern participants, many of them Midwestern and Southern states that have caused significant cross border pollution in the Northeast.[21] Preliminary results show that the new program has also succeeded in reducing ozone pollution by large amounts.

3. Air Quality, Climate Change, and Iterative Federalism

The deployment of federal law to create "super-regulators" has succeeded in creating a particularly robust and dynamic series of iterations that have resulted in two significant achievements. First, the California and OTC provisions have led to large reductions in air pollution. Second, the provisions have created regulatory capacity in California and the OTC states that have led to major state initiatives on climate change, more thoroughgoing and significant than the states would have been likely to produce without the federal role.

California has used its special authority to enact the country's first greenhouse gas emissions standards for passenger automobiles. These standards are modeled directly on the state's most recent air pollution regulations establishing extremely low emissions vehicle tiers. And the state's influence has expanded well beyond its borders: at least fifteen states have indicated that if the California standards are allowed to go into effect they will enact them. The Northeastern states have used their regulatory expertise to enact the first greenhouse gas emissions cap and trade scheme in the country. The greenhouse gas emissions scheme looks almost identical in operation to the cap and trade scheme the same states adopted to tackle ozone pollution. Other states are using the Northeastern state experience to craft their own cap and trade programs, including California.

4. Lessons for Environmental Federalism

An examination of iterative federalism schemes contributes to ongoing theoretical debates about federalism within the environmental context. Two key claims have emerged in legal scholarship about environmental federalism. The first claim is that a flurry of state environmental regulatory activity can lead to uniform federal legislation as a result of pressure from the regulated community. The second argues that states are more likely to produce efficient levels of environmental regulation because of interstate competition for capital and residents. Here I identify a third pattern.

In a significant and widely cited paper, Elliott, Ackerman, and Millian argued more than twenty years ago that a flurry of state regulatory activity often spurs a federal response as industry clamors for centralized regulation.[22] They claimed that a high degree of state environmental regulatory activity can spur uniform federal legislation as a result of pressure from the regulated community. While this dynamic may, to be sure, explain some developments in environmental law, it is clearly not a satisfying explanation for state climate change action to date. Instead, my claim reverses theirs: federal law has spurred state regulatory activity by bolstering state regulatory capacity and leadership, leading ultimately to climate change regulation.

Iterative federalism schemes also shed light on the ongoing debate about devolution versus centralization in environmental policy making. In an influential article, Revesz argued that states are more likely to produce efficient levels of environmental regulation because of interstate competition for capital and residents.[23] The article led to a robust academic debate about federalism and environmental law, focused to a large extent on which level of government—state or national—will provide the optimal level of environmental services. Proponents of state devolution base their preference for state regulation principally on Tieboutian-influenced economic models about interstate competition, which predict that states will compete among themselves to produce an efficient level of regulation.[24] Centralization proponents, by contrast, argue that the nationalization of environmental law overcomes various market failures, including lax environmental standards among states that "race to the bottom" in an attempt to attract business; economies of scale in federal regulation; and controlling interstate externalities.

A close examination of iterative federalism schemes suggests that innovative regulatory mechanisms can have their cake and eat it too. These schemes simultaneously permit some of the chief benefits of devolution—policy experimentation, avoidance of untested and potentially expensive national mandates—while addressing interstate externalities, national product market economies of scale and the race to the bottom. These iterative federalism schemes also test empirically the contrasting hypotheses about devolution and centralization. For example, California's experience in regulating mobile sources bolsters claims of centralization proponents that regulators often operate under conditions of scientific uncertainty and with poor information about the economic effects of their regulatory proposals. This example thus offers illustrative evidence suggesting that claims about a working competitive regulatory market among states are overstated. But these examples challenge the pro-centralization camp's assumptions as well, for California's experience demonstrates a significant benefit of devolution: minimizing the risk of overly stringent national regulation while allowing individual states to experiment and take risks. Premature federal adoption of California's stringent emissions standards might have proven much costlier than allowing California first to experiment and then to have federal standards develop out of the California experience. Similarly, the experience with the Ozone Transport Commission—which adopted a ten state regional cap and trade scheme to regulate nitrous oxides (NOx)—provided an experiential base to use in persuading the federal government to expand the program's reach to areas of the country much less politically supportive and to overcome potential public choice pathologies at the federal level. By the same token, the OTC states were pushed to develop stringent NOx-reducing

strategies by their need to comply with national air standards, standards that form the lynchpin of the centralized federal role in controlling air pollution.

The iterative federalism schemes analyzed here raise interesting possibilities for other pollution problems and for regulatory experimentation outside the environmental arena. Federal preemption, for example, has occurred in numerous substantive areas in recent years—including securities regulation; pension benefits; predatory lending; cigarette labeling and advertising; tort law; and liability for oil spills,[25] often at the behest of industry.[26] Though the case for uniform national standards in product markets has some intuitive appeal, one can imagine iterative federalism schemes in various substantive areas in which a particular state or states might be singled out to continue to play a regulatory leadership role, as California has, while preempting other states from regulating in order to avoid the chaos of fifty separate regulatory schemes. In the environmental arena, for example, all fifty states are preempted from setting energy efficiency standards for many appliances. Why not provide super-regulator status for California and let the state experiment with tighter standards? Similarly, regional problems like the management and transport of waste, water pollution, and traffic and land use might benefit from the regional approach embodied in the OTC, with strong state involvement bolstered by significant technical and leadership support from the federal government. In short, iterative federalism ought to expand our regulatory horizons.

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1 *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, SUMMARY FOR POLICYMAKERS (2007).

2 *See, e.g.,* BARRY G. RABE, PEW CENTER ON GLOBAL CLIMATE CHANGE, GREENHOUSE & STATEHOUSE: THE EVOLVING STATE GOVERNMENT ROLE IN CLIMATE CHANGE (2002); Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159 (2006) ("Despite exhortations to the contrary, the federal government continues to address issues of purely local effect while the states continue to address issues of national—and even international—effect"); PEW CENTER ON GLOBAL CLIMATE CHANGE, CLIMATE CHANGE 101: STATE ACTION, http://www.pewclimate.org/docUploads/101_States.pdf (last visited June 10, 2008) [hereinafter CLIMATE CHANGE 101] ("In the absence of federal leadership to address climate change, many states and regions have begun taking action on their own.").

3 *See* CLIMATE CHANGE 101, *supra* note 2, at 4-5; Barry Rabe, *Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards,* 7 SUSTAINABLE DEV. L. & POL'Y 10 (2007). I use the word "surprising" because as many observers have noted, state climate change legislation presents something of an intellectual puzzle. Climate change is a classic global commons problem—any one jurisdiction acting alone cannot solve the climate problem by reducing greenhouse gas emissions so the incentives to continue polluting outweigh any incentives to reduce greenhouse gas emissions. *See, e.g.,* Kirsten H. Engel, *Mitigating Global Climate Change in the United States: A Regional Approach,* 14 N.Y.U. ENVTL. L.J. 54, 55 (2005).

4 California, for example, has passed legislation to reduce its carbon emissions to 1990 levels by 2020, *see* CAL. HEALTH & SAFETY CODE §§ 38500 *et seq.* (West 2007), and the governor through executive order has called for emissions reductions of 80 percent below 1990 levels by 2050, *see* Executive Department, State of California, Exec. Order S-3-05.

5 Again California is the leader here in enacting legislation to limit greenhouse gas emissions from passenger automobiles. CAL. HEALTH & SAFETY CODE §§ 42823, 43018.5 (West 2007); under the complexities of the federal Clean Air Act other states may opt into the California standards and to date fifteen states have indicated they will follow California's lead. *See* Vehicle Greenhouse Gas Emissions Standards: The Pew Center on Global Climate Change, http://www.pewclimate.org/what_s_being_done/in_the_states/vehicle_ghg_standard.cfm (last visited Feb. 18, 2008). California cannot put its regulations into effect without a waiver from the federal Environmental Protection Agency; on December 19, 2007, the EPA administrator announced he is denying the waiver. Press Release, U.S. Envtl. Prot. Agency, America Receives a National Solution for Vehicle Greenhouse Gas Emissions (Dec. 19, 2007), *available at* http://yosemite.epa.gov/opa/admpress.nsf/eebfaebc1afd883d85257355005afd19/41b4663d8d3807c5852573b6008141e5!OpenDocument (last visited Feb. 15, 2008). The EPA provided its official explanation for the waiver denial on February 29, 2008. *See* California State Motor Vehicle Pollution Control Standards; Notice of Decision Denying a Waiver of Clean Air Act Preemption for California's

2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicle,73 Fed. Reg. 12156-01(Feb. 29, 2008), *available at* http://www.epa.gov/otaq/url-fr/fr-waiver.pdf. California has sued to overturn the waiver denial. *See* Petition for Review, California v. U.S. Envtl. Prot. Agency, *available at* http://ag.ca.gov/cms_attachments/press/pdfs/n1514_epapetition-1.pdf (last visited Feb. 15, 2008). For an overview of the California law see Ann E. Carlson, *Federalism, Preemption and Greenhouse Gas Emissions,* 37 U.C. DAVIS L. REV. 281 (2003).

6 *See* Regional Greenhouse Gas Initiative: An Initiative of the Northeast & Mid-Atlantic States of the U.S., http://www.rggi.org/about.htm (last visited Feb. 18, 2008).

7 I do not mean to suggest that areas in which state and federal policy making jurisdiction overlap cannot produce a dynamic, iterative process of federalism. Indeed many federal policies have been influenced heavily by earlier state policy iterations, including in the environmental area. California's leadership on energy efficiency standards is an example. Instead, I suggest that the particular regulatory relationship embodied in the iterative federalism schemes I analyze produces a particularly robust iterative relationship that more self-consciously promotes an iterative, back-and-forth process of federalism.

8 *See* 42 U.S.C. §§ 7543(b)(1), 7543(e)(2)(A) (2000).

9 *See* 42 U.S.C. § 7511c(a) (2000).

10 *See* Regional Greenhouse Gas Initiative, *supra* note 6.

11 For a listing of the current NAAQS see ENVTL. PROT. AGENCY, DRAFT REPORT ON THE ENV'T 2003 1-6 (2003) [hereinafter DRAFT REPORT]. The human health standards are designated primary standards and the physical environment standards (including crops, ecosystems, and visibility) are called secondary standards. *Id.*

12 42 U.S.C. §§ 7409, 7410 (2000) (CAA Sections 109, 110). The Act contains important exceptions to cooperative federalism. For example, the federal government regulates mobile source emissions almost exclusively, 42 U.S.C. 7543(a) (2000) (though California has special authority to enact standards more stringent than the federal standards, *see* 42 U.S.C. § 7543(b) (2000)).

13 42 U.S.C. § 7410(a) (2000).

14 DRAFT REPORT, *supra* note 11, at 1-9-1-10. Non-attainment does not, however, signal failure in the war against air pollution. To the contrary, air quality has improved significantly since the 1970s.

15 42 U.S.C. §§ 7543(a), 7543(b)(1) (2000).

16 NAT'L RESEARCH COUNCIL, COMM. ON STATE PRACTICES IN SETTING MOBILE SOURCE EMISSIONS STANDARDS, STATE AND FEDERAL STANDARDS FOR MOBILE-SOURCE EMISSIONS 92-95 (2006).

17 Press Release, California Air Resources Board, ARB Modifies Zero-Emission Vehicle (ZEV) Regulation (Apr. 24, 2003), *available at* http://www.arb.ca.gov/newsrel/nr042403.htm (last visited Sept. 25, 2007).

18 ANDREW AULISI ET AL., WORLD RESOURCES INST., GREENHOUSE GAS EMISSIONS TRADING IN U.S. STATES: OBSERVATIONS AND LESSONS FROM THE OTC NOX BUDGET PROGRAM 11 (2005), *available at* http://www.wri.org/publication/greenhouse-gas-emissions-trading-us-lessons-from-otc-nox. Though these emissions reductions are impressive, it is unclear to what degree NOx emissions would have declined by similar amounts had each state individually regulated sources using more traditional command and control measures.

19 OZONE TRANSPORT COMM'N, NOX BUDGET PROGRAM 1999-2002 PROGRESS REPORT 8-9 (2003), *available at* http://www.epa.gov/airmarkets/progress/docs/otcreport.pdf.

20 *Id.* at 13-14. The authors measured leakage in part by measuring changes in electricity supply and demand in the region, finding that net imports of electricity changed little in the pre- and post-trading program periods.

21 The non-OTC states include Alabama, Illinois, Indiana, Kentucky, Michigan, North Carolina, Ohio, South Carolina, Tennessee, Virginia, and West Virginia. *See* ENVTL. PROT. AGENCY, NOX BUDGET TRADING PROGRAM: 2005 PROGRAM COMPLIANCE AND ENVIRONMENTAL RESULTS 13 (2006), *available at* http://www.epa.gov/airmarkets/progress/docs/2005-NBP-Compliance-Report.pdf.

22 *See* E. Donald Elliott, Bruce A. Ackerman & John C. Millian, T*oward a Theory of Statutory Evolution: The Federalization of Environmental Law,* 1 J.L. ECON. & ORG. 313, 327 (1985) (noting that environmental issues often become federalized at the behest of industry groups who seek to avoid active and potentially disparate state regulatory activity).

23 Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation,* 67 N.Y.U. L. REV. 1210 (1992).

24 For critiques and defenses of Revesz's article, see Kirsten H. Engel & Scott R. Saleska, *"Facts are Stubborn Things": An Empirical Reality Check in the Theoretical Debate Over the Race-to-the-Bottom in State Environmental Standard-Setting,* 8 CORNELL J.L. & PUB. POL'Y 55 (1998); Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "To the Bottom?",* 48 HASTINGS L. J. 271 (1997); Daniel C. Esty, *Revitalizing Environmental Federalism,* 95 MICH. L. REV. 570 (1996); Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority,* 14 YALE L. & POL'Y REV. (SYMPOSIUM ISSUE) 23 (1996); Richard B. Stewart, *Environmental Regulation and International Competitiveness,* 102 YALE L. J. 2039 (1993).

25 *See* Roderick M. Hills, Jr., *Against Preemption: How Federalism Can Improve the National Legislative Process,* 82 N.Y.U. L. REV. 1, 19 (2007); Richard Fallon, *The "Conservative" Path of the Rehnquist Court's Federalism Decisions,* 69 U. CHI. L. REV. 429, 463 n.222 (2002).

26 *See* Hills, *supra* note 25, at 19.