

A R T I C L E

Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future

by Richard J. Lazarus

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During the next four years, the new President, Barack Obama, and the new Congress are expected to join together in the first serious effort in the United States to enact sweeping national legislation to address global climate change. If they are successful, federal climate change legislation will be the first major environmental protection law in almost two decades, dating back to the Clean Air Act Amendments of 1990.¹ Given the enormity of the undertaking necessary to address climate change, the passage of federal climate change legislation will rival in historic significance one of the nation's greatest lawmaking moments—the passage in the 1970s of a series of extraordinarily demanding and sweeping pollution control and natural resource conservation laws.

The inherent problem with such lawmaking moments, however, is just that: they are moments. What Congress and the President do with much fanfare can quickly and quietly slip away in the ensuing years. This is famously so in environmental law.²

This Article's central thesis is that making it easy for subsequent lawmakers to unravel, undermine, or even formally change existing law is not always desirable, and it is certainly not an essential feature of our democratic lawmaking system. Lawmakers should instead be understood as possessing the

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Author's note: A paper presented at the International Studies Association 48th Annual Convention in Chicago on March 2, 2007, first introduced me to the notion of characterizing climate change as a "super wicked problem." See infra note 6 and accompanying text.

1. Pub. L. No. 101-549, 104 Stat. 2399 (codified in scattered sections of 42 U.S.C.).
2. See Daniel A. Farber, *Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law*, 23 HARV. ENVTL. L. REV. 297, 298-99 (1999); see also Richard J. Lazarus, *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, 94 GEO. L.J. 619, 638-52 (2006).

authority to anticipate and respond in the first instance to the dynamic nature of lawmaking and its related challenges. To be sure, current lawmakers may well be making it more difficult for future legislators and agency officials to substitute their views of sound policy for the judgment of past lawmakers. Current lawmakers would not be doing so to enrich themselves at the expense of future generations. Instead, given the potentially catastrophic consequences of failing to reduce greenhouse gas emissions over the longer term, they would be acting for the very different purpose of safeguarding the ability of future generations, including their elected representatives, to have far greater control over their own lives. This is an especially legitimate basis for imposing lawmaking restraints notwithstanding their undemocratic effects.

The critical lesson for climate change legislation is that the pending lawmaking moment must include the enactment of provisions specifically designed to maintain the legislation's ability to achieve its long-term objectives. Climate change legislation is peculiarly vulnerable to being unraveled over time for a variety of reasons, but especially because of the extent to which it imposes costs on the short term for the realization of benefits many decades and sometimes centuries later. Because of its fundamentally redistributive character, there will invariably be politically and economically powerful interests, unhappy with the short-term costs of climate change legislation, seeking to relax the law's requirements either formally or informally. It is therefore not enough for Congress to enact a law that mandates tough, immediate controls on greenhouse gas emissions. Nor is it enough for Congress to build into the new law strong economic incentives that render more palatable the changes in business and individual behavior necessary for those mandates to be accomplished and promote overall economic efficiency.

Much more is needed. For climate change legislation to be successful, the new legal framework must simultaneously be flexible in certain respects and steadfast in others. Flexibility

is absolutely essential for climate change legislation in light of the enormity of the undertaking, both in its temporal and spatial reach, and the surrounding uncertainty concerning the wisdom of specific regulatory approaches. Yet the basic legal framework and legal mandate must also be steadfast enough to be maintained over the long term, notwithstanding what will be an unrelenting barrage of extremely powerful short-term economic interests that will inevitably seek the mandate's relaxation.

To that end, the law will need to include institutional design features that allow for such flexibility but insulate programmatic implementation to a significant extent from powerful political and economic interests propelled by short-term concerns. Such design features will include "precommitment strategies,"³ which deliberately make it hard (but never impossible) to change the law in response to some kinds of concerns. At the same time, the legislation should also include contrasting precommitment strategies that deliberately make it easier to change the law in response to other longer-term concerns that are in harmony with the law's central purpose, which is to achieve and maintain greenhouse gas emissions reductions over time.

Directed to all three branches of government, such institutional design features should therefore be deliberately asymmetric, making it easier to change the law in one substantive direction rather than another. Like the board game Chutes and Ladders, the design of climate change law should include *chutes* that make it harder for certain kinds of changes to be made and *ladders* that make it easier for other kinds of changes to be accomplished and for the overall statutory purpose to be achieved over time. Climate change law should further include a series of other structural features deliberately designed to keep the statute on track over time within the executive branch in particular. These features include a series of *requirements for consultation* with other agencies, scientific advisory committees, and stakeholders more insulated from short-term political pressures; *statutory and regulatory hammers* and *judicial review provisions* that ensure timely implementation; and *preemption triggers* that accommodate the prerogatives of competing sovereigns while also exploiting the resulting tension as leverage to further climate change policy.

The purpose of this Article is to explain why such asymmetric institutional design features are a critical, legitimate aspect of global climate change legislation here in the United States and how such features might operate.

I. The Challenges of Climate Change Legislation: A "Super Wicked Problem"

Even once one accepts the current scientific consensus that significant global climate change is happening, human activities are a significant contributing cause of that change, and the associated public health and welfare impacts are sufficiently serious to warrant climate change legislation,⁴ craft-

ing that legislation is extraordinarily difficult. Scholars long ago characterized a public policy problem with the kinds of features presented by climate as a "wicked problem" that defies resolution because of the enormous interdependencies, uncertainties, circularities, and conflicting stakeholders implicated by any effort to develop a solution.⁵

Climate change has been fairly described as a "super wicked problem" because of its even further exacerbating features.⁶ First, time is not costless, so the longer it takes to address the problem, the harder it will be to do so.⁷ Another problematic characteristic of climate change is that those who are in the best position to address the problem are not only those who caused it, but also those with the least immediate incentive to act within that necessary shorter timeframe.⁸ A third feature is the absence of an existing institutional framework of government with the ability to develop, implement, and maintain the laws necessary to address a problem of climate change's tremendous spatial and temporal scope.⁹ They present significant obstacles both to the enactment of climate change legislation in the first instance and to its successful implementation over time.

The nature of U.S. lawmaking institutions presents obstacles to the enactment of climate change legislation and its maintenance over time. The kind of law needed to address climate change is precisely the kind of law—because of its enormously redistributive implications—that our lawmaking system deliberately makes difficult to enact in the first instance. Our lawmaking system also renders such laws especially vulnerable to second-guessing and derailment over time by Congress, executive branch officials, and judicial review.¹⁰

rant climate change legislation that seeks a major reduction of greenhouse gas emissions. In light of recent scientific studies, this Article assumes the propriety of such legislation and considers the next step of how best to draft that legislation to accomplish its goals. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in CLIMATE CHANGE 2007: IMPACTS, ADAPTATION, AND VULNERABILITY 7, 8-22 (Martin Parry et al. eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-spm.pdf> (last visited June 23, 2010) (summarizing the "impacts of climate change on natural, managed and human systems" and the adaptability and vulnerability of those systems); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 1-18 (Susan Solomon et al. eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf> (last visited June 23, 2010) (summarizing findings on global climate change and presenting options and long-term perspective to policymakers).

5. See generally Horst W.J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 POL'Y SCI. 155, 160-69 (1973) (introducing the term "wicked problems" to describe the nature of social policy problems); see also JEFF CONKLIN, *DIALOGUE MAPPING: BUILDING SHARED UNDERSTANDING OF WICKED PROBLEMS* 3-40 (2006).
6. See Kelly Levin et al., *Playing It Forward: Path Dependency, Progressive Incrementalism, and the "Super Wicked" Problem of Global Climate Change* 8-10 (July 7, 2007) (unpublished manuscript, on file with author), available at <http://environment.yale.edu/uploads/publications/2007levinbernsteincashoreandWicked-Problems.pdf>.
7. See *id.* at 8-9.
8. See *id.* at 9.
9. See *id.*
10. See *infra* Part III.

3. See *infra* note 13 and accompanying text.

4. The purpose of this Article is not to rehash the threshold question of whether human activities causing global climate change are sufficiently serious to war-

II. Climate Change's Lawmaking Moment and the Propriety of Precommitment Strategies

Missing from the current debate on Capitol Hill concerning climate change legislation is any meaningful consideration of the need for climate change laws that are not just momentary. The requirements of federal climate change legislation must be sufficiently steadfast to resist, over the longer term, the constant barrage of pressures launched by economically and politically powerful interests seeking to delay and relax the law's proscriptions for their own short-term gain. But it would be no less of a mistake for the law to be wholly inflexible and not subject to revision. Precisely because the effectiveness of any climate change law depends on its success over the long term, the law must admit the possibility of significant legislative or regulatory change in light of new information and changing circumstances.

The solution to this lawmaking conundrum is the careful use of asymmetric lawmaking processes designed to make some kinds of future lawmaking extremely hard to accomplish and other kinds much easier. Asymmetry will overcome the skewing that otherwise exists in our lawmaking fora that favors those with short-term interests over those with long-term interests. Anticipatory measures that change the design of normal lawmaking processes can make it harder for those naturally more powerful to secure the change in law they seek and also make it easier for those naturally less powerful to safeguard their competing interests.

The obvious objection to any such deliberate modifications of lawmaking processes, especially those that make future lawmaking more difficult, is that they are antidemocratic. These modifications allow the views of existing majorities to trump the views of future majorities who may well view sound public policy very differently. The shorthand reference to this objection, of course, is that the dead hand of the past or present should not be able to govern the future.

There are three compelling reasons why the dead hand concern is not persuasive as applied to the need for substantial lawmaking restraints in federal climate change legislation. The first is that such restraints, notwithstanding their seemingly antidemocratic implications, have a long and widely accepted history in domestic law, ranging from the Constitution's organization of the House and the Senate to a host of existing federal statutes that seek to insulate somewhat certain decisions from politics.¹¹ Second, the lawmaking restraints in federal climate change legislation would be deliberately asymmetric in order to further the options available to future generations, not restrict them. The final justification relates to the sheer impracticalities of failing to address over the longer term the threats that climate change now poses. Otherwise, current lawmakers will undercut the autonomy of future majorities by subjecting them to a natural environment that sharply curtails their options.

