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BALANCING MANDATE AND DISCRETION IN THE INSTITUTIONAL DESIGN OF FEDERAL CLIMATE CHANGE POLICY

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As 2007 drew to a close, climate change dominated the environmental law and policy agenda. A perfect storm of events has focused attention both in the media and on Capitol Hill, to an unprecedented degree, on the need to address climate change.[1] These events include a series of reports on climate change issued by the Intergovernmental Panel on Climate Change (IPCC) throughout 2007, the award of the Nobel Peace Prize to former Vice President Al Gore and the IPCC, the devastation wrought by Hurricane Katrina and discussion among scientists about whether climate change tends to increase hurricane intensity, the wildfires in southern California, a series of international climate change conferences culminating in a year-end conference under the United Nations Framework Convention of Climate Change[2] in Bali, identification of links between climate change and national security,[3] and the steady stream of scientific reports documenting the degree to which climate change has already begun to alter the planetary environment in ways that often exceed previous predictions.[4] Late in 2007, a long-time congressional supporter of tougher fuel efficiency standards for automobiles, when discussing an energy bill to address aspects of climate change, stated: "Things are now dramatically and in a telescoped time

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[1] *But cf.* William Schneider, *Ignoring Global Warming*, NAT'L J., Dec. 1, 2007, at 64 (bemoaning lack of press coverage of climate change in connection with the 2008 presidential campaign).

[2] United Nations Framework Convention on Climate Change, U.N. Doc. A/CONF.151/26, *reprinted in* 31 I.L.M. 849 (1992) (link).

[3] *See, e.g.*, CENTER FOR STRATEGIC & INTERNATIONAL STUDIES & CENTER FOR A NEW AMERICAN SECURITY, THE AGE OF CONSEQUENCES: THE FOREIGN POLICY AND NATIONAL SECURITY IMPLICATIONS OF GLOBAL CLIMATE CHANGE (Kurt M. Campbell et al. eds., 2007), *available at* http://se1.isn.ch/serviceengine/FileContent?serviceID=PublishingHouse&fileid=EF316E06-AF99-A12D-2B12-ABA46202C248&lng=en (link).

[4] *See, e.g.*, Josep G. Canadell et al., *Contributions to Accelerating Atmospheric CO_2 Growth from Economic Activity, Carbon Intensity, and Efficiency of Natural Sinks*, 104 PROC. NAT'L ACAD. SCI. 47, 18866 (Nov. 20, 2007) (finding that the carbon cycle "is generating stronger-than-expected and sooner-than-expected climate forcing"); *Ancient Ice Shelf Breaks Free in Canadian Arctic*, MSNBC, Dec. 29, 2006, http://www.msnbc.msn.com/id/16390346/ (link) (reporting that dramatic events such as the snapping off of the giant Ayles Ice Shelf in the Canadian Arctic in 2005 have convinced some scientists that the melting spurred by climate change is accelerating rapidly).

frame all coming together to address these issues that have been on a 30-year detour."[5]

Professor Victor Flatt's essay *Taking the Legislative Temperature*[6] distills the policy issues reflected in the various bills on climate change pending near the end of the first session of the 110th Congress. The issues he covers deal primarily with defining the substantive goals of climate change legislation and selecting appropriate policy instruments to achieve them. This Essay focuses more on the institutional design of a climate change regime than on the kinds of substantive choices dealt with by Professor Flatt. Professor Flatt proceeds on the premise that Congress almost certainly will adopt legislation to address climate change soon, although the form of that legislation is uncertain. This Essay, which responds to his, also operates on the assumption that Congress will act. It deals largely with the question of who gets to define the goals of climate change legislation and select the means of achieving them. These institutional design questions involve determining how much discretion Congress should provide to those responsible for implementing climate change policy and determining who gets to exercise it. The issues are familiar because discretion "lies at the root of administrative law doctrines and controversies."[7]

The bulk of the Essay considers how much discretion Congress should afford to federal agencies, such as the Environmental Protection Agency (EPA) to decide *whether* to take steps to address climate change, and, assuming action is taken, precisely *how* to combat the potentially adverse consequences of climate change. The final two sections address more briefly which federal agencies should be responsible for implementing federal climate change legislation and whether the adoption of federal legislation should preclude state and local climate change initiatives.

My preliminary answer to the first of these discretion-related questions is that Congress should vest more discretion in agencies to decide how to address climate change than it does on the question of whether to do so. In addition, in crafting the ground rules for federal administrative efforts to address climate change, Congress should build into its delegations of authority sufficient administrative flexibility to adjust regulatory mechanisms. Such adjustments will be necessary to respond to the inevitable outpouring of new information about the causes and effects of climate change and the viability and effectiveness of available responses to it, some of which will reveal the erroneous assumptions on which previous administrative deci-

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[5] John M. Broder, *Crossing a Threshold on Energy Legislation*, N.Y. TIMES, Dec. 5, 2007, at A22 (comments of Rep. Edward J. Markey) (link).

[6] Victor B. Flatt, *Taking the Legislative Temperature: Which Federal Climate Change Legislative Proposal Is "Best"?*, 102 NW. U. L. REV. COLLOQUY 123 (2007), http://colloquy.law.northwestern.edu/main/2007/12/taking-the-legi.html (link).

[7] KENNETH CULP DAVIS & RICHARD J. PIERCE, JR., ADMINISTRATIVE LAW TREATISE xvi (3d ed. 1994).

sions were based. Congress should concentrate the authority to lead the nation's climate change effort in the EPA, with the assistance of other agencies with relevant expertise; but the authority to manage adaptation efforts might appropriately be divided among other agencies. Finally, in the absence of a direct conflict in federal and state law, Congress should presume that divestment of concurrent state and local authority to adopt measures that address climate change is inappropriate.

