

# Climate Policy Blueprint

*Report of the National Conference  
on Climate Governance*



**December 11–12, 2008**

*Charlottesville, Virginia*

Presented by the



**MILLER CENTER**  
*of* **PUBLIC AFFAIRS**  
UNIVERSITY *of* VIRGINIA



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*Miller Center of Public Affairs,  
University of Virginia,  
Charlottesville, VA.*



## INTRODUCTORY LETTER *from* GERALD L. BALILES

*I*n recent years, much of the public discussion and focus on global warming and climate change has been on the science and politics of the topic. But in addition to the ever-growing body of scientific evidence corroborating the threat posed by climate change, serious consideration of governance options and challenges must take place. This is not just a matter of debating policies in an optimal world, free of political differences and institutional limitations. This conversation must be embedded in the realities of international, national, and sub-national institutions of government that design and implement policy. To this date, too little attention has been given to the actual governance issues of climate change, and to the policies that have been proposed or already exist to combat global warming.



Gerald L. Baliles

In December 2008, we convened a national conference on the governance of climate change strategies, led by Miller Center visiting scholar Dr. Barry Rabe, Professor of Public Policy at the Gerald Ford School of Public Policy at the University of Michigan, and one of the preeminent scholars in the country on environmental policy. He assembled a group of leading scholars and practitioners—including Senator John Warner, who culminated his 30-year career as a U.S. Senator as a champion to the cause of global climate change—to examine the history of U.S. climate change policy; review existing regulatory and market-based policy options available at the federal, state, and local levels; and address questions of regional and international policy. Discussions helped to shed light on the following questions: Does climate change require a global governing regime or do national as well as state and local governments have a critical role to play? What role should the local, state, and federal governments play? How do these national and sub-national units of government manage a problem that is inherently international in scope?



*Participants of the  
National Conference on  
Climate Governance*

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Now, as Earth Day 2009 approaches, this report highlights the major results of our examination. The conference offered a rewarding and varied discussion without necessarily producing consensus among the participants, which is, in itself, instructive about the complexities involved in the issue of climate governance. We recognize that this is a topic that is complicated, costly, and contentious, especially in the face of the daunting challenges currently facing our nation. Yet there is much that must be done. We hope this volume will provide valuable food for thought for Congress and the new Presidential administration.

With our very best regards,

Gerald L. Baliles  
*Director, Miller Center of Public Affairs  
University of Virginia  
Governor, Commonwealth of Virginia (1986–1990)*

## SUMMARY *of* KEY FINDINGS *and* RECOMMENDATIONS

**T**he National Conference on Climate Governance held at the Miller Center of Public Affairs in December 2008 provided a long overdue consideration of the profound challenges that climate change poses to American constitutional government. Leading scholars investigated an array of policy options, paying special attention to how these possibilities would test the capacity of American government to carry them out. Most of the analysis focused on the American experience, but the conference participants also gave serious thought to the global dimensions of climate change. This report attempts to highlight key findings and broad recommendations for establishing a viable governance strategy at home and abroad.

### Key Findings

*Climate Change is Not a New Issue.* Both the executive and legislative branches of the federal government began to develop concern over climate change more than three decades ago. There is now a veritable avalanche of scientific evidence that underscores the severity of this issue, and a wide consensus among the world's nations that supports these core findings.

*American Climate Policy is Already Operational.* The engagement of American states to develop policies to reduce their greenhouse gas emissions began more than two decades ago and has expanded into virtually every area of climate governance. This suggests considerable political support in diverse jurisdictions, and also provides a vast body of real experience upon which to build and draw lessons for best practice in future policy development.

*The American Public is Concerned.* The National Survey on Climate Change Opinion released at the conference confirms widespread public belief that climate change is occurring and is a serious threat. Respondents from diverse sections of the nation support active engagement across all levels of the federal system, though they differ in response to various policy options.

*Once Established, Climate Policy Does Not Self-Implement.* Experience with early climate policy efforts at the state level and abroad





*Ian Rowlands (background);  
Alastair Totty, Henrik Selin,  
and Stacy VanDeveer  
(foreground)*

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shows that simply enacting legislation or making emission reduction pledges is only the beginning of climate governance. So far, the policy track record is mixed, even among market-based experiments, and underscores the need for careful attention to detail in policy design and development of institutions to guide implementation.

***Federal Institutions are Not Ready for Prime Time.*** The only branch of the federal government that has established a clear position on climate change is the judiciary. Recent Congresses have struggled to craft a coherent federal role, and little attention has been given to the ways that likely vital units such as the Environmental Protection Agency and the Energy Department need to be reconfigured to respond to future charges that might emerge from Congress.

***The Uphill Climb to a Global Regime.*** The Kyoto Protocol experience underscores the extraordinary complexity involved in any effort to secure international coordination. As the United States begins to explore new steps in domestic policy, there is an opportunity to also consider a range of

continental and multi-lateral forms of collaboration that could ultimately lead to greater international engagement.

*Where to Begin: Existing Cornerstones.* A series of official American policy statements, ranging from an earlier international treaty to the preamble of the most ambitious state climate legislation, offers a small subset of principles to guide future action.

## Establishing a Viable Governance Strategy

*Require Transparency and Emissions Disclosure.* The United States needs accurate information on greenhouse gas emissions from a wide range of sources. The current mixture of state, regional, and federal experiments should be replaced with clear federal legislation that sets forth the terms for creation of an emissions registry and disclosure process that is easily accessible, verifiable, draws upon best practices to date, covers a wide set of sources, and can serve as a reliable metric for decades to come.

*Rebuild Analytical Capacity.* Congress has suffered from lack of internal capacity to interpret climate science and analyze policy options, in part a result of the decision to terminate the Office of Technology Assessment more than a decade ago. Congress needs to create a new entity that can provide sophisticated and reliable guidance on climate change in the years and decades ahead. Any such body should be capable of systematically analyzing the likely climate impacts of future federal legislation.

*Streamline Committee Jurisdiction and Relearn Oversight.* The 111th Congress has a unique opportunity to move beyond decades of incoherent stewardship of environmental and energy issues, all of which converge in the arena of climate. Congress must redefine committee and subcommittee roles and learn to engage in constructive oversight of executive branch activity.

*Rebuild Agency Capacity.* All of the likely lead players in federal climate policy implementation have faced enormous political constraints on their ability to think about this issue, much less prepare for governance. The federal government will be in the business of climate change for decades to come, and now is the time to think seriously about how to prepare various units and staff for a constructive role.



*Paul Posner, right, with Anne Khademian and Christopher Borick, left to right*

***Take Federalism Seriously.*** The remarkably diverse body of state experience gives the federal government a unique opportunity to fashion policy on the basis of real-world lessons, including models of best practices. It also establishes a foundation for an intergovernmental partnership on climate change in the best traditions of American federalism, rather than one that imposes a singular, top-down view from Washington and fails to take advantage of state expertise and evolving capacity in this area.

***Begin to Price Carbon.*** Many strategies to reduce greenhouse gas emissions fail to recognize that carbon dioxide and other greenhouse gases impose serious externalities that need to be priced accordingly. Many options exist for pricing, and these can be mutually-reinforcing. But they will require clear political communication, and design that minimizes the risk of manipulation and error.

***Cultivate Allies.*** Many other nations, whether or not they ratified Kyoto, continue to struggle with development of effective climate policy. The United States has a rare opportunity to explore cross-national partnerships at multiple levels, perhaps beginning with our North American neighbors.

# CONFERENCE AGENDA

## Thursday, December 11, 2008

*John and Rosemary Galbraith Forum Room, Miller Center of Public Affairs*

Session One

### **Framing the Issue of Climate Governance**

Climate change has conventionally been portrayed as a global challenge necessitating an international governing regime. This was clearly the animating principle behind the Kyoto Protocol more than a decade ago. But the subsequent reality in the United States and abroad has been far more complex, with an unexpectedly large role for sub-national units of governments, such as American states and localities. This experience has also emerged internationally, even among nations ratifying Kyoto. This session helped to frame the current climate governance challenge by examining the intergovernmental realities posed by such bottom-up policy development. The session also considered key findings from the *2008 National Survey on American Public Opinion on Climate Change and Policy Options* commissioned for this event.

### **Conversation with Senator John Warner**

Session Two

### **Regulatory Approaches to Climate Governance**

Many policy options could achieve reduction in greenhouse gas emissions, including policies that impose firm governmental regulations on various sectors of the economy. In some instances, these policies already exist either nationally or sub-nationally but may well be expanded in the coming years. This session examined regulatory options in the transportation and electricity sectors. It also considered the question of adaptation and whether there are viable governance strategies to confront climate changes already occurring and those anticipated in the future.







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Session Three

### **Market Approaches to Climate Governance**

Abundant literature in the economics field documents the merits of market-based systems of environmental protection, with perhaps the most celebrated innovation involving the so-called “cap-and-trade” program established for sulfur dioxide emissions in the 1990s. This session examined the governance challenges of two oft-discussed alternatives that take a market approach, namely cap-and-trade and taxation schemes for carbon emissions meant to deter the use of fossil fuels.

**Friday, December 12, 2008**

*John and Rosemary Galbraith Forum Room, Miller Center of Public Affairs*

Session Four

### **Are Federal Institutions Up to the Challenge of Climate Change?**

Climate change was first discussed in President Gerald Ford’s Administration during the mid-1970s, about the time that it became the subject of Congressional hearings. But little subsequent federal legislation or policy development has occurred. This session considered how the three branches of the federal government might address climate change and respond to likely policy challenges. This included a review of the federal judiciary, the U.S. Congress, and the likely lead unit of the executive branch: the Environmental Protection Agency.

Session Five

### **Reconnecting the United States with the World**

Any unilateral American efforts to reduce greenhouse gas emissions face inherent limits in deterring climate change, raising the question of multi-national or international collaboration. State experience suggests ever-expanding commitment to policy experimentation, while also anticipating the expansion of federal involvement. This session drew lessons from outside the U.S., most notably from the European Union, and considered the prospects for regional and international re-engagement in a post-Kyoto world.

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*Walter Rosenbaum, conference  
author, during the panel on  
Federal Institutions*

# REPORT *of the* NATIONAL CONFERENCE on CLIMATE GOVERNANCE

Barry G. Rabe

## Overview: Climate Change and Governance

Policy makers and analysts continue to search for metaphors to describe the unique complexities posed by climate change. According to economist William Nordhaus, “If global warming is the mother of all public goods, it may also be the father of decision making under uncertainty.” Other people refer to climate change as “perhaps the most hotly debated and controversial area of environmental policy ever” and the “ultimate intergenerational policy challenge.” Republican Senator John Warner of Virginia, in the final days of a federal government career that spanned five decades and included a lead role on many foreign and domestic policy challenges during 30 years in the U.S. Senate, put it more simply: “I would rank this issue at the very top of complexity, unquestionably.”<sup>1</sup> Ten of Warner’s Democratic Senate colleagues have written that a serious federal policy response to climate change would be “perhaps the most significant endeavor undertaken by Congress in over seventy years and must be done with great care.”

However, we know far less than we should about “climate governance,” which entails fundamental policy considerations at the intersection of political science and history. This recognition was the animating force behind the project that culminated in the National Conference on Climate Governance, held at the Miller Center of Public Affairs at the University of Virginia in December 2008. The intent was to convene leading-edge scholars drawn primarily from the fields of political science, history, law, public management, and public policy. About half of the invited scholars had launched research programs focused expressly on climate change; the other half had completed work in other policy areas that was highly relevant to the issue of climate governance.

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*Pietro Nivola, conference author, compares American climate policy to that of the European Union.*





Pietro Nivola  
*Brookings Institution*  
NATIONAL CONFERENCE ON CLIMATE GOVERNANCE  
MILLER CENTER OF PUBLIC AFFAIRS

My Miller Center colleagues and I soon realized that while the natural and physical scientific community has weighed in intensively on this issue, more modest contributions have emerged from many of the social and policy sciences, at the very moment that the United States seems poised to consider new departures in this area. Economists have clearly been the most active social scientists on climate change, reflected in a large body of publications and engagement in policy settings such as Congressional hearings. Economists have played an invaluable role in considering the likely economic impact of various policy options and generally making the case in favor of market-based approaches, such as those that would allow for the trading of emissions among regulated parties. But the economic models developed thus far face serious limitations, often unable to contend with significant political constraints on policy development and administrative constraints on policy implementation.

Our deliberations were meant to encourage a more diverse social science voice for the continuing climate policy debate, and the conference offered an invaluable mechanism to discuss the subtleties of climate governance. The Miller Center provided an ideal venue for serious exchanges on these very complex governance questions. While the scholars and commentators offered rigorous analysis and outlined important considerations for policy development, there was no effort to impose uniformity of viewpoint or generate a consensus statement that outlined specific policy recommendations. The Obama Administration has long since been inundated by such narrow “action lists.”

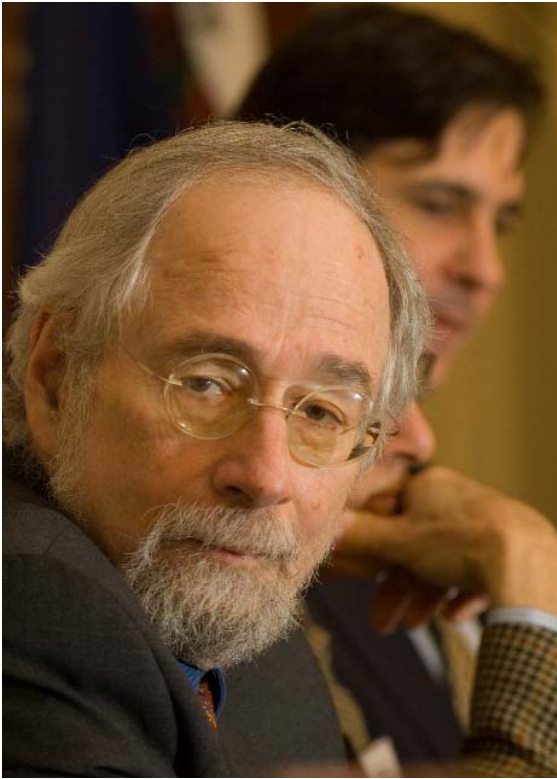
*Climate change must compete for attention—and yet is interwoven—with questions of economic recovery, energy diversification, infrastructure modernization, and the future course of American foreign policy.*

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Commentary at the conference and subsequent interchanges moved the project from a set of conference papers toward the revised chapters that will be published in an edited scholarly volume later this year by the Brookings Institution Press. This report introduces a number of key themes that will be much more fully developed in the book to follow.

A vast array of issues faces elected officials at both federal and state levels in the United States. Climate change must compete for attention—and yet is interwoven—with questions of economic recovery, energy diversification,





*Marc Landy, left, conference author, and Vivian Thomson, right, U.Va. professor and panel chair*

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infrastructure modernization, and the future course of American foreign policy. Our collective intent is to reflect on some of the most serious challenges to developing policies to reverse the long-standing trend of greenhouse gas emissions growth, promote economic development rather than economic harm through policy implementation, and engage America effectively in future international deliberations.

Although we chose to concentrate on governance within the United States, we are fully aware that unilateral action by any one government, whether a state as large as California or Texas or even a nation as large as the United States, has limited capacity to influence global levels of greenhouse gases. We also understand that the last two decades have produced considerable policy experimentation, in the United States and abroad. This awareness helps us consider the likely challenges facing future policy alternatives, drawing from real experience rather than estimates, models, and projections. As a result, we can weigh the capacity of each level of our federal system to engage this

issue, the feasibility of various policy options to reduce greenhouse gas emissions, the capacity of existing institutions of the federal government to play coherent roles, and possible ways for the United States to reconnect with other partners in search of international collaborations. Several key themes emerged that should inform subsequent climate policy development.

### *Climate Change is Not a New Issue*

The concern that accumulating levels of carbon dioxide, methane, and other gases in the atmosphere could cause a “greenhouse effect” that both elevated global temperatures and disrupted the climate is not a new discovery, though its saliency has grown markedly in recent years. In the United States, climate change began to emerge as an executive branch concern in the Domestic Policy Council during the Gerald Ford presidency, and the first Congressional hearings on the topic took place in 1975. Ronald Reagan signed the first federal climate change legislation, the Global Climate Protection Act (P.L. 100-204), into law in 1987. This authorized the State Department to develop an approach to address global warming and established an intergovernmental task force to develop a national strategy. One year later, Governors in California (George Deukmejian) and New Jersey (Thomas Kean) signed the first of many state laws designed to respond to climate change. None of these were single-handedly capable of “solving” this problem or reversing the threat

*In the United States, climate change began to emerge as an executive branch concern in the Domestic Policy Council during the Gerald Ford presidency, and the first Congressional hearings on the topic took place in 1975.*

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of climate change, but launched a process of “governing the climate” that has reached new saliency early in the twenty-first century. So climate change has been a serious environmental concern for some time in the United States, but significant governance responses have been slower to emerge.

This domestic path of policy exploration also occurred in other national and sub-national capitals and moved rapidly into the arena of international policy. Long before the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), that has triggered such controversy and proven such an abject failure of international

governance, international agreements were reached on different aspects of climate change. The United States has been a participant in the vast majority of these deliberations. In fact, it was among the first of more than 170 nations to ratify the 1992 U.N. Framework Convention on Climate Change.

Between these first indicators of concern and the December 2008 international climate summit in Poznan, Poland, it is impossible to calculate how much has been said and written about this topic. But we clearly know much more about climate change than in prior decades, and all available evidence

*We clearly know much more about climate change than in prior decades, and all available evidence indicates a diverse and alarming set of threats facing future generations.*

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indicates a diverse and alarming set of threats facing future generations. A former Vice President won the 2007 Nobel Peace Prize for his advocacy on this issue, particularly in his post-political career in which he produced an award-winning film on climate change. Al Gore shared that award with a veritable army of international climate

scientists, known as the Intergovernmental Panel on Climate Change (IPCC), who have brought new rigor and focus to what we know about this issue from numerous disciplines in the natural and physical sciences.

The IPCC role has been enhanced by the work of countless scientists from around the world, flooding the leading-edge journals of relevant fields with an ever-expanding body of peer-reviewed scholarship. For example, in November 2008 the American Geophysical Union, an international body of 50,000 members who study the earth and its environment, presented a number of major new studies on climate change, ranging from ice melting patterns to temperature trends. This ever-growing body of scientific analysis has been explored in scores of Congressional hearings on climate science held between 1975 and 2008. This analysis resonates with the research findings of other nations, creating a consistently disturbing portrait of a staggering challenge. Although policy responses to climate change vary markedly, no national government in the world disputes these core scientific findings.





### *American Climate Policy is Already Operational*

Many analysts anticipate that the new President and Congress will be the first political actors in the United States to “do something” about climate change. President Obama has already signaled his views on the federal role through high-level appointments and a pledge from the new leadership of the U.S. Environmental Protection Agency to revisit an earlier decision to reject the designation of carbon dioxide as an air pollutant. Moreover, approximately seven percent of the \$787 billion American Recovery and Reinvestment Act signed into law in February 2009 will be devoted to a range of energy efficiency and renewable energy projects, which could serve to reduce American greenhouse gas emissions. In his first address to Congress, on February 24, the President called for “this Congress to send me legislation that places a market-based cap on carbon pollution and drives the production of more renewable energy in America.” All of this suggests that the new administration plans to shift federal policy toward more energetic engagement on climate change, a reversal of the Bush Administration stance, which was epitomized by the 2001 decision to withdraw the United States from the Kyoto Protocol. Indeed, the United States has been widely denounced in the European Union and around the world for its seeming indifference to climate change, best reflected in scant federal government action to date.

At the same time, one consistent finding that emerged from our deliberations is that climate policy development has already been quite active in the United States. However, states and localities have been the policy drivers, rather than the federal government. This fact reflects the unique political dynamics of recent federal institutions but also a time-honored pattern for bottom-up development of American public policy. In fact, many of the most prominent policy tools under consideration around the world for possible reduction of greenhouse gas emissions have their origins in one or more American states, and have in many instances been adapted by multiple states. So-called renewable

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*Invited guest, John H. Gibbons, former Director of the White House Office of Science and Technology Policy, asks a question.*



portfolio standards (RPS) were first developed in Iowa in 1991 and are now in operation in 28 states. New Hampshire became the world's first government to enact a carbon cap-and-trade program in 2001, and this has expanded into the ten-state Regional Greenhouse Gas Initiative (RGGI), that in late 2008 became the world's first zone to auction all of its of carbon allowances. Some 23 states, concentrated in the Northeast, Pacific West, and Midwest, are committed to some version of a regional cap-and-trade program. They are increasingly collaborating with neighboring Canadian provinces, reflecting the substantial movement of energy and commerce across the 49th Parallel. In 2002, California became the world's first government to enact carbon emission limits on new vehicles, and has been formally joined by 14 other states in seeking federal authority to implement this policy. Wisconsin became the world's first government to mandate disclosure of carbon emissions, through an expansion of an existing inventory in 1993. Today, 39 states are exploring the terms of a common emissions disclosure system.

*Beyond serving as pioneers in policy development, state experience in policy implementation can teach us what works—and what does not. In some instances, states offer illustrations of best practices, models worthy of close study and emulation by other regions or nations.*

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Beyond serving as pioneers in policy development, state experience in policy implementation can teach us what works—and what does not. In some instances, states offer illustrations of best practices, models worthy of close study and emulation by other regions or nations. Among RPSs, for example, it is hard to find a more effective policy than the one initially adopted in Texas in 1999 and expanded in 2005. Not only has this policy unleashed exponential growth in renewable energy in the state, but the policy

is widely seen as among the best designed and implemented in the world. It was developed through a broad public deliberation process, and guided by a commitment to transparency and a viable system for trading “renewable energy credits.” Among cap-and-trade programs, the Regional Greenhouse

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*Conference organizer Barry Rabe during the deliberations*



KIRSTEN ENGEL

LLER CENT  
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UNIVERSITY of VI

Gas Initiative remains in early stages of implementation, but proves that multiple jurisdictions can work cooperatively over extended time periods to create an operational system. Moreover, RGGI demonstrates the ability of governmental units—such as environmental protection and energy departments—that routinely battle with one another over turf in capitals around the globe to find common cause over an extended period of time.

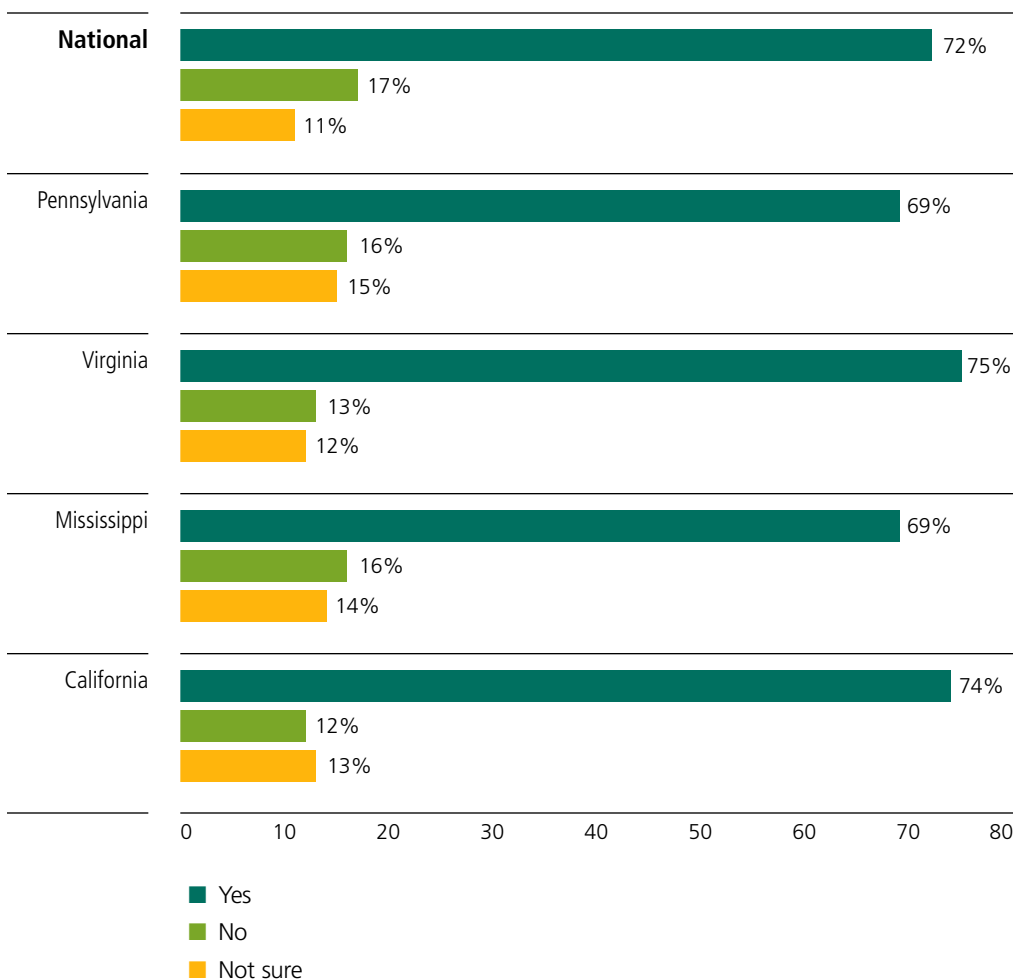
At the same time, other state policies offer insights into what not to do. A number of state RPSs lack essential design components, and many decisively favor one technology over another, which may explain why some appear unlikely to hit their targets. The Western Climate Initiative deserves high marks for ambition, but clearly lacks the strong cross-state and cross-agency partnerships and geographical cohesion that have proven so vital in the RGGI case, making its long-term viability uncertain. The entire body of sub-national experimentation has helped to put the United States back on the world’s “climate policy map” and offers innumerable lessons for future policy makers.

### *The American Public is Concerned about Climate Change*

Virtually every conceivable strategy to reduce greenhouse gas emissions is being tried somewhere in the American federal system. Many of these efforts are modest and most face significant implementation challenges. But collectively they suggest that there is sufficient public concern and political will across diverse regions of the United States to take some initial steps towards addressing climate change through public policy. This squares with Christopher Borick’s findings on how the American citizenry views this issue, reflected in the 2008 National Survey on American Public Opinion on Climate Change and Policy Options, which was commissioned for this project and surveyed more than 2,000 Americans in September 2008. The survey included respondents from across the nation, with particularly large samples from residents of California, Mississippi, Pennsylvania, and Virginia. Borick finds strong evidence, even in very diverse states, that majorities of Americans consider climate change to be a serious problem and that a wide range of factors guide their thinking on this issue. While other national surveys indicate that the public does not rank global warming on the same level as such issues as the economy and national security, Borick’s findings suggest that climate change is seen as a real problem and that Americans want government to deal with the matter.<sup>2</sup>

**Figure 1**

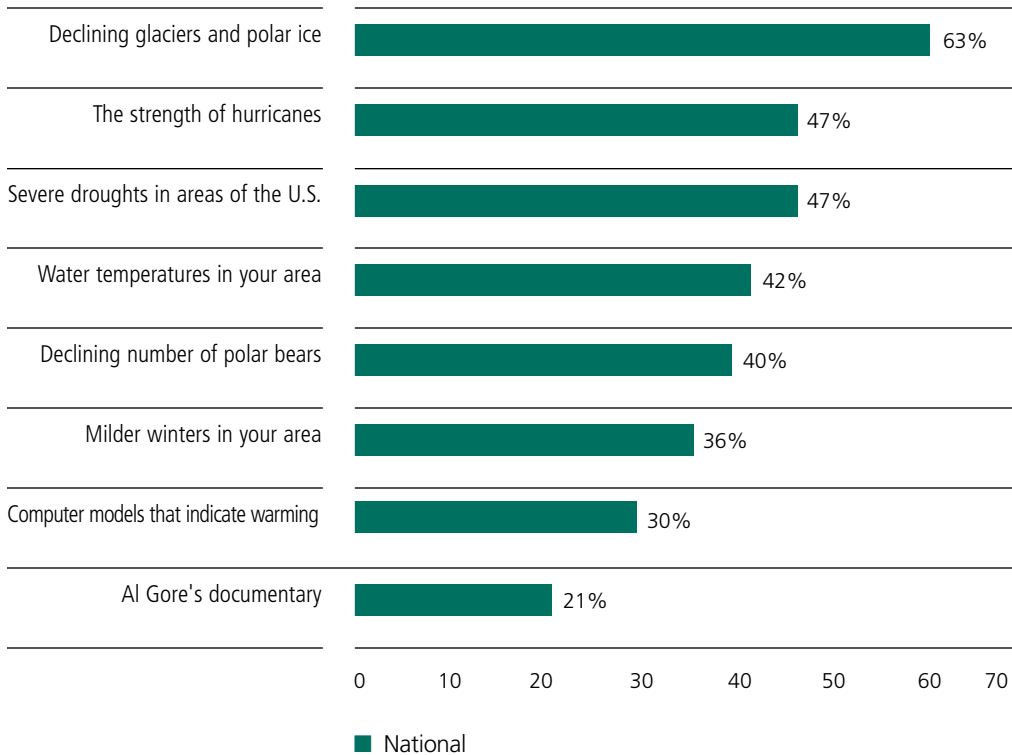
**Americans Across Varied States Believe that the Earth is Warming**



*The Miller Center Climate Survey found a large majority of Americans believe there is solid evidence that the Earth is warming. In states as diverse as California and Mississippi there is substantial agreement that climate change is occurring and that humans are at least partially responsible for increasing temperatures. This underlying belief in the problem underscores public desire for actions to address climate change.*

**Figure 2**

**Changes in the Physical Environment are the Leading Causes of Belief in Global Warming**



*The acceptance of climate change by most Americans is due to an array of factors. While evidence of declining glaciers and polar ice appears to have most strongly affected individual belief in global warming, other factors such as extreme weather and personal experience of warmer temperatures have led the public to accept climate change as a reality.*



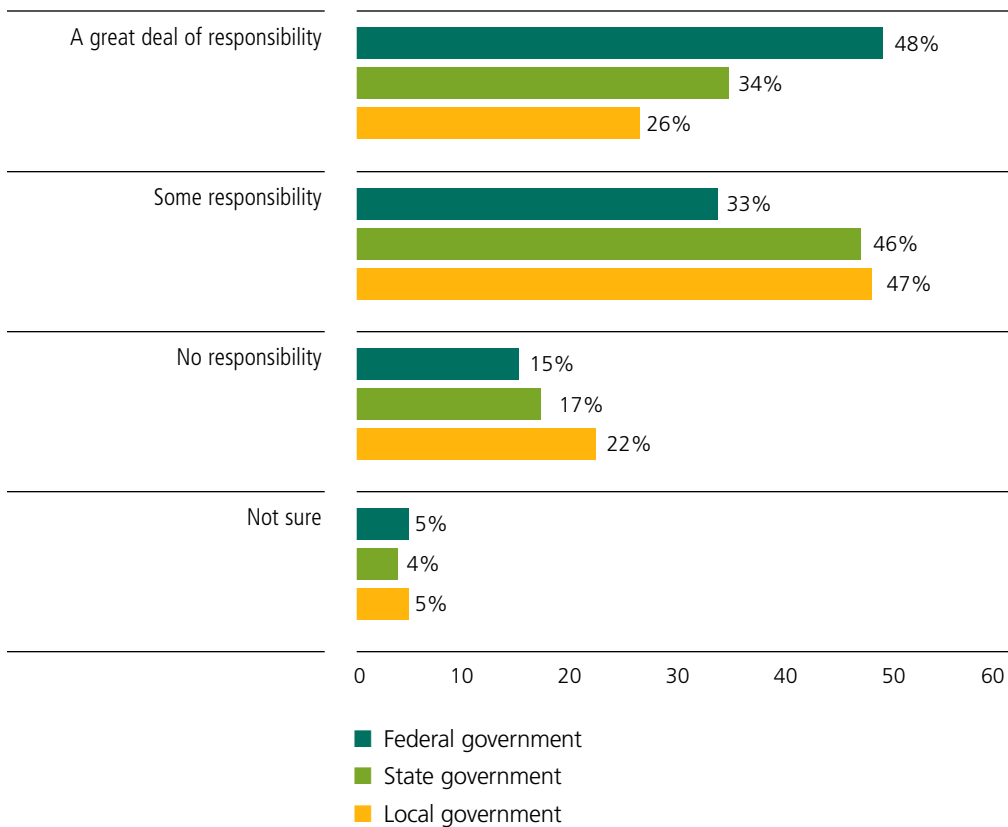


*Kathryn Harrison and Selin,  
left, and Susan Gander, right*

The National Survey also confirmed that Americans do not view climate change as the exclusive province of one level of government or as something that can only be addressed by a single policy. Americans strongly believe that all levels of government bear responsibility for addressing climate change, although they tend to view federal responsibility as somewhat greater than that falling on states or localities. In turn, citizens have very different responses to a menu of policy options. People generally show strongest support for regulatory policies that are the least cost effective. There is clearly less support for market-based options such as cap-and-trade and taxation of fossil fuels. In the cap-and-trade case, however, Borick found fairly even distribution between support and opposition, and far less partisan divide than for other policy options. Also, citizens simply may not yet understand what the policy entails. In the latter case, the public strongly opposes forms of so-called carbon taxes, though this opposition appears to vary depending on the reach of the tax and the ways in which that money might be allocated. Translating and learning from those public sentiments poses both challenges and opportunities for the new President and Congress,

### Figure 3

#### Americans Place Responsibility for Addressing Climate Change on All Levels of Government



*A substantial majority of Americans believes that governments at the federal, state and local levels are responsible for addressing global warming. While individuals are more likely to see the government in Washington D.C. as having the largest share of responsibility, state and local governments are seen as important players in climate governance. These expectations occur as states and cities have taken significant actions to combat increasing global temperatures.*

including a vital role of public education in communicating the effects of any future policy to the American public.

### *Once Established, Climate Policy Does Not Self-Implement*

Perhaps one reason that political scientists and scholars of policy implementation have mostly stayed out of climate policy debates is the recent conventional wisdom that market-based systems involving emissions trading would essentially self-implement upon creation. The American experience in devising such a program for sulfur dioxide emissions in the 1990 Clean Air Act Amendments has been promoted as a model to guide both domestic and international climate policy deliberations. In that instance, a trading program was established for coal-burning utilities, building on some earlier experiments. It is widely heralded as a success, having produced desired emission reductions at a cost lower than anticipated and taken advantage of the ready availability of low-sulfur (but high-carbon) coal. The program has been hailed as one of the great public policy “living legends” of the modern era.

The United States actually carried this policy option into international negotiations leading up to Kyoto, arguing that it could be readily transferred to greenhouse gases through an international trading system. Ironically, the European Union initially balked at this strategy, although it accepted it as part of a larger bargain that it thought it was striking with the United States. The EU

*Recent conventional wisdom holds that market-based systems involving emissions trading would essentially self-implement upon creation.*

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has since embraced the emissions trading approach through the development of its Emissions Trading Scheme (ETS). The ETS began operation in 2005, although it left a substantial portion of Kyoto-required reductions to the discretion of other policies to be developed by individual Member States.

Many proposals in the 111th Congress call for some variant of a “carbon cap-and-trade” system for the United States, as did President Obama in his February 2009 address to Congress and subsequent budget proposal for fiscal year 2010.

In theory, an emissions trading regime for greenhouse gases has enormous promise, even if it presents an infinitely more complex challenge than a limited number of sulfur dioxide sources. But early experience with this model

## Figure 4

### Policy Options by Level of Strong Support among Americans

59%	Creation of renewable portfolio standard
52%	Increased fuel efficiency standards for automobiles
51%	Increased support for clean coal technology
50%	Energy efficiency requirements for residential and commercial buildings
45%	Tax reductions for hybrid vehicle purchase
35%	Require vehicles to reduce greenhouse gas emissions
34%	Increased use of nuclear power
32%	Increased support for ethanol development
25%	Establishment of cap-and-trade
18%	Increased fossil fuel taxes
10%	Increased gasoline taxes

*Americans indicate strong support for government policies that mandate increased energy efficiency and greater use of renewable energy sources. From renewable energy portfolios to increased automobile fuel efficiency standards, the public expresses the desire for governments to use their regulatory power to reduce carbon emissions. Conversely, minimal support exists for policies that employ taxation of fossil fuels as a means of reducing emissions, and only marginal backing for the establishment of cap-and-trade systems.*



*Christopher James discusses market-based systems of environmental protection.*

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underscores numerous challenges of policy design and implementation. In the EU ETS case, early design flaws included inadequate data on emissions and inequities in allocating emission allowances across Member States, leading to considerable early controversy. ETS proponents have made significant modifications and contend that needed reforms have been made. It's too early to know how effective subsequent implementation will be.

As Leigh Raymond noted in his analysis of the evolution of emissions trading, there is “daunting complexity” inherent in any such program designed for greenhouse gases. In the case of RGGI in the American Northeast, more than four years of careful inter-agency and inter-state negotiations were required before launch of initial auctioning in late 2008, with many key design elements remaining to be considered. RGGI, if anything, remains an “easy case,” involving states with abundant experience with emissions trading and close interactions between relevant states and agencies. Any national or multi-national expansion, especially reaching beyond the RGGI target of coal-fired power





*Judith Layzer, left, and  
Nivola, right*

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plants, will be infinitely more complicated, and all of the leading federal cap-and-trade bills call for such broader scope.

As Raymond observed, there can be a “danger of a cap-and-trade fetish,” whereby a tool has been sold so aggressively that it may be tempting to look past likely problems and complexities. These involve such matters as compensatory offsets, leakage that makes non-capped energy sources more attractive, and mechanisms for allocating revenue generated by auctions, for starters. In many respects, a federal cap-and-trade bill would be among the most complicated pieces of legislation ever enacted by Congress and would also have to navigate numerous inter-state differences. It remains a viable possibility but will require careful consideration of numerous governance details if it is to be effective.

Proposals to tax the fossil content of fuels represent an alternative type of market-based strategy. Like cap-and-trade, carbon taxes are designed to deter consumption—and hence reduce greenhouse gas emissions—by increasing

the cost of energy. Such an approach has long had broad support in the economics community and has been endorsed for climate change by a diverse group of analysts and commentators, as well as governments ranging from British Columbia to Sweden. It offers the clear advantage of relative simplicity, working from established provisions in the federal tax code. Indeed, existing carbon tax legislative proposals are relatively brief, remarkably simple in administrative detail, and could go into operation almost immediately. At the same time, carbon taxes face steep political hurdles in that their cost imposition is far more direct and visible than under cap-and-trade, and they might require adjustments in order to meet specific emission reduction goals given the uncertain consumer response. Ironically, what is perhaps the most desirable approach from an economic efficiency perspective may face the steepest climb politically.

Other policy options also present significant implementation challenges, and early experience gives some pause. As Pietro Nivola noted, efforts to regulate vehicles for fuel economy (and, in effect, emissions) have a very uneven track record despite decades of experience. The simple fact is that when people

*Existing carbon tax legislative proposals are relatively brief, remarkably simple in administrative detail, and could go into operation almost immediately.*

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can drive farther for the same price, they do so. As Nivola notes, increased fuel efficiency has historically correlated directly with increased miles driven, producing modest net reduction in carbon burned. Nivola compared the American experience with the European Union and explained that the tradition of taxing transportation fuels has produced far greater fuel efficiency in the latter case, even

in the continued absence of vehicle mandates. This is a sobering reminder of possible limitations facing such an approach, including any federal waiver to California's proposal to, in effect, accelerate current federal efficiency mandates.

In the electricity sector, as Ian Rowlands noted, a range of policies exist to promote renewable energy and energy efficiency, but each presents different implementation challenges. The popular RPS, for example, has been "successful in catalyzing and moving large scale renewable energy projects" but has been "less successful at engaging individuals or community groups" and faces

enormous legal and regulatory complexities. Many alternative approaches exist, from “feed-in tariffs” for renewable energy to energy efficiency mandates, each presenting its own governance challenges. As Marc Landy explained, adaptation strategies are only in their infancy but will likely entail many technical and ethical challenges, with each strategy different from the others depending upon the region and likely climate threat that takes precedence.

This complexity may help explain why so many governments, from nations that have ratified Kyoto to states that have set their own emission reduction targets, have failed miserably in their early efforts. Many nations that have ratified Kyoto will clearly miss their 2012 pledged targets, including many EU Member States that have been somewhat overshadowed by outsized reductions in Germany and the United Kingdom. In the United States, a great many state policies have struggled, and statewide targets have generally been missed, such as New Jersey’s 1999 executive order to reduce its emissions in accord with Kyoto targets. Even California’s 2006 statutory commitment for far-reaching emission reductions through 2050, despite considerable policy expertise and broad public support in the state, is clearly veering in a direction whereby it is likely to miss early targets. A number of other states are emulating the California model and may be heading in a similar direction.

Thus an early lesson from the past decade of climate policy experience is that there are no guarantees that simply enacting climate legislation or making emission reduction pledges translates into reduced greenhouse gas emissions at all, much less does so quickly and cheaply. So careful attention to key design elements is essential, as are institutions capable of effective implementation and real-time assessment. Yet they are often overlooked in the rush to get something through the political system at the right moment.

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*Kirsten Engel discusses the role courts will play in the creation of future climate policy.*



Kirsten Engel  
University of Arizona  
INSTITUTE OF CLIMATE AND  
ENVIRONMENTAL STUDIES  
OFFICE OF PUBLIC AFFAIRS

### *Federal Institutions are Not Ready for Prime Time*

It may be telling that the only branch of the American federal government that has established a clear position on climate change is the judiciary. Associate Justice John Paul Stevens' majority opinion in *Massachusetts v. U.S. Environmental Protection Agency* speaks very clearly to the issues of climate science and the likely risks posed by policy inaction. The decision also chastises the executive branch for evading the issue, and likely represents the high-water mark of federal engagement on climate change thus far. As Kirsten Engel noted, the decision "has had some impact in terms of depoliticizing the science surrounding climate change" and thereby enabled an increased focus on public policy questions.

In contrast, the executive and legislative branches have been stunningly ineffective about climate change, both in response to the Supreme Court case and more generally. The Bush EPA ran out the clock on its term and essentially evaded the Court's challenge, even going so far as to make the EPA Administrator regularly unavailable for Congressional hearings. And repeated Congresses have chosen to pass on the straightforward question at the heart of the 2007

*Many of the key architects of that legislative achievement remain in office and yet Congress has remained silent, leaving the Obama administration with the challenge of making a unilateral interpretation of what the legislative branch really intended nearly two decades ago.*

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case, namely whether or not the 1990 Clean Air Act Amendments were designed with sufficient elasticity to allow for inclusion of carbon dioxide. Many of the key architects of that legislative achievement remain in office and yet Congress has remained silent, leaving the Obama administration with the challenge of making a unilateral interpretation of what the legislative branch really intended nearly two decades ago.

Beyond these more immediate concerns are sobering questions about whether executive entities, such as EPA, and the legislative branch can play constructive roles in coming years. In the former case, Walter Rosenbaum noted that EPA may well be woefully unprepared for dealing with climate change. The agency's resource base is actually smaller in constant dollars than it was when EPA was cobbled together in an administrative reorganization by Richard Nixon. The agency has also been formally constrained from taking a constructive role on



climate for more than a decade, whether hampered by Congressional funding restrictions in the Clinton years, or Bush era aversion to involving EPA staff in climate policy development.

Moreover, EPA continues to operate along the fault lines established at its inception, which analysts have lamented for decades as a barrier to effective performance. Ironically, as Rosenbaum explained, climate change represents

*...climate change can't be neatly compartmentalized into any single unit of the executive branch.*

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“a magnitude of issues that are fundamentally different” from those that EPA was designed to address, so the agency’s basic governance structure may be uniquely ill-suited for such a challenge. The agency needs new resources, tools, and skills to promote inter-unit

collaboration, perhaps borrowing from best-case practices among states and abroad where effective networks have been established across traditional boundaries. New agency leadership will clearly add needed focus but there has been no serious consideration of how EPA may need to be reconfigured to play a constructive role in climate change. All of this underscores the risks involved in any agency-led effort to reinterpret the Clean Air Act and put forth a range of climate regulations in the event Congress fails to act.

Beyond these EPA issues is the fact that climate change cannot be neatly compartmentalized into any single unit of the executive branch. This has been a clear lesson from the states and nations that have launched climate policies without attention to design or redesign of institutions responsible for implementation. Many of the leading climate proposals in the 110th Congress called for sweeping collaboration between EPA and virtually every other unit of the federal government, including the Departments of Energy, Agriculture, Transportation, Commerce, and Defense, among others, without ever defining how this integration of effort would be achieved. These proposals have also suggested creating a series of new institutions, many modeled on the agencies and boards that have managed American finance and banking, to guide any transition toward an emissions trading system. These new entities have never been well-defined in legislative proposals, and are all the more suspect given the questionable performance of these financial institutions in the current economic downturn. Thus careful attention needs to be paid to the federal entities that

will be responsible for climate policy implementation, a task that will involve far more than simply expanding budgets and hiring extra staff.

To date, Congress shows little if any appetite for this task or for other vital challenges of climate governance. Recent Congresses have tended to either “pass the buck, pass the pork, or pass the microphone” on climate change rather than demonstrate a serious capacity to assume a leadership role. Buck-passing has entailed a steady pattern of failure to enact legislation that would provide a basic infrastructure for climate governance—or even a definition of whether carbon dioxide is a pollutant—much less a comprehensive legislative strategy.

Pork-passing is reflected in gargantuan energy bills of 2005 and 2007 that allocated an array of expensive subsidies and incentives to every conceivable energy source, without credibly assessing the effect this hodgepodge would have on carbon emissions. In both cases, the notion of “energy independence” has provided a broad fig leaf to evade serious consideration of how best to achieve less dependence on carbon-based energy sources. One important challenge in implementing the 2009 economic stimulus legislation will be sustaining its promise to support transition toward less carbon-intensive energy use, given its very general energy-related provisions and continuing pressures to sustain subsidies to traditional energy sources.

*Recent Congresses have tended to either “pass the buck, pass the pork, or pass the microphone” on climate change rather than demonstrate a serious capacity to assume a leadership role.*

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Meanwhile, Congress has demonstrated little capacity for policy analysis. Rather, it has engaged in considerable microphone-passing, holding many hearings on climate change—more than 200 of these events were sponsored by 20 separate committees in the 110th Congress alone. These events lacked serious deliberation over difficult climate policy choices. To play a more constructive role, Congress

must confront a series of continuing challenges. These include navigating the many committees in both chambers competing for jurisdiction, and avoiding policy options that may appeal to special interests but are ultimately expensive and ineffective in reducing greenhouse gas emissions. Prior cases of environmental



*Daniel Fiorino, discussing at the panel on regulatory approaches to climate governance.*

and other public policies suggest that these hurdles can be cleared, but not easily. As Daniel Fiorino warned, “Environmental responsibilities at the federal level alone are so fragmented and divided up amongst so many different organizations, and the whole Congressional oversight system is very fragmented, and yet climate, by definition, is an integrating problem that requires integrating responses.”

### *The Uphill Climb to a Global Regime*

Much of the thinking on climate change has assumed that policy cannot move forward in the absence of a global regime. Such thinking was influenced by prior international environmental policy, such as the relative success of the international regime established to guide the transition to reduced use of substances that endanger the earth’s ozone layer. In that case, a relatively small number of national actors cooperated with key industries to forge a pact that phased out ozone-depleting substances in favor of alternatives, and devised mechanisms to share those alternatives with emerging nations.

This program was indeed a great success, but remains an anomaly in the environmental policy area. It likely won't translate well to the far more complicated arena of carbon dioxide and other greenhouse gases.

*Much of the American odyssey into climate change policy has been dominated by political conflict and policy stalemate.*

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The continued hope that “the next” international gathering of nations to debate climate governance will represent a turning point toward a global regime may simply be unrealistic. The much-anticipated December 2009 summit in Copenhagen may follow this pattern, particularly if

expectations soar unrealistically amid anticipation that the 2008 American election will foster a fundamental change in global climate governance.

Stacy VanDeveer and Henrik Selin explained the limited applicability of this approach to the climate arena, at least at this stage. Instead, other kinds of multi-level governance have begun to emerge, and some may be particularly promising. These often begin with ad hoc coalitions, alliances among nations in a geographic region, such as North America, or among an established network, as in various trade regimes. Fostering collaboration across national borders should build on “existing forums which actually do things,” in VanDeveer’s terms. This idea suggests many possible routes toward a more bottom-up approach to development of international capacity, perhaps following the general paths of trade and public health policy rather than the once-anticipated ozone blueprint. In turn, comparative analysis can yield considerable insight for the United States. Despite the divergent paths taken in Kyoto ratification, the European Union and the United States may actually be laboratories for mutual policy learning rather than polar extremes.

### *Where to Begin: Existing Cornerstones*

Much of the American odyssey into climate change policy has been dominated by political conflict and policy stalemate. Nonetheless, it is not necessary for President Obama and the 111th Congress to start from scratch. Over the past two decades, American political institutions have taken important initial steps on this issue. Collectively, they form a set of cornerstones to guide future American policy development, and thus a starting point for future commitments.

First, the saga of American disengagement from Kyoto is well-known around the world. But the U.S. Senate *did* ratify the 1992 UNFCCC along with more than 150 other nations. This agreement set forth an international platform for stabilizing greenhouse gas emissions, and acknowledged “common but differential responsibilities” among various nations given their respective circumstances. The UNFCCC obviously has faced enormous limitations in implementation but remains an important early statement of international commitment in response to climate change. It represents, in the words of Stacy VanDeveer, “an international regime that has been up and running since 1992 and is still operational.” UNFCCC thus remains a useful mission statement guiding any future international policy deliberations:

“The ultimate objectives of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere that would prevent dangerous anthropogenic interference with the climate system.”

Second, Congress’ blizzard of hearings and familiar brawls over climate change should not overshadow an important consensus reached by the Senate in 2005. At the very point at which respective chambers could not agree on a federal version of a renewable energy mandate, the Senate did back a resolution that redefined its official stance on climate change. Less than a decade after another resolution (better known as Byrd-Hagel) helped derail any chance of Senate consideration of Kyoto, the 2005 successor reflected significant evolution on this issue. This resolution remains the official stance of the U.S. Senate on climate change and was co-sponsored by nine Democrats and nine Republicans, suggesting the possibility of bipartisan engagement:

“Congress should enact a comprehensive and effective national program of mandatory market-based limits and incentives on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a rate and in a manner that—  
(1) will not significantly harm the United States economy; and  
(2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.”



Third, the 2007 Supreme Court decision in *Massachusetts v. U.S. Environmental Protection Agency* did more than push the executive branch to reconsider the role of carbon dioxide in the context of air pollution legislation. The decision also makes a strong statement about the threat posed by climate change and the legitimacy of a policy response to mitigate damage. This decision places greenhouse gases within a larger body of environmental contaminants, and establishes the right of individual states to mitigate their risks from climate change, thus setting a powerful federal court precedent that is already proving influential in other court deliberations:

“The harms associated with climate change are serious and well recognized. The Government’s own objective assessment of the relevant science and a strong consensus among qualified experts indicate that global warming threatens...a precipitate rise in sea levels, severe and irreversible changes to natural ecosystems, a significant reduction in winter snowpack with direct and important economic consequences, and increases in the spread of disease and the ferocity of winter events.”

Fourth, the increased amount of state experimentation with virtually every form of climate policy imaginable reflects not only a willingness to innovate, but also offers a diverse set of real-world experiments to inform future policy initiatives. Many states offer a decade or more of experience with most of the very policy options that future Congresses and Presidents will likely consider. This is perhaps best reflected in California’s bold aspirations for national and global leadership through multiple policies, evident in the preamble of the 2006 Global Warming Solutions Act:

“Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California....National and international actions are necessary

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*Stacy VanDeveer, conference author, discusses international climate policy challenges.*



Stacy VanDeveer  
*University of New Hampshire*

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*Keynote speaker Elizabeth Shogren, national reporter for environmental issues, National Public Radio*

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to fully address the issue of global warming. However, action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.”

### **Establishing a Viable Governance Strategy**

The new President and Congress will need to take major steps on climate change, most likely through expansive legislation. Our conference deliberations scrutinized a number of fundamental governance challenges to consider in order to maximize the likelihood that any future policies would be thoughtfully designed and effectively implemented. The following steps would not be as visible as sweeping emissions reduction legislation or bold reduction pledges set through the first half of the twenty-first century. But they would follow basic elements of effective governance, all likely to be particularly crucial in an area as complex as climate change.

### *Require Transparency and Emissions Disclosure*

One of the great American environmental success stories of the last quarter-century involves mandatory disclosure of emissions, most notably through the 1986 creation and subsequent expansion of the Toxics Release Inventory. This innovation and scattered efforts to extend such disclosure provisions to greenhouse gases in some states suggests that this constitutes a relatively inexpensive way to assure accurate accounting. To date, most climate policies put into operation around the world are based on estimates of emissions, with inaccuracies capable of undermining implementation effectiveness and public trust.

Congress should remedy this gap with legislation to develop a reliable and verifiable national inventory of the releases of carbon dioxide and other greenhouse gases, leading to a detailed annual scorecard by source, industry, state, and region. EPA has been working on a disclosure process in response to a Congressional call for such a step that was tucked into an earlier agency appropriations bill. But this process has advanced while numerous states, regions and non-profit organizations have forged ahead with their own versions of such a program, all lacking any coordination or integration and suggesting the very real possibility of competing registries and databases. It is also not clear that the threshold for reporting under the proposed federal program is sufficiently low, given the need to secure broad involvement in such a program.

Full registry legislation has been introduced in recent Congresses, but has essentially been ignored amid more controversial climate policy debates. A national inventory could be developed through collaboration with those very states and other entities that have already made progress in this area, thereby establishing a trustworthy national database that could prove invaluable for any number of policy options. Cass Sunstein, the incoming head of the Office of Information and Regulatory Assessment in the Office of Management and Budget, wrote thoughtfully on this very issue in recent years from his academic posts. He is now positioned to contribute to successful implementation if Congress so acts, as well as consider other promising strategies that might inform people about the climate impact of various behaviors and purchasing decisions. This represents one of many areas where Congress needs to engage and put its stamp on policy, rather than pass the buck and leave yet another matter to inter-agency and inter-state negotiation.

### *Rebuild Analytic Capacity*

Congressional hearings have repeatedly bogged down in debates over interpretation of scientific findings and the technical feasibility of policy options. Clearly Congress lacks the internal capacity for such analysis, reliant instead on whatever interest groups or advocates are invited to a given hearing. This may well be a direct outcome of the 1995 decision to jettison the Congressional Office of Technology Assessment in a symbolic effort to shrink the federal government. OTA offered unique capacity to respond to committee requests for scientific, technical, and policy analysis, much of which cut across the very areas that we now define as integral to climate change. The Office blended a diverse set of disciplines in the natural, physical, and social sciences that are rarely represented among Congressional staff. The 111th Congress should develop a worthy successor with an express charge to bolster the legislature's internal capacity to understand climate change and policy options.

### *Audit Carbon Content of Federal Legislation*

Congress might utilize such expanded analytical capacity to assess the anticipated carbon impacts of any relevant legislation. A great many pieces of legislation influence carbon emissions, whether or not they are specifically addressing climate change, and yet there is no formal mechanism to measure

the "carbon impact" of such laws. Rigorous carbon auditing would have been valuable in recent years, such as in 2005 and 2007 when Congress enacted massive energy bills that may have actually served to increase carbon emissions through their complex set of subsidies and incentives to virtually every energy source imaginable. Such an audit policy could build on decades of experience

with environmental impact assessment conducted under both federal and state legislation, and weigh the climate impact of various policy options.

*Congressional hearings have repeatedly bogged down in debates over interpretation of scientific findings and the technical feasibility of policy options.*

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### *Streamline Committee Jurisdiction and Relearn Oversight*

Congressional governance of climate change exemplifies the dysfunction of the modern legislative era. Countless policy proposals have been lost amid a proliferation of hearings by an ever-expanding set of standing committees, subcommittees, and special committees that consistently have met the “show horse” rather than the “work horse” standard. This stumbling block has

*Congressional governance of climate change exemplifies the dysfunction of the modern legislative era.*

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affected the environmental and energy arena for decades, only compounded further by recent trends in Congress and the extraordinary scope of climate change. More than three decades after its initial climate hearings, Congress

has yet to demonstrate anything approaching serious floor deliberation on a climate bill in either chamber. In the Senate, this was most recently demonstrated in June 2008 when all of the time allocated for debate of the Warner-Lieberman Climate Security Act was devoted to a literal reading aloud of its nearly 500 pages. In the House, the Special Select Committee on Global Warming held 46 hearings in the 110th Congress alone, but consumed substantial time of members and staff in finding ways to dramatize the issue rather than play a serious role in crafting policy.

In the 111th Congress, fault lines are already emerging, such as the long-standing divides between the Senate Committees on Environment and Public Works and Energy and Natural Resources. Senator John Kerry (D-MA) has used his perch as Chair of the Foreign Relations Committee to begin to explore ways in which various committees could work more collaboratively, including early orchestration of hearings. Congressman Charles Rangel (D-NY) has used his base as Chair of the Ways and Means Committee to begin a similar effort in the House. Some Senate and House committees have also begun to consider consolidation of various subcommittees to bring greater focus on deliberation at the full committee level. These are all positive initial steps in moving Congress toward a more functional role in climate governance.



One enormous challenge facing the new Congress is learning to work constructively with the federal agencies that it oversees. The EPA, Department of Energy, and the many other federal government units that will likely play a role in climate policy have long been constrained in their ability to develop capacity in climate change, much less explore necessary lines of coordination across their boundaries. Congress should begin to move toward a more constructive role of oversight and look for ways to work effectively with the executive branch to provide necessary resources for key agencies and departments. Early senior Obama appointees bring considerable experience and talent to the tasks at hand. But they would likely prove more effective if their relationship with Congress provided them direction through legislation that clearly addressed key issues and promoted accountability through reasonable forms of oversight.

### *Rebuild Agency Capacity*

A number of states have built promising climate policies through active encouragement and development of key units of governments, including agencies representing environmental protection, energy, agriculture, and transportation. As a result, leading staff have joined leadership teams that cut across traditional boundaries, creating networks to allow for cross-unit collaboration. Indeed, many of the most successful examples of climate policy to date, measured in early implementation and emission reductions, come from those American states and EU Member States, as well as other sub-national governments around the world, that have begun to take seriously the daunting challenge of climate change.

Such steps need not involve far-reaching reorganization or creation of mega-agencies, as was the case in the hurried response to the challenge of domestic terrorism by creating the unwieldy Department of Homeland Security.

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*Walter Rosenbaum discusses  
federal agency capacity to  
implement climate policies.*

Indeed, many scholars and practitioners at the conference advised against such administrative consolidation. But the federal agencies and departments that will participate in climate change governance are clearly not prepared to assume a lead role in collaboration with other units. The weakening of EPA in recent times is cause for particular concern, given its likely assumption of major responsibilities under many possible scenarios. Moreover, key partners such as the Department of Energy, in the words of Walter Rosenbaum, “have been decimated. The last eight years have really caused a lot of very good people to either retire or to find other gainful employment. So you have to first build those capacities.”

This type of institution building is neither glamorous nor easy. But it will require unusual collaboration between the President and the Congress to provide needed resources, revisit traditional roles, and actively recruit the most talented staff available. Given this complexity, the decision to appoint a “climate czar” without well-defined linkages to other units is suspect. Such hierarchical models have generally not been successful when attempted in states and EU nations, and can often obscure the larger governance challenges ahead. The federal government will be in the business of climate change for decades to come, so now is the time to think seriously about how to prepare various units and staff for a constructive role. The National Academy

*Given this complexity, the decision to appoint a “climate czar” without well-defined linkages to other units is suspect.*

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of Public Administration has shown considerable expertise in its new approaches to environmental governance, and could be tapped for such an advisory role. And state governments are heavily populated with officials who could appropriately transfer their expertise to federal institutions and their

regional offices, perhaps following the example of President Obama’s appointment of New Jersey Department of Environmental Protection head Lisa Jackson to become EPA Administrator. Many key positions remain vacant during the early stages of transition, providing an opportunity to staff federal agencies with leaders who have an actual track record in climate governance.

## *Take Federalism Seriously*

The considerable body of experience and talent at the state level can be tapped as Washington becomes increasingly serious about climate change. But federalism entails more than treating states as a minor league farm club,

*Each climate policy option presents a different intergovernmental puzzle, and yet all offer some opportunity for federal and state sharing of burdens.*

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occasionally borrowing ideas and personnel that can transfer to the federal level, but acting as if the American system were ultimately unitary in character. As Paul Posner noted, “States are not viewed as a kind of a co-governance collaborator in this.

They’re viewed, if anything, as ‘thank you very much for your innovations. Now let us go to our national market and we’ll maybe let you back in.’” Such a view has been evident in many Congressional hearings to date as well as many legislative proposals that seem indifferent to rapidly expanding state commitment and capacity, and instead aim to preempt existing state policies in future federal legislation.

A top-down approach to federalism is dangerous. It risks the evisceration of early state innovation and capacity while exaggerating the extent to which an ill-prepared federal government can walk in and take control of a playing field as vast as climate change. As Susan Gander noted, “We’ve almost moved beyond that laboratory stage. We’re in full-scale production at the state level. And I think that really complicates what will need to happen in the federal government, and certainly provides an amazing foundation for what to build upon.” Done effectively, collaborative federalism could combine the respective strengths of various states and policy alternatives, resulting in a dynamic federalist response to climate change.

Each climate policy option presents a different intergovernmental puzzle, and yet all offer some opportunity for federal and state sharing of burdens. In the area of cap-and-trade, a federal cap might be applied somewhat narrowly to certain sectors and reward those states that have developed their own programs and begun to reduce emissions.

In the area of renewable portfolio standards, a federal standard might set a basic definition of renewable energy, a national minimum schedule for



increasing the share of electricity derived from renewable sources, and a mechanism for inter-state trading of renewable energy credits that built on best state practices where this is already being done. But the federal standard need not impede those states that have already set a higher bar or intend to do so in the future.

In the area of carbon taxation, federal and state strategies could co-exist as they do already in other areas that also target the negatives that emerge from use of a product. Essentially, every area that could be deemed “climate policy” allows for careful crafting of an intergovernmental partnership, perhaps even taking, according to Martha Derthick, a “compensatory” approach that systematically builds on the strengths and weaknesses of respective levels of government.

There is growing evidence that such a model is emerging elsewhere, perhaps most notably in the European Union. Continental strategies increasingly impose common “floors” rather than “ceilings,” allowing for continued experimentation at the national or regional level. “Burden sharing” is actively considered, as Henrik Selin explained, weighing the competing capacities of various Member States and finding fair ways to allocate responsibilities and resources to build capacity. Far from a unitary system, the EU increasingly features a multi-level governance model. The United States, with its more established system of federalism, could potentially surpass the EU approach, systematically reviewing how various roles might best be shared across several governmental levels. This approach will take more than one hearing or one session of Congress. It will instead be an ongoing test of the federal government’s seriousness about devising a viable long-term climate strategy.

### *Begin to Price Carbon*

Many proposals for early action on climate change have been sold as a proverbial free lunch, offering countless economic benefits through use of new energy systems and technologies at little or no cost to citizens. It remains to be seen how successful these strategies will be if implemented nationally, as the state

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*Author Martha Derthick  
discusses American federalism  
and climate change policy.*



**Martha Derthick**  
*University of Virginia*

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record in this arena is decidedly mixed. But at some point the federal government will need to send a clear signal that it is serious about reducing greenhouse gases, and the most straightforward way to do that is by pricing the carbon content of fossil fuel use.

This, of course, raises the controversial spectre of “carbon taxes,” or their more complicated form through a cap-and-trade regime. As the National Survey findings suggest, Americans are not yet prepared to accept the notion of higher energy prices through taxation or a cap-and-trade program. Nonetheless, this represents an area where political leadership can help demonstrate the strong linkage between the real societal cost of energy and its consumption, as well as possible uses of revenue that might be generated.

One early illustration of political leadership on this issue occurred during the 2008 presidential campaign, where Barack Obama rejected proposals from rivals Hillary Clinton and John McCain to suspend the federal gas tax. Obama said that such a step was a gimmick and would only further undermine federal funding for transportation infrastructure. Survey findings suggest that his stand was well-received and contributed to his strong showing in subsequent primaries. States are increasingly turning to this issue as well, given their difficult fiscal situations, commitment to combat climate change, and experience with taxing other products that cause harm, such as tobacco and alcohol. In turn, nearly half of the states are involved with some form of a cap-and-trade program that will also impose costs upon fossil fuel use.

*Americans are not yet prepared to accept the notion of higher energy prices through taxation or a cap-and-trade program.*

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Many presentations and discussions throughout the conference returned to this topic as a vital precondition to any serious assault on greenhouse gas emissions. Of course, much of this entails “framing”—not a manipulation of evidence but rather a clear account of what

we have learned about the linkage between energy pricing and consumption, whether through spikes in energy prices or taxes applied in other nations.

In turn, establishing a carbon pricing system also generates revenue, and this creates a significant opportunity to find transparent measures to either target

funds on energy alternatives, return or rebate revenues to the public, or reduce other taxes proportionately.

The current major recession, of course, gives pause in launching any new cost-imposition strategy. But such a step could be phased in gradually, sending clear signals to all Americans and to the world that the United States is serious about reducing its carbon imprint and changing its energy

*Carbon pricing could also serve to reduce the volatility of energy prices, evident most recently in huge swings in gasoline prices during 2008.*

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alternatives. Indeed, the very creation of a carbon tax need not preclude consideration of a cap-and-trade regime. Many European nations, including all of those that have been most successful in reducing emissions since 1990 while also fostering considerable economic growth, feature some blending of domestic carbon taxation and participation in the continental cap-and-trade program

known as ETS. Under these systems, the tax serves as a type of floor below which prices will not fall, sending very clear indicators to electricity producers, vehicle manufacturers, and industry, as well as the general public.

Thus climate policy need not be only one approach, but rather a mixture of policies and strategies. Such a tax could be put into place rather quickly, even at a low and phased-in level, well before any allocation process for permits could begin under a cap-and-trade approach.

Carbon pricing could also serve to reduce the volatility of energy prices, evident most recently in huge swings in gasoline prices during 2008. This reduced volatility would show manufacturers of a range of products—from vehicles to appliances to houses—what they can expect in terms of future energy costs.

Given the overwhelming consensus of the 2008 National Survey that climate change is a serious problem, the next step in political leadership is translating the enormous body of social science analysis on the benefits of carbon pricing into political consensus and being transparent about the likely costs and benefits of policy options.





*Discussants Timothy  
Conlan, left, and Anne  
Khademian, right*

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### *Cultivate Allies*

At the beginning of 2008, the United States was derided in capitals around the world for its seeming indifference to climate change, despite its outsized contribution to global greenhouse gas emissions. Two thousand nine has begun with a new lease on life, as the world watches American movement on this issue. State government experience shows that many other nations (or units within those nations) are keen to collaborate with American partners. This possibility is well-illustrated by the response to President Obama's first foreign visit, to Ottawa, where serious discussion has begun on a "clean energy dialogue" in collaboration with our largest energy trading partner. Given the enormous scope of climate change, virtually every point of American engagement with other nations or international bodies creates a unique opportunity to find common ground related to this issue. It is imperative for the United States to seize these opportunities for cross-national and cross-sectional partnerships.



## *Learn from Prior Experience*

At one level, climate change presents a uniquely complex set of technical and policy challenges. At the same time, it also constitutes an intergenerational challenge of the sort not easily dealt with by existing federal institutions. Nonetheless, our conference deliberations frequently returned to prior instances in which the American federal government successfully put longer-term considerations ahead of short-term political obstacles. Indeed, a number of our scholars have written extensively about some of these very cases, and drew upon that experience in considering climate change. These examples included the deregulation of various sectors of the economy and far-reaching tax reform legislation in the 1980s, the historic agreement in 1983 to extend the viability of Social Security, and the 1990 enactment of the Clean Air Act Amendments, among others. In all of these cases, an expert consensus emerged to define the problem at hand and to outline an idea for a viable policy response. In many instances, such policies were carefully crafted and are widely viewed as having met their key goals.

State-level experience in climate change over the past decade or more suggests that such action is not beyond the capacity of American political institutions, even in the current era and on as complex a matter as climate change. But translating any of this state experience into the national level requires not just a formula for securing a requisite number of Congressional votes in order to “do something.” Indeed, a worst-case scenario would entail Congressional enactment of climate policy that was poorly designed and beyond the capacity of existing institutions to implement, ultimately proving costly to citizens, further damaging American credibility on this issue, and doing little or nothing to reverse the growth of greenhouse gas emissions. Such a scenario is eminently possible given the realities of American politics. This is why serious attention to the details of effective governance, however complex or unpleasant, is vital.

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## Endnotes

1. Direct quotation from remarks during the National Conference on Climate Governance, Miller Center of Public Affairs, December 11-12, 2008. All subsequent quotations in this report are derived from comments at the conference.
2. A report on the findings from the National Survey is available at [http://webstorage3.mcpa.virginia.edu/conferences/report/conf\\_2008\\_1211\\_survey.pdf](http://webstorage3.mcpa.virginia.edu/conferences/report/conf_2008_1211_survey.pdf). An October 2008 report highlighting findings from Virginia is available at [http://webstorage3.mcpa.virginia.edu/panels/pdf/panel\\_2008\\_1021\\_borick.pdf](http://webstorage3.mcpa.virginia.edu/panels/pdf/panel_2008_1021_borick.pdf).

## CONVERSATION *with* SENATOR JOHN WARNER

### **Governor Gerald L. Baliles**

My good friend John Warner understands as well as anyone what it means to serve the public, having spent 40 years in government and military service. He has exemplified personal leadership, and certainly left an indelible mark on American governance during his career in public service. He's earned a reputation as a savvy legislator whose style reflects the virtues valued in Virginia. That is: pragmatism over partisanship. Now concluding 30 years in the United States Senate, this legislator is known for his unwavering support for the men and women of the armed forces, but he has also earned a lot of admiration and respect for his energetic involvement in the work of the Senate Environment and Public Works Committee.

During the past year or so, Senator Warner's name has been closely associated with climate change legislation, better known as the Warner-Lieberman Bill. It was the subject of vigorous discussion in the Congress during this past year. Senator Warner has graciously consented to participate in this conversation about the governance of climate change strategies, and I'll ask you now to turn your attention to this graduate of the University of Virginia's School of Law, and the recipient of the 2008 Jefferson Medal for Citizen Leadership, which he accepted earlier this year at the Rotunda.

### **Senator John Warner**

Thank you, Governor Baliles, you've been a great friend to me for many, many years. I commend you, Governor, and the Miller Center, and Dr. Rabe, because you're doing vitally important work for the future of our nation. I'm joined by Chelsea Maxwell, one of the ablest persons on this staff of the United States Senate. She served as my counsel on the Environment and Public Works Committee, working with Barbara Boxer on this important legislation.



*Governor Gerald L. Baliles,  
Director, Miller Center  
of Public Affairs*

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### **Barry Rabe**

First of all, on behalf of the Miller Center and all the people participating in the conference, thanks very much to both of you for joining us. We have just released a National Survey of Public Opinion on Climate Change in the United States. It found that Americans are very concerned about the issue of climate change and they clearly believe that it is both a federal and state responsibility to respond. Is this the kind of issue where the public is taking the lead and the Congress has been lagging—and now may be beginning to formulate a response?

### **John Warner**

We on the Environment and Public Works Committee, Joe Lieberman and I and the chairman, Barbara Boxer, recognized the need to begin to get Congress more involved. Indeed, our target was to have specific legislation in this Congress. We did not achieve that goal. Frankly, we had hoped to get the support of the [George W. Bush] administration, and factually, I'm just stating that this administration determined this legislation would not pass.

We put the bill together after 25 hearings, compiling these 500 pages with the help of industry, academia, people all over America. And the governors were very active, they testified before us over the course of 14 months.

But the decision was made by the administration and the leadership of the Republican Party, of which I'm proud to be a member—they decided not to do it, and it came to halt. But it shows that some of us want to make this work. I was the only Republican on the committee who voted for this bill in what we call the mark-up session. That's where the committee comes together and puts the final parts of the bill together.

That's history, so we really ought to talk about the future. In the absence of leadership from the executive branch over the years, in the absence of the Congress, what happened? The states on their own initiative moved in, in many areas, and passed their own laws and put in their own regulations. And that's one of the major challenges for the President-elect.

### **Barry Rabe**

I'd like to follow on this issue of federalism. One of the remarkable developments is that over the last decade, so many states have become active on climate change.

### **John Warner**

And well done, too. I'm glad they did it. It was an important set of baselines for us to try and frame our bill. And in this bill were provisions that said we're not going to undo that, but we're going to set a floor so that nobody can push the several states below the floors they set.

### **Barry Rabe**

Can you elaborate a little on that strategy? Because successor congresses will deal with the fact that roughly half of the states have a fair amount of experience with climate policy while the other half have not really been involved. How does one weigh that differential response within the states while looking at ways to expand the federal role?

### **John Warner**

Well, it's interesting. The Founding Fathers said everything is reserved to the states except what we specifically put into the federal system, but over time that has begun to tilt somewhat the other way. I'm very hopeful that the progress that has been achieved by the several states, 25 or so, will not be

reversed. And that the future action by the Congress will build on what several state legislatures have done in the past year or so.

I have great respect for President-elect Obama. I served with him here in the Congress. We became, if I may say with modesty, good friends, and given that he had just arrived in the Senate, he often used to find me—I was referred to as one of the old bulls—to give him a little pointer. Particularly in the areas of national security. And I think he was quite interested in the course of the deliberations of our committee and our first attempt on the floor in this legislation. He has said, “Few changes facing America and the world are more urgent than combating climate change.... My presidency will mark a new chapter in America’s leadership on climate change that will strengthen our security and create millions of new jobs in the process. Climate change and our dependence on foreign oil, if left unaddressed, will continue to weaken our economy and threaten our national security.” End quotes.

That’s one of the reasons I got involved in this. I was chairman of the Armed Services Committee when I first started, and I could see, and in consultation with the senior members of the Department of Defense, there is very clearly a nexus between climate change and the consequences and the military roles and missions of our forces in the years to come. In a lot of the nations that have borne the brunt of these climate changes, particularly Africa with its droughts, it causes conflict between nations. That causes instability, and instability then draws the attention of not only the military forces of our country but of other countries.

### **Barry Rabe**

One of the challenges that Mr. Obama faces is staffing many of the agencies and departments that will be responsible for this portfolio. And the next Congress will have to think about all the different units of the federal government that could begin to play a role. What advice would you offer Mr. Obama or the 111th Congress about the structure of government and institutions and how they may have to evolve in terms of staffing, resources, and structural kinds of issues—a challenge you’ve faced in many areas but for which climate change poses particular problems?

### **John Warner**

Well, first, I would say with respect to my good friend, the President-elect, he doesn’t need any advice. He’s taken extraordinary initiatives, being very



careful not to in any way tread on the constitutional system where we have only one President at a time, but people are in every way possible trying to join his administration. He will have nothing but the best and the brightest to draw from across this country to staff and work in the several agencies on this vital subject.

Now, you do put your finger on it. You get this magnificent, big, enormous federal system that he is now inheriting because of the succession of presidents who say, as I remember Ronald Reagan, “We ought to eliminate that department, eliminate this department.” Well, he built the federal government up, and every president does. Coordinating several agencies is always a challenge for the President. That is the basic purpose of the Cabinet, to work out those different obligations of the several departments and agencies. EPA should and will have the lead. As a matter of fact, the Supreme Court said they have the authority inherent in the current body of law with regards to the regulation of CO<sub>2</sub>, which is key to so much of this.

So to answer your question, A) he’ll have the best and the brightest, and B) there will be a challenge.

### **Barry Rabe**

The bill that you’ve been working fits certainly into the area called cap-and-trade. One of the things that struck us in our National Survey was the response when we asked Americans from across the country their reaction to a number of possible policy approaches. Many of these options received very strong support. But when we turned to cap-and-trade, we found there was somewhat less support, more of a divide, and perhaps not awareness or familiarity with what is entailed. Given the magnitude both of the climate change issue and the kinds of changes that are called for in a cap-and-trade bill of this sort, how does one bring the American public into that conversation? How can Congress play a more educational and information-sharing role, independent of the question of whether or not legislation goes forward?

### **John Warner**

I think I’ll start with a corny old story. Willy Sutton, who was a famous robber of banks, was asked one time, “Why do you rob banks?” And he said, “That’s where the money is.” Well, we devised in this bill the best we could of a cap-and-trade system. That system takes funds basically from industry, the industrial base, who would have to contribute depending on their status

as to their CO<sub>2</sub> emissions, into this bank. Then it was important, once the bank was established, that it wasn't robbed by the Congress to pay other bills, which Congress is prone to do now and then, but to redirect that money to support the goals of the legislation—be it research and development, or grants to companies or educational institutions, all kinds of ways to implement the learning process to move forward in this complicated area. Now, I'm not presumptuous enough to say that the next Congress will lift what we had in this bill as a guide post. They may devise their own; it's not clear.

Now, cap-and-trade directly affects, or is related to, the economy. How much can you take out of industry and transportation and manufacturing to support a cap-and-trade program at a time when those companies are struggling? At a time when they're laying off, unfortunately many of them, and cutting back on their production. So the one bit of advice I would be presumptuous enough to give is a provision that I worked on with Senator Lieberman, I call it the "engineer seat." I think it's important that the Congress put in place the legislation that is designed to meet the challenges of the global warming situation, but give the President the throttle as to what you move forward—by way of cap-and-trade, by way of other aspects of the bill—and what you hold until the economy, in the President's judgment, can meet the demands that a legislative format would impose. So he has to sit in the engineer seat. He also needs to have a brake, like an engineer on a train, and if he sees we're rolling too fast and the infrastructure of the manufacturing, transportation, industry, and coal-fired plants, can't meet it, then he has to brake it down a little bit. But the important thing is all parties will know what is the intent of Congress by virtue of a piece of legislation, and the ability to move and brake is left to the chief executive of our nation, the President.

### **Barry Rabe**

So this then would be a fairly significant granting of power to the executive branch?

### **John Warner**

Yes, it would.

### **Barry Rabe**

There has been some discussion of stalling serious legislative conversation on climate change because there are so many issues on the coming agenda, including the economic crisis. But you're arguing then to move forward relatively quickly with some form of legislation.

## **John Warner**

We've got to do it thoroughly and expeditiously. I would use that word. It seems to me we have an obligation to transportation, manufacturing, and industry. These are our goals; this is the path by which we want to achieve it. And they've got to lay out their financial requirements for three and four years, and they have to know what the goals are and what their role is in meeting those goals, recognizing that the President will have the throttle and they have to have their links to advise the President. But the Congress is, under this general proposal that I've just outlined, giving an unusual amount of authority to the chief executive.

And then another thing, the President has got to pace America to some extent. I want America to lead. America's got to be one of the leaders. Take the principal nations of China and India, they've been followers, they're sort of watching what we do and don't do. And America can't simply go out alone on this and tax our industry and other elements, and let them have a free hand. So the President has the task of making the world move together on this, because CO<sub>2</sub> knows no bounds. Up she goes and it's distributed over the world.

## **Barry Rabe**

You touch upon the important international dimensions, even though the bill is focused primarily on domestic concerns.

## **John Warner**

Much of the concern in Congress is that we were trying to drive too hard and too far and get so far out that our industrial product base would be at a disadvantage in the world trade market.

## **Barry Rabe**

What are your thoughts about how the United States begins to build partnerships, whether they're bilateral, continental, or revisiting international treaty processes? How would you approach the foreign policy aspects of this?

## **John Warner**

It has to be an international format, really a carrot and stick. We cannot put the American economy at a disadvantage in world trade. We're a global economy now, and we've got to remain competitive for our own self-interest here at home. So we put in various checks with regards to the international community.

## **Chelsea Maxwell**

The other nations that were not reducing their CO<sub>2</sub> emissions to the same extent as the U.S. would have to compensate at the border if they were trying to bring in products. One issue that will be very big will be technology transfer and making sure that some of these smaller nations that can't afford to implement or innovate on their own have access to some of the technologies that we hope the United States will be a leader in creating.

## **Barry Rabe**

I realize this comes at a remarkable time in your remarkable career in the Senate. You have faced a great many difficult policy challenges—foreign policy, the reorganization of intelligence and homeland security, domestic legislation from clean air to disabilities. How would you compare the climate change issue to some of those other issues in terms of complexity?

## **John Warner**

I would rank this issue at the very top of complexity, unquestionably. And from the public, wherever we've been on our travels on this issue, we detect a great enthusiasm. You've got to tap that enthusiasm and engender more enthusiasm. At the same time, you've got to come up with some tough answers. Be it the global trade situation, or how it impacts the local power plant, how it impacts the manufacturing base. Of course, superimposed on that challenge is now this very complex economic system that our nation is trying to work its way through.

## **Barry Rabe**

Can you tell us a bit about the evolution of your own personal thinking on this issue? This is not an issue for which you were seen as a leader early on. But now, at this stage, you are front and center. Can you tell us about the trajectory of your thinking?

## **John Warner**

I can tell you it was two things. One, I realized the connection with national security and our roles and missions, and that's been my principal responsibility in my 30 years here. I've either been chairman or ranking member of the Armed Services Committee for about 15 of those years, and have dealt with militaries all over the world and traveled a good bit of the world.

But then it was a personal thing, if I may. In 1943, in the middle of the most intense periods of World War II, my father, who was an old World War I veteran—he was a doctor and was in the trenches in France—he said to me, “Young boy, you’re going to get into this thing. You better get prepared and you’ve got to get a man’s job. You’re going to learn how to stop riding your bike and just playing baseball. I’ll pay your way one way to anywhere in America if you’re going to get a man’s job.”

So I tried to outfox him, and I got a job with the U.S. Forest Service working in the forests of Idaho and Montana in 1943. It took us a week to get out there on the train in those days, and I got out there and I was thrust into those forests, and I cannot tell you how beautiful they were. No one had ever been up into some of the areas that we were in, with connection to firefighting and trailblazing and road building. The trees were magnificent, the streams were pristine.

About four or five years ago I was out in Idaho and I got the Forest Service to take me back. When I got into those same forests, I guess some of them were there a half century ago when I was there, now they’re just infested with beetles. Infested with disease. And I left with a broken heart to think that one of America’s greatest assets, these magnificent spruce trees and white pines and the whole thing, that by virtue of the imbalance in nature as a consequence of global climate change, we’re losing our forests. I said, “Bingo, while you’re still around, see what you can do.”

### **Barry Rabe**

Well, that is much appreciated and respected. On behalf of Governor Baliles and all involved in the conference, I very much want to thank you for your thoughtful comments.

### **John Warner**

But I’m going to be part of this thing, you can be sure.

### **Barry Rabe**

I have that sense, absolutely. Thank you so much.

### **John Warner**

Thank you. Forget about politics, I think we put a little substance on the table for a change.





## CONFERENCE PARTICIPANTS

### Authors

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**Christopher Borick** is Director of the Muhlenberg College Institute of Public Opinion. Previously, he held positions with the Internal Revenue Service and the Monroe County, Pennsylvania, Planning Commission. Borick has published and presented more than twenty articles in the area of public policy and public opinion. He received Muhlenberg's Lindback Award for Distinguished Teaching in 2006.



**Martha Derthick** is emeritus Julia Allen Cooper Professor of Government at the University of Virginia. She is the author of many books, including *Policymaking for Social Security* (Brookings Institution Press, 1979), *The Politics of Deregulation* (Brookings Institution Press, 1985), and *Agency Under Stress: The Social Security Administration in American Government* (Brookings Institution Press, 1990). She has served as Director of Governmental Studies at the Brookings Institution and received the Gaus Award from the American Political Science Association for her contribution to the study of public administration. Most recently, she published *Up in Smoke: From Legislation to Litigation in Tobacco Politics* (CQ, 2004).



**Kirsten Engel** joined the James E. Rogers College of Law at the University of Arizona in 2005, with a background in environmental law and policy that spans academia and public sector practice. Engel recently served as a member of Arizona Governor Janet Napolitano's Climate Change Advisory Group. She served as senior counsel for the Public Protection Bureau and acting chief of the Environmental Protection Division of the Massachusetts Office of the Attorney General. Prior to entering academia, Engel worked as a staff attorney for the Sierra Club Legal Defense Fund and at the U.S. Environmental Protection Agency.

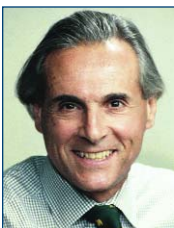


*Discussant Judith Layzer comments on the panel on regulatory options.*

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**Marc Landy** is Professor in the Department of Political Science at Boston College. In addition to teaching undergraduates and graduate students, he regularly teaches public officials from Ireland and Northern Ireland about American Politics through a series of executive programs run by the Irish Institute. His recent articles include “The Bush Presidency after 9/11: Shifting the Kaleidoscope” in the inaugural issue of the *E Journal Forum*, “Local Government and Environmental Policy” in *Dilemmas of Scale in American Federal Democracy* (Woodrow Wilson Center Press, 1999), and “The Politics of Risk Reform” in the *Duke Environmental Law and Policy Forum*.



**Pietro Nivola** is a Senior Fellow at the Brookings Institution, where he served as Vice President and Director of Governance Studies from 2004 to 2008. Before joining the Brookings Institution, Nivola was a Visiting Scholar at Harvard University and an Associate Professor at the University of Vermont. He has written widely on energy policy, regulation, federalism, and American politics. His current project is a study of partisan polarization.



**Paul Posner** is the Director of the Public Administration Program at George Mason University, following a thirty-year career at the U.S. Government Accountability Office. He has published widely on budgeting and federalism, and his book, *The Politics of Unfunded Mandates: Whither Federalism?* (Georgetown University Press, 1998), was honored as the year's best book on federalism by the American Political Science Association. Posner recently published *Intergovernmental Management for the 21st Century* (Brookings Institution Press, 2008). He is Chair of the Federal Systems Panel of the National Academy of Public Administration and President-Elect of the American Society for Public Administration.



**Barry Rabe** is Professor of Public Policy at the Gerald R. Ford School of Public Policy at the University of Michigan. He is also a Nonresident Senior Fellow at the Brookings Institution and a Visiting Scholar at the Miller Center. He is the author of four books, including *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy* (Brookings Institution Press, 2004), which received the Caldwell Award from the American Political Science Association for the best book published on environmental policy. In 2006, Rabe became the first social scientist to receive a Climate Protection Award from the U.S. Environmental Protection Agency.



**Leigh Raymond** is Associate Professor of Political Science, and Associate Director and a founding member of the Purdue Climate Change Research Center. He studies the political process of creating and allocating tradable allowances for greenhouse gas emissions. Raymond has published in the journals *Energy Policy* and *Science*, and wrote *Private Rights in Public Resources: Equity and Property Allocation in Market-Based Environmental Policy* (RFF Press, 2003). His most recent publication is a chapter titled "Allocating the Global Commons: Theory and Practice" in *Political Theory and Global Climate Change* (MIT Press, 2008).



**Walter Rosenbaum** is Professor of Political Science and Interim Director for the Bob Graham Center for Public Service at the University of Florida. Prior to that, he was a Visiting Professor in the Program in the Environment at the University of Michigan. Rosenbaum's most recent research includes a commission report by the Center for Public Policy and Philanthropy at the University of Southern California, studying strategies used by non-profit foundations to influence environmental policymaking, and an evaluation of the environmental impact of the National Flood Insurance Program for the Federal Emergency Management Agency.

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*Leigh Raymond, conference author, on the evolution of emissions trading*









**Ian Rowlands** is Professor in the Department of Environment and Resource Studies, and Associate Dean of Research for the Faculty of Environment at the University of Waterloo in Ontario, Canada. He has worked at the United Nations Environment Programme (UNEP) Collaborating Centre on Energy and Environment in Roskilde, Denmark, as an energy planner. Rowlands' current research includes energy management strategies, international environmental cooperation, and corporate environmentalism. His most recent publications include "Atmosphere and Outer Space" in *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007).



**Henrik Selin** is Director of Graduate Studies and Assistant Professor in the Department of International Relations at Boston University. His research and teaching focus on international policymaking and implementation on environmental and sustainability issues. Currently, Selin is conducting research on the history of global cooperation on environmental and development issues, international management of hazardous chemicals, transatlantic environmental relations, and regional climate change action in North America. His co-edited book *Changing Climates in North American Politics* is forthcoming from MIT Press.



**Stacy VanDeveer** is Associate Professor of Political Science at the University of New Hampshire. His research interests include international environmental policymaking and its domestic impacts, the connections between environmental and security issues, the role of expertise in policymaking, and comparative environmental politics. He spent two years as a post-doctoral research fellow in the Belfer Center for Science and International Affairs at Harvard University's John F. Kennedy School of Government, and has authored and co-authored more than fifty articles, book chapters, working papers, and reports. He has co-edited four books, including *Changing Climates in North American Politics*, forthcoming from MIT Press.

## Discussants

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**Timothy Conlan** is University Professor of Government and Politics at George Mason University. Prior to this, he served as Assistant Staff Director of the Senate Subcommittee on Intergovernmental Relations. Conlan has authored or edited numerous books and articles in the areas of federalism and public policy, including *Intergovernmental Management for the 21st Century* (Brookings Institution Press, 2008) and *From New Federalism to Devolution: Twenty-Five Years of Intergovernmental Reform* (Brookings Institution Press, 1998).

**Daniel Fiorino** is Director of the National Environmental Performance Track at the U.S. Environmental Protection Agency. Fiorino has held several management positions within the policy office, including Associate Director of the Office of Policy Analysis and Director of the Emerging Strategies Division. He has published more than two dozen articles on regulation and public policy in professional journals and books, and is the author or co-author of four books on environmental policy. Elected a Fellow of the National Academy of Public Administration (NAPA) in 2001, he has won nine national awards for his publications, including NAPA's 2007 Louis Brownlow Award.

**Susan Gander** serves as Director of the Environment, Energy and Natural Resources Division of the National Governors Association-Center for Best Practices, where she directed the recent initiative "Securing a Clean Energy Future." She previously served as a program manager of the U.S. Environmental Protection Agency's Clean Energy-Environment State Partnership Program and as Senior Policy Analyst and Government Relations Director for the Center for Clean Air Policy. Her most recent publications include *Energy Efficiency Resource Standards: The Next Leap Forward* and "State and Regional Energy Planning" in *Clean Energy-Environment Guide to Action: Policies, Best Practices and Action Steps for States*.

**Kathryn Harrison** is Professor in the Department of Political Science and Associate Dean in the Faculty of Arts at the University of British Columbia. She is author of *Passing the Buck: Federalism and Canadian Environmental Policy* (UBC Press, 1997) and editor of *Racing to the Bottom?: Provincial Interdependence in the Canadian Federation* (UBC Press, 2006). She is currently engaged in a collaborative project comparing national responses to climate change in several countries.

**Christopher James** is a Senior Associate with Synapse Energy Economics. Prior to joining Synapse, he was Director of the Air Planning and Standards Division at the Connecticut Department of Environmental Protection (DEP). James also served as the manager of Climate Change and Energy Programs at the DEP. He was Senior Environmental Engineer for seven years with the U.S. EPA Region 10 and also served for four years with the Rhode Island Department of Environmental Management, where he was responsible for the compliance and inspection program as well as the ambient air monitoring network.

**Suellen Keiner** is a consultant to the State of the USA, Inc., a new non-profit based in Washington, D.C. She was Vice President for Academy Programs and Director of the Center for the Economy and the Environment at the National Academy of Public Administration (NAPA). At NAPA, she managed a number of research projects and prepared numerous studies on various issues of environmental law, policy, and management. During her thirty years as an environmental and civil rights lawyer, Keiner has been an attorney at the U.S. Department of Interior, a consultant for the Council of State Planning Agencies, and a litigator for citizen groups.

**Anne Khademian** is Associate Professor at the Center for Public Administration and Policy at Virginia Tech. Prior to this appointment, she served at the University of Wisconsin-Madison, the University of Michigan, and the University of Pennsylvania. Her most recent publications include *Checking on Banks: Autonomy and Accountability in Three Federal Agencies* (Brookings Institution Press, 1996) and *Working with Culture: How the Job Gets Done in Public Programs* (CQ Press, 2002).

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*Suellen Keiner listens to the panel framing the issue of climate governance.*



Stellen Kefner  
ACADEMY OF CONSUMPTION CHOICES  
MILLER LINDNER & P.C. ATTORNEYS





*Conference panel chairs and U.Va. faculty Brian Balogh, left, and Jonathan Cannon, right*

**Judith Layzer** is Linde Career Development Associate Professor of Environmental Policy at the Massachusetts Institute of Technology. Her research and teaching focus on the role of science, values, and storytelling in environmental politics, as well as on the effectiveness of different approaches to environmental planning and management. Most recently, she published *The Environmental Case: Translating Values Into Policy* (CQ Press, 2005) and *Natural Experiments: Ecosystem Management and the Environment* (MIT Press, 2008). Layzer co-directs the MIT Environmental Policy and Planning group's Society, Business and the Environment Project. She also directs the newly formed Urban Sustainability Project at MIT.

**Alastair Totty**, a career diplomat, joined the British Embassy in Washington, D.C. as Head of the National Climate Change Team in July 2008. From 2003 to 2008, he worked at the Foreign Office in London on UK policy on Iraq, arms control negotiations, and the European Union. He managed the UK aid program in Burma; was the lead on UK policy toward Australia, New Zealand, and the South Pacific; and managed UK aid projects in the Palestinian Territories during his posting to Jerusalem.



## Chairs

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**Brian Balogh** is Associate Professor in the History Department at the University of Virginia and Chair of the Governing America in a Global Era (GAGE) program at the Miller Center. Trained as a historian at The Johns Hopkins University, his specialties are 20th century American history, political history, history of science and technology, and environmental history. Balogh is the author of *A Government Out of Sight: The Mystery of National Authority in Nineteenth Century America* (Cambridge University Press, 2009) and *Chain Reaction: Expert Debate and Public Participation in American Commercial Nuclear Power, 1945–1975* (Cambridge University Press, 1993).

**Jonathan Cannon** is Director of the Environmental and Land Use Law Program at the University of Virginia School of Law. Prior to joining the Law School in 1998, Cannon worked at the U.S. Environmental Protection Agency, where he served as general counsel and assistant administrator for administration and resources management. Before his work with the EPA, Cannon was in the private practice of environmental law and an adjunct professor at Washington and Lee Law School, where he taught environmental law. His most recent publication is *Reclaiming the Land: Rethinking Superfund Institutions, Methods, and Practices* (Springer, 2007). Cannon was recently nominated by President Obama to be Deputy Administrator at the EPA.

**Sidney Milkis** is White Burkett Miller Professor of Politics at the University of Virginia and Assistant Director for Academic Programs at the Miller Center. His research focuses on the American presidency, political parties and elections, social movements, and American Political Development. His most recent book, *Theodore Roosevelt, the Progressive Party Campaign, and the Transformation of American Democracy* will be published by Kansas University Press in 2009.

**Daniel Plafcan** is Assistant Professor in the Department of Science, Technology, and Society at the University of Virginia. He held a two-year postdoctoral fellowship at the Gerald R. Ford School of Public Policy at the University of Michigan. Plafcan's interests include the relationship between science, technology, and national security; the politics of technology transfer; and the political economy of East Asia. He held fellowships from the National Science Foundation, the Social Science Research Council, and the Japanese Ministry of Education.

**Vivian Thomson** is Assistant Professor in the Departments of Environmental Sciences and Politics at the University of Virginia, and Vice Chair of Virginia's State Air Pollution Control Board. In 2001, she helped create and now directs U.Va.'s interdisciplinary Environmental Thought and Practice undergraduate program. In 2005, Thomson was Guest Scholar at the Pew Center on Global Climate Change, where she wrote a white paper about the European Union's early experiences with its greenhouse gas emissions trading scheme. She was Fulbright Professor of American Studies at the University of Southern Denmark, Odense, where she taught American politics and environmental policy. Thomson's *Garbage In, Garbage Out: Solving the Problems with Long-Distance Trash Transport* is forthcoming from the University of Virginia Press in 2009.

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*U.Va. professors Vivian Thomson and Sidney Milkis, conference panel chairs, take in the conference proceedings.*



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