11. See *infra* Part II.B.

A Longstanding Tradition of Precommitment Strategies to Restrain Future Lawmaking

Lawmaking restraints in response to some kinds of especially challenging lawmaking problems are a well-established feature of lawmaking referred to as precommitment strategies.¹² The lawmaking structure and laws of the United States are riddled with precommitment strategies, many of which are clearly intended to anticipate likely errors in human judgment that might otherwise lead to systematic errors in lawmaking.¹³

Our constitutional system deliberately makes lawmaking difficult to guard against potential overreaction to more immediate impulses of the moment.¹⁴ Lawmaking authority is dispersed among the legislative, executive, and judicial branches and then further fragmented within each of those branches. Although fragmentation of lawmaking authority poses obstacles to climate change legislation, such fragmentation was designed, ironically, to prevent excessive lawmaking by present generations that would effectively bind the future.

B. The Propriety of Using Precommitment Strategies to Overcome Perceived Defects in Our Federal Lawmaking System

There is also significant historical precedent for modifying our nation's normal lawmaking system in response to perceived tendencies of our particular form of representative democracy to achieve unsound results in addressing certain kinds of problems.¹⁵ One such tendency, also implicated by climate change law, is the potential domination of lawmaking processes by those seeking to satisfy short-term, more narrowly defined interests at the expense of longer-term concerns.

For instance, Congress sometimes delegates lawmaking authority to executive branch agencies to remove members of Congress from especially difficult, politically controversial decisions that might upset their constituents because of the decisions' short-term and narrowly focused consequences.¹⁶ The same policy concerns have prompted Congress to include safeguards in the organization of executive branch

12. See Samuel Freeman, *Reason and Agreement in Social Contract Views*, 19 PHIL. & PUB. AFF. 122, 143 (1990); Thomas C. Schelling, *Enforcing Rules on Oneself*, 1 J.L. ECON. & ORG. 357, 363-64 (1985); R.H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*, 23 REV. ECON. STUD. 165, 165, 173 (1955); Richard H. Thaler & H.M. Shefrin, *An Economic Theory of Self-Control*, 89 POL. ECON. 392, 396-97 (1981).

13. See Jeffrey J. Rachlinski & Cynthia R. Farina, *Cognitive Psychology and Optimal Government Design*, 87 CORNELL L. REV. 549, 554, 589 (2002).

14. See THE FEDERALIST No. 10 (James Madison), Nos. 15, 51 (Alexander Hamilton); Jonathan R. Macey, *Cynicism and Trust in Politics and Constitutional Theory*, 87 CORNELL L. REV. 280, 296-99 (2002). These protections can be seen as counteracting heuristics and other cognitive biases. See William N. Eskridge Jr. & John Ferejohn, *Structuring Lawmaking to Reduce Cognitive Bias: A Critical View*, 87 CORNELL L. REV. 616, 639 (2002).

15. Of course, what constitutes "unsound" results often lies in the eye of the beholder. See Terry M. Moe, *The Politics of Structural Choice: Toward a Theory of Public Bureaucracy*, in ORGANIZATION THEORY: FROM CHESTER BARNARD TO THE PRESENT AND BEYOND, 116, 136, 138 (Oliver E. Williamson ed., 1990); Matthew D. McCubbins et al., *Administrative Procedures as Instruments of Political Control*, 3 J.L. ECON. & ORG. 243, 261, 264-71 (1987).

16. See Cass R. Sunstein & Edna Ullmann-Margalit, *Second-Order Decisions*, 110 ETHICS 5, 17 (1999).

agencies that insulate the agencies from shortsightedness and other likely cognitive errors in judgment.¹⁷

C. *The Practical Consequences of Global Climate Change and Their Impact on Future Generations*

The principal argument against precommitment strategies is that the present should not be able to bind the future.¹⁸ No doubt that argument has force in some contexts. But no less certainly it possesses comparatively little force if the very purpose of using precommitment strategies is, as in federal climate change law, to *preclude the present from binding the future*.

Climate change legislation seeks primarily to protect the *future* at the expense of the *present*. The most serious threat that the present poses to the future is the potential devastation and global destabilization that can occur in the *absence* of legislation with such precommitment strategies.

The failure to enact and maintain climate change laws may also have irreversible consequences that would not only as a practical matter bind future generations but also potentially undermine their ability to govern themselves using the full range of options required for greater autonomy. It would be tragically wrong to posit that protection of the political prerogatives of the future precludes current generations from adopting laws that seek to preserve the options of future generations.

III. Precommitment Strategies for Federal Climate Change Legislation

For federal climate change legislation, asymmetric precommitment strategies will be necessary because of the tremendous lawmaking challenges presented by the science of climate change in combination with human nature. Some strategies should be focused on making it harder for otherwise disproportionately powerful short-term economic interests to undermine the legislation's implementation. Other strategies should, conversely, be designed to make the law's terms susceptible to influence by disproportionately politically weaker groups, in particular those seeking to protect the diffuse interests of future generations.

Described below are some preliminary ideas, many of which are traceable to strategies that Congress has previously embraced in other contexts. The ideas include tools such as *interagency, scientific advisory, and stakeholder consultation requirements* to promote certain voices; *statutory and regulatory hammers* to keep statutory implementation on track; *federal preemption and non-preemption triggers* to provide for regulatory innovation and to recognize state sovereign prerogatives; and *limited and enhanced judicial review provisions* to promote the effectiveness of oversight by potentially underrepresented interests and to diminish the power of those who are potentially unduly influential.

17. See Alan M. Jacobs, *Ties That Bind: Institutions, Uncertainty, and Politics of Long-Term Constraint* 29-30 (unpublished manuscript, on file with author), available at <http://faculty.arts.ubc.ca/Jacobs/Jacobs%20Constraints%20Paper%20-%20Workshop.pdf>.

18. See *supra* notes 15-17 and accompanying text.

Absent these kinds of asymmetric precommitment strategies, climate change legislation will most likely be eroded by short-term economic and political pressures.

A. Congress

The most significant restraint on Congress' ability to enact sweeping revisions to federal climate change legislation is already in place. It is much harder to achieve congressional passage of a significant law than to prevent its passage; there are many opportunities within existing legislative procedures for less powerful political interests to block a statute's enactment, even a statute supported by powerful political constituencies.¹⁹

There is a strong tendency in our existing legislative framework against destabilization of existing laws, including laws that may have been highly controversial when originally enacted.²⁰ Some have speculated that Congress could deliberately make more difficult the subsequent passage of legislative amendments designed to undermine the law's ability to achieve its objectives, while still allowing for the possibility that a whole new policy approach might be necessary. This flexibility could be accomplished by making the political cost of such amendments high enough to ensure that they could be enacted only with widespread and fairly overwhelming political support and therefore beyond the easy reach of powerful political forces driven by only short-term interests.

One potentially powerful technique would be to couple domestic climate change legislation with the United States' agreement to international treaty obligations by making clear that the former was intended to comply with obligations under the latter. Such international treaty obligations, although subject to abrogation, would significantly raise the political cost of any retreat from domestic legislation designed to fulfill those international obligations. Another possibility would be to design federal climate change legislation that would create a powerful political constituency with a strong economic incentive favoring the legislation's preservation. Such provisions should not be difficult to create. The tradable emissions program is expected to generate billions of dollars in revenue from the sale of emissions rights.²¹ Recipients of those funds will have a strong incentive to resist legislative amendments that threaten the continued availability of such financial support.

A more finely tuned design feature to resist future amendments proposed by narrow interest groups to relax the law's requirements would be to include language in the original bill that directly impeded the passage of such amendments or at least limited their effectiveness once passed. For instance,

19. Rui J.P. de Figueiredo Jr., *Electoral Competition, Political Uncertainty, and Policy Insulation*, 96 AM. POL. SCI. REV. 321, 322 (2002) ("Because of the multiplicity of veto points in the legislative process under a separation of powers system, new laws are extremely difficult to pass, for a minority can block new legislation.").

20. Cf. William N. Eskridge Jr. & John Ferejohn, *Super-Statutes*, 50 DUKE L.J. 1215, 1216 (2001) (describing how super-statutes "'stick' in the public culture").

21. See Peter Crampton & Suzi Kerr, *Tradeable Carbon Permit Auctions: How and Why to Auction Not Grandfather*, 30 ENERGY POL'Y 333, 334 (2002).

the original legislation could provide that future efforts to relax emissions reduction requirements would be legal only if accompanied at the time of congressional consideration by a congressionally delegated entity's formal analysis of the impact of the proposed relaxation on the law's ability to achieve its goals. The most serious constitutional objections to such a requirement could be addressed by making clear in the initial legislation that a future Congress would retain authority by majority vote to lift that procedural requirement completely or as applied to a particular amendment.

A lesser, but also potentially effective, limitation would be for the original legislation to declare a canon of construction for the statute's interpretation. For instance, the law could provide that any future amendments designed to relax the law's requirements for any particular activities would be presumed to last no more than a statutorily specified number of years, unless the amendment expressly provided otherwise.

A different tack would be to limit more directly the law-making avenue most susceptible to being used by powerful, narrowly focused interests seeking to gain short-term economic advantage: the appropriations process. One possible anticipatory response would be to include the above procedural hurdles or canons of statutory construction but target them directly to laws enacted exclusively through the appropriations process. The justification would be the shared understanding that the appropriations process does not lend itself to the careful deliberations generally warranted for major changes in substantive law.²²

A far bolder move, however, would be to insulate parts of the greenhouse gas emissions reduction and climate change adaptation programs from the appropriations process altogether. What Congress did with the Federal Reserve Board provides the legislative precedent. Implementation of federal climate change legislation will, assuming a tradable emissions program, generate billions of dollars in revenue.²³ Some of that revenue could be used to insulate the especially vulnerable aspects of the greenhouse gas regulation program from the appropriations process and therefore the short-term economic interests that tend to dominate that particular law-making avenue.

B. Executive Branch Lawmaking

There are many ways to design climate change legislation in anticipation of problems that may arise in the executive branch's administration of the law. Some measures could be designed to insulate agency officials to some extent from political pressures, especially those pressures likely to derive from short-term economic concerns, which undermine the law's effectiveness.²⁴ Other measures could be crafted to

enhance the influence of interests groups that are concerned about protecting future generations but which otherwise lack the necessary economic or political clout. Some of the possibilities worthy of consideration are catalogued and described below.

I. Insulating (Somewhat) Agency Officials From Politics

A variety of measures could be used to try to insulate agency officials from the short-term political pressures that could undermine a climate change statute's effective, fair, and impartial administration. The purpose of such insulating measures is to temper, not eliminate, the influence of politics on statutory implementation.²⁵ For instance, federal climate change legislation could define in some detail the qualifications and tenures of specific agency officials charged with particularly important and sensitive statutory responsibilities. Several possibilities are described below.

a. *Staggered terms of agency official appointment* that cut across presidential administrations and thereby promote political autonomy represent a classic legislative technique for reducing political influence. The staggered term alone sends a strong message that the person to be chosen is not a standard political appointee for whose appointment the President is owed heightened political deference.²⁶ The individual's qualifications are instead intended to transcend political loyalty and reflect an expertise grounded more directly in the statutory responsibilities and fiduciary responsibilities of the agency position under consideration.²⁷

b. *Length of the agency official appointment* is an important related design feature for promoting agency autonomy. The longer the appointment, the more a government official will potentially feel insulated from political pressures surrounding the implementation of the law for which she is responsible.²⁸ For the purposes of implementing climate change law, in particular, longer agency official terms are quite important because they are more in keeping with the longer-term agenda of climate change.²⁹

c. *Grounds for agency official removal* are another potentially effective design feature. Because political pressure on agency officials implementing climate change law is especially great, there might even be reason to limit their removal by procedural mechanisms beyond the substantive requirement of "for cause." There are myriad ways that this

22. See Lazarus, *supra* note 3, at 632-33.

23. See Crampton & Kerr, *supra* note 21, at 334 ("[A]n efficient auction could raise \$125 billion annually."); Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENVTL L. REV. 293, 317 n.94 (2008).

24. See STEPHEN BREYER, *BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION* 62-63 (1993) (discussing the advantages of insulation of agencies in terms of "rules, practices, and procedures").

25. See *id.* at 77-78.

26. See B. Dan Wood & John Bohte, *Political Transaction Costs and the Politics of Administrative Design*, 66 J. POL. 176, 185-86 (2004) (noting the effect of staggered terms, as well as other devices, on agency autonomy versus "political responsiveness").

27. There is already plenty of precedent for such an approach to appointment of agency officials. The Federal Reserve Board is an obvious example. See 12 U.S.C. §244; BD. OF GOVERNORS OF THE FED. RESERVE SYS., *THE FEDERAL RESERVE SYSTEM: PURPOSES AND FUNCTIONS* 3 (9th ed. 2005), available at http://www.federalreserve.gov/pf/pdf/pf_complete.pdf.

28. See Wood & Bohte, *supra* note 26, at 186 (noting the potential effect of term length on the level of agency autonomy).

29. See Amihai Glazer & Vesa Kanninen, *Short-Term Leaders Should Make Long-Term Appointments*, 14 INT'L TAX PUB. FIN. 55, 56-57 (2007) (discussing the importance of long-term appointments in general).

design feature could be crafted to narrow the grounds for removal while maintaining the safety valve that allows for removal in case of an extreme circumstance of dereliction of duty or judgment.³⁰

d. *Agency official qualifications and disqualifications* could also be statutorily prescribed. Such express qualifications and disqualifications help to ensure that the best-qualified individual receives an appointment. The qualifications (and disqualifications) serve to limit significantly those who can be brought to the President's attention as possible nominees, empower the Senate to take more seriously its role in confirmation, and provide senators with a touchstone for evaluating credentials.

2. Structuring the Implementation Process to Diminish the Influence of Short-Term Interests Likely to Be Unduly Influential and to Promote Consideration of Longer-Term Interests Otherwise Unlikely to Receive Their Due Weight

A second category of institutional design features pertains to techniques for ensuring that certain kinds of factors are given due consideration and that others are not given undue weight during the executive branch's implementation of climate change legislation. These techniques can promote accountability, deliberativeness, impartiality, and transparency and ensure that specific factors that are anticipated to be undervalued instead receive their due.³¹ Several possibilities are described below.

a. *Interagency consultation requirements* are one standard mechanism for Congress to promote a fuller consideration of relevant factors and therefore reduce the prospects of a narrow, short-term interest hijacking a law's implementation.³² Formal consultation not only provides the action agency with relevant information that may prompt the agency to reach a different decision, but it also places the consultant agency's views in the administrative record.³³ As a result, should the agency taking action ignore the consultant agency's counsel or refuse to engage in the consultation altogether, it may very

quickly find itself vulnerable to a successful lawsuit brought by those disappointed by the agency's decision.³⁴

Such an interagency consultation requirement might well be appropriate for climate change legislation given the wide-ranging implications of climate change rules and therefore the number of other agency offices with potentially relevant expertise. It could also be deliberately enlisted to make it difficult for any one agency to create exceptions or otherwise modify the climate change law's requirements.

b. *Creation of a new expert governmental entity* would be an even more direct way for Congress to ensure that certain interests are given due weight during agency implementation of climate change legislation. This office would provide an authoritative voice guided by career government experts who were more insulated from political pressures.³⁵ For climate change, Congress could take the bold step of creating an office with the formal responsibility of safeguarding the interests of future generations. That office could be provided with a range of authorities and responsibilities, from mere reporting authority and formal consultation rights to actual veto authority over certain kinds of decisions.

c. *Provisions for consideration of more neutral, objective scientific expertise* during statutory implementation can also provide a means for Congress to guide a statute's future implementation within the executive branch. Expert scientific consultation can both diminish the influence of politically powerful short-term economic interests and promote consideration of longer-term consequences if supported by scientific evidence. With the necessary safeguards to protect against the natural tendency of special interests to seek to capture the scientific review process itself, federal climate change legislation should be able to offer multiple opportunities for Congress to build into the implementation process expert scientific consultation requirements that keep the statute on its long-term track and prevent its short-term derailment.³⁶ Such expert scientific advice can serve, moreover, as an especially important check to ensure that any future efforts to significantly redirect the statutory focus based on a newly discovered understanding of climate science or available technology find support in actual scientific advances rather than political science fiction.³⁷

30. A statute might describe the removal grounds in some detail to make it clear that the grounds are not entirely open-ended. One could create a procedure for considering a claim that grounds for removal were present and provide for a board to review the merits of that claim. The board members themselves could represent a cross-section of relevant perspectives, including those more likely to be sensitive to longer-term concerns.

31. See ADRIAN VERMEULE, *MECHANISMS OF DEMOCRACY: INSTITUTIONAL DESIGN WRIT SMALL 4-5* (2007) (proposing mechanisms that advance these core values of democratic constitutionalism).

32. Interagency consultation requirements are a regular feature of environmental statutes. For instance, the Endangered Species Act (ESA) requires that federal agencies subject to §7 of the Act consult with the Secretary of the Interior (for terrestrial wildlife or plants) or the Secretary of Commerce (for marine life) if they believe that an endangered or threatened species may be adversely affected by a contemplated agency action. See 16 U.S.C. §1536(a)(1), ELR STAT. ESA §7(a)(1).

33. See *id.*

34. See, e.g., *Am. Bird Conservancy, Inc. v. FCC*, 516 F.3d 1027, 1031, 38 ELR 20052 (D.C. Cir. 2008) (striking down the FCC categorical exclusion of communication towers from National Environmental Policy Act analysis for failing to provide for required consultation with the Fish and Wildlife Service).

35. See BREYER, *supra* note 24, at 70-71 (describing the insulation of the French Conseil d'Etat). To some extent, this proposal resembles what EPA Administrator William Reilly did at the close of his tenure. He created the EPA Administrative Appeals Court, which hears and decides appeals of challenges to rulings by EPA administrative law judges. Administrator Reilly adopted this reform for the purpose of "inspiring confidence in the fairness of Agency adjudications." Changes to Regulations to Reflect the Role of the New Environmental Appeals Board in Agency Adjudications, 57 Fed. Reg. 5320 (Feb. 13, 1992).

36. See Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 TEX. L. REV. 1601, 1640-52 (2008) (describing a series of controversies involving alleged political manipulation of science in the administration of environmental laws).

37. See *id.* at 1643-44 (advocating for neutral expert advice to enhance integrity in environmental policymaking).

d. *Participatory rights for selected stakeholders* can also be expressly provided for in the lawmaking process in order to ensure that important but less politically powerful voices are heard during statutory implementation. There is much statutory precedent for such a feature. Some precedents are in the form of federal advisory committees and provide for an advisory function with varying degrees of actual influence.³⁸ Other bodies' formal authority exists within the statutorily prescribed lawmaking process, such as the scientific committees just described.³⁹ The Clean Air Act,⁴⁰ the Taylor Grazing Act,⁴¹ and the Magnuson-Stevens Fishery Conservation and Management Act⁴² all provide instances when Congress sought to provide stakeholders outside the federal government with significant authority in the implementation of a federal statute.

As applied to climate change legislation, however, this kind of design feature would need to be structured completely differently and could be far more effective in promoting its objective. In these prior statutory schemes, Congress provided additional political leverage to already-powerful interests, such as the large commercial fishing interests, which no doubt helped secure the legislation's initial passage.⁴³ The concern for climate change legislation, however, should be just the opposite: not that long-term interests will trump short-term, but that long-term interests will get bargained away over time by a steady barrage of short-term pressures. For this reason, the kind of stakeholders that would warrant a heightened role in the lawmaking process for climate change would be those who give voice to long-term interests of future generations.⁴⁴

Finally, the role of such stakeholder councils in the implementation of climate change law could also be substantially modified. A council might be alternatively designed to ensure that statutory implementation stays on track, that is, to provide the oversight necessary to make sure that it is not derailed. A council could also be designed to ensure that if new scientific information surfaces indicating that even

tougher measures are required, the statute's implementation would be modified accordingly.

3. Maintaining and, if Necessary, Accelerating the Executive Branch's Implementation of Climate Change Legislation

A third category of design features anticipates the many roadblocks that will occur during the process of statutory implementation within the executive branch, especially over the long term. These features deliberately build into the original statutory scheme mechanisms that directly limit the effectiveness of the roadblock. The statutory objective is to prevent the executive branch from frustrating congressional objectives by delaying the law's implementation.

a. For instance, Congress can create a lawmaking shortcut that allows *laws to be made in the absence of executive branch action within a specified time period*. This can occur if Congress would actually prefer executive branch lawmaking but anticipates that roadblocks may prevent the agency from acting in a sufficiently expeditious manner. Both to encourage the agency to act, and to ensure that law is made without undue delay, Congress can create a lawmaking scheme that is triggered by default in the event that the agency fails to act by the statutorily specified deadline. Moreover, an especially demanding congressional scheme that is triggered by default provides powerful economic interests that might normally have been seeking to delay agency lawmaking efforts with every incentive to ensure that the agency meets its deadline.

Drafters of climate change legislation might well want to consider including lawmaking shortcuts that precommit to certain climate change emissions reduction requirements in the absence of the necessary subsequent action taken by the executive branch agency charged with the law's implementation. The potential is considerable that those resisting imposition of climate change emissions reduction requirements will seek to delay their implementation. But by anticipating that potential and precommitting to certain legal standards in the event of delays greater than a specified time period, climate change legislation can effectively both reduce the incentive for such obstructionist efforts and ensure that a lengthy legal vacuum does not result.

b. Congress could also create a lawmaking shortcut by separating the policy question of what standard should apply in a particular factual circumstance from the distinct factual inquiry of whether that circumstance is actually present. A *statutorily prescribed standard triggered by a subsequent agency finding* allows Congress to dictate what the regulatory requirements or other regulatory measures must be to address different degrees of environmental hazards but then leave to another entity the responsibility (and potential political heat) of making the finding that triggers the standard. Congress, in effect, precommits to a series of lawmaking standards that someone else then triggers.

Climate change legislation could utilize this kind of precommitment device. Congress could precommit to increasingly stringent standards depending, for instance, on the

38. See Federal Advisory Committee Act, 5 U.S.C. App. 1 (2006).

39. See *supra* notes 37-38 and accompanying text.

40. Under the Clean Air Act, there are "interstate transport commissions" made up of representatives of state governments and EPA with authority to make recommendations for strategies to address interstate air pollution. 42 U.S.C. §§7506a-c, ELR STAT. CAA §176a-c.

41. Under the Taylor Grazing Act, as supplemented by the Federal Land Policy and Management Act, resource advisory councils consisting of members "representative of the various major citizens' interests concerning the problems relating to land use planning or the management of the public lands" are provided certain formal advisory responsibilities. 43 U.S.C. §1739(a).

42. Pursuant to the Magnuson-Stevens Act, eight regional fishery management councils play a critical role in the Act's administration. See 16 U.S.C. §1852. These councils have the primary responsibility for both proposing and then initially allocating individual tradable rights in most fisheries, known as individual tradable quotas. See *id.* §1854(c)(3). Their recommendations become law upon review and approval by the Secretary of Commerce. *Id.* §1854(a).

43. Katrina Miriam Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117, 184-88 (2005); see, e.g., 16 U.S.C. §1852.

44. Alan M. Jacobs, *The Politics of When: Redistribution, Investment, and Policymaking for the Long Term*, 38 BRIT. J. POL. SCI. 193, 218-19 (2008) (commenting on how organized interest groups can "represent one of the few mechanisms forcing governments to take long-run outcomes seriously").

degree of greenhouse gas emissions reductions deemed necessary. This precommitment would allow Congress to make the critical policy determination regarding which kinds and combinations of regulatory measures and economic incentives would be best to achieve different levels of emissions reductions. But at the same time, Congress could leave to a more detached, politically insulated body the decision regarding how serious the climate change problem truly was, how much temperature could rise, and therefore how much reduction of emissions was in fact necessary. Such a scheme has the added benefit of simultaneously allowing for steadfastness in the overall policy objective, for an established legislative decision regarding the distribution of compliance costs, and for flexibility for change in applicable legal requirements in response to the latest scientific information about climate change.

c. A statutory provision for *non-, limited-, or conditional federal preemption* of state climate change law could be another effective technique for ensuring that federal climate change legislation stays on track over the long term. The extent to which federal law preempts state climate change law is likely to be one of the most significant policy disputes in the drafting of the federal legislation during the next four years.⁴⁵ Industry's desire for federal preemption of state climate law is one of the reasons why many in the industry affirmatively want federal legislation: to eliminate the potential burden of having to comply with multiple and varying state law requirements.⁴⁶ Both the states and many environmentalists, however, believe no less strongly that the state police power authority to address climate change should not be preempted, especially in light of what they perceive as decades of foot-dragging on the issue by the national government.⁴⁷

Congress could draft a federal preemption provision that both strikes a balance between these competing concerns and serves as a very significant check on the federal government's implementation of climate change legislation. For instance, not only could any such provision narrowly define the scope of federal preemption to leave significant room for state law that supplements and in no manner conflicts with federal requirements, but the federal statute could make the ultimate scope of federal preemption expressly dependent on the success of federal efforts. Congress could use any number of benchmarks to measure success or lack of success. The lifting of federal preemption, or the mere threat of a lifting of

federal preemption, might well be enough to provide federal officials and industry with the incentives necessary to jumpstart a stalled federal program.

d. Finally, lawmaking design features could even seek to remove altogether anticipated litigation roadblocks to statutory implementation by *limiting judicial review* of some kinds of agency decisions and *promoting judicial review* of other kinds of agency decisions. Congress could define these limits by focusing on types of decisions or types of plaintiffs in determining which kinds of lawsuits threaten timely implementation and which kinds of lawsuits are, by contrast, necessary to spur timely implementation.

IV. Conclusion

Lawmaking moments do not happen very often, at least for environmental law. Soon, however, the nation is likely to have an exceedingly important lawmaking moment with the passage of long-overdue domestic climate change legislation. The ultimate success of that legislation, however, depends on advance recognition by Congress that lawmaking moments are only that—"moments." Congress should, accordingly, include within climate change legislation institutional design features, such as precommitment strategies, that deliberately make it hard for powerful, short-term political and economic pressures to undo that legislation. In application to climate change legislation, moreover, any per se objection to precommitment strategies based on concerns about their antidemocratic effects should go unheeded. Such precommitment strategies are a well-established design feature of our lawmaking processes, embraced both by the Framers of our Constitution and by prior Congresses. If, as here, the impact on future generations of present generations' failing to address climate change is so potentially devastating, the greater threat to future generations by far would be the failure of present generations to restrict lawmaking to safeguard the future.

The challenge to develop the right mix of precommitment strategies is considerable and the risk of any particular law being perversely hijacked can never be eliminated. But through the kind of asymmetric hurdles and shortcuts that I have described, Congress could diminish the risk of short-term pressures undermining whatever legislation it passes and increase the chance that the concerns of future generations would not be forgotten during the decades required for the new law's ambitious objective to be achieved.⁴⁸

45. See Daniel A. Farber, *Climate Change, Federalism, and the Constitution*, 50 ARIZ. L. REV. 879, 900-10, 921-23 (2008) (discussing preemption in the context of climate change law).

46. See William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1569-70 (2007); Eric Lipton & Gardiner Harris, *In Turnaround, Industries Seek U.S. Regulations: A Broad Tactical Shift; Trying to Fend Off Suits, Foreign Competitors, and State Efforts*, N.Y. TIMES, Sept. 16, 2007, at A1.

47. See Lisa Heinzerling, *Climate, Preemption, and the Executive Branches*, 50 ARIZ. L. REV. 925, 925-29 (2008); Felicity Barringer & William Yardley, *Bush Splits on Greenhouse Gases With Congress and State Officials*, N.Y. TIMES, Apr. 4, 2007, at A1.

48. As of the time of this Article's going to press (early 2010), none of the major climate change bills pending before Congress included any significant or systematic efforts to enlist precommitment strategies in the form of either hurdles or shortcuts in anticipation of problems likely to plague the law's subsequent implementation.

R E S P O N S E

Genius vs. Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand"

by Keith Cole

Keith Cole is Vice President Government Relations and Public Policy for General Motors International Operations in Shanghai, China. His previous positions include Director Legislative Affairs and Advanced Technology Vehicle Strategies for GM in Washington, D.C., and counsel to the House Energy and Commerce Committee, and the Senate Small Business Committee.

It may seem unfair, in the wake of the Massachusetts election¹ and *Citizens United*,² to look with hindsight at Richard Lazarus' recommendations for drafting federal climate legislation, but given that those recommendations are specifically designed to insulate the legislation from the vicissitudes of time, it is perhaps less so in this instance. It is hard not to conclude that controversial procedural innovations are the last thing we need to add onto this legislation. Rather than burden the legislation with heavy armament to ward off future political pressure, our priority should be to get started in a direction that rewards innovation in products and technologies that decrease our carbon footprint,³ and leave future battles for the future.

One does not have to be a climate scientist to be concerned about the rate of increase in the concentration of greenhouse gases (GHGs) in the atmosphere.⁴ Because energy consumption in today's economy is so closely linked with carbon dioxide emissions,⁵ legislation limiting or reversing this trend will

affect nearly every business and consumer and must overcome enormous political inertia against change.⁶

There is no question that the timescales involved in the climate debate are significantly larger than other issues confronting Congress.⁷ In order for climate legislation to be a success, it must achieve results measured over periods of multiple decades. In this context, Lazarus puts his finger on a fundamental issue for both academics and legislators: how to ensure the continued effectiveness and vitality of the required climate change legislation over time.⁸ Part of the answer lies in making the legislation as economically and politically sustainable as possible, while maintaining its environmental effectiveness. This is the approach taken by the U.S. Climate Action Partnership (USCAP), a coalition of national environmental groups and major companies whose recommendations have been reflected in most of the major climate bills to date.⁹ Lazarus echoes one of the central

to date.

6. In 2007, "[e]nergy-related carbon dioxide emissions account[ed] for over 80 percent of U.S. greenhouse gas emissions." U.S. Energy Information Administration, U.S. Energy-Related Carbon Dioxide Emissions Rose by 1.6 Percent in 2007, <http://www.eia.doe.gov/ncic/press/press298.html> (last visited Feb. 27, 2010).

7. Lazarus ELPAR, *supra* note 4, at 10750.

8. *See id.*

9. USCAP is a coalition of twenty-eight major energy, electric utility, car manufacturing, mining, and environmental groups, as well as other major corporations, including Duke Energy, Exelon, Chrysler, Ford, Dow Chemical, DuPont, General Electric, Siemens, Alcoa, and Rio Tinto. The members have "pledge[d] to work with the President, the Congress, and all other stakeholders to enact an environmentally effective, economically sustainable, and fair climate change program consistent with our principles at the earliest practicable date." USCAP, A CALL FOR ACTION, [available at](http://us-cap.org/USCAP-CallForAction.pdf) <http://us-cap.org/USCAP-CallForAction.pdf> (last visited Feb. 28, 2010). This call for action was reaffirmed and expanded in 2009: "[This blueprint is meant to] provide decision makers in the Administration and Congress with a framework for legislation that can achieve [our previously stated objectives]. It is intended as a guide for the development of legislation in the 111th Congress that can become law." USCAP, A BLUEPRINT FOR LEGISLATIVE ACTION, [available at](http://www.us-cap.org/pdf/USCAP_Blueprint.pdf) http://www.us-cap.org/pdf/USCAP_Blueprint.pdf (last visited Feb. 28, 2010). Finally, the Waxman-Markey draft climate bill adopted many of USCAP's recommenda-

Author's note: This comment represents the personal opinion of the author and does not reflect the position of General Motors.

1. On January 19, 2010, Scott Brown defeated Martha Coakley in the special election to replace Senator Edward Kennedy, becoming the first Republican in 30 years to represent Massachusetts in the U.S. Senate.
2. *Citizens United v. Federal Election Comm'n*, ___S. Ct. ___, 2010 WL 183856 (Jan. 21, 2010).
3. The European Commission's Joint Research Centre defines "carbon footprint" as "the overall amount of carbon dioxide (CO₂) and other greenhouse gas (GHG) emissions (e.g. methane, laughing gas, etc.) associated with a product, along its supply-chain and sometimes including from use and end-of-life recovery and disposal." European Platform on Life Cycle Assessment, Carbon Footprint: what it is and how to measure it, [available at](http://lca.jrc.ec.europa.eu/Carbon_footprint.pdf) lca.jrc.ec.europa.eu/Carbon_footprint.pdf (last visited June 25, 2010).
4. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10749 (Aug. 2010) [hereinafter Lazarus ELPAR]. A longer version of this Article was originally published at 94 CORNELL L. REV. 1153 (2009) [hereinafter Lazarus full-length].
5. Generally, carbon dioxide is seen as the principle greenhouse gas, although methane may deserve a higher level of legislative attention than it has received

elements of the USCAP recommendations, the creation of a tradable emissions program. This would “create a powerful political constituency with a strong economic incentive favoring the legislation’s preservation.”¹⁰ Such an approach potentially creates a large class of political actors, entrepreneurs, inventors, states, and environmental NGOs, which “will have a strong incentive to resist legislative amendments that threaten” the program.¹¹

If only the article had focused more on this point. Rather than exploring ways to further empower those elements of society that can be expected to support the program in future legislative and regulatory battles, the bulk of the article proposes, and seeks to justify the use of, “asymmetric precommitment strategies” comprised of “language in the original bill that directly impeded the passage of [weakening] amendments, or at least limited their effectiveness once passed.”¹² Each of these strategies is designed in some way to constrain the decisions of future legislators and regulators in ways believed to organize the program for its long-term success, regardless of which mix of controls it uses.¹³ Like zombies from a bad movie, these proposals would stalk future generations, replacing their wisdom with the decisions of the (potentially long-dead) legislators of today.

The Army of Zombies

The common thread of the proposed “asymmetric precommitment strategies” is to aggressively take decisionmaking power away from future stakeholders, and vest it with today’s legislators. Many of these suggested innovations are likely to meet resistance in Congress, where it is often politically safer to oppose legislation on procedural grounds to avoid offending constituents on the tough substantive choices. The proposed menu of “asymmetric precommitment strategies” could materially affect the chances of the bill being enacted. And without the “legislative moment,” the rest is moot.

But beyond their immediate impact on the vote count, we should ask whether these strategies are the right approach for ensuring the long-term viability of the climate program once it is in place. Should we anchor the long-term viability of the climate program in the constraint of future decisionmakers? Or, rather, should we seek to empower those with a strong economic stake in invention, clean technologies, and low-GHG business models? In short, should we entrust the future to the zombies or the innovators?

I would do without the zombies because they are a rather antidemocratic lot. Lazarus anticipates this concern, and sets out an extended rationale why, in this instance, we should set aside the usual objections to employing the dead hand.

The article lays out three primary justifications for why the usual objections to employing the dead hand should be ignored.¹⁴ The first is that it has an accepted history. Yes, Ulysses tied himself to the mast, but he didn’t tie his men’s children there.¹⁵ Decisions by Peter sober are probably better than decisions by Peter drunk, but are we so sure that after watching the Copenhagen Conference that the run-up to the next Conference of Parties will meet the test of sobriety?¹⁶ As for the value of our Constitution’s deliberate structures that make lawmaking difficult, we already have the Senate. These examples do not make a compelling case for the dead hand.

I am also unconvinced by the effort to portray the climate debate as so unusual that we should, just this once, make exceptions. Climate legislation is not uniquely “super wicked.” In fact, the three distinguishing characteristics of “super wicked” problems are not that unique.¹⁷ First, that time is not costless, is a common problem in dealing with trust funds such as Social Security and Medicare, which are going broke. Each year that passes without a resolution simply makes the following year’s challenge that much harder. Second, that those who could solve the problem both caused it and have the least immediate incentive to fix it is a feature of many of today’s challenges including, to name just a few, sprawl, wealth disparity, and overfishing of the oceans. Third, the absence of an existing government framework to develop, implement, and maintain laws to address a problem of climate change’s scope is arguably true of world hunger and terrorism as well. The legislative challenges posed by climate change have common elements with many of today’s pressing problems. Thus, the justification of adopting antidemocratic procedures could be applied to all of these problems, were it to be accepted, and we should not be so willing to look the other way on this issue.

While democracy comes in a multitude of flavors, the *sine qua non* of a democratic system is the ability of the governed to jettison those who claim to speak on their behalf. The article proposes legislative and regulatory innovations that are explicitly designed to shift legislative power from future Congresses to today’s Congress. If successful, this transfer in legislative authority is irreversible, or at least hard to reverse, by design. As a result, today’s representatives, or under some of the proposals, an appointed official or entity, would “represent” future generations. But if those generations are dissatisfied with their representation, they are powerless to jettison their representatives.

The article presents the case for why we should not be concerned with the antidemocratic nature of these measures. It sets out a number of reasons why today’s lawmakers are to be trusted to know the future well enough to represent those future decisionmakers and stack the deck accordingly. While this is advanced in the name of preserving the options of future generations, I would rather not burden the legislation

tions including its medium-term target emissions reductions. U.S. HOUSE OF REPRESENTATIVES, DISCUSSION DRAFT SUMMARY: THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009, available at http://energycommerce.house.gov/Press_111/20090331/acesa_summary.pdf (last visited Feb. 28, 2010).

10. Lazarus ELPAR, *supra* note 4, at 10752.

11. *Id.*

12. *Id.*

13. *See id.*

14. *Id.* at 10751-52.

15. Lazarus full-length, *supra* note 4, at 1196.

16. *Id.* at 1197.

17. Lazarus ELPAR, *supra* note 4, at 10750.

with efforts to game future decisions and trust that future Americans will do the right thing.¹⁸

There are other reasons not to disinter the dead hand. One is that we may not know as much as we think we do. Setting aside the subtleties of exactly how much increasing concentrations will change the climate, where those changes will occur, and when, we may enact legislation that sends us barking up the wrong tree. We assume that mitigation by reducing anthropogenic carbon dioxide emissions is the overriding priority (actually, a specific technique of reducing such emissions), but what if methane plays a much bigger role than we realize? What if cap-and-trade is enacted, but turns out to be a huge mess? What if it turns out to be easier to scrub GHGs from the air than trying to get all the major emitters to stop using coal? What if we should put our money into geoengineering or solar shielding? What if our goose is already cooked and we should focus much more on adaptation? If any of these come to pass, we may well regret having enshrined today's solution with protections against future meddling.

Finally, the article's undercurrent of technological pessimism may be at the root of why it seems troubling. There appears to be a hidden assumption here that the goal of legislation will effectively diminish our economic activity and put developing nations, such as China, at an economic advantage. The possibility that we can meet the climate challenge with the American genius for ingenuity and invention does not appear to be considered by the article. Placing a cost on carbon and internalizing it into our economy will certainly bring out political opponents. But it will also create opportunities for innovation in low-GHG products and technologies, along with business opportunity, and the jobs that come with it..

If you believe there is a deep well of creativity, waiting to respond to these market signals, then you can envision climate legislation that will also create strong constituencies within the business community to support its continued implementation and enhance the long-term political sustainability of the climate program.

If, on the other hand, limiting GHG emissions is really a matter of rationing energy and limiting economic growth then there really is no viable political constituency to sustain climate legislation, and fortifying it with lots of procedural roadblocks makes perfect sense. It is just a matter of how many dead hands you can bring to the table.

I'll take my chances with the living.

18. Several recommendations revolve around the elevation of select stakeholders to privileged status. *Id.* at 10755. More radical is the "bold step of creating an office with the formal responsibility of safeguarding the interests of future generations," that is envisioned as potentially having "actual veto authority over certain kinds of decisions." *Id.* at 10754

R E S P O N S E

Comment on *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*

by Mary D. Nichols

Mary D. Nichols was appointed by Gov. Arnold Schwarzenegger as the Chairman of the California Air Resource Board in July 2007 and previously held that position under Gov. Jerry Brown from 1978 to 1983. Among other positions, she served as the Assistant Administrator for Air and Radiation in the U.S. Environmental Protection Agency under President Bill Clinton, as Secretary for California's Resources Agency under Gov. Gray Davis, and as Director of the University of California, Los Angeles, Institute of the Environment.

Perhaps Congress should throw up its hands and move on to something more manageable than global climate change. Richard Lazarus asserts that the challenges of enacting effective national strategies for mitigating and adapting to changes in the Earth's climate are not just "wicked," but "super wicked," meaning they defy resolution.¹ He enumerates seemingly insurmountable challenges, such as "the absence of an existing institutional framework of government with the ability to develop, implement, and maintain the laws necessary to address a problem of climate change's tremendous spatial and temporal scope."² Imagine trying to design a house to last decades without studs, beams or columns.

Fortunately, our federal lawmakers are not as ill-equipped for the climate challenge as Lazarus' article might suggest. In fact, they already have at hand a sturdy, time-tested frame to support a good part of the United States' response to climate change. Congress engineered it 40 years ago in the form of the Clean Air Act (CAA or the Act).³ That landmark law and its subsequent amendments incorporate several of the "precommitment strategies"⁴ and other designs that Lazarus recommends for effective federal climate legislation.

Congress amended the Act substantially only twice since 1970.⁵ This fact alone attests to the law's strength of being

at once flexible and protective against powerful short-term impulses to unravel it.⁶

One of the greatest successes of the CAA has been its ability to catalyze innovation that achieves emission reductions faster and more cheaply than industry had expected. Rigorous performance-based standards with long lead times and phase-in periods have allowed industry to unleash its engineering ingenuity on emission controls and implement them cost-effectively.

I have studied, implemented and worked with the CAA for more than 30 years. As a state air agency official from a state that has often taken its own path and made giant strides toward clean air since the 1970s, I have many ideas for improvement. In my experience, the Act has proven extraordinarily effective in protecting the health and prosperity of our nation. And I have every reason to believe that it will play a vital role in addressing climate change. The Act offers the best available strategies to accelerate the nation's transition to clean, efficient and secure energy. The most developed and deployable of these measures—those affecting vehicles, fuels and power plants—are also the ones most important to launch as soon as possible. President Obama's Administration took the first step earlier this year in putting the nation's first limits on greenhouse gas emissions from passenger vehicles.⁷

Regulations under the CAA could complement a market-based program to reduce greenhouse gas emissions. Economic analyses of the California climate program show that an economy-wide cap-and-trade system or a similar market approach is needed to achieve our state's emission reduction targets, and to do so cost-effectively; traditional controls simply cannot adequately cover the full range and depth of car-

Author's note: The views expressed in this Article are the author's views and not those of the Board or of the state of California.

1. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10749, 10750 (Aug. 2010) (a longer version of this Article was originally published at 94 CORNELL L. REV. 1153 (2009)).

2. *Id.*

3. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.

4. Lazarus, *supra* note 1.

5. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990); Clean Air Act Amendments of 1977, Pub. L. No. 95-95, §1, 91 Stat. 685 (1977).

6. See Lazarus, *supra* note 1, at 10749.

7. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 49 C.F.R. §§531, 533, 537 (2010).

bon sources embedded in our economy.⁸ Yet a market-based program alone also cannot achieve the volume of emission reductions needed, at least not in time to avoid potentially disastrous effects of climate change on public health and the economy. Smartly targeted controls can accelerate the shift to clean and efficient energy technologies.

The transportation sector is a plump target. It accounts for about one-third of U.S. emissions, with more than half of that from passenger vehicles.⁹ A national low-carbon fuels standard for passenger vehicles, promulgated under §211 of the CAA, would accelerate deployment of advanced biofuels, plug-in hybrids and natural gas and hydrogen-powered fuel cell vehicles—all the while strengthening the nation's energy security and saving consumers fuel costs.¹⁰ Already adopted in California, a low-carbon fuels measure would build off the federal Renewable Fuels Standard and eventually supersede it.¹¹

At the risk of stating the obvious, the CAA is already working to reduce greenhouse gas emissions with remarkable cost-effectiveness from mobile and stationary sources. The current phasing in of more stringent federal standards for ozone and particulate matter yields, at no additional cost, real reductions in greenhouse gas emissions and, more importantly, reductions in premature deaths and illnesses, lost workdays and health care costs.¹²

Lazarus cites federal preemption of states' rights as one of the daunting political challenges of enacting federal climate legislation.¹³ Yet a key lesson in the history of the CAA is that the enlistment of state and local regulators is critical to implementing and enforcing a program as complex as air quality. Under the Act, the United States Environmental Protection Agency (EPA) has set the National Ambient Air Quality Standards, while state and local agencies have developed strategies for implementation and enforcement of those standards. The EPA generally has approved any mix and match of localized, state or federal regulation as long as it works in a fair and efficient manner.¹⁴

The Waxman-Markey climate bill¹⁵ includes numerous references to the required State Implementation Plans

(SIPs).¹⁶ California and other states with climate action plans think the final federal climate bill should include incentives for states to prepare a unified climate action plan.

Under a federal system with a cap and trading of federal allowances, no further EPA review of SIPs should be needed. But federal agencies (e.g., Department of Transportation, Department of Energy, Forest Service) should use these plans as guidance in awarding grants or managing resources in states that have adopted them.

Adapted to a federal climate law, this system of “cooperative federalism” would bring the same benefits: a national floor of minimum standards, flexibility in how to meet those standards and room for states to exceed them. Moreover, cooperative federalism would leverage resources at every level, cutting the enormous task of reducing greenhouse gas emissions nationwide into more manageable pieces, from utility regulation to local land use planning.

Land use controls are clearly a local prerogative. But that should not automatically exclude them from consideration in a federal climate change program, especially given the long-lived emissions embedded in our built environment. The federal government should reward communities with transportation plans that substantially reduce the number of vehicle miles travelled per household. These communities should receive technical and financial help for scenario-based modeling to ensure planning decisions are cost-effective and improve energy efficiency. There is no need to wait for federal climate legislation to act. These incentives and resources can and should be included in the federal Surface Transportation Act reauthorization bill.

The CAA is well suited for regulating the largest greenhouse gas emissions. It addresses both vehicles and fuels, allowing the transportation sector to be treated as a system. Some of the most cost-effective smog control measures and dramatic percentage reductions in smog-forming pollutants occurred early in the Act's history—as they should in attacking climate-altering pollution.

The federal vehicle emissions regulation announced April 1 shows how the CAA works cost-effectively in tapering greenhouse gas emissions. Starting with the 2012 model year, automakers must improve the average fleetwide efficiency of their cars and passenger trucks by roughly 5 percent each year until they reach the rough equivalent of 35.5 miles a gallon in 2016.¹⁷ The change is estimated to save 1.8 billion barrels of oil in the vehicles' lifetime and cut greenhouse gas emissions by 960 million metric tons in the same period—the equivalent of removing 50 million cars from the road.¹⁸ Because auto manufacturers can meet the rules using existing technologies, consumers will not be paying much more

8. CALIFORNIA AIR RESOURCES BOARD, UPDATED ECONOMIC ANALYSIS OF CALIFORNIA'S CLIMATE CHANGE SCOPING PLAN, (Mar. 24, 2010), [available at http://www.arb.ca.gov/cc/scopingplan/economics-sp/economics-sp.htm](http://www.arb.ca.gov/cc/scopingplan/economics-sp/economics-sp.htm).

9. See U.S. EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2007 (Apr. 2009), [available at http://www.epa.gov/climatechange/emissions/usinventoryreport09.html](http://www.epa.gov/climatechange/emissions/usinventoryreport09.html).

10. 42 U.S.C. §7545.

11. CAL. CODE REGS, tit. 17, §§95480-90.

12. National Ambient Air Quality Standards for Ozone, Part II and V, 62 Fed. Reg. 138 (July 18, 1997) (to be codified at 40 C.F.R. pt. 50).

13. Lazarus, *supra* note 1, at 10756 (“The extent to which federal law preempts state climate change law is likely to be one of the most significant policy disputes in the drafting of the federal legislation during the next four years”).

14. ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW & POLICY 443 (2d ed. 2004).

15. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (passed the House June 26, 2009).

16. See *id.* §§203, 204.

17. See EPA-DOT Joint News Release, *DOT, EPA Set Aggressive National Standards for Fuel Economy and First Ever Greenhouse Gas Emission Levels for Passenger Cars and Light Trucks* (Apr. 1, 2010).

18. *Id.*

for the more efficient vehicles—perhaps spending an average of an extra \$950 by 2016. And the fuel savings over the life of the vehicle will more than make up for those added costs, averaging \$3,000 in net savings.¹⁹

The new emissions-reduction rule, modeled after a standard California pioneered, also shows that, beyond the CAA, Congress has another cache of climate change policy tools at hand: California's Global Warming Solution Act—Assembly Bill 32—and the California Air Resources Board's Scoping Plan for implementing the law.²⁰

The federal government could begin by setting a national low-carbon fuel standard patterned after California's rule. A clear carbon limit, a long-term planning horizon, and use of an emissions trading market are harnessing the technical ingenuity and economic resources to achieve our state's required ten percent reduction in carbon intensity of fuels by 2020.²¹ Engineers and entrepreneurs will decide how best to meet the fuel standard and the market will reward breakthrough ideas and technologies.

California has not waited for Congress to act. We will continue to adopt regulations and policies that accelerate our shift to a low-carbon economy that will add jobs and create savings in energy costs. We have developed some valuable experience that can help inform the federal debate, particularly our deployment of CAA strategies. Combating climate change demands broad, multifaceted, and interdependent approaches. We cannot rely solely on the current CAA. Congress also must set a firm, aggressive and achievable economy-wide cap on greenhouse gas emissions. In the meantime, the CAA offers powerful, common sense and cost-effective tools to start cutting those emissions from the largest sources—vehicles, fuels and power plants. The most expensive thing we can do is nothing.

19. *Id.*

20. California's Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§38500-99.

21. CALIFORNIA AIR RESOURCES BOARD, INITIAL STAFF REPORT, FINAL STATEMENT OF REASONS AND APPROVED REGULATION, *available at* <http://www.arb.ca.gov/regact/2009/lcfs09/lcfs09.htm>.

R E S P O N S E

Solving the Super Wicked Problem of Climate Change: How Restraining the Present Could Aid in Establishing an Emissions Cap and Designing Allowance Auctions

by Jeanette M. Soares

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Richard Lazarus' analysis of climate change as a "super wicked" problem and discussion of precommitment strategies as a solution offer innovative ideas that could strengthen a future cap and trade law "by increasing the law's ability to achieve its objectives over the long term" and "limiting the ability of future legislators and officials to undermine the statute's implementation."¹ Furthermore, policymakers should consider precommitment strategies for a cap and trade law because some of the design features discussed in the article could effectively address the thorny issues associated with the establishment of an emissions cap. In addition, Lazarus' approach could facilitate the resolution of key design issues for emission allowance auctions, some of which existing cap and trade programs have already faced. Specifically, a statutorily prescribed standard triggered by a subsequent executive branch agency finding could assist in establishing the emissions cap and the use of a modified stakeholder council could contribute to the design of emission allowance auctions.

I. Statutorily Prescribed Standard Triggered by Subsequent Agency Finding

Accurate information on current and historical greenhouse gas emissions is critical to establishing the emissions cap and ensuring that emission reductions relative to a baseline occur.

Author's note: This comment represents the personal opinion of the author and does not reflect the views of the U.S. Government Accountability Office.

1. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10749, 10752 (Aug. 2010) (a longer version of this Article was originally published at 94 CORNELL L. REV. 1153 (2009)).

When the European Union Emissions Trading Scheme (EU ETS) began, member states did not have historical emissions data for specific facilities and, in some cases, did not have national laws and regulations in place that required reporting of emissions.² Member states had to use aggregate level and voluntarily reported emissions data as well as projections of future emissions to establish their emission caps for Phase I of the EU ETS, which ran from 2005 to 2007.³ As a result, the cap exceeded actual emissions in Phase I by more than 3%.⁴

While most experts agree that the United States would not face the same data limitations and challenges in establishing an emissions cap as the EU ETS member states did, the emissions cap can still be set too high.⁵ For example, northeastern states participating in the Regional Greenhouse Gas Initiative (RGGI) used available historic emissions data from the electricity generating sector to establish the program's emissions cap but the economic downturn and other factors resulted in actual emissions that are much lower than the cap.⁶ This overallocation of allowances could threaten the RGGI's environmental integrity because, unlike Phase I of

2. U.S. GOV'T ACCOUNTABILITY OFFICE, INTERNATIONAL CLIMATE CHANGE PROGRAMS: LESSONS LEARNED FROM THE EUROPEAN UNION'S EMISSIONS TRADING SCHEME AND THE KYOTO PROTOCOL'S CLEAN DEVELOPMENT MECHANISM 15-17 GAO-09-151 [hereinafter GAO-09-151], available at <http://www.gao.gov/new.items/d09151.pdf>.

3. *Id.* Phase I is often referred to as a pilot phase.

4. *Id.* at 17.

5. *Id.* at 26-27. Lack of data will be less of a concern because of the mandatory greenhouse gas reporting rule required by Pub. L. No. 110-161, tit. II (2007). See Mandatory Reporting of Greenhouse Gases, 74 Fed. Reg. 56260 (Oct. 30, 2009).

6. Beth Daley, *Emissions Down, but Lasting Efforts May Suffer*, BOSTON GLOBE, Jan. 3, 2008, at 1A.

the EU ETS, the allowances can be banked and used for compliance in later periods.⁷

The problems with setting an emissions cap could be alleviated if the law creating the cap and trade program specified a standard or formula for the executive branch agency to use to tighten the cap in certain circumstances. For example, the law could specify that if the executive branch agency finds that the first year's cap exceeded actual emissions from covered entities by a certain amount, then it could tighten the cap by a corresponding amount in a subsequent year. Such an approach would allow changes to the cap to reflect decreased emissions and, as Lazarus notes, new scientific information about the extent of reductions necessary.⁸ Under this approach, Congress could precommit to stringent standards but allow a politically isolated body to decide when the stringent standards need to be employed.⁹

Covered entities and investors in new technologies might argue that this approach deprives them of the regulatory certainty they need to conduct business. However, for the most part, the ETS experience and the renewable fuel standard's implementation in the United States demonstrate that this approach can work even if it creates some uncertainty. When the EU directive establishing the ETS was enacted in 2003, it tasked each member state with setting a cap in accordance with specified criteria and the EU Commission with ensuring the cap satisfied the criteria.¹⁰ However, the Commission did not complete its review of member state emission caps until several months into the 2005-2007 compliance period.¹¹ Despite these delays, covered entities were able to operate as usual. The fuel industry in the United States faced similar uncertainty when the Energy Policy of Act of 2005 established a renewable fuel standard (RFS) that generally required gasoline and diesel sold in the United States to contain a certain amount of renewable fuels, with the amount required increasing annually.¹² The Energy Independence Security Act of 2007 (EISA) contained several amendments to the RFS, including changing the amount of renewable fuel

required to be blended into gasoline annually.¹³ Additionally, each year EPA sets a blending standard that represents the amount of renewable fuel each party with a compliance obligation must use for the subsequent calendar year.¹⁴ Any uncertainties or problems caused by changes to the volume requirement and annual establishment of the blending standard appear to have been eclipsed by concerns about which renewable fuels are eligible.

II. Use of a Modified Stakeholder Council

Experienced officials with both EU ETS member states and the RGGI have suggested that federal policymakers establish goals for allowance auctions before selecting an auction design, and periodically review and revise the design to ensure it aligns with the articulated goals.¹⁵ The latter will be especially important because current legislative proposals would establish unprecedented auctions with respect to the amount of allowances auctioned and the number of potential auction platforms.¹⁶ If the law established clear goals for the auction and then delegated decisions regarding auction design to an executive branch agency, a stakeholder council could review the design and offer recommendations for revisions to the agency. Such a council could offer a breadth of perspective and "provide the oversight necessary" to ensure that the auction fulfills the statute's goals.¹⁷ In addition, the stakeholder council could solidify the "powerful political constituency with a strong economic incentive favoring the legislation's preservation" created by auctioning allowances and dissuade covered entities from launching legal challenges.¹⁸

The need for periodic reviews and revisions is perhaps greater with a federal cap and trade program since the amount of allowances to be auctioned will dwarf any existing ones, and current legislative proposals authorize non-covered entities to auction allowances without subjecting them to the same legal or regulatory requirements as the auctions held by the executive branch agency implementing the cap and trade program.¹⁹ Although the EU ETS directive allows member states to sell or auction up to 10% of their cap in Phase II, which runs from 2008 to 2012, none have chosen to auction that much.²⁰ The United Kingdom has auctioned the most allowances of any member state to date, approxi-

7. See e.g., 6 N.Y. COMP. CODE 242-6.5(a)(1). The EU ETS Directive allowed member states to decide whether to permit banking from the pilot phase to Phase II. The European Commission permitted banking of pilot phase allowances to Phase II if (1) they were unused because of abatement rather than overallocation, and (2) if banked allowances were subtracted from the member state's Phase II cap. Poland was the only member state to allow banking to Phase II. See Directive 2003/87/EC, art. 13(1); GAO-09-151, *supra* note 2, at 13.

8. Lazarus, *supra* note 1, at 10754-55.

9. *Id.*

10. Directive 2003/87/EC, art. 9, Annex III.

11. See Council Directive C226/02 on Allocation Plans Notified by Member States to the Commission for Trading Period 2005 to 2007, http://ec.europa.eu/environment/climat/emission/emission_plans.htm (last visited Mar. 29, 2010).

12. Pub. L. No. 109-58, §1501 (2005). Under the act, the RFS applies to transportation fuel sold or introduced into commerce in the 48 contiguous states. However, the Administrator of the Environmental Protection Agency (EPA) is authorized, upon a petition from Alaska or Hawaii, to allow the RFS to apply in that state. On June 22, 2007, Hawaii petitioned EPA to opt into the RFS, and the EPA Administrator approved that request. In addition, the act authorizes the EPA Administrator, in consultation with the Secretaries of Agriculture and Energy, to waive the RFS amounts established in the act, by petition or on the EPA Administrator's own motion, if meeting the required level would severely harm the economy or environment of a state, a region, or the United States, or there is an inadequate domestic supply.

13. Pub. L. No. 110-140, §201 (2007).

14. 42 U.S.C. §7545(o)(3)(B); Renewable Fuel Standard Program, 72 Fed. Reg. 23900, 23903 (May 1, 2007). The yearly blending standard is calculated as a percentage, by dividing the amount of renewable fuel that the RFS requires to be used in a given year by the amount of gasoline expected to be used during that year, including certain adjustments and exemptions specified by the EISA. 73 Fed. Reg. 70643, 70643 (Nov. 21, 2008).

15. By periodically, these experienced officials mean at pre-determined times and not annually or after every compliance period. Frequent revisions would require participants to constantly learn and adjust to the new design.

16. See H.R. 2454, 111th Cong. (2009); S. 1733, 111th Cong. (2009). Both bills require the EPA Administrator to allocate emission allowances to covered and non-covered entities, such as states, local distribution companies, and eligible research consortia, in addition to auctioning allowances for specified purposes, such as the market stability reserve and energy efficiency initiatives.

17. Lazarus, *supra* note 1, at 10755.

18. *Id.* at 10752.

19. H.R. 2454 at §321; S. 1733 at §111.

20. 2003 O.J. (L 275) 32, art. 10.

mately 34 million.²¹ The RGGI auctioned approximately 87% of the emission allowances it issued for 2009, but that only amounted to about 163 million allowances.²² In contrast, one legislative proposal has a cap of over four billion allowances and would initially auction over one billion in the program's first year.²³

The existence of multiple auction platforms, as contemplated in current legislative proposals, also warrants periodic review by a stakeholder council based on the EU ETS and the RGGI auction experience. Under the current legislative proposals, entities without a compliance obligation under the cap and trade program would receive funds from the proceeds of the federal government's auctions. Others would receive allowances directly from the federal government, which they could auction, sell, or retire.²⁴ While the non-covered entities could have their allowances sold on consignment by EPA, if they choose to hold their own auctions, the law and any implementing regulations would not impose restrictions on them.²⁵ This approach is analogous to the EU ETS' multiple auctions conducted by member states, which they are moving away from and toward a centralized auction like the RGGI.

The EU ETS and the RGGI experiences are perhaps a cautionary tale for any new federal cap and trade program and highlight the need for periodic reviews of any auction design. Tasking a stakeholder council with the review process makes sense because they are the ones participating in the auctions and carbon market. Their perspective and recommendations to the executive branch agency implementing the program would provide the agency with valuable information. Moreover, the stakeholder council would give a voice in the implementation process to "long-term interests of future generations," the political constituency that receives the auction revenues, and covered entities.²⁶ Participation in a stakeholder council could reinforce the new political constituency's support of the cap and trade program and prevent covered entities from taking their concerns and grievances to court because they would be part of the implementation process.

These are just two of the climate change legislation design features that Lazarus' article presents that merit further consideration. Both could be utilized to address potential challenges in a federal cap and trade program while also ensuring that "future generations would not be forgotten during the decades required for the new law's ambitious objective to be achieved."²⁷

21. UK government auction of EU allowances in the UK for Phase II of the EU Emissions Trading System, <http://www.dmo.gov.uk/index.aspx?page=ETS/AuctionInfo> (last visited Mar. 29, 2010).

22. See Environment Northeast's RGGI Auction Tracker, <http://www.env-ne.org/resources/open/p/id/715> (last visited Mar. 29, 2010).

23. H.R. 2454 at §321; H. REP. NO. 111-137, at 362 (2009).

24. H.R. 2454; S. 1733, at §111.

25. *Id.*

26. Lazarus, *supra* note 1, at 10755.

27. *Id.* at 10756.

A Reply

by Richard J. Lazarus*

I am grateful to all three commenters for taking the time to read and comment on the excerpt in this publication of my article, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*.¹ I am also grateful to the organizers of the Environmental Law and Policy Annual Review Conference, co-sponsored by the Environmental Law Institute and Vanderbilt University School of Law, for providing me with this additional opportunity to reply to the comments.

My reply is directed exclusively to one of the three comments, no doubt because it is the most provocative. The comment by Keith Cole, Director of Legislative and Regulatory Affairs at General Motors, certainly should win the prize for best title: *Geniuses Versus Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand."* In describing my article's recommendations, Cole's comment claims that "like zombies from a bad movie, these proposals would stalk future generations, replacing their wisdom with the decisions of the (potentially long-dead) legislators of today."² I applaud a good turn of phrase—like Cole's here—and was a big fan of the classic 1960s horror flick, *Night of the Living Dead*,³ which Cole's comment strongly evokes. But I think this critique is fundamentally misguided.

1. Cole's comment raises a false question. The question is not *whether* present generations will stalk the future; the question is *how*. If we do not enact global climate change legislation capable of addressing the problem in a meaningful and sustained way over time, we risk leaving future generations with an atmosphere so loaded with greenhouse gases that there is little that they can do about it. If the current scientific consensus about the impacts of those gases is true, those future generations will suffer potentially devastating consequences. Now, that's stalking! And, irreversible stalking.

On the other hand, any precommitment strategies that Congress decides to use now to reduce the chances of that

* Professor Lazarus requested the opportunity to submit a reply to the responses to his article

1. 94 CORNELL L. REV. 1153 (2009). See Keith Cole, *Geniuses Versus Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand,"* 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10757 (Aug. 2010); Mary D. Nichols, *Comment on Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10760 (Aug. 2010); Jeanette M. Soares, *Solving the Super Wicked Problem of Climate Change: How Restraining the Present Could Aid in Establishing an Emissions Cap and Designing Allowance Auctions*, 40 ELR (ENV'T L. & POL'Y ANN. REV.) 10763 (Aug. 2010).
2. Cole, *supra* note 1, at 10758.
3. See NIGHT OF THE LIVING DEAD (Karl Hardman & Russell Streiner 1968).

happening will not be similarly irreversible. If those strategies, described in my article, turn out to be a huge mistake, Congress can change the law. The purpose of precommitment strategies is to make it harder to change the law, but never impossible to do. If new information is developed that shows that greenhouse gases are actually fundamentally good for humankind and the natural environment and not, as most scientists currently suggest, extremely harmful, I am not the least bit worried that there will be insufficient pressure from powerful political constituencies to change the law.

Nor is there anything remotely radical or fundamentally antidemocratic about the idea of making it harder for powerful political constituencies to change the law. Precommitment strategies have a long, established pedigree in U.S. law.⁴ The Constitution is full of them. For instance, on the one hand, we do not allow ourselves to elect the same person to be President more than twice. On the other hand, we do not allow ourselves to remove the President unless he or she is impeached by the House of Representatives and convicted by the Senate, based on a supermajority vote. The Bill of Rights is one big set of precommitment strategies designed to make it hard to enact certain kinds of laws. The Framers of the Constitution and the Drafters of the Bill of Rights understood how the collision of long and short-term interests can, absent certain safeguards, create the risk of poor and destructive lawmaking.⁵

Congress and the President have likewise long understood this risk and promoted laws and lawmaking processes, based on precommitment strategies, to reduce that risk. That is why, at the turn of the 20th century, President Woodrow Wilson and William Jennings Bryan came up with the remarkable lawmaking innovation called the Federal Reserve System.⁶ They understood the limits on Congress' ability to address certain complexities of a then-emerging national economy. President Wilson, not coincidentally himself a scholar of political science, appreciated the need to insulate some kinds of lawmaking processes from the hurly burly of daily political life. These are also lessons that Congress has not forgotten in recent years. One sees analogous uses of precommitment strategies in the crafting of the federal military base closures and health information privacy laws.⁷ In each, legislators understood why the short- and long-term dimensions of a particular problem defied easy lawmaking

4. Lazarus, *supra* note 1, at 1195-1200.

5. *Id.* at 1199.

6. *Id.* at 1203-04.

7. *Id.* at 1201-02.

and so they created a different kind of lawmaking structure to break the logjam.

My only further point is that it is going to require similarly creative lawmaking now to address global climate change and that precommitment strategies should play a significant role in such lawmaking. Global climate change presents an extraordinarily difficult lawmaking challenge because of its enormous spatial and temporal horizons. But nothing in my article suggests what those precise precommitment strategies should be other than that they should be asymmetric in character in order to promote the possibility that the voices of the future will have a fighting chance.⁸

2. A further claim in Cole's submission is that my article rests on an "undercurrent of technological pessimism . . . [and] [t]he possibility that we can meet the climate change with the American genius for ingenuity and invention does not appear to be considered by the article."⁹ Not so. My article is premised on technological optimism. And I fully agree with Cole that it will require enormous technological innovation to meet climate change goals. But, I am also well aware of what will be necessary to make that innovation occur: a stable regime of climate change law over time.

If entrepreneurs in the private marketplace believe that climate change law is unstable and susceptible to constant change over time—in response to short-term economic interests seeking to modify the law's requirements in their favor—market prices will fail to send the necessary signals for long-term investment by entrepreneurs and those interested in technological innovation. That is precisely why asymmetric precommitment strategies are necessary: to stabilize the market and allow for the genius of technological innovation. Cole's own General Motors well illustrates the critical role that law plays in sending the necessary market signals. General Motors waited until legal requirements for better fuel economy became clear, prior to (belatedly) promoting greater fuel efficiency in its production line.¹⁰

3. Cole's final comment has more force but still remains wide of mark. He contends that "[t]he proposed menu of 'asymmetric precommitment strategies' could materially affect the chances of the bill being enacted. And without the 'legislative moment,' the rest is moot."¹¹ This is a legitimate concern. All too often the price of seeking to achieve the best possible law—and refusing to compromise—is no law at all. And I agree with Cole's basic point that it would be a mistake for those serious about the need for meaningful climate change law now to fall into that trap.

Where I nonetheless depart ways from Cole is his too easy assumption that asymmetric precommitment strategies should therefore not be pursued in existing legislative proposals. Of course, if we already knew that all one can pass is legislation without those strategies, and nothing more, then their promotion might well be a mistake. But we do not know that. We do not yet know how strong and effective climate change legislation can be and still pass Congress. And, in what is still an early moment in the legislative process, we should discuss what that legislation should include rather than assume we already know the answer.

If, moreover, we do not now seek to ensure that the legislation that is enacted is sustainable over time, it is unlikely to matter much what Congress nominally passes. The new legislation will become largely symbolic legislation. And its passage will, as a practical matter, sap the force of those seeking climate legislation with promises that, absent the necessary precommitment strategies, quickly become illusory. That's the kind of mootness that worries me the most.

8. *Id.* at 1193-95.

9. Cole, *supra* note 1, at 10759.

10. See John M. Broder, *Limits Set on Pollution From Autos*, N.Y. TIMES, Apr. 2, 2010, at B1; Bill Vlasic & Nick Bunkley, *G.M. Puts Volts Mileage in Triple Digits*, N.Y. TIMES, Aug. 12, 2009, at B5; see also General Motors, Fuel Economy & Alternative Fuels, available at http://www.gm.com/experience/fuel_economy/ (last visited May 2, 2010).

11. Cole, *supra* note 1, at 10758.