Global climate change is as complicated a problem as any addressed by existing environmental legislation because of the diversity of the sources of greenhouse gases (GHGs) that contribute to it and the potential magnitude of the effects of unabated GHG emissions. Congress has several decades of experience upon which it may draw in developing a climate change program. The task nevertheless seems daunting. In developing a regulatory regime for climate change, Congress should pay close attention to a series of institutional design choices. These choices all relate to a common question: Which entities are best situated to make the policy choices implicated in an effort to mitigate the adverse consequences of climate change? I sketch out an argument here that Congress should require action on climate change, but that it should be wary of dictating too much of the substantive content of the resulting regulatory regimes.[8] I also urge Congress to focus federal authority to mitigate climate change in the EPA, whose primary function is protection of the public health and the environment. Agencies whose expertise lies elsewhere, such as the Departments of Transportation and Homeland Security, should contribute their expertise when relevant, but the effort should be coordinated by the EPA. Finally, I argue briefly that Congress should preempt state or local law only in a narrow range of circumstances, so that all levels of government can contribute to the effort to avoid the ravages of unabated human-induced climate change.

I. DELEGATED ADMINISTRATIVE DISCRETION AND CLIMATE CHANGE POLICY

Assuming that any climate change legislation that Congress adopts delegates implementation and enforcement responsibilities to administrative agencies, Congress must decide what kind of and how much discretion to hand over to those agencies. I begin in the first section below by summarizing two different forms of discretion, legislative and regulatory, and how they relate to one another. Subsequent sections address discretion to determine whether to regulate or address climate change in some other manner,

[8] Regulation, as I use that term here, is not limited to traditional forms of regulation of the type sometimes pejoratively characterized as command-and-control, or even "Soviet-style" command-and-control regulation. *See* Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 U. COLO. L. REV. 533, 536 (2007) (link). Rather, I use the term more expansively to include combinations of traditional regulation and market-based tools such as emissions trading and even pollution taxes. I take no position here on the appropriate mix of those techniques.

discretion to determine the substantive content of regulation or other appropriate action, the identity of the agencies vested with responsibility to deal with climate change, and the role of state and local government in fashioning a solution to climate change problems.

A. Four Models of Delegated Authority

Whenever Congress delegates decisionmaking authority to an administrative agency, it must decide how much discretion to vest in the agency to exercise the delegated authority. In the regulatory context, this question has two parts. First, Congress must decide how much discretion to give the agency to decide whether it is going to regulate. Second, Congress must decide how much discretion the agency should have to determine the manner in which it will regulate, assuming the agency has decided to regulate or Congress has dictated that it do so.

In a previous article, Professor Sid Shapiro and I described how these two decisions relate to one another.[9] When Congress delegates authority to an agency, it must define both the agency's "regulatory discretion" (its authority to determine whether to regulate) and its "legislative discretion" (its authority to determine how to regulate). Congress can answer these questions by using any of four models of delegated authority. Under the "discretionary" model, agencies have the most discretion concerning both whether and how to regulate. The "ministerial" model affords minimal agency discretion on both questions. An agency operating under the "prescriptive" model has broad discretion over whether to regulate, but if it decides to do so, it has minimal discretion over regulatory content. A "coercive" statute delegates minimal discretion over whether to regulate, but affords substantial discretion to the agency to choose regulatory content.

As Professor Shapiro and I explained, each model has its advantages and disadvantages. When Congress adopts a new regulatory program, it must settle on the mix of legislative and regulatory discretion that is most likely to promote its substantive goals. I argue here that the coercive model, with some modifications, is best suited to legislation seeking to mitigate and adapt to climate change.

B. Who Decides Whether to Act?

Congress decides how much regulatory discretion to grant agencies by allocating the authority to decide whether to regulate. Congress may not trust the agency to regulate in a timely fashion. It may fear, for example, that the agency cannot withstand pressure by potentially regulated entities to delay regulation or that the agency is otherwise hostile to legislative objectives. Under these circumstances, Congress can withhold regulatory dis-

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[9] *See generally* Sidney A. Shapiro & Robert L. Glicksman, *Congress, the Supreme Court, and the Quiet Revolution in Administrative Law*, 1988 DUKE L.J. 819.

cretion from the agency, either by mandating regulation by a specified deadline or by including regulatory mandates in the statute itself. In the context of climate change, it seems important for Congress to keep regulatory discretion out of the hands of the agencies.

Scientists have been alerting the world to the risks posed by human-induced climate change for decades. These warnings did not escape Congress's attention. A Senate Report issued in 1989 described the threat of "uncontrolled global climate change" resulting from the accelerating accumulation of GHGs in the atmosphere.[10] Even then, the report referred to the existence of

> consensus on [a] critical point. That is: by the time there is scientific proof for every detail of the problem, it will be too late to avoid the most devastating impacts of an intensified greenhouse effect and global climate change. We can ill-afford to wait for 5 or 10 years of research before we take action to (1) limit the rate and extent of future climate change by reducing atmospheric emissions and concentrations of greenhouse gases, and (2) implement adaptation strategies for coping with the changes to which we are already committed.[11]

The consensus on the need for immediate action has only strengthened since then. Most climate change researchers today also agree that the longer we wait before taking the actions described in the report, the more adverse effects we will be unable to reverse[12] and the greater the cost will be to deal with the avoidable consequences of climate change.[13]

Despite the Senate Committee's warning, we have waited to act, and not just for five or ten years. Nearly twenty years later, there is still no meaningful federal legislation specifically addressing global climate change.[14] Congress surely deserves a large share of the blame for fiddling

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[10] S. REP. NO. 101-228, at 377 (1989).

[11] *Id.* at 379–80.

[12] *See, e.g.*, Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 523 (9th Cir. 2007) (link) (referring to IPCC reports finding "that climate change may be non-linear, meaning that there are positive feedback mechanisms that may push global warming past a dangerous threshold (the 'tipping point')"); *id.* at 554–55 (quoting IPCC reports finding that "some impacts of anthropogenic climate change may be slow to become apparent, and some could be irreversible if climate change is not limited in both rate and magnitude before associated thresholds, whose positions may be poorly known, are crossed") (emphasis omitted).

[13] *See, e.g.*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, FOURTH ASSESSMENT REPORT, CLIMATE CHANGE 2007: SYNTHESIS REPORT, SUMMARY FOR POLICYMAKERS 1, 20 (2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf [hereinafter IPCC, SYNTHESIS REPORT] (link) (finding that "[d]elayed emission reductions significantly constrain the opportunities to achieve lower stabilisation levels and increase the risk of more severe climate change impacts"); STERN REVIEW, THE ECONOMICS OF CLIMATE CHANGE, EXECUTIVE SUMMARY ii, xxvii (2006), *available at* http://www.hm-treasury.gov.uk./media/4/3/Executive_Summary.pdf (link) (concluding that "[d]elay would be costly and dangerous" and that "the benefits of strong, early action considerably outweigh the costs").

[14] Congress has authorized and financed research on climate change. *See, e.g.*, Global Change Research Act of 1990, Pub. L. No. 101-606, 104 Stat. 3096 (codified at 15 U.S.C. §§ 2921–2961 (1990))

while southern California burns,[15] but federal agencies and their political overseers in the executive branch also share that blame.

The EPA has been the main culprit. Instead of acting aggressively by relying on the Clean Air Act (CAA) to mandate reductions in GHG emissions, the EPA took the position that it lacked the authority to regulate GHG emissions under the CAA. According to the EPA, carbon dioxide and other GHGs do not qualify as "air pollutants" within the meaning of the Act.[16] Alternatively, it claimed that even if GHGs are air pollutants, a litany of policy reasons supported the agency's refusal to regulate GHG emissions. The Supreme Court soundly rejected both arguments in *Massachusetts v. EPA* in 2007.[17] First, it held that because GHGs "fit well within the [CAA's] capacious definition of 'air pollutant,' . . . EPA has the statutory authority to regulate the emissions of such gases from new motor vehicles."[18] Second, it ruled that the EPA's "laundry list of reasons not to regulate" provided "no reasoned explanation for its refusal to decide whether [GHGs] cause or contribute to climate change."[19]

Opinions differ on whether the Court's decision requires that the EPA regulate GHG emissions and, if so, what kinds of sources it must regulate. The Court stated that on remand the "EPA can avoid taking further action [to regulate GHG emissions from motor vehicles] only if it determines that [GHGs] do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do."[20] Under one reading of the case, the Court's ruling "leaves the EPA free to decide not to regulate, so long as it provides adequate justification for its decision."[21] Another view is that the opinion effectively forces the EPA to regulate GHG emissions not only from mobile, but also from stationary sources.[22] Yet, at the end of 2007, the EPA

(link); *see also* Dan Mensher, Comment, *Common Law on Ice: Using Judge-Made Nuisance Law to Address the Interstate Effects of Greenhouse Gas Emissions*, 37 ENVTL. L. 463, 479–80 (2007) (link) (describing non-regulatory strategies pursued by Congress).

[15] Climate change exacerbates the risk of wildfires, like those that occurred in California in late 2007, by causing earlier snowmelts and longer dry seasons in mountainous and forested areas. *See* ROBERT L. GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 558 (5th ed. 2007).

[16] The CAA defines "air pollutant" as "any air pollutant agent . . . , including any physical, chemical, biological . . . substance or matter which is emitted into or otherwise enters the ambient air." 42 U.S.C. § 7602(g) (2000) (link).

[17] 127 S. Ct. 1438 (2007) (link).

[18] *Id.* at 1462.

[19] *Id.* at 1462–63.

[20] *Id.* at 1462.

[21] Kathryn A. Watts & Amy J. Wildermuth, Massachusetts v. EPA*: Breaking New Ground on Issues Other Than Global Warming*, 102 NW. U. L. REV. (forthcoming 2008), 102 NW. U. L. REV. COLLOQUY 1, 1 (2007), http://www.law.northwestern.edu/lawreview/Colloquy/2007/17/ (link).

[22] *See, e.g.*, Arnold W. Reitze, Jr., *Controlling Greenhouse Gas Emissions From Mobile Sources—*Massachusetts v. EPA, 37 ENVTL. L. REP. 10535, 10538 (2007) ("[T]he Court's opinion pushes [the] EPA to find that GHGs need to be regulated.").

denied California's request to be allowed to implement its own regulations restricting CO_2 from motor vehicles.[23] At the same time, the EPA hinted that Congress's adoption of more stringent fuel efficiency standards for automobiles might preclude the need for federal GHG emissions controls.[24]

Given the EPA's continuing resistance to regulating GHG emissions, Congress should remove any doubt as to the need for climate change legislation by mandating regulation within a specified time frame.[25] One possibility is to adopt a statute that sets an objective (such as reduction of GHG emissions by a specified percentage by a specified deadline) and requires that the agency issue regulations applicable to listed categories of sources to achieve that goal, again, within a certain time. The statute should also include a citizen suit provision allowing individuals or groups to sue to force compliance with that requirement so that judicial supervision and coercion are available if the EPA fails to comply with its obligations.[26]

One of the principal disadvantages of divesting agencies of legislative discretion is the potential for statutory deadlines to divert agency resources away from matters that the agency deems worthy of a higher priority than the ones covered by the deadlines. This concern provides little, if any, reason to hesitate in forcing action via congressional mandate. There is broad scientific consensus that rapid action is necessary, and that delay will preclude effective action in some respects and significantly increase the costs of dealing with climate change in others.[27] The risk of resource misallocation and misplaced priorities now appears less troublesome than the risk that continued inaction by a dithering agency will exacerbate the adverse effects of climate change. In short, there ought to be no higher environmental priority than dealing with climate change, and Congress should acknowledge the urgency of the problem by requiring the EPA to act soon.

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[23] Press Release, U.S. EPA, America Receives a National Solution for Vehicle Greenhouse Gas Emissions (Dec. 19, 2007), *available at* http://yosemite.epa.gov/opa/admpress.nsf/names/hq_2007-12-19_waiver2 (link).

[24] *See* Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 102(a), 121 Stat. 1492 (to be codified at 49 U.S.C. § 32902(b)(2)) (link).

[25] Professor Lisa Heinzerling argues that "the precautionary moment for action on climate change—the period in which we might have acted based on something less than a scientific consensus on the causes and consequences of climate change—has passed," and that there is "a moral imperative for action—dramatic action, *now*—on this problem." Lisa Heinzerling, *Climate Change, Human Health, and the Post-Cautionary Principle*, 96 GEO. L.J. (forthcoming 2008) (manuscript at 2), *available at* http://ssrn.com/AbstractID=1008923 (link).

[26] If Congress adds climate change provisions to the existing CAA, that statute's citizen suit provision should suffice. 42 U.S.C. § 7604(a)(2) (2000) (link). Citizen suit provisions routinely appear in the federal pollution control laws. *See, e.g.*, Clean Water Act, 33 U.S.C. § 1365 (2000) (link); Resource Conservation and Recovery Act , 42 U.S.C. § 6972 (2000) (link).

[27] *See supra* note 13 and accompanying text. The coercive model also creates the risk that an agency subject to a coercive mandate will take action within the statutory deadline that does not comport substantively with congressional aims, given the breadth of the regulatory discretion afforded the agency under a coercive (as opposed to a ministerial) statute. That risk is addressed in § I-C below.

If Congress decides to allow the EPA to decide whether to regulate, it should at least facilitate the agency's ability to do so in order to minimize the chance that any regulation the agency chooses to adopt will be derailed by litigation. If Congress authorizes but does not mandate agency action, it must specify the circumstances in which the agency is empowered to act. It does so by specifying a "statutory trigger" that defines the circumstances in which it may regulate. The triggers in federal environmental legislation vary. Some statutes authorize protective agency action without any proof that the targeted activities are responsible for creating health, safety, or environmental problems—Congress itself made the determination that regulation is appropriate. Other statutes condition the exercise of regulatory authority on the production of evidence that crosses some minimal threshold level of risk or harm. Some of these environmental statutes require that the agency demonstrate risk, while others require a showing of significant risk.[28] Because of the overwhelming scientific agreement that GHGs contribute to climate change, Congress should include the first sort, a "no threshold" trigger, in any climate change legislation it adopts by authorizing regulation of all sources of GHG emissions without the need for further substantiation of a link between GHG emissions and climate change.

C. Who Decides How to Act?

Once Congress has settled on how much legislative discretion to delegate to an agency to decide whether and when to act, it must determine how much regulatory discretion to provide. The answer depends on how generally or specifically Congress defines the substantive content of the regulatory program. The choice here is between fashioning legislation that fits the coercive model or ministerial model. The main reason to limit regulatory discretion is to reduce the opportunity for agencies to pursue a regulatory approach that deviates from congressional intent. The regulation may deviate because it is too weak, too strong, covers a broader or narrower range of activities than Congress deems appropriate, or allocates the costs and risks of regulation differently than Congress would have done under more specific statutory guidance. The potential pitfall of dictating the content of regulation is the risk that Congress lacks the expertise to craft a program as effective, as efficient, or as fair as one resulting from reliance on the agency's broader expertise and experience in dealing with like matters.

Any climate change regulatory regime will have to address a broad range of substantive questions. The most basic question is how to define

[28] Examples of each of these triggers are provided in SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH 32–34 (2003). *See also* GLICKSMAN ET AL., *supra* note 15, at 75.

the program's goal.[29] Should the program seek to mitigate the adverse effects of climate change, facilitate adaptation to any climate changes that occur, or both? This question is so important that Congress should address it, and the proper answer, in my view, is: both. More specific goals might include how great a reduction in GHG emissions we should strive to achieve. As Professor Flatt's essay indicates, most of the proposals pending before Congress include a relatively specific "effects target," despite the scientific uncertainty surrounding the impact of climate change. Congress has taken similar questions out of the EPA's hands in other contexts. In the 1990 CAA amendments, for example, Congress defined the purpose of the acid deposition control program to be a reduction of annual emissions of sulfur dioxide by ten million tons from 1980 emission levels and of nitrogen oxide emissions by approximately two million tons from 1980 levels.[30] Congress ought to be able to fashion a similar goal for climate change legislation by relying on the published research of organizations such as the IPCC.[31]

Another fundamental question relates to the kind of government intervention Congress wants to authorize in its quest to mitigate climate change. The choices include reliance on information disclosure,[32] common law liability mechanisms, economic incentives that may be either positive (such as subsidies) or negative (such as a carbon tax) in nature, traditional regulation, or some combination of these techniques. If Congress decides to rely on traditional regulation, it must choose among a broad array of the available types of environmental regulation.[33]

The choice of regulatory approach, too, should be within Congress's zone of competence, based on nearly forty years of experience with adopting and overseeing various types of environmental regulation. Congress should not allow the EPA, for example, to decide whether information disclosure is a sufficient mechanism to abate GHG emissions.[34] It is not, as the Bush Administration's reliance on a package of information disclosure and voluntary approaches to GHG emissions reductions has shown. Congress should instead either impose a carbon tax or dictate restrictions on

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[29] Professor Flatt explains the available choices in Part I of his Essay, including specifying an "effects target," deciding whether to protect U.S. or worldwide interests, and deciding whether to compensate those harmed by climate change. Flatt, *supra* note 6, at 126.

[30] 42 U.S.C. § 7651(b) (2000) (link). Congress can define such goals in qualitative rather than quantitative terms. *See, e.g.*, 33 U.S.C. § 1251(a)(2) (2000) (link) (specifying the interim goal of the Clean Water Act as the achievement of water quality suitable for protection and propagation of fish and wildlife and for recreation).

[31] *See, e.g.*, IPCC, SYNTHESIS REPORT, *supra* note 13, at 21, Table SPM.6 (providing required emission levels for stabilization of atmospheric CO2 concentrations at different levels).

[32] *Cf.* Emergency Planning and Community Right-to-Know Act, 42 U.S.C. §§ 1101–11050 (2000) (link) (requiring public disclosure of the production, processing, or use of certain toxic chemicals).

[33] The basic risk management techniques available are discussed in SHAPIRO & GLICKSMAN, *supra* note 28, at 32, 34–44; GLICKSMAN ET AL., *supra* note 15, at 75–77.

[34] *See* Shapiro & Glicksman, *supra* note 9, at 841 (arguing that many policy decisions do not turn on the kinds of fact questions as to which agencies have more expertise than legislators do).

GHG emissions. Congress also should decide whether to allow regulated entities to rely on the best available technology that already exists or to adopt restrictions on GHG emissions that force regulated entities to develop more effective technologies. Congress has engaged in technology-forcing in past environmental statutes,[35] and it should do so in any climate change legislation it adopts. Business as usual will not be sufficient. Although exhaustive analysis of the appropriate mix of risk management techniques is not the purpose of this Essay, it is hard to imagine a more appropriate venue for technology-forcing than climate change legislation, given the magnitude of the threat, the short window of opportunity in which effective efforts to avoid the worst impacts of climate change are possible, and the opposition by some industry segments to climate change regulation to date. If Congress decides to force technology, it should specifically authorize the EPA to issue regulations with that effect. Unless it does so, there is a risk that the courts will interpret the statute as limiting the EPA to the issuance of regulations based on existing technology.[36]

Implementation of market-based mechanisms such as cap-and-trade programs requires many more specific decisions, such as whether to use a one-to-one ratio or a greater than one-to-one ratio for trades. So does implementation of regulation designed to force industries to perform as well as current technology allows. The EPA must identify the best available technology for a particular industry and calculate the performance-based results that the identified technology is capable of achieving.[37] Industry is then free to comply by using the identified technology or any other means it prefers that allow more efficient compliance. Many of these matters are probably better left to administrative discretion than congressional direction.[38] The typical explanation for delegating the task of formulating the specifics of regulatory programs to administrative agencies relates to institutional competence. Congress historically has "concluded that an agency staffed by people with expertise in some specialized field would be able to

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[35] *See, e.g.*, Union Elec. Co. v. EPA, 427 U.S. 246, 257 (1976) (link) (finding that the CAA was "expressly designed to force regulated sources to develop pollution control devices that might at the time appear to be economically or technologically infeasible"); Natural Res. Def. Council, Inc. v. EPA, 655 F.2d 318, 328 (D.C. Cir. 1981).

[36] *Cf.* Bluewater Network v. EPA, 370 F.3d 1 (D.C. Cir. 2004) (link) (rejecting claim that emission standards for snowmobiles did not press hard enough); Int'l Harvester Co. v. Ruckelshaus, 478 F.2d 615, 648 (D.C. Cir. 1973) (expressing "grave doubts" as to EPA's prediction that necessary technology would be available in time to meet EPA's tailpipe emission standards under the CAA).

[37] Professor Flatt's paper addresses many of the questions that would arise if Congress were to endorse a cap-and-trade program for GHG emissions.

[38] If these subsidiary matters involve fundamental policy choices, Congress should not defer to agency discretion. Congress should decide, for example, whether to give away, sell, or auction GHG emission rights, a choice that will affect the allocation of the costs of controlling GHG emissions. Professor Flatt argues that sale or auction is the superior choice. *See* Flatt, *supra* note 6, at 139.

do a better job than Congress in issuing rules of conduct in the agency's area of expertise."[39]

There are many issues for which it makes sense to rely on administrative expertise to identify optimal regulatory design questions, particularly in light of the broad range of activities that contribute to climate change and the extensive range of scientific disciplines that are relevant to different aspects of dealing with it.[40] On the other hand, the high visibility of climate change research in the popular press and the scientific and policy literature should make much of the information relevant to the judgments needed to implement a climate change regime accessible to legislators and their staffs. Legislative testimony by agency officials and experts in the physical and social sciences can provide additional relevant information.[41] Comparative institutional competence considerations therefore argue, though not overwhelmingly, in favor of affording considerable regulatory discretion to the agencies vested with the power to administer a new climate change program.

The pervasiveness of scientific uncertainty, which is perhaps the single most defining characteristic of environmental law,[42] provides even stronger support for the delegation of regulatory discretion. Environmental policymakers (including legislators and agency officials) often operate within the rubric of "bounded rationality," as their efforts to understand the implications of key choices are impaired by the unavailability of key information. Certain issues concerning climate change are now beyond reasonable debate, including the link between increasing concentrations of CO_2 and other GHGs in the atmosphere and rising air and sea surface temperatures, and the link between human activities (such as the burning of fossil fuels) and those increasing concentrations. But other matters are less well understood, such as the pace and extent to which climate change will result in melting ice sheets and rising sea levels. Even with respect to areas that are relatively well understood, however, our knowledge base is constantly being updated. The pace of scientific discoveries and analyses concerning the causes of, effects of, and techniques for addressing climate change has been

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[39] RICHARD J. PIERCE, JR., ADMINISTRATIVE LAW 1–2 (2008).

[40] *See, e.g.*, David E. Adelman, *Scientific Activism and Restraint: The Interplay of Statistics, Judgment, and Procedure in Environmental Law*, 79 NOTRE DAME L. REV. 497, 540 (2004) (referring to "studies in areas as diverse as lake ecology, glaciology, tropospheric chemistry, and volcanism [that] are being conducted under the umbrella of climate change research").

[41] *See* Shapiro & Glicksman, *supra* note 9, at 841–42 (arguing that "Congress has substantial resources, including the expertise of its members and staff, its hearing process, the advice of the agency itself, and of other outside organizations, to obtain and evaluate the technical information necessary to make" factual determinations that inform policy judgments).

[42] *See, e.g.*, Holly Doremus, *Precaution, Science, and Learning While Doing in Natural Resource Management*, 82 WASH. L. REV. 547, 548 (2007) (link) (stating that "[u]ncertainty is the unifying hallmark of environmental and natural resource regulation").

breathtaking in recent years.[43] As one federal district court explained, recent climate change research has revealed "the rapidity of evolution of measurable changes in climate instability and evince[d] a growing consensus that human-caused [GHG] emissions must be curtailed more rather than less and sooner rather than later."[44]

The rapid advances in scientific knowledge about climate change and how to deal with it have implications for the design of environmental regulatory programs. Bounded rationality ensures that environmental policymakers will make mistakes because key relevant information is not available to them, they do not yet understand its implications, or the circumstances that initially justified a particular regulatory approach have changed. Relying on uncertainty as a reason to avoid making mistaken decisions is a prescription for endless delay. But regulation should be crafted to allow agencies to shift tactics if the initial rules produce results that are inconsistent with the purposes of regulation, unnecessarily inefficient, or unfair, provided any new approach conforms to fundamental legislative objectives.[45] Professor Flatt's essay provides an example of how new information may upset a regulatory applecart. He discusses the possibility that some pending proposals for carbon offsets are based on suspect science, such as the assumption that carbon sinks will reduce climate change or that bioengineering efforts such as seeding the oceans with iron filings will cause more good than harm. The question is whether bounded rationality of this kind suggests that the coercive or ministerial approach would be a better fit for climate change regulation.

It is no secret that the legislative process typically works slowly, sometimes excruciatingly so. The administrative process is also often cumbersome.[46] But the administrative process is typically more capable of responding expeditiously to new information than the legislative process is. This is particularly true if the authorizing statute requires certain risk management techniques and prohibits others, such as cost-benefit analysis. Cost-benefit analysis is designed to "rationalize" regulation by ensuring that

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[43] *See, e.g.*, Seth Borenstein, *Ominous Arctic Melt Worries Experts* (Dec. 11, 2007), http://www.worldnewstrust.com/news/ominous-arctic-melt-worries-experts-seth-borenstein.html (link) (describing data showing that the Arctic Ocean could be nearly ice-free at the end of the summer of 2012, much faster than previous predictions). *See also supra* note 4; American Association for the Advancement of Science, Board Releases New Statement on Climate Change (Feb. 18, 2007), available at http://www.aaas.org/news/press_room/climate_change/mtg_200702/aaas_climate_statement.pdf (link) (stating that "[t]he pace of change and the evidence of harm have increased markedly over the last five years").

[44] Central Valley Chrysler-Jeep, Inc. v. Goldstone, 2007 WL 4372878, No. CV F 04-6663 AWI LJO, at *18 (E.D. Cal. Dec. 11, 2007) (link).

[45] SHAPIRO & GLICKSMAN, *supra* note 28, at 158.

[46] *See generally* Thomas O. McGarity, *Some Thoughts on "Deossifying" the Rulemaking Process*, 41 DUKE L.J. 1385 (1992).

it is consistent with efficient resource allocation.[47] The technique provides a misleading veneer of precision in the environmental context, however, because it is difficult to monetize regulatory costs and benefits. Cost predictions are sometimes unreliable because the information upon which calculations are based is provided mostly by the regulated entities themselves, who have an obvious reason to overestimate those costs. Monetization of benefits is even trickier because it often entails placing a numerical value on preserving an endangered species, avoiding illness, or even saving a human life. More to the current point, cost-benefit analysis and related efforts to achieve regulatory "rationality" tend to significantly slow down the output of regulatory processes.[48]

Elsewhere, Professor Shapiro and I have urged Congress to forego efforts to rationalize environmental regulation at the "front end" of the regulatory process (such as the issuance of regulations applicable to a class or category of activities).[49] We contend that Congress should instead allow agencies to make "back-end" adjustments through waivers, deadline extensions, periodic review of regulations, and similar techniques to accommodate past mistaken or incomplete judgments.[50] A climate change program with that kind of built-in flexibility would allow an agency such as the EPA to adjust its approaches in response to new developments that cast doubt on previous factual assumptions or reveal new problems or opportunities. A program with back-end flexibility instead of front-end rigidity enhances the ability of agencies to adapt regulatory strategies to changed circumstances so that regulatory decisions conform better to legislative objectives. The eligibility of GHGs other than CO_2 as CO_2 equivalents is one example from Professor Flatt's essay of an issue that might be appropriately treated through back-end adjustments. As Flatt points out, allowing the EPA to recognize GHGs other than those named in the statute, or to adjust the level at which equivalency is deemed to occur, can provide flexibility to identify efficient GHG reduction possibilities.

Legislation that minimizes the legislative discretion of agencies but affords them significant regulatory discretion creates opportunities for slippage between legislative design and administrative implementation.[51] A coercive statute requires that agencies act in accordance with legislative

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[47] *See* Sidney A. Shapiro, *Administrative Law After the Counter-Reformation: Restoring Faith in Pragmatic Government*, 48 U. KAN. L. REV. 689, 706 (2000); Debra A. Stone, *Clinical Authority in the Construction of Citizenship*, *in* PUBLIC POLICY FOR DEMOCRACY 45, 46 (Helen Ingram & Stephen Rathgeb Smith eds., 1993).

[48] *Id.*

[49] Robert L. Glicksman & Sidney A. Shapiro, *Improving Regulation Through Incremental Adjustment*, 52 U. KAN. L. REV. 1179, 1183–84 (2004) (link).

[50] *See also* SHAPIRO & GLICKSMAN, *supra* note 28, at 158–77.

[51] Slippage may occur when the substance of agency regulation deviates from congressional intent. Daniel A. Farber, *Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law*, 23 HARV. ENVTL. L. REV. 297–300 (1999) (link).

timetables. Although citizen suits or other judicial review provisions are often available to force compliance with deadlines, the courts are sometimes reluctant to order agencies to perform tasks that the agencies deem impossible.[52] In addition, Supreme Court decisions in cases such as *Norton v. Southern Utah Wilderness Alliance*[53] create threshold justiciability obstacles for plaintiffs challenging an agency's failure to act under the Administrative Procedure Act (APA).[54]

Another problem with a statute that compels action but does little to define its content is the risk that deferential judicial review of a challenged regulation will fail to identify and reverse agency decisions that stray from congressional intent. One way for Congress to address these problems is to use "hammer" provisions. These provisions afford an agency a specified time within which to take regulatory action. If the agency does not act within that time, a regulatory result set forth in the statute automatically goes into effect. Alternatively, the statute itself may prescribe a substantive result that remains in effect unless and until the agency takes action, within bounds set forth in the statute, to change the initial statutory landscape.[55]

The benefit of using hammer provisions to establish default rules in the absence of agency action is that they reverse the normal incentives of regulated entities (and agencies solicitous of their interests or otherwise hostile to the statutes they administer) to delay in issuing regulations. The threat of having to live with statutory default rules, particularly if they are onerous, can spur both the agency and regulated entities to move expeditiously to meet statutory deadlines. The hammer mechanism also acknowledges that agencies may have greater expertise than legislators and their staffers. If the statutory default rule reflects a misunderstanding of the factual context or policy implications involved, the agency can correct legislative errors by overriding the statutory default rules. As a result, hammers combine some of the benefits (and avoid some of the downsides) of coercive and ministerial statutes. Congress should consider including hammers in climate change legislation. The nature of the hammers will depend, of course, on

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[52] Shapiro & Glicksman, *supra* note 9, at 834–35.

[53] 542 U.S. 55 (2004) (link).

[54] The Court in *SUWA* required that plaintiffs seeking an order compelling agency action unlawfully withheld pursuant to § 706(1) of the APA, 5 U.S.C. § 706(1), show "that an agency failed to take a *discrete* agency action that it is *required to take*." *SUWA*, 542 U.S. at 64. *See generally* Robert L. Glicksman, *Securing Judicial Review of Agency Inaction (and Action) in the Wake of* Norton v. Southern Utah Wilderness Alliance, *in* STRATEGIES FOR ENVIRONMENTAL SUCCESS IN AN UNCERTAIN JUDICIAL CLIMATE 163 (Michael A. Wolf, ed.) (2005). The presence of a statutory deadline should enable plaintiffs challenging noncompliance with a coercive statute to show that the agency was required to act. Further, a regulation should qualify as a "discrete" action. *See* 5 U.S.C. § 551(13) (2000) (defining "agency action" to include "the whole or a part of an agency rule"). *Cf.* Massachusetts v. EPA, 127 S. Ct. 1438, 1459 (2007) (link) (ruling that "[r]efusals to promulgate rules are thus susceptible to judicial review, though such review is 'extremely limited' and 'highly deferential'").

[55] *See* Shapiro & Glicksman, *supra* note 9, at 839–40 & nn.96–98 (providing examples of both kinds of statutory hammers).

the regulatory approach Congress chooses to adopt. If Congress decides to rely on technology-based regulations, for example, it could set deadlines for the promulgation of emission controls on certain GHG source categories. If the EPA misses the deadlines, statutory default rules could sharply curtail GHG emissions from appropriate source categories or even phase them out entirely.

D. Which Federal Agency or Agencies?

Another set of questions that Congress will have to address as it develops a climate change program is which federal agencies should play a part in the implementation of that program. The EPA obviously will have to play a significant role, but other federal agencies also have relevant expertise. The contribution of automotive emissions of CO_2 to climate change suggests that the Department of Transportation (DOT), and particularly the National Highway Traffic Safety Administration (NHTSA), should be involved in a federal climate change program. NHTSA is responsible for issuing corporate average fuel economy (CAFE) standards under the Energy Policy and Conservation Act of 1975.[56] The roles of electricity generation and energy consumption in climate change make the Department of Energy (DOE) an obvious player. The national security implications of climate change[57] may require the participation of the Department of Defense or the Department of Homeland Security. Disaster management following events like ferocious storms or coastal flooding that may be linked to climate change[58] may involve the Federal Emergency Management Agency. The impact of fossil fuel production and use on climate change may support changes in national energy policy that affect development of mineral resources on public lands administered by the National Forest Service and the Bureau of Land Management. These agencies do not exhaust the list of potential contributors, given the broad array of sources that contribute to climate change and the myriad effects that climate change is likely to produce.

Coordination of agency efforts to deal with climate change is essential. In May 2007, President Bush issued an executive order announcing a federal policy "to ensure the coordinated and effective exercise of the authorities of the President and the heads of the Department of Transportation, the Department of Energy, and the Environmental Protection Agency to protect the environment with respect to" GHG emissions from motor vehicles and

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[56] Pub. L. No. 94-163, § 301, 89 Stat. 871 (1975) (codified as amended at 49 U.S.C. §§ 32906–32919 (2006)). The CAFE standards reflect "the sales weighted average fuel economy, expressed in miles per gallon (mpg), of a manufacturer's fleet of passenger cars or light trucks with a gross vehicle weight rating (GVWR) of 8,500 lbs. or less, manufactured for sale in the United States, for any given model year." National Highway Traffic Safety Administration (NHTSA), CAFE Overview—Frequently Asked Questions, *http://www.nhtsa.dot.gov/cars/rules/cafe/overview.htm* (link).

[57] *See supra* note 3 and accompanying text.

[58] *See generally* Robert L. Glicksman, *Global Climate Change and the Risks to Coastal Areas From Hurricanes and Rising Sea Levels: The Costs of Doing Nothing*, 52 LOY. L. REV. 1127 (2006) (link).

nonroad engines.[59] Unfortunately, although the Order recognizes the value of coordination, it provides a model of how *not* to achieve it.

There are at least two problems with the Executive Order. First, it creates only a vague mandate to "cooperate" among the three agencies rather than providing any one of them with the principal authority to develop federal climate change policy in connection with motor vehicle emissions of GHGs. Second, it vests supervisory authority in an entity, the Office of Management and Budget, that lacks expertise in the substantive scientific issues most relevant to the development and implementation of climate change policy.

A better approach would be to use the concepts of lead and cooperating agencies used under the National Environmental Policy Act (NEPA).[60] Under the regulations issued by the Council on Environmental Quality (CEQ) to implement NEPA, a lead agency is responsible for supervising the preparation of an environmental impact statement if more than one federal agency proposes or is involved in the same action or is involved in a group of related actions.[61] The regulations direct the agencies to decide for themselves which agency should take on the lead role, but reserves to the CEQ the authority to designate a lead agency if the involved agencies fail to agree.[62] The regulations also specify the nature of the relationship between the lead agency and any cooperating agencies, including those requested by the lead agency to provide input because of their "special expertise" on relevant environmental issues.[63]

Further, Congress should designate the lead agency in the statute itself. The lead agency need not be the same for every issue implicated in climate change. The EPA is the obvious candidate for issues relating to the control of GHG emissions from mobile or stationary sources that contribute to climate change, and it should receive the lion's share of lead agency responsibilities.[64] It also should be responsible for administering any cap-and-trade

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[59] Exec. Order No. 13432, § 1, 72 Fed. Reg. 27,717, 27,717 (May 14, 2007) (link).

[60] 42 U.S.C. §§ 4321–4370f (2000) (link).

[61] 40 C.F.R. § 1501.5(a) (2008) (link).

[62] 40 C.F.R. § 1501.5(c), (e) (2008) (link).

[63] 40 C.F.R. § 1501.6 (2008) (link).

[64] *Cf.* Central Valley Chrysler-Jeep, Inc. v. Goldstone, 2007 WL 4372878, No. CV F 04-6663 AWI LJO at *14 (E.D. Cal. Dec. 11, 2007) (citing *Massachusetts v. EPA* and noting that "EPA is specifically tasked with protection of the public health and welfare under the Clean Air Act, and that DOT, under EPCA, is not"). Similarly, the district court concluded that, in the event of a conflict between the CAFE standards under EPCA and federal emission controls (or state emission controls approved by EPA) under the CAA, it is NHTSA's responsibility to accommodate its standards to those of EPA or the state, not vice versa. *See id.* at *16. Not all observers agree that EPA is the obvious choice to play the lead role in reducing GHG emissions. The White House and Congress have sparred over the designation of the agency responsible for controlling decisions concerning automotive fuel efficiency. *See* John M. Broder, *Veto of Auto Mileage Bill Is Raised as a Possibility*, N.Y. TIMES, Dec. 12, 2007, at A27 (nat'l ed.) (link) (reporting that anonymous White House sources indicated that the Bush Administration favors allocating that responsibility to NHTSA, not EPA).

program that Congress chooses to adopt. Issues with national security implications might become the domain of the Department of Defense, although the statute should narrowly define national security matters to prevent the Department from encroaching on the EPA's authority. Responsibilities concerning particular adaptation measures should be placed within the domain of agencies that include FEMA and the federal land management agencies. The two essential components of the portions of climate change legislation that spell out agency responsibilities are to put one agency in charge of decisions on particular issues and to match the allocation of these responsibilities to the relevant substantive expertise of the agencies concerned.

E. The Role of State and Local Governments

One final question that deserves brief mention here is the role of state and local governments in addressing climate change. Since 1970, the federal government has played the dominant role in regulating activities that are potentially harmful to public health and the environment.[65] Relying on a "cooperative federalism" model, Congress has created and delegated environmental protection responsibilities to federal agencies, but has directed them to solicit the input and participation of the states.[66] Regulation of activities that contribute to climate change has sharply deviated from the cooperative federalism norm. The federal government has largely ignored the problem, spurring state and local governments to adopt a variety of programs that deal with different aspects of climate change.[67] When Congress adopts climate change legislation, it must address whether to preempt state and local initiatives. Indeed, Congress has already begun to address this question as it considers whether federal fuel efficiency standards or restrictions on GHG emissions from cars and trucks should displace state constraints on GHG emissions.[68]

A full-fledged discussion of preemption of state and local climate change programs is beyond the scope of this Essay. The point here is simply that there are good reasons for Congress to hesitate before deciding to displace state and local initiatives. These include preserving the ability of these levels of government to produce novel approaches that may subse-

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

[66] *See id.* at 722-54.

[67] *See generally* Jonathan H. Adler, *When Is Two A Crowd? The Impact of Federal Action on State Environmental Regulation*, 31 HARV. ENVTL. L. REV. 67 (2007) (link); Kirsten H. Engel, *Mitigating Global Climate Change in the United States: A Regional Approach*, 14 N.Y.U. ENVTL. L.J. 54 (2005) (link); Ann E. Carlson, *Federalism, Preemption, and Greenhouse Gas Emissions*, 37 U.C. DAVIS L. REV. 281 (2003) (link).

[68] *See* John M. Broder & Micheline Maynard, *Lawmakers Set Deal on Raising Fuel Efficiency*, N.Y. TIMES, Dec. 1, 2007, at A1 (link).

quently be put to good use at the federal level,[69] maintaining other benefits of intersystemic interaction that is inherent in federalist forms of government, and protecting against the risk of regulatory failure.[70] Professor Richard Levy and I have argued elsewhere that Congress should not preempt state law that is more protective than federal law unless there are strong justifications in collective action terms for doing so. These justifications might include the need to strengthen the bargaining position of the national government in international negotiations, the need for uniform national standards to reduce transaction costs and other regulatory burdens, or the need for federal regulation to combat efforts by states to exclude harmful activities that, if located elsewhere, would benefit them.[71]

One example of the myriad approaches states have taken to climate change involves renewable portfolio standards (RPS), which are designed to force utilities to provide at least a minimum percentage of the electricity they generate from renewable energy sources. Some states have not adopted any such requirements. Those that did have pursued widely divergent approaches. Massachusetts required that four percent of the state's electricity supply come from new renewable sources by 2009. Maine regulations required that 30 percent of the state's power come from renewable sources by 2000.[72] Collective action principles provide no basis for preempting these state standards, which should neither interfere with federal GHG emission controls nor impose externalities on other states. Thus far, Congress has refused to adopt minimum federal RPSs as a means of fostering the development of clean energy sources. If it does so in the future, however, state RPSs that require that utilities provide a lower percentage of their electricity from clean sources than the federal statute does presumably would be preempted.

II. CONCLUSION

Substance matters. The substantive elements of any federal climate change legislation will largely dictate its effectiveness in mitigating and

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[69] *See, e.g.*, 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 (2006) (link).

[70] *See* William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1555–56, 1592–99 (2007) (link); *see also* Kirsten H. Engel, *Harnessing the Benefits of Dynamic Federalism in Environmental Law*, 56 EMORY L.J. 159, 163 (2006) (link) ("Preemption . . . is the real boogeyman of public interest lawmaking because it prevents the political process from policing itself.").

[71] *See* Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 NW. U. L. REV. (forthcoming 2008) (manuscript at 11–12), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1007021 (link).

[72] *See* Pew Center on Global Climate Change, States with Renewable Portfolio Standards, http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (link).

adapting to global climate change. But institutional design matters, too; process and structure affect substance. This Essay has focused on institutional design issues that bear on the impact of federal climate change legislation because they will shape significantly the substantive content of implementing actions under that legislation. All of the choices discussed above deal in some way with allocation of the responsibility for dictating the substance of climate change law and policy.

Most basically, Congress must decide which substantive decisions to make itself and which ones to delegate to federal administrative agencies. The suggestion here is that Congress make the most fundamental policy decisions (such as whether to rely on carbon taxes or regulatory restrictions on GHG emissions and whether to give away or sell any GHG emissions allowances it creates) itself and delegate the authority to resolve others to the EPA, subject to statutory deadlines and perhaps backed by default rules that go into effect if the agency fails to meet those deadlines. In addition, Congress should avoid blurred responsibilities among multiple federal agencies by designating a single agency as the one with the final say on each matter covered by a statutory delegation. The EPA should be the lead agency with primary responsibility over mitigation efforts, but control over adaptation measures might be shared by agencies that have experience dealing with national security, disaster relief, resource management, and related problems. Finally, Congress should be reluctant to preempt state and local supplemental measures that do not directly conflict with federal law to avoid stifling the development of the vibrant and multifaceted effort needed to meet the challenges posed by climate change.