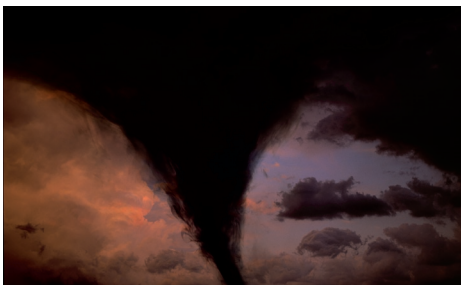


The Commission on
Sustainable Development



Sea Change: US Climate Policy Prospects Under the Obama Administration

Mikael Román and Marcus Carson
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REGERINGSKANSLIET

Sea Change: US Climate Policy Prospects Under the Obama Administration

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Preface

In order to strengthen cooperation on and deepen analysis of issues related to sustainable development, the Swedish Government has set up an advisory Commission on Sustainable Development. The Commission serves as a forum for discussion, analysis and dialogue. It is chaired by the Prime Minister and consists of members from the business sector, non-governmental organisations, the research community and political life.

The Commission has adopted open working methods in the hope of encouraging broader dialogue in the community. The Commission may order studies and shorter reports from experts in Sweden or other countries. Such reports are published under the responsibility of the author(s).

At the end of this year, governments from all countries of the world will gather in Copenhagen and try to negotiate a successor to the Kyoto Protocol. One weakness of the Kyoto Protocol is that the largest greenhouse gas contributor, the USA, has not ratified the agreement. However, the stance of the former US administration on climate policy now seems to be history. President Barack Obama has given clear signals that the USA is now ready to engage in a dramatically new way in international efforts to fight climate change.

The Commission asked Mikael Román and Marcus Carson at Stockholm Environment Institute to analyse economic and political developments in the USA with a focus on climate change. The authors have presented their analysis to the Commission on an ongoing basis as their work has progressed. This is their final report. Mikael Román and Marcus Carson are solely responsible for the analysis, proposals and opinions presented in the report.

/ Joakim Sonnegård
Head of the Secretariat
Commission on Sustainable Development

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The data gathering for this report was carried out during the period between November 2008 and March 2009, as part of a research project carried out through the Stockholm Environmental Institute under an agreement with the *Commission for Sustainable Development* of the Swedish Prime Minister's Office. In particular, we would like to extend our thanks to Joakim Sonnegård and Lars Lundberg at the Secretariat of the Commission for their feedback and ongoing support. Marcus Carson would also like to acknowledge the support of the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas), which has partially financed his contribution to this report.

Throughout this process, our ongoing interaction with colleagues has helped us expand our thinking and sharpen our analyses. We have benefited considerably from contact with colleagues in the Swedish-funded research program Clipore, which over the last year has devoted particular attention to US climate policies. Our colleagues at the Stockholm Environment Institute and the Department of Sociology at Stockholm University have provided a stimulating work environment and good intellectual support throughout the project. In addition, several people deserve our special thanks: Peringe Grennfelt at Clipore, Johan Rockström, Robert Watt and Bo Kjellén at the Stockholm Environment Institute, and Barbara Hobson and Árni Sverisson at Stockholm Sociology. Given the global nature of climate change as a problem, it seems only fitting that we have also enjoyed the support and assistance of colleagues and friends who are spread around the globe. Lars Roth, at the Swedish Embassy in Washington D.C., was instrumental in helping set up some of our key interviews. Peter C. Evans at General Electric's Global Strategy and Planning helped open the doors to important industry perspectives. Saleemul Huq, at the London-based International Institute for Environment and Development,

and Richard Klein, at Stockholm Environment Institute, provided critical insights and contacts on adaptation issues. Tom R. Burns, with bases at Stanford University, Lisbon University Institute, and Uppsala University in Sweden, contributed significantly; his deep insights on institutional processes and methodological issues are implicit in the structure of this report and in its theoretical underpinnings. Tom is constantly moving, yet has a remarkable ability to always be present. Susy Rocha, at Universidade Salvador (UNIFACS), earns our gratitude for putting climate change in a human perspective, integrated with questions of individual psychological well-being.

We owe a special debt of gratitude to the many policymakers, public officials, activists and academics who generously shared their time, knowledge, and insights in interviews. Given the rapid pace of many of the developments this report is intended to track, analyze, and explain, their willingness to freely share the kinds of deep knowledge and clarity that long experience provides has proven especially critical. These people are listed in Appendix A at the end of the report. In a similar vein, we would like to express our appreciation to the participants in the conference *Governing the Climate: Lessons from the National Conference on Climate Governance* at the Woodrow Wilson Center. David Biette, Director of the Canada Program at the Wilson Center, was especially gracious in agreeing to host the Conference on rather short notice, and then ensure that the details fell into place like clockwork. The conference itself provided some of the important foundations for this report. Here, we are especially indebted to Professor Barry Rabe, who not only defines the standard for excellence and generosity in his scholarly work, but also for organizing the superb panel of academic experts for the event. Christofer Borick, Leigh Raymond, Henrik Selin and Stacy VanDeveer, not only provided incisive presentations as Conference panelists, but were also kind enough to share their insights at an informal meeting afterwards with Swedish officials.

Finally, as anyone engaged in research and writing knows all too well, the inevitable whittling down process requires an especially keen eye for sharpening analyses, catching and correcting minor

errors and omissions, and for helping to distinguish which items are essential and which can be safely purged. Here we enjoyed the exceedingly good fortune of having some of the most knowledgeable people available willing to invest precious time in reading our drafts and discussing eventual revisions. Here, we extend our heartfelt appreciation to Miranda Schreurs, Professor and Director of the Environmental Policy Research Center of the Free University of Berlin; Steve Cochran, National Climate Campaign Director at the Environmental Defense Fund; Constance Lever-Tracy, at the Department of Sociology, Flinders University of South Australia; Clarisse Siebert, legal expert at the Stockholm Environmental Institute; and Andrew Light, Senior Fellow at the Center for American Progress. The kind of generosity and openness offered by these people, and those not named, is one powerful reason for believing that efforts to come to grips with climate change will actually succeed.

Of course, no acknowledgement would be complete without thanking our families, Ola and Gunilla, and Anna, Elise and Niklas, who have patiently tolerated both our absence and our sometimes preoccupied presence.

Mikael Román

Marcus Carson

Stockholm, March 2009

Sammanfattning

Trots att mindre än två månader förflutit sedan Barack Obama tillträdde som USA:s president, råder det inga som helst tvivel om att det inneburit ett fundamentalt avsteg från den tidigare Bush-administrationens politik. Barack Obamas uttalade ambition att aktivt ta sig an klimatfrågan utgör ett centralt tema i denna utveckling – eller som FN:s klimatchef Yvo de Boer uttryckte det “a ‘sea change” (EUbusiness 2009). Obama-administrationen har redan visat att man menar allvar i sin syn på klimatfrågan, genom att vidta ett antal åtgärder inom USA:s gränser som radikalt förändrar förutsättningarna för amerikansk klimatpolitik. Vidare har man tydligt deklarerat att USA fortsättningsvis kommer att delta aktivt i de internationella klimatförhandlingarna (UNFCCC). I takt med att olika nyckelposter nu tillsätts, samtidigt som administrationen kontinuerligt presenterar nya åtgärdsprogram och lagförslag, träder konturerna av en ny amerikansk klimatpolitik alltmer fram. Utvecklingen är emellertid så snabb att bedömningen av vad som pågår ständigt måste uppdateras.

En samlad bedömning ger därför att amerikansk klimatpolitik står inför ett politiskt vägskäl. De dramatiska förändringarna inom den verkställande makten åtföljs nu av mer stegvisa förändringar inom Kongressen, men också av konkreta initiativ på lokal och delstatlig nivå, samt i den allmänna opinionen kring klimatfrågor i stort. Förutsättningarna för en aktiv och substantiell amerikansk klimatpolitik ser därmed bättre ut än på mycket länge. Detta är de goda nyheterna. Samtidigt bör det dock framhållas att några av de avgörande förutsättningarna för amerikansk klimatpolitik fortfarande ligger fast. Det gäller inte minst ett stort antal institutionella och politiska hinder. Detta innebär i praktiken att de mer omfattande klimatpolitiska åtgärderna, som exempelvis införandet av ett fullskaligt handelssystem för utsläppsrätter, inte kommer att hinna godkännas av såväl Senaten som Representanthuset, och därefter ratificeras av Presidenten, innan UNFCCC förhandlingarna i Köpenhamn i december i år. Sammantaget innebär detta att förutsättningarna att få till stånd ett nytt globalt klimatavtal, som inte bara specificerar kraftfulla åtgärder utan även har förutsättningar att faktiskt genomföras, är bättre än på många år. Det

kommer dock att krävas ett extremt skickligt politiskt handlag, samt ett antal lyckliga omständigheter, för att driva det hela i land.

I vår analys, som baserar sig på såväl skrivet material som intervjuer med olika centrala aktörer, gör vi följande observationer.

- Obama-administrationen driver för närvarande vad som måste betraktas som en ambitiös agenda av klimatpolitiska åtgärder – speciellt under rådande omständigheter.
- Den amerikanska klimatpolitiken speglar i hög grad komplexitet och variationen i det amerikanska politiska systemet, och utvecklingen drivs därför framåt på ett antal olika arenor och via parallella kanaler, som och en har sin respektive logik och tidshorisont.
- Amerikansk klimatpolitik kommer att drivas framåt av ett antal olika faktorer som är så gott som uteslutande kopplade till amerikanska inrikespolitiska överväganden.
- Den fortsatta utvecklingen av amerikansk klimatpolitik kommer därför att ske samfällt och parallellt på ett flertal olika arenor och via olika kanaler som var och en styrs av olika hänsyn och tidsperspektiv. Detta speglar då mångfalden och komplexiteten i det amerikanska politiska systemet med sina många olika nivåer av beslutsfattande.
- Tidsplanen för UNFCCC processen, och då inte minst mötet i Köpenhamn som nu ligger mindre än ett år fram i tiden, utgör en stor utmaning för den nya amerikanska administrationen. Samtliga vi talat med i USA trodde att det kommer att dröja fram till sommaren 2009 innan berörda statliga institutioner fått klart med alla nya tjänsteställningar och därmed kan verka med full effektivitet. I praktiken så arbetar Obama-administrationen med ett tidsperspektiv på två år, dvs. fram till nästa kongressval i november 2010. Efter detta datum är den politiska verkligheten i Washington om möjligt än mer osäker än idag.
- Ett fullt amerikanskt återinträde i UNFCCC processen kommer i det kortare perspektivet att karaktäriseras av ett ständigt utbyte mellan nationella åtgärder, bilaterala och multilaterala

diskussioner, och förhandlingar inom UNFCCC. Detta kan vara frustrerande om ambitionen är att kunna sluta ett avtal i Köpenhamn (COP-15). En ökad förståelse och acceptans av ovanstående dynamik skulle däremot kunna bidra den flexibilitet och kreativitet som kommer att krävas för att uppnå ett starkt och hållbart avtal. Mötet i Köpenhamn kan och bör därför endast ses som ett etappmål i den övergripande ambitionen att rädda världen – varken mer eller mindre.

- Ett flertal experter uttryckte i våra intervjuer behovet av att vidareutveckla nya vägar och metoder i syfte att följa den faktiska utvecklingen på plats i USA. Detta kan då ge viktiga indikationer om Obama administrationens seriositet och engagemang i klimatfrågan, samt dess möjligheter och förmåga att genomföra densamma. Det är fullt möjligt att USA under den nya Obama administrationen snabbt kan komma att överta den ledarroll i klimatfrågan som EU fram till nu har gjort anspråk på.
- Ett återkommande tema i våra intervjuer är att utfallet av UNFCCC förhandlingarna i hög grad beror på i vilken utsträckning USA och Kina kan nå en överenskommelse konkreta åtaganden för växthusgasreduktioner. EU skulle i detta sammanhang kunna spela en viktig roll genom att understödja denna dialog.
- Ett flertal observatörer har noterat att Obama-administrationens Green New Deal, i den händelse den visar sig vara lyckosam, skulle kunna skapa en våg av 'global grön konkurrens' som inte bara gynnar den globala miljön, utan också premierar en pro-aktiva klimat initiativ framför en mer passiv hållning bland enskilda aktörer.

Föreliggande rapport har utförts på uppdrag av *Kommissionen för hållbar utveckling* och utgör ett led i den svenska regeringens förberedelser inför det stundande ordförandeskapet i den Europeiska Unionen, där en av de stora uppgifterna blir att leda den europeiska delegationen under COP-15 förhandlingarna i Köpenhamn. Det huvudsakliga syftet med denna rapport är att diskutera de faktorer som kommer att styra utvecklingen av amerikansk klimatpolitik

inom den närmaste tiden. Detta sker då utifrån den bredare frågeställningen om vad som krävs för att USA skall underteckna och ratificera ett nytt globalt klimatavtal. Även om externa faktorer, som exempelvis utvecklingen i de bilaterala diskussionerna med Kina och andra större växthusgasproducenter, självfallet spelar en central roll i detta sammanhang, så kommer vi i denna rapport att koncentrera oss på de faktorer som påverkar den inhemska amerikanska politiska dynamiken. Rapporten kommer därför i huvudsak att behandla tre olika frågor. Först, vilka är de uttalade målen och ambitionerna med Obama-administrationens klimatagenda? Vidare, vilka är de huvudsakliga utmaningarna och möjligheterna – från förhandling och beslut till praktiskt genomförande – med att förverkliga densamma, samt genom vilka olika kanaler och arenor kan vi förvänta oss att olika initiativ träder fram? Slutligen, vilka implikationer har detta för förhandlingarna i Köpenhamn och framöver? Med dessa diskussioner som grund avslutar vi därefter rapporten med att identifiera ett antal övervägningar som borde beaktas inför det svenska ordförandeskapet i EU och de förestående klimatförhandlingarna under COP-15 i Köpenhamn.

I Introduction and Overview

Less than two months into the Obama Presidency, there remains no doubt that its policies constitute a fundamental break with those of the previous administration. The commitment to vigorously grappling with climate change is a core element of this break – a “sea change”, in the words of UN Climate Chief Yvo de Boer (EUbusiness 2009). The Obama Administration has already begun to demonstrate its seriousness about climate change through actions being taken within US borders. It has also begun to re-engage energetically in international climate negotiations. With many of the important details on staffing decisions, principles and timelines for legislative initiatives, and other priorities now fleshed out, the essential goals and contours of the new American climate change agenda have taken form. Developments are unfolding rapidly, so that any assessment must cope with a rapidly moving target.

US climate politics have reached a critical political tipping point. The dramatic shift in the climate politics of the Executive Branch of US Government is accompanied by more incremental changes in the Congress, at the regional, state and local level, and in public opinion. In short, the conditions for adopting and implementing forceful measures for addressing climate change looking far better than at any time previously. That is the good news. Nevertheless, some of the important circumstances that condition the development of US climate policies remain stubbornly fixed. Numerous domestic structural, institutional and political hurdles remain in place. These make it unlikely that the most comprehensive measures now being pursued, such as an economy-wide cap-and-trade system, will have been adopted by both House and Senate and signed by the President prior to the UNFCCC talks in Copenhagen. This need not threaten the hoped-for breakthroughs in Copenhagen, but success in the near term will require skillful political management – and some measure of good fortune.

¹ The term “sea change” is defined by the American Heritage Dictionary (2009) as 1) striking change, as in appearance, often for the better, 2) any major change or transformation, or 3) a transformation brought about by the sea.

Below we identify several of the important considerations that have emerged from our analysis of the data we have assembled, including interviews and discussions with key actors and observers.

- The Obama Administration is pushing forward with what must be considered an ambitious array of climate policies – especially given current circumstances.
- Reflecting the diversity and complexity of its multilevel system, US climate change policy developments are playing out simultaneously in multiple arenas and via parallel channels, with differing logics and timelines.
- US climate change policy developments will be driven by a variety of factors, but they will be almost entirely bound to US domestic politics and aspirations.
- The timing of the UNFCCC process poses a substantial challenge for the new Administration. While Copenhagen is less than a year away, none of our contacts expected the relevant departments and activities to be completely staffed out and fully operational until late spring at the earliest. In practice, the Obama Administration is working domestically with a two-year timetable that takes it to the next round of Congressional elections. Beyond that, Washington’s political reality becomes even less certain than now.
- Full US re-engagement in UNFCCC negotiations in the near-term will be an iterative process – one that entails a measure of bouncing back and forth between US domestic action and bilateral, multilateral and UNFCCC negotiations. Given the goal of concluding an agreement in Copenhagen, this could easily become a source of frustration. However, an acceptance and understanding of this dynamic could contribute to the flexibility and creativity required to developing stronger agreements. Copenhagen is no more – and no less – than a way stop on the way to saving the planet.
- Several experts emphasized the importance of developing additional milestones and methods for evaluating on-the-ground progress in the US as a measure of American seriousness and commitment – and of the Obama Administration’s ability to realize its climate policy agenda.

- A recurrent theme in our interviews is that the success of the negotiations will be contingent on whether United States and China can reach agreement on how to proceed with firm commitments. The EU could play a constructive and supporting role here, in part by facilitating the eventual participation of other large developing countries in the major emitters category such as India and Brazil.
- Several observers have noted that if realized, the Obama Administration's Green New Deal could energize a wave of global green competition that is healthy for the planet, but nevertheless advantages early movers over cautious actors. There is a very real possibility that the US under Obama could move decisively into the climate leadership role now occupied by the EU.

This report has been produced for the Swedish Government's Sustainability Commission in preparation for the Swedish EU Presidency during the second half of 2009, and consequent Swedish leadership of the EU delegation in the COP-15 negotiations in Copenhagen. The central task of the report is to provide an overview of the key factors that will condition the near-term development of United States climate policy, with a view to the eventual likelihood of the US signing and ratifying a new global agreement in the upcoming negotiations on climate change. While we take note of the importance of factors external to US politics, such as potential developments in bilateral discussions with China and other major greenhouse gas emitters, our analysis focuses primarily on factors that influence US domestic policy dynamics. To accomplish that task, the subsequent pages address three main questions. First, what are the stated goals and contours of the Obama Administration's policies regarding climate change? Second, what are the opportunities and obstacles connected with realizing this agenda – from negotiating and deciding, then effectively implementing it – and via which pathways of action are we likely to see important initiatives being moved? Finally, what are the implications for the negotiations in Copenhagen and beyond? We conclude by identifying a number of important considerations that should be taken into account in preparations for the Swedish EU Presidency and the climate negotiations in Copenhagen.

1.1 New Administration, New Climate Agenda

On the campaign trail, Mr. Obama declared that because climate change poses a serious and imminent threat, he would if elected pursue an active climate change mitigation agenda. As part of that agenda, he emphasized he would invest in green jobs, in energy conservation, and in developing renewable energy sources as a means to not only tackle climate change, but also to jump-start an already foundering economy. Since his election, Obama has reaffirmed his Administration's intention to work energetically to adopt policies required to reduce US greenhouse gas (GHG) emissions back to 1990 levels by 2020, and thereafter achieve an 80 % reduction by 2050. One important element in achieving these goals would be to increase the portion of renewable energy to 10 % by 2012 and 25 % by 2025.

So far, so good. But even if climate change ranks high on the new administration's priority list, the competition for attention and priority is especially intense. With a still-foundering economy, a failing health care system, and two expensive and complicated wars, climate change shares its space on a crowded agenda. Few consider it top priority. Nevertheless, Obama continues to maintain climate change within the first tier of issues – to a large extent by coupling it with other first-tier priorities. Rather than taking it up exclusively as an end in itself, policy that aids climate change mitigation is increasingly articulated as a means for helping to achieve related urgent policy objectives, such as energy security and infrastructure investment that create jobs, intended to spark life into the US economy and support important geopolitical goals. This integration of climate change policies with other high-priority societal goals is crucial, and we would argue, already an important contribution to the development of climate change debate.

Integrating climate change with other policy priorities has several important conceptual and practical implications. It suggests that US climate change policy is better understood as part of a broader set of strategies and goals that include national economic recovery and long-term economic development, national and energy secu-

riety, and international leadership. Climate change mitigation also may occur as a side effect of other policies, opening up for diverse areas of action as the Obama Administration systematically relates climate change to an array of policy priorities. This implies that there are multiple drivers for action in addition to already established climate concerns. In simple terms, we can expect to see more rapid progress where climate policy measures are understood as fulfilling multiple policy goals.

These observations called for a number of methodological choices in the preparations for this report (we include a brief note on methods in Appendix A). We seek to identify key structural, cultural, and political factors that contribute to policy stability or stagnation, as well as comparable factors that act as change agents. Most importantly, we define climate change policies broadly, as *any policy expected to generate long-run positive climate effects (on either mitigation or adaptation)*. Focusing only on policies explicitly defined as climate change policies, such as Federal cap-and-trade legislation, would overlook an array of important initiatives currently being shepherded along at various levels and via different channels in the US policy system. Less obvious is that a too-narrow focus would tend to neglect important interactions between diverse policy initiatives and the possibilities this opens for additional drivers for action. In order to properly grasp the scope of Obama's climate change ambitions, of the prospects for success in the US Congress, and of the eventual US role in the negotiations in Copenhagen, we examine climate change issue in this broader policy context, with climate change a core component of a broader strategic plan for national economic recovery and development.

1.2 On the ground and running

The various actions and initiatives that have been taken or set in motion provide clear indications of the new Administration's direction, commitment, and strategies, and they are quite consistent. The experience and background of cabinet level appointments and other important staff selections provides an important indicator of the Administration's policy priorities, level of com-

mitment, and of coherence. In addition, the Administration's policy statements, early executive actions, preliminary foreign policy initiatives, and selected portions of the recently passed stimulus package, can be read collectively as variations on a constant theme. The actions and initiatives that are most important to the eventual US role in Copenhagen are taken up in detail in the relevant sections of this report. Below, we provide a brief overview of important developments at the time this report goes to press:

Policy Statements – Since his election, Mr. Obama has consistently reaffirmed his commitment to prioritizing climate change in statements to both domestic and international audiences. In a taped address to domestic and international participants in the November 2008 Governors' Global Climate Summit organized by California Governor Arnold Schwarzenegger (2008), then President-elect Obama promised his administration would push quickly for a cap-and-trade system, noting that "Delay is no longer an option, denial is no longer an acceptable response...the stakes are too high. Once I take office, you can be sure that the United States will once again engage vigorously in these negotiations and help lead the world toward a new era of global cooperation on climate change" (Obama 2008). More recently, the White House budget proposal, which will constitute something of a starting point for Congressional budget deliberations, was released in March of 2009. It followed up these commitments in both word and deed in the form of specific funding proposals. Here, the statements reflect the coupling of climate, energy, and economy that have already become a core theme of the new Administration:

...lack of investment in the future is most glaring in the area of clean energy. For decades, we have talked about the security imperative we have to wean our Nation off foreign oil, which is often controlled by those whose interests are inimical to ours. And in recent years, a consensus has developed over the need to limit greenhouse gas emissions, which produce global warming and increase the risk of severe storms and weather conditions that might ruin crops, devastate cities, and destabilize whole regions. All of these facts are reason enough to invest in clean energy technologies. But there is an economic imperative to embrace these investments as well. The clean energy sector presents us with immense promise—to develop and dominate a new industry sector and to create high-paying jobs here at home. From new, highly fuel-efficient cars to renewable sources of power, there are a host of emerging technologies that can spur the growth of new business while creating mil-

lions of new jobs. Our economic competitors know that. That's why they are racing to dominate these industries and to transform their economies (OMB 2009:13).

In addition to these more general statements, the White House budget proposal calls for reducing emissions through a cap-and-trade system, with 100 % of the permits being sold at auction. Some \$150 billion of the revenues would be used over the next decade for clean energy investments to begin in 2012. The remainder of the revenues would be redistributed to taxpayers, particularly middle and low-income families hit hardest by increased energy prices.

Appointments – With cabinet-level appointments in the area of energy and environment confirmed, an important part of the organization has been put in place. The choices for some of the most critical high-level positions – Joe Biden (Vice-President), Hilary Clinton (Secretary of State), Steven Chu (Energy Secretary), John Holdren (White House Science Advisor), Sheila Jackson (EPA Administrator) and Carol Browner (White House Coordinator on Climate Change) demonstrate significant previous engagement and commitment to action on climate change. Even appointments outside of energy and environment reveal a continuation of this internal consistency and logic. Jim Jones (National Security Advisor) has been involved from the perspective of energy security, Tom Vilsack (Secretary of Agriculture) has been an outspoken advocate for renewable energy, and Todd Stern (Secretary of State Clinton's Special Envoy for Climate Change) is a veteran of Kyoto and other negotiations. This is only a very small portion of the key staff who will be engaged in environment, energy, and climate issues. Taken together, these individuals bring highly relevant experience and complementary expertise to their collective task and can be expected to place high priority on action to curb climate change. It is worth noting, however, that we also see divergent views within the administration on second-tier concerns such as nuclear power, pursuit of “clean” coal technologies, and the core definition of energy security.

Early Executive Branch actions – Within Mr. Obama's first days on the job, he issued two important executive orders reversing

Bush Administration policies on climate-related environmental issues. The first, signed at midnight on January 26, 2009, permits the state of California to establish more stringent fuel economy standards for automobiles (CAFE standards). An additional 12 states have already indicated their intention to follow California's lead as permitted under the Clean Air Act. A second high-profile action from the Executive branch is the EPA Director Lisa Jackson's February 17th announcement that the Agency will begin to prepare plans for regulating CO₂ as a pollutant in accordance with a 2007 Supreme Court decision. Although such regulation is seen as a stopgap measure at best due to the complexity of the problem and the policy tools available within the Clean Air Act (Walsh 2009), the action helps make the adoption of a Federal cap-and-trade system more appealing by making some form of CO₂ regulation inevitable. In other actions, the EPA also placed a hold on the approval of a new coal-fired power plant in South Dakota on the grounds that it appeared to not meet requirements under the Clean Air Act, and has also taken action to limit mercury emissions from coal-fired power plants, which is also expected to discourage the construction of coal plants that lack state-of-the-art technology.

On the international front, Secretary of State Hillary Clinton's first mission was to Asia, including China. One of the key staff persons joining her on that trip was Climate Envoy Todd Stern. This could hardly be considered a coincidence; a report jointly published in February by experts at the Pew Center on Climate Change and the Asia Society encourages and sets out a roadmap for significant engagement with China on an array of issues, with climate change having a central position. Notably, Energy Secretary Steven Chu and Brookings Institution Chairman John Thornton were project co-chairpersons for the report. National Public Radio's Michelle Keleman described the trip as: "vintage Hillary Clinton, working the crowds and still campaigning in a way, only this time campaigning to improve America's image... She'll be meeting with women and civil society groups on her last stop here in China as well, though *she made clear she's not planning to let disagreements over human rights get in the way of her broader agenda on climate change, the economy, and security*" (Keleman 2009, italics added).

Preliminary Actions in Congress – while we have focused primarily on the dramatic changes set in motion within and by the executive branch, the Congress has also begun to take steps worth noting. These steps should be read in their proper context, however: the Congress has been the choke point for major environmental legislation for much of the past two decades.

The most important action and indicator to date is the passage of the \$787 billion economic stimulus package, which contained funding for efficiency and conservation measures, an update of the electrical grid, and a number of renewable energy initiatives. The issue that has attracted greatest interest and attention in the US climate change debate is the prospect of a Federal cap-and-trade system, which must ultimately be passed through the Congress. The likelihood of such a system being adopted and implemented has improved dramatically, with new support from a variety of sources. Yet, given that is also an issue fraught with legislative, political, and practical complications, the prospects of seeing a fully operating federal cap-and-trade system before the latter part of an Obama Presidency are considered mixed, at best. In the meantime, some observers have expressed concern that an excessive focus on cap-and-trade diverts needed energy and attention from other issue areas with major potential for greenhouse gas mitigation, such as a federal renewable portfolio standard, a new Highway Bill, new building codes, green sub-prime mortgages, or even carbon taxes and other measures.

Building on the ramping up effort on climate change begun in the last Congressional term, important elements have begun to take clear shape. After some internal reorganization, key leadership positions are now held by Democratic leaders who support significant action on climate change. House Speaker Nancy Pelosi and House Energy and Commerce Committee Chairman Henry Waxman have announced their intention to have a House version of a cap-and-trade bill ready by the end of May, with a floor vote later this year. The initial legislative proposal will be drafted by a special sub-committee headed by Representative Edward Markey, one of the House's strongest advocates for taking action on climate change issues. The tax-responsible House Ways and Means Committee,

under Chairman Charles Rangel, is also beginning preparations. Ways and Means has Constitutional responsibility for dealing with tax issues.

The all-important Senate is less certain. In a pessimistic moment, Gristmill blogger David Roberts described the Senate as “the ultimate choke point, where urgency and ambition go to die” (Roberts 2009). Yet, the prospects are much improved and ambition level is high. Hearings begin this spring on a new energy bill as a prelude to some form of cap-and-trade legislation. Working with Barbara Boxer and other key Senate leaders, Majority Leader Harry Reid expects the Senate to begin discussing a climate bill by summer, and also hopes to have cap-and-trade legislation passed late in the year. However, the chances of the American negotiating team arriving in Copenhagen in December 2009 with a signed cap-and-trade bill in hand are seen as near zero.

2. *The Policy Chessboard: Key Challenges and Opportunities*

The new American climate and energy agenda is being developed against a backdrop that differs substantially from only a few years ago. Change is most apparent in the economic and political spheres. The economy is in crisis, Americans appear increasingly willing to see government intervention as a solution rather than a problem, and the **political shift** that carried Obama into the Presidency has also bolstered Democratic majorities in Congress to levels not seen in decades. Less obvious and largely independent from these political and economic developments, **public opinion has also shifted** substantially in favor of accepting climate change as an urgent problem. Even the business community – at one time seen as a generally monolithic opposition to any real effort to reduce greenhouse gas emissions – is a part of that shift.

At the same time, some of the conditions that will influence US climate change policies are stubbornly static. **Modernizing the US energy infrastructure represents a monumental challenge.** Important elements of the United States' climate and energy equation are extremely robust, linked to geographic characteristics, energy infrastructure, and entrenched interests. These factors have contributed to the Congressional gridlock on climate change – not least by facilitating a continuation of the hyper-polarization along party lines. This combination of infrastructural inertia, vested interests, and intense partisanship has generated a sort of chicken and egg cycle in which little changes because little changes, except that in the meantime, US greenhouse gas emissions continue to rise.

There remain other areas of concern as well. Discussion about adaptation, either domestically or internationally, remains largely absent. Supply-side policies still dominate the discussion, with demand-side approaches that will increase the cost of emitting greenhouse gases much more politically thorny. This bias has a long history; over the past two decades, both Republican and Democratic administrations have strongly emphasized technological fixes and different production efficiency criteria, but little has been proposed that might change behavior among end-users and

consumers since the Clinton Administration's proposal BTU² tax was crushed by bi-partisan opposition in the early 1990s (Klyza and Sousa 2008:53). The recent economic stimulus package contains, for example, positive incentives in the form of tax breaks for the purchase of environmentally friendly cars. However, there are so far virtually no economic disincentives, such as measures that might raise the price of carbon-based fuels. The latter is undoubtedly linked to Americans' aversion to taxation in general, but poses a problem since it leaves the process of navigating this difficult territory largely uncharted – especially under current economic conditions. Third, although the framing of climate change policies as part of a larger national economic recovery/development strategy improves prospects for rapid action, concerns remain about whether the measures that can be adopted will match the scale of the climate problem. Recent studies indicate that there might be significant economic gains from the 10-15 % of greenhouse gas reductions that are expected from investments in various efficiency policies (California Air Resources Board 2008, Creyts, et al. 2007). But what happens once this 'low-hanging fruit' has been harvested?

Perhaps most surprising is that there actually has been substantial movement in spite of daunting obstacles. But it has not occurred where most of us have been looking. Even as Congressional gridlock was being effectively assured by the previous administration, efforts to adopt and begin implementing **greenhouse gas reduction measures have progressed significantly along multiple alternative pathways (Schreurs et al 2009)**. As noted, some of the important pathways have been largely overlooked. Others, such as the economic stimulus package already stewarded through Congress, are not defined as climate change per se. This is especially important, because incremental and seemingly subtle changes that have been underway beneath the frozen surface of Washington climate policy provide strategic openings for generating the kinds of policy breakthroughs that are needed.

² The BTU (British Thermal Unit) is a measure of energy content of a given substance.

In this section we examine these general factors which constitute the policy chessboard that the Obama Administration must navigate and manage in order to advance its climate and energy agenda. We lead with factors that on the whole constitute considerable obstacles. This includes issues that entail competition for resources and attention such as the economic crisis, as well as structural elements that move according to a different time frame and logic than politics. Important aspects of the US energy infrastructure that constitute the physical terrain to which new policies must be adapted fit this latter category. The section continues with an examination of characteristics of public opinion, which as noted have changed in recent years, but which are also linked to different constituencies, alliances and regional characteristics. It then concludes with an examination of the Congressional policy environment that will define the “inside the beltway” terrain through which the new administration and its allies must guide their policy responses to climate change.

2.1 Reality check: Economic and Structural Hurdles

2.1.1 An Economic Crisis

For all its hope and optimism, the Obama Administration begins its term confronted with the grim reality of America’s most severe economic recession in the post-war era (Rappeport 2009a). While most of the facts regarding this crisis are already well known, we examine here a few points that are directly relevant to the Obama administration’s climate change agenda.³

The depth and breadth of the problem are enormous and have, in fact, been building up for years (Medaff and Harless 1996). In addition to the spectacular financial meltdown, the US is currently carrying enormous debt at all levels. The accumulated National Debt has at the time of writing (February 2009) reached more than \$10.7 trillion (U.S. Treasury 2009) and could, according to Federal Reserve Chairman Ben Bernanke, increase by another \$1.750 billion this year alone (2009).

³ Given the rapidly changing economic situation and its implications for the Obama administration’s climate change agenda, it is vital to keep the most recent economic data. Hence, we will for the present section use a variety of different sources.

This would then maintain the public debt to around 60 % of GDP (Beattle 2009, Central Intelligence Agency 2009).⁴ Similarly, the US has for many years been running huge trade deficits that in 2008 alone accounted for \$677.1 billion. While this was a decrease from \$700.3 billion in 2007, it still represented 4.7 percent of U.S. gross domestic product (U.S. Census Bureau 2009). Perhaps more worrisome, however, is the debt borne by individual citizens. At the aggregate level, Americans have for the past several years spent more money than they make, with the result that millions of Americans are increasingly caught in a debt trap. The combined effect of these different parameters is gruesome. According to former US Comptroller General (1998-2008), David M Walker, the US had at the end of 2007 a total accumulated debt of \$53 trillion (Walker 2008). This is now coupled with the crushing decline in the value of many American families' core asset – their home.

Making matters worse, rapidly increasing unemployment poses an urgent and highly visible dilemma. According to recent data, the US lost 2.6 million jobs across all sectors in 2008, the worst performance since 1945, and more than 11 million Americans are currently officially unemployed (Uchitelle 2009). The discouraging announcements continue to pile up, risking the appearance of an economy in free fall. In February 2009, an additional 697,000 people lost their jobs in the private sector alone (Rappeport 2009b). Apart from the individual social costs, and the potential domino effects that generate additional pressure on already strained and underfinanced welfare systems, it is from a macro-economic perspective critical to get these people back into production and kick-start the economy.

An equally serious, but less obvious aspect of the current economic situation in the United States is a fiscal crisis in the individual states that is deepening by the week. More than half of the states in the Union are currently running budget deficits. Some of the more optimistic projections calculate the FY 2010 shortfall at \$94 billion, or 16 percent of budget, for the 36 states that have estima-

⁴ For comparisons, this puts the US on the 23rd place on a global ranking, with several European countries – such as: Norway (89.7 %), France (64.4 %), and Germany (62.6 %) – ahead in the statistics. According to the same ranking, Sweden is on 60th place with a public deficit of 36.5 % of GDP (Central Intelligence Agency, 2009).

ted the size of these gaps. Barring an unexpected upswing, these figures are only likely to grow, as budgets and income projections are re-estimated over the next few months. Some states are hit harder than others; in 9 of those 36 states, the estimate deficit exceeds 20 percent of the total budget (McNichol and Lav 2009). Nowhere is the situation as grim as in California. In December 2008 California state government, unable to wait any longer for a budget solution, pre-emptively canceled \$3.8 billion for 2,000 public infrastructure projects. This is expected to have crushing ripple effects, but should be seen in the context of an expected budget deficit of more than \$41 billion over the next 18 months, the biggest in the US, and with the grim prospect of effectively running out of cash by mid-February 2009 (Garrahan 2009, Klobberdanz 2009). However, other 'economic powerhouses', such as New York and New Jersey face similar challenges (Peters 2008). To complicate matters further, most states are required by law to balance their budgets. Hence, they cannot run operating deficits but are, instead, forced to close budget gaps through some combination of spending cuts and revenue increases. In many cases, the situation has now reached a point where some local governments will have difficulty providing basic community services, let alone implement climate change programs (Johnson, et al. 2009).

The silver lining to these economic problems is that they have already reduced energy consumption and are also likely to reduce greenhouse gas emissions over the near term. The key long-term question, however, is whether measures intended to solve the economic crisis will help or slow the structural transformation to a new economic and energy model that allows the US to meet its climate and energy challenges.

2.1.2 Greenhouse Gas Emissions and Energy Challenges in the USA

It is in this broader economic context that the US now confronts increasingly urgent climate and energy challenges. The difficulties are particularly daunting, given that the country's greenhouse gas emissions are largely related to economic activities and the extensive use of fossil fuels for energy production and transport. This part of the story is well known. What is less well understood

outside of the US is the considerable regional variation within the country regarding both environmental and socio-economic conditions, and which affect local greenhouse gas emissions and energy use. These divergences create both opportunities and obstacles for concrete action and are, as such, important factors in determining the success of any comprehensive federal climate change policies. With this in mind, we review some of the major mitigation and energy challenges confronting the Obama administration.

Current emission trends

The US has long had a disturbing track record regarding its greenhouse gas emissions. It was for many years the world's largest emitter of greenhouse gases, and although China grabbed this dubious honor for itself last year (2008), the US still accounts for roughly 20 percent of total global emissions. The US remains by far the largest GHG emitter on a per capita basis at nearly 19.4 tons per person per year. This compares with Western Europe at 8.6 tons, China at 5.1 tons, and India at 1.8 tons (Rosenthal 2008).⁵ Yet, as already indicated, it is important to go beyond the aggregate numbers and see what they entail at the more regional level at which both politics and efforts to "green the infrastructure" operate. Also, there are multiple ways to measure emissions, each of which offers different insights regarding the socio-economic implications of climate change.⁶

The first and most straightforward way to measure GHG emissions is in *absolute numbers*. According to most recent data available, total US GHG emissions stood in 2006 at 7,054.2 Tg CO₂ Eq. These numbers represented a 14.7 percent increase from 1990 levels and implies that the US would have to decrease its emissions by nearly 22 percent to meet its stipulated Kyoto target of a 7 percent reduction (U.S. Environmental Protection Agency 2008). This alone is an enormous challenge, particularly considering that the US population has grown by 19 percent since 1990 (Diringer 2008). One key factor contributing to emissions increases was a 59 percent growth in US gross domestic product during that period, contributing to an overall rise in emissions from electricity gene-

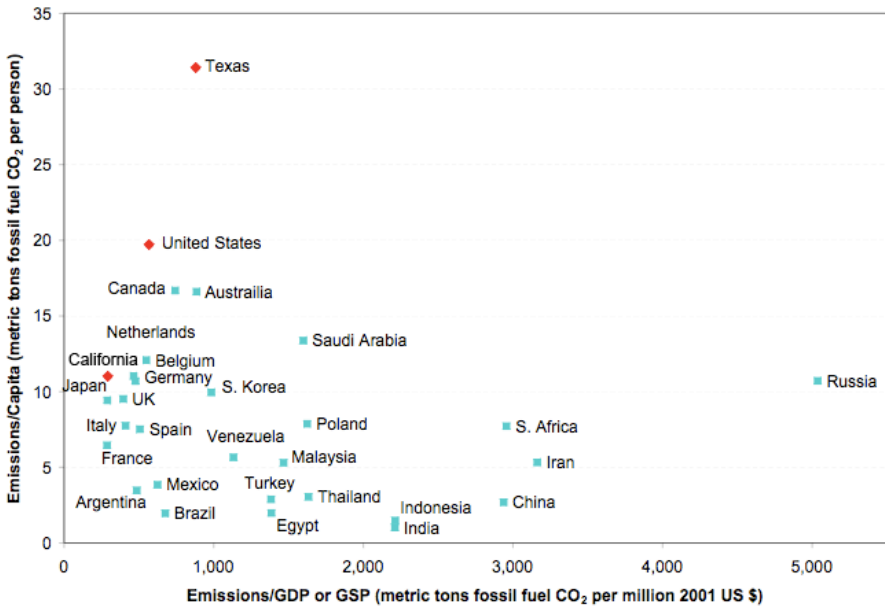
⁵ There are a number of smaller countries – including Qatar, Kuwait and Luxembourg – that have higher per capita emissions than the US.

⁶ More generally, we can distinguish between: 1) absolute emissions; 2) population-based criteria; 3) different efficiency criteria; and 4) cumulative emissions.

ration and transportation activities (U.S. Environmental Protection Agency 2008:Es-3ff).

The strong link between climate change and economic activity is illustrated by the fact that nearly 84.8 percent of total US GHG emissions come from CO₂ – produced mainly through the combustion of fossil fuels. This is considerably higher than the world average of 77 percent (Baumert, et al. 2005:ix). The principal fuel consuming end-use sectors contributing to overall greenhouse gas emissions were the industrial, transportation, residential, and commercial sectors (U.S. Environmental Protection Agency 2008). Transportation remains the largest emitter among these sectors, although its emissions growth has flattened. Instead, it is commercial sector emissions that have grown the most since 1990. Industry emissions have in fact been declining since 2004 – mainly through efficiency gains in heavy energy-intensive industries, such as mining and petroleum refineries. The single largest emission source in terms of primary energy consumption is electric power (Energy Information Administration 2008). We will return to this momentarily.

Figure 1. 2001 emissions intensities for the US, California, Texas and top 30 GHG emitting countries



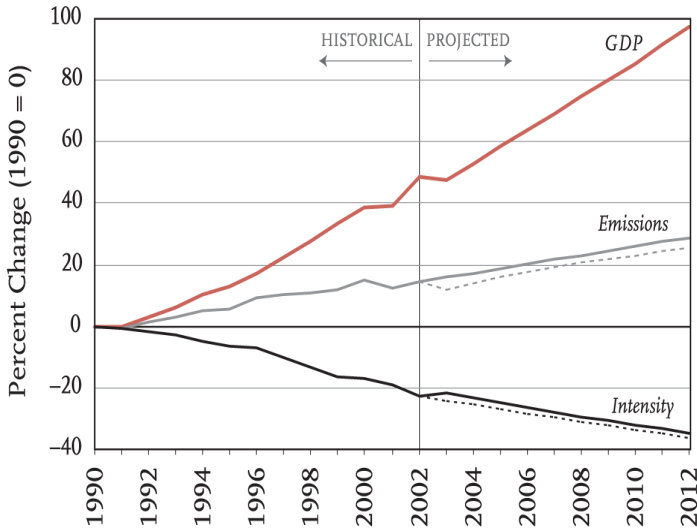
Source: Bemis 2006:21

As already noted, there are also major regional differences in emissions. Emissions levels in states such as Massachusetts and California lie just above the average European levels on a per capita basis, while West Virginia and North Dakota generate levels three to four times above the US average (World Resources Institute 2009). This is largely a function of the states' respective energy profiles, with the result that the impacts of GHG mitigation fall differently on individual states. Not surprisingly, this contributes to widely divergent attitudes toward climate change.

Absolute emissions are but one way to measure greenhouse gas emission trends. Looking for a more sympathetic measure, the Bush Administration introduced a so-called intensity target for the United States in 2002. Instead of establishing a fixed emission level, it measures the quantity of GHG emissions per unit of economic output. This is also the most widely used measurement of US emissions. The virtue of this concept, according to its proponents, is that it measures efficiency improvements and thereby better gauges the extent to which a country has managed to decouple GHG emissions from economic growth. The hope is that such measures also stimulate investment in new energy technology, with a general aim to achieve economic growth. Under such criteria, the US performance appears much more encouraging. In year 2000, the US ranked 96th in the world, well ahead of many countries in Europe and elsewhere (Herzog, et al. 2006:5). Moreover, the US has steadily improved in CO₂ intensity since 2000 (Energy Information Administration 2008). One way to interpret this is that the US economy has, in some respects, made progress in controlling its greenhouse gas emissions.

The key unanswered question is now what happens with emissions in the wake of the economic crisis. There are already signs that the economic meltdown has reduced energy consumption and thereby also reduced GHG emissions over the near future. It is unclear, however, whether indicators will follow. Will the structural changes intended to address the economic crisis alter the US development model in a way that allows the US to meet its climate and energy challenges?

Figure 2. US historical and future trends; GHGs, GDP and intensity

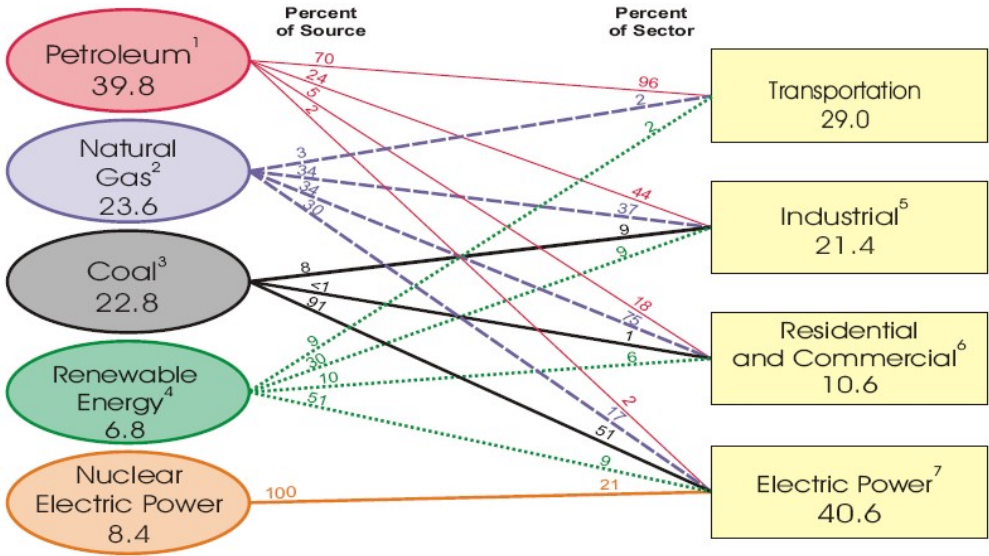


Source: WRI 2009*

The Greenhouse Machine: Energy Mix and Sectoral Use

It is clear from the above discussion that in purely practical terms, the US climate change challenge is intimately linked to a system of energy production that in 2006 accounted for a combined 86.1 percent of total U.S. GHG emissions. The configuration and combination of sources and users is also central. Of all primary energy consumed in 2006, approximately 83 percent was produced by combustion of fossil fuels, with petroleum (39.8 %) and coal (22.8 %) being the two dominant sources (U.S. Environmental Protection Agency 2008:ES-12). Equally important are the respective links to the principal end-users, i.e. transportation and electric power sectors, which accounted for 29 and 40.6 percent of all primary energy consumption, respectively. As we can see in Figure 3, nearly 70 percent of all petroleum is used in the transportation sector. With nearly 96 percent of its energy derived from petroleum, transport literally moves or grinds to a halt based on ready access to oil. A similar pattern can be seen in the electric power sector, which produces more than 50 percent of its energy from coal. It goes without saying that this creates strong economic and institutional ties between energy producers, consumers, and politics that in practice form powerful ad-hoc coalitions in support of what is often promised as cheap energy.

Figure 3. Energy Mix and Sectoral Use



Source: EIA 2009*

This combination and potential polarization of interests is further emphasized by the fact that the configuration of local energy systems differs considerably between states. These differences are partly related to natural conditions and physical access to energy sources. West Virginia, a coal-producing state, produces more than 95 percent of its electricity from coal, while a state like California, with no coal reserves, receives about 1 percent of its electricity from out-of-state coal-fired electrical plants (EIA 2009). Similarly, access to alternative sources such as hydro and wind power is also a function of local or regional circumstances and the incentive structures that are constructed around them. The critical point is that these divergent geographic conditions create strong links in many areas between local government and the previously mentioned industry conglomerates. This has direct implications for federal policymaking. Not only will the significant differences in energy sources, particularly access to coal, create widely different positions between states on both energy policy and sensitivity to climate change; energy interests also exercise powerful influence in the US policy process.

Path Dependencies and Sunken Costs

The inherent inertia of large-scale, centralized energy systems adds considerably to the energy challenge due to the staggering amount of money needed for investment in infrastructure and the potential for technological and infrastructure 'lock-in'. The precise impact of these phenomena differs between energy sources, but they potentially appear in the production, transmission and/or distribution of energy. As it happens, they are decisive traits of both the coal industry and the transmission of energy through the electric grid. This, in turn, has important implications for climate change mitigation efforts.

Production – Starting with the production component, it is a rarely appreciated fact that the US coal industry is by no means monolithic. It encompasses wide disparities in technology and efficiency in mining, transport, and electricity production. The 600 coal-fired power plants currently in operation range from recently built, state-of-the-art utilities, to archaic power plants dating back to the turn of the last century. This situation is a reflection of the drastic decline in the construction of new utilities over the last decades. Over half of the utilities in operation were constructed before 1973, and in the last two years the production of new plants has ground to a virtual standstill. As recently as 2007, construction of 53 coal-fired power plants was in effect cancelled or delayed (Pasternak 2008). Concerns about greenhouse gas emissions played a role in several of these decisions, but a key reason for this development can be found in the ways in which investment costs and the premises for their depreciation over time have interacted with the introduction of new regulatory demands driven by the plants' environmental impacts. The result has in many ways been both economically and environmentally perverse.

The construction of a coal-fired power plant requires large up-front investments by the individual power company, which constitute 'sunken costs' until the day that they are fully paid off. This creates specific trade-offs in pricing structure. While utilities produce a public good – energy – that state regulators generally seek to hold at a low price through public regulation, it effectively constrains how quickly power companies can recover their

initial investment costs. Depreciation of construction costs has historically extended over longer time periods, on average thirty years, so that they minimize impact on consumer prices. In return, utilities have typically been granted a guaranteed, if sometimes modest, rate of return on investment. This system – part of a strategic compromise that kept electricity production in private hands, but overseen as a publicly regulated “natural monopoly” (Frankfurter and Hart 1970) – worked well during the rapid expansion of the coal energy sector in the 1950s and 1960s.

The original basis for this system was changed fundamentally with the introduction of environmental regulations. A key event for the coal industry was the introduction of the *Clean Air Act* (CAA) in 1976 which, with its new air quality requirements, drastically raised the costs of new coal plants. In an effort to meet the industry half way, the existing coal plants were “grandfathered” out of compliance obligations through the so-called *New Source Review* (NSR). This radically shifted the economic logic for new coal plant construction and over time resulted in differentiation within the industry; older utilities kept operating – and polluting – at low and/or inefficient standards, and only new plants acquired state-of-the-art technology.

Ironically, the incentive to maintain old, dirty power plants in operation was further reinforced by the long period for depreciation of investment cost. The point here, pure and simple, is that utilities become most lucrative after these investments have been amortized. From that point forward, every additional day in operation is pure bonus. This raises some important concerns for the industry. While most utilities in the US were built between the 1950s and the 1970s, this means that they are, on the one hand, just turning really profitable. At the same time, they are in need of considerable technological overhaul to meet the demands posed by global warming and other environmental protection and public health needs. The prospects for improved environmental performance are discouraging, to say the least, and increasingly locked in place by an economic reality that further consolidates the situation outlined above. Following the

continuous introduction of requirements to reduce their environmental impact, along with a recent spike in commodity prices, the actual production costs for coal-fired power plants has in recent years gone from \$800-1000 per kilowatt of capacity for the old, dirty plants to well over \$3000 for the new state-of-the art plants (Casten 2008, Wald 2007). In other words, there are few incentives supporting new investments.

One way to overcome this situation and guarantee improved environmental performance is to impose more comprehensive regulations on utilities. This has been tried in various instances but once again raises the issue of regional diversification. Utilities are regulated at the state level, largely based on economic efficiency criteria. The original logic was that decision making about a reasonable price of energy based on local conditions and energy resources was best done at the state level. Given the highly differentiated energy profiles of states, this has produced a patchwork of divergent standards between states – one that has proven extraordinarily difficult to alter. One consequence is that any major change in energy price from one particular source could completely change the competitive positions between states. It should therefore come as no surprise that the implementation of the New Source Review has also been hampered by responses ranging from strong political opposition to outright manipulation of administrative regulation (Barcott 2004). With more than \$298 billion in sales revenue (2005) representing 3 percent of GDP, the electric power industry certainly has the clout to exert considerable pressure (Edison Electric Institute 2007). More generally, this overall situation illustrates how ‘sunken costs’ and ‘technological path dependencies’, in combination with differentiation among local energy systems, turns decisions regarding energy production into a highly political exercise.

Gridlock? – A similar situation can also be described for the transmission and distribution of energy through the electric transmission grid. A critical piece of the puzzle is the up-front investment costs for the physical infrastructure. In the US case, the first transmission and distribution lines were developed by large, vertically integrated power companies that delivered power over smaller

networks intended to serve local power needs. Over time, however, operators and utilities realized that reliability improved when these smaller systems were interconnected and generation sources diversified. From the 1950s to through the 1970s, the grid was expanded incrementally, adding smaller utility systems to the current arrangement of three larger regional networks; i.e. one giant cluster of transmission and distribution lines in the eastern part of the country, another in the West, and a separate system in Texas (Hughes 1983). While these are separate organizational entities, each with their respective subunits, they also share power between the grids via buffered transmission links. The latter activity is largely coordinated by the *North American Electric Reliability Corporation* (NERC).

While this evolutionary process was instrumental for the expansion of the grid, it also created the framework for its current technological limitations. In essence, the system was never designed to transmit large volumes of electricity over long distances, such as from the Midwest to the Northeast. Inherent bottle-necks make it difficult to scale up to meet increasing energy demand. The technological limitations become particularly evident in the case of a major scale-up of decentralized renewable energy (Wald 2008a). Understanding this problem, the Obama administration has also repeatedly emphasized the need to invest in a new grid.

One might question why there have been no systematic investments over the years in continuous technological upgrades. Again, the answer resides in the combination of sunken costs, technological path dependences, and local diversity. Investments in this type of technology are simply tremendously expensive for any individual actor. At the same time, transmission and distribution lines also have the character of a natural monopoly, which impelled the US government to deregulate the energy market in the 1990s. This resulted in a further balkanization of the electric power market, in which smaller units were unwilling to take on the necessary costs for upgrades. Adding to the problem, transmission and distribution of electricity is, just like power generation, subject to state regulations, each driven by their own interests and preferences. Hence, the truth behind the seemingly coherent grid is therefore

that its 200,000 miles of power lines are divided among 500 owners operating in different legislative jurisdictions and different regulatory frameworks. This implies that any major transmission upgrades will involve multiple companies, many state governments and numerous permits. These structural barriers also hamper any attempts to assure the grid keeps up with the growth in electrical generation, which is growing four times faster than transmission capacity (Wald 2008b).

The situations described above illustrate the impact of sunken costs, technological path dependencies and geographical diversity. A fundamental trait of large energy systems is that they lock-in certain technological solutions, such as the US dependency on coal, and are subsequently difficult to alter. Similarly, any decision to achieve more fundamental modifications in the system is likely to have repercussions for decades and impose major costs on service providers. These costs are also likely to be unevenly distributed, depending on how the local energy system is configured, thereby creating tensions between different regions. Navigating these considerations is yet another of the Obama Administration's challenges.

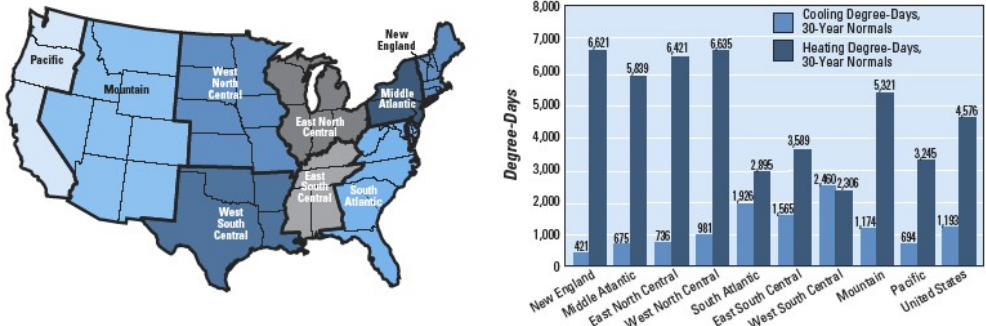
Available and developing technologies – Given the challenges hard-wired into the energy system, the US policy has long been to promote technology development as the principal strategy for meeting the challenges of global warming. This was particularly explicit during the recent Bush Administration, but technological development will most certainly be central to the Obama Administration's climate change and energy agenda as well. In a recent interview for New York Times, for example, the new Secretary of Energy, Nobel Laureate Steven Chu, emphasized the role of big science to curb the effects of global warming (Broder and Wald 2009). Such technology efforts fall essentially into two categories. One concerns the ambitions to make energy systems greener and more efficient in terms of both production and distribution of energy. This would involve the development of new energy sources, such as wind and solar, as well as efforts to increase the efficiency of power plants more generally. Similarly, another critical area on the production side is the development of new crops to be used as

transportation fuels, such as second-generation ethanol. Regarding distribution, high priority is being given to the research on new and improved energy carriers, such as hydrogen cells and electric batteries, along with the development of a smart grid. A second category of technology concerns the various means for attempting making fossil fuel cleaner, such as the capture and sequestration of GHGs, with the ambition of preventing them from building up the atmosphere. The latter technologies have been given considerable attention in the recent economic stimulus package, as they correspond directly to the US climate and energy challenges. Doubts remain, however, as to whether these technologies jointly are anything close to sufficient for meeting the global warming demands and achieving the necessary reversal of emission trends. To stimulate continued research and, more importantly, create the necessary markets for hitherto experimental technologies will be yet another long-term challenge for present and future administrations (Oye 2008).

2.1.3 Climate Change Impacts and Costs

The physical and economic consequences of global warming pose yet another type of general problem. This issue gained increased attention after the publications of the IPCC Fourth Assessment Report and the Stern Report, which jointly generated a general cognitive shift regarding climate change. While the former confirmed that climate change is indeed taking place, the latter has effectively become the largest and most widely known report on the global economic effects of global warming (IPCC 2007, Stern 2007). As a result, there is a growing awareness that the challenges of global warming are not only about mitigating GHGs but also a question of adapting to climatic changes already in the pipeline. Coping with anticipated impacts and costs of climate change is clearly relevant to the Obama administration, particularly under the present economic conditions. Despite uncertainties regarding the exact local effects of climate change, research and experience are providing the basis for increasingly detailed preliminary analyses that make possible planning and response.

Figure 4. Climate Diversity in the Contiguous US



Source: US Department of State 2002*

These more detailed analyses focus on a variety of different socio-economic and ecological impacts. For example, climate change is expected to impact: 1) water supply and agriculture; 2) coastal livelihoods; 3) energy supply and demand; 4) human health; 5) the incidence of forest fires and grass fires; and 6) future insurance claims (Ruth, et al. 2007). However, given the regional diversity of the US, involving at least nine different climatic zones, these changes are likely to play out very differently in different parts of the country. Also, given the large variations in population patterns, with 81 percent (2005) of the population living in urban centers along the coasts, the socio-economic impacts are also likely to differ between regions (United Nations 2008). In the West and Northwest, for example, climate change is expected to alter precipitation patterns and snow pack, thereby increasing the risk of forest fires. Similarly, the Great Plains and the Midwest will suffer particularly from increased frequency and severity of flooding and drought events, causing billions of dollars in damage to crops and property. Conversely, the South and Southwest will most likely see decreasing precipitation levels, followed by strained water resources for agriculture, industry and households. Finally, coastal areas – West, Northeast and Mid-Atlantic, and Gulf regions – can expect rising sea levels and an increasing number of violent storms.

The total economic impact of climate change is extremely challenging to estimate, since it involves an almost endless array of indirect and hidden costs. As an example, apart from the direct costs of replacing infrastructure, there are also indirect costs of re-rou-

ting traffic, workdays and productivity lost, provision of temporary shelter and supplies, potential relocation, etc. Similarly, the increased levels of uncertainty and risk generated by climate change also impose new costs on the insurance, banking, and investment industries, and complicate planning processes for the agricultural and manufacturing sectors and for public works projects. According to one recent study, the total costs of climate change could, under a scenario of complete inaction, reach 3,6 percent of GDP, or \$3.8 trillion annually (in today's dollars), in 2100 (Ackerman and Stant 2008).

While similar economic projections provide utterly disturbing scenarios at the aggregate level, there is also an emerging set of studies that imply that there, under certain circumstances, may be economic gains to be had from taking an active stance on mitigation (California Air Resources Board 2008). These are particularly important from a policy perspective, since they offer important positive incentives and build upon ideas regarding diversity, individual strategic behavior, competitive advantage, and innovation. Such projections have influenced the Obama administration's climate and energy agenda.

However, the situation described above poses enormous challenges for the Obama administration. To summarize, the economic impacts of climate change will occur throughout the country, but be unevenly distributed across regions and within the economy and different segments of society. Moreover, the negative climate impacts will most likely: 1) outweigh benefits for most sectors that provide essential goods and services to society; 2) place immense strains on public sector budgets; and 3) have important secondary effects of climate impacts – including higher prices, reduced income and job losses – that are not readily accounted for (Ruth, et al. 2007). At the same time, there seem to be unexplored incentives for change that could have important dynamic effects. This raises several critical questions. What efforts require public funding and when is private investment an alternative? What should be the division of federal versus state and local responsibility? To a significant extent, the answers to these questions reside largely in the characteristics of the US policy process.

2.2 *Good News, Bad News: Public Opinion and Climate Politics*

Even with the proportion of the American public accepting climate change as real and pressing problem now floating in the 70-80 percent range according to recent research, there remain important snags to take account of.⁷ First, it is not yet clear what kinds of discomfort or inconvenience a critical mass of citizens is prepared to embrace as a remedy for the problem, although some of this is becoming clearer in practice as state and regional initiatives are implemented. Second, the dominant split in public opinion is based on party identification, with people who identify themselves as Republican being much more highly represented among the skeptics/deniers. This group is also highly distrustful of mainstream media and science, and more likely to base their beliefs on their own personal observations, making this constituency particularly difficult to reach. An important consequence is that Republican Members of Congress are likely to find tepid support among their local constituents for crossing partisan lines to support aggressive greenhouse gas reductions, even where they themselves are persuaded of the urgency.

2.2.1 US Public Opinion and Climate Change

The American debate about climate change has been highly contentious, not least due to the systematic and well-financed opposition mounted by skeptics, anti-environmental groups and free-market think-tanks (McCright and Dunlap 2000, McCright and Dunlap 2003). As elsewhere (including Sweden), skeptics and deniers have sought to systematically undermine public confidence in the science – not only by magnifying remaining knowledge gaps and scientific uncertainties, but also by working to discredit the IPCC, labeling it as “political” and thereby untrustworthy. Such groups have also sought to undermine willingness to embrace likely remedies by focusing on the potential economic burdens of putting a price on greenhouse gas emissions, including exploiting the long-standing American aversion to taxes, and by promoting the misconception that other countries – especially large developing economies such as China and India – are doing little or nothing. Finally, they have portrayed international efforts as a

⁷ These findings are from recent research presented at a seminar at the Woodrow Wilson Center, Washington DC, January 12, 2009. This constitutes a significant increase over the last few years.

dark conspiracy to create a system of global governance that would infringe on American sovereignty. Taken as a package, such efforts have had a significant, if weakening influence, on ideas about the urgency and causes of climate change, about who to trust for information, and about what kinds of remedies should be considered acceptable.

Such efforts have been challenged with increasingly complete scientific knowledge, by the grassroots mobilization of environmental and other NGOs, and by an increasingly significant measure of community, corporate, and political leadership. As a result, America's debate about climate change has been shifted substantially since even the middle of the decade, to what White House Science Advisor Professor John Holdren⁸ characterizes as a "tipping point". A recent overview of current trends in public opinion research supports his view, concluding that "an overwhelming majority of Americans now believes that global warming is happening, that humans are at least partly responsible for causing it, and that the net effects will be harmful. A majority favors starting immediately to reduce greenhouse gas emissions and is willing to pay at least some higher costs for energy and even higher taxes if they directly enable emissions reductions" (Bowman 2008:7).⁹

Still, the picture remains complex. Important nuances in this overall picture reflect significant obstacles to the USA's ability to embrace the necessary climate mitigation policies at home – and to signing and ratifying an international agreement containing clearly defined reduction targets and guarantees of financial assistance for adaptation in developing countries. Here we summarize four dimensions that are especially relevant to the upcoming international negotiations: the partisan divide, state and regional variation, patterns in the kinds of remedies regarded as acceptable, and priority ranking. We conclude this section with discussion of some of the possible policy consequences of these patterns.

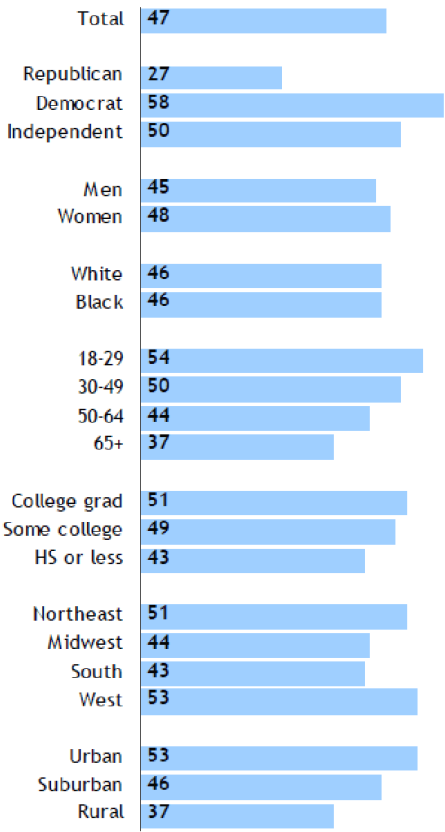
⁸ Holdren is Professor of Environmental Policy at Harvard's Kennedy School of Government and in its Department of Earth and Planetary Sciences. He is also a past chairman of the American Association for the Advancement of Science.

⁹ This assessment is supported by research by the Pew Center, (2007, 2008) and Rabe and Borick (2007, 2008), among others.

Partisan differences – The dominant divide in public views on climate change is highly linked to partisan identification (Pew Research Center 2006; Pew Research Center 2008; Rabe and Borick 2008; Leiserowitz, Edward et al. 2009). Although surveys conducted during 2007-2008 indicate a fairly strong belief in evidence the earth is warming (71-79 %), only about half of Republicans share that conviction (49 %). Belief that humans are a major contributor to warming is much weaker, with roughly half of all Americans agreeing (47-50 %, Pew Research 2008). But here the partisan divide is even more stark. An April, 2008 poll by the Pew Research Center for the People and the Press found that while 58 % of Democrats and 50 % of independents believe that warming is a human-generated problem, only 27 % of Republicans agreed. Such partisan differences can be found through the entire range of questions about climate change and policy responses.

Geographic variation – While party identification constitutes the clearest break in the national data, significant state/regional variations are also apparent (Pew Research 2008; Rabe and

Figure 5. Who Believes Global Warming Is Caused by Human Activity



Source: Pew Research April 2008

Borick 2008). These variations are linked to factors such as differences in the nature of the economic base and energy production, levels of educational attainment, and regional cultural differences. The factors combine at the state and regional level in a variety of configurations.

“Rust belt” states such as Michigan and Pennsylvania are characterized by a manufacturing base that has been in decline for much of the past two decades. Michigan is considered home base to a struggling auto industry and Pennsylvania is highly dependent on coal for electricity production. Virginia, which had long voted for Republicans but has been trending Democratic, has significant coastline and is influenced by its proximity to Washington, D.C. California, with a size and demographic complexity that exceeds that of many individual countries, is a coastal state that has been a dominant trend-setter on environmental protection. Mississippi is part of the socially conservative region of southern states that has become a Republican stronghold, but awareness of the consequences of extreme weather events was etched into its consciousness by Hurricane Katrina.

Figure 6. Regional variation in public opinion

"In your view it global warming a very serious problem, somewhat serious, not too serious, or not a problem?"					
	Very Serious	Somewhat Serious	Not Too Serious	Not a Problem	Not Sure
National	60 %	32 %	5 %	2 %	<1 %
Pennsylvania	52 %	38 %	6 %	2 %	2 %
Virginia	61 %	28 %	6 %	4 %	1 %
Mississippi	56 %	32 %	6 %	3 %	2 %
California	73 %	20 %	4 %	2 %	2 %

Source: Rabe and Borick 2008

Preferred remedies – As is the case with acknowledgement of climate change as a problem, Americans express clear preferences at the aggregate level about what kind of remedies they prefer for combating climate change. In general, one can say that they express strong preferences for policy alternatives seen as less intrusive at the individual level, and for alternatives for which eventual cost savings to individuals can be easily understood. The support expressed for “clean coal” technology is likely a sign of success of the coal industry’s expansive and highly effective advertising campaign. Finally, proposals that carry the label “tax” tend to be least popular, although research indicates that Americans at least say they are willing to accept increased taxes for certain specific, clearly defined purposes.

Figure 7. Policy Options by Level of Support Among Americans

Policy Option	% strong support
Creation of Renewable Portfolio Standard (RPS)	59 %
Increased fuel efficiency standards for automobiles	52 %
Increased support for clean coal technology	51 %
Increased efficiency requirements for public & private buildings	50 %
Tax reductions for purchase of hybrid vehicles	45 %
Require vehicles to reduce GHG emissions	35 %
Increase use of nuclear power	34 %
Increased support for ethanol development	32 %
Establishment of Cap and Trade system	25 %
Increased fossil fuel taxes	18 %
Increased gasoline taxes	10 %

Source: Rabe and Borick 2008

There are also important variations at the regional and state level (Rabe and Borick 2008)¹⁰. For example, Michigan and Pennsylvania are generally considered political swing states – tipping narrowly for Democrats in the past three elections. Emissions in the two states have declined over 25 % from the industrial sector due to economic contraction with significant loss of jobs. Yet, while Michigan has been among the least active states on energy efficiency and renewable, Pennsylvania has put a significant emphasis on climate change and diversification of energy sources over the past several years. Residents of the two states share quite similar levels of belief that global warming is occurring (74 %, MI; 79 %, PA, 16 % no in both states), that it is human-caused and constitutes a serious problem (strong + moderate belief: MI: 46 % + 29 % = 75 %; PA: 47 % + 30 % = 77 %), and that state and federal level government action is needed. They diverge, however, on preferred remedies, reflecting differences in the two states’ economic base and energy profiles, and in all likelihood, the engagement of state political leadership. Differences between the respective states’ level of support for fuel efficiency or renewable electricity production standards are linked to cars and coal. Pennsylvania’s significantly lower level of opposition to cap-and-trade can be seen as a function of

¹⁰ The survey was conducted in 2007, before either the rapid increase in gas prices or the economic meltdown in the US.

its higher level of public discussion of the issue. The level of opposition in both states to proceeds from an electricity surcharge being invested in green technology is likely a function of combination of “tax” with belief that investment should come from private sources since the revenues accrue to private benefit. Tax breaks to support such investment, which have a similar effect, are typically viewed much more positively. (Figure 7, Rabe & Borick 2008a).

Important, but... While an increasing proportion of Americans see climate change as a pressing problem, they continue to see it as less urgent than a long list of other concerns. As might be expected, the urgency created by a financial crisis and subsequent recession has pushed jobs and the economy to the top of the list of priorities. Global warming ranks quite low, with some 30 percent identifying it as a top priority. A January 2009 survey by the Pew Research Center for the People and the Press found a steep decline (from 56 % to 41 %) in the percentage identifying environmental protection as a top priority. A similar decline was noted in the period following the September 11 terrorist attacks. Such figures clearly suggest that even if understanding and concern over global warming is growing, it remains less urgent in the public consciousness than many other pressing problems. However, there are important caveats. Partisan differences remain sharp and extremely relevant. Where only 16 percent of Republicans see global warming as a top policy priority, 45 percent of Democrats do – a 29 point gap. The gap is much smaller on energy, with 61 percent of Republicans and 66 percent of Democrats ranking at a top priority, and 60 percent overall. In all likelihood, issues such as energy are defined and understood differently by different groups – an ambiguity that is not without certain advantages. The complex interconnections of climate change to other issues on the agenda can be made an asset. In these instances, however, the complexity of the issue definitions and linkages is not reflected in the generally available public opinion data. Nor does it provide a clear picture of the regional diversity of public opinion. Nevertheless, it is apparent in the Obama Administration’s systematic integration of its top tier priorities.

Figure 8. Top Domestic Priorities for Obama and Congress

<i>Percent considering each as a "top priority"</i>	Jan 2001	Jan 2002	Jan 2003	Jan 2004	Jan 2005	Jan 2006	Jan 2007	Jan 2008	Jan 2009	08-09 change
Strengthening nation's economy	81	71	73	79	75	66	68	75	85	+10
Improving the job situation	60	67	62	67	68	65	57	61	82	+21
Defending US against terrorism	--	83	81	78	75	80	80	74	76	+2
Securing Social Security	74	62	59	65	70	64	64	64	63	-1
Improving educational system	78	66	62	71	70	67	69	66	61	-5
Dealing with US energy problems	--	42	40	46	47	58	57	59	60	+1
Securing Medicare	71	55	56	62	67	62	63	60	60	0
Reducing health care costs	--	--	--	--	--	--	68	69	59	-10
Reducing budget deficit	--	35	40	51	56	55	53	58	53	-5
Providing health ins. to uninsured	61	43	45	54	60	59	56	54	52	-2
Dealing with problems of poor	63	44	48	50	59	55	55	51	50	-1
Reducing crime	76	53	47	53	53	62	62	54	46	-8
Dealing with moral breakdown	51	45	39	45	41	47	47	43	45	+2
Strengthening the military	48	52	48	48	52	42	46	42	44	+2
Reducing middle class taxes	66	43	--	44	48	51	48	46	43	-3
Protecting the environment	63	44	39	49	49	57	57	56	41	-15
Dealing with illegal immigration	--	--	--	--	--	--	55	51	41	-10
Reducing influence of lobbyists	--	--	--	--	--	--	35	39	36	-3
Dealing with global trade	37	25	--	32	32	30	34	37	31	-6
Dealing with global warming	--	--	--	--	--	--	38	35	30	-5

Source: Pew Climate 2009

Policy Consequences:

There are distinct policy consequences in the diversity of American public opinion and the nature of geographic clustering of the various elements identified by survey research, and these play out differently at the state/regional and federal levels. One the one hand, the concentration of generally sympathetic citizens in states on the East and West Coast, and to a lesser extent, in the Midwest, has provided the critical mass of support necessary to initiate a wide range of state-level initiatives on renewable, energy conservation, and even emissions targets. On the other hand, quite little has been done in Southern states where citizens express much higher levels of climate skepticism combined with hostility toward certain categories of government climate initiatives. The three breakthrough regional climate initiatives have emerged where the generally supportive orientation within states has permitted Governors to reach beyond the boundaries of their individual states to engage in multi-state collaboration (we take up these regional cap-and-trade initiatives in a subsequent section of this report). As we can see, the concentration of public support for climate

initiatives is quite encouraging in the way it actually supports the sub-national formulation, implementation, and testing of climate policies. However, there is another side of the coin – the geographic concentration of skepticism and opposition – the consequences of which remain a troubling obstacle for national action. Also troubling is the low priority ranking polls find for climate change.

A particularly illustrative analysis by Leiserowitz et al (2009) divides the US population into six distinct profiles based on the clustering of the various views and other identifying data collected by public opinion research.¹¹ These six groups – the Alarmed (19 % of the population), Concerned (22 %), Cautious (20 %), Unconcerned (12 %), Doubtful (16 %), and Dismissive (11 %) – range from strongly engaged to completely dismissive of climate change as a problem. Members of the “Dismissive” group were overwhelmingly male (61 %), Caucasian (88 %), conservative (81 %), religious (61 %), and Republican (72 %) and are most likely to get their information from Fox News (69 %) or talk radio (77 %). They modestly support efficiency measures, but distrust science, strongly oppose taxes on gasoline or electricity, and are opposed to the US signing an international climate treaty. Coupled with the “Doubtful” group, which is only slightly more open from a climate mitigation perspective, this group constitutes a substantial hard core of opposition.

Figure 9. State Difference in Policy Option Support

State Comparisons: Michigan (MI) and Pennsylvania (PA)	Strongly/some-what Support	Strongly/some-what oppose
Government mandated fuel efficiency standards	PA – 93 % MI – 86 %	PA – 6 % MI – 13 %
Renewable standards for electricity	PA – 78 % MI – 85 %	PA – 15 % MI – 13 %
Cap & trade - “allow” selling of permits	PA – 41 % MI – 43 %	PA – 34 % MI – 45 %
Carbon tax (all fossil fuels)	PA – 29 % MI – 30 %	PA – 63 % MI – 66 %
Electricity surcharge (with proceeds invested in green technology)	PA – 39 % MI – 40 %	PA – 57 % MI – 56 %

Source: Rabe and Borick, 2008

¹¹ Naturvårdsverket presented public opinion results in November 2008 using a similar strategy.

A significant challenge for national policy lies in the geographic concentration of people who fit the Doubtful and Dismissive categories – to a large extent in the Southern states that have remained strongly Republican, and especially in the 178 of 435 total Congressional Districts that elected Republicans to the House of Representatives in spite of a Democratic surge. National Public Radio political editor Ron Elving (2009) says of the Republicans, “They know they have lost nearly every seat they can lose in the House, and that the survivors are more worried about primary opponents coming at them from the right than about Democrats beating them in the fall”. The simple truth is that these Republican members of Congress are less likely to be rewarded for doing more than talking about “bipartisanship”.

The partisan polarization of the Senate is not quite as sharp, in part because the statewide basis by which Senators are elected contains a greater diversity of concentrated constituencies. Nevertheless, moderate Republicans, who once roamed New England quite freely, are today an endangered species. Only a handful remain in the Senate, and one could legitimately argue that the list virtually starts and ends with the three Republican Senators who supported the stimulus package. On the other hand, numerous Democratic Senators represent comparatively conservative states, and their votes on climate change legislation cannot be taken for granted. Democratic Senators from Alaska and Louisiana represent oil producing states that largely vote Republican. Democrats from states like Michigan, Pennsylvania and West Virginia must reconcile climate legislation with its effects on concerns such as auto manufacturing and coal-based jobs and energy production.

Shifts in public opinion are also reflected in shifting configurations among American civil society organizations. A shift is particularly visible in the form of interesting alliances between environmental NGOs and US industry that are emerging to stake out clear positions in favor of decisive national action to reduce greenhouse gas emissions. One such example, US CAP,¹² recently announced an ambitious agenda for federal level regulation inclu-

¹² US CAP's membership includes, among others, General Motors, Shell Oil, Dow Chemical, Alcoa, the Pew Center on Climate Change, the Environmental Defense Fund, and the World Resources Institute.

ding a comprehensive federal cap-and-trade program (US CAP, 2009). While it is clear that many business leaders are now persuaded about the urgency of climate change as a problem, still more see a system of new regulations that is uniform within US borders as preferable to the patchwork of policies emerging from individual states and regions. They also seek a regulatory environment that enables them to plan with a higher measure of predictability. Even the auto industry, previously opposed higher fuel efficiency standards and still seeking to buy time, is now calling for predictable federal-level standards in response to Obama's ordering an EPA review of the California standards.¹³ At the very least, these policy coalitions will help to blunt previous opposition by major industries. At best, they may provide a greater catalyst for decisive action.

2.3 Congressional Gridlock on Climate Change Policy – Historical trends, Institutional Landscape, and Internal Contradictions

As with external factors that affect the likelihood that the US Congress will adopt aggressive climate change mitigation policies, important trends within Congress continue to point in contradictory directions. Here we first take up institutional factors and partisan trends that contribute to perpetuating Congressional gridlock. We then look at ongoing developments that suggest an important thaw in what had previously been an icy reception for policies to curtail global warming which were previously perceived as a threat to the American economy.

The US led much of the world in environmental protections with the measures adopted by the Congress during the 1960s and into the 1970s, during which it enacted 22 major environmental statutes (Klyza and Sousa 2008). The period was notable not only for the expansiveness of its efforts to protect a threatened environment, but also for its non-partisanship. The Endangered Species Act of 1973 passed the House by a 345-4 vote and passed the Senate unanimously. Legislation creating the US Environmental Protec-

¹³ Due to particular circumstances during the establishment of the Clean Air Act, California has a unique position among the states insofar that it can set its own tailpipe standards, which is fundamentally a federal competence. The remaining states can thereafter choose whether they want to follow federal or Californian standards. However, the federal EPA will under all circumstances have to review and approve any Californian initiative, a process that was effectively stalled by the Bush Administration. It is this latter process that Mr. Obama has now re-initiated.

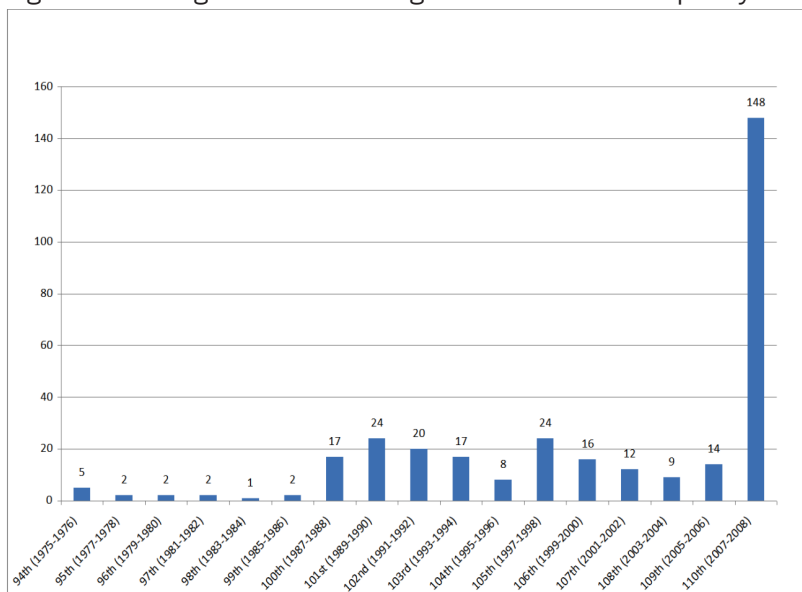
tion Agency was passed by a Democratic majority Congress then signed into law by Republican President Richard Nixon. Clearly, partisan allegiances and divided government need not constitute an inherent barrier to adopting laws increasing environmental protection (Mayhew 1991). This bipartisan “Golden Age” eventually wound to a close, officially laid to rest by key EPA and Department of Interior appointments made by Ronald Reagan after his 1980 election. Reagan’s rhetoric of “getting government off the back of the people” embodied an explicit critique of the regulatory expansion of the preceding two decades (Klyza and Sousa 2008). Beginning with Reagan, environmental bi-partisanship fell victim to a partisan divide that has steadily deepened since then (Shipan and Lowry 2001).

Increased partisanship on environment is partly the product of ideological and regional shifts within the Republican and Democratic Parties. Underlying those shifts is the backlash against environmental regulation, driven by ideological conservatives and business interests unhappy with what they regard as excessive economic cost, undue infringement on property rights, and unacceptable expansion of government authority – often embodied in the EPA. This backlash has contributed to intense struggles, many of which have been played out in efforts to extend or repeal environmental protections. Interestingly enough, the basic framework of environmental regulation set in place during the so-called Golden Years remains intact, having survived what can only be described as an all-out effort to roll back environmental protections after the 1994 Republican takeover of Congress. Speaker Newt Gingrich’s Republican “revolutionaries” found that their environmental agenda lacked public support, which contributed to them suffering a series of legislative and electoral losses. Their losses did not reduce polarization, but instead led them to seek out more subtle means in the legislative process for curtailing the reach of environmental policy. Such action has contributed to what Klyza and Sousa (2009) refer to as a “hyper-partisanship” that has contributed greatly to Congressional gridlock on environmental issues.

Modern American environmental law has now been accumulating for nearly half a century. The environmental protections adopted

in the 1960s and 1970s established new environmental goals and constructed new institutional arrangements to serve them. Yet, they also left in place portions of the legal basis for earlier claims related to water, timber, and property rights without clarifying which principles should take priority in many situations where the old logic collided with the new (Klyza and Sousa 2008:20-46). This adoption of new regulations while leaving in place the remnants of previous goals, values, and logics has produced what has been described as a labyrinth of “contradictory policy commitments” (Klyza and Sousa 2008:11). As a result, Congress has over time generated a body of regulations which offer an important measure of environmental protection, but which often lack flexibility, grant veto power to minor interests, and often impede efforts to develop creative, collaborative approaches that might deliver improved results. Many environmental critics have taken the straight-line approach of trying to roll back regulations rather than seeing them updated and made more coherent. Environmentalists have been reluctant to give up important leverage provided by that early legislation – especially under the conditions that have existed over much of the past decade. Such conditions have made the maneuvering room for Congressional action on the environment quite limited, contributing to gridlock.

Figure 10. Congressional hearings on environmental policy



Source: Rabe, 2009

In spite of a powerful tendency toward gridlock, there are signs of movement on climate change, and on environment in general. The Congress has come a long way since the Byrd-Hagel Resolution of 1997 unanimously passed the Senate. That resolution sent the message that the Senate would not ratify any treaty on global warming that might hurt the American economy – or which did not include developing countries. Less well known is that a lone vote was cast against the resolution in committee, but was changed for the general vote to permit the Resolution to be passed without objection. That single vote against was Joe Biden's.

In the decade since, the US Congress has grappled more substantively – and frequently – with the environment and the problem of climate change. During the 2007-2008 Congress, the number of Congressional Hearings pertaining to environmental policy virtually exploded, and many of these hearings were related to climate (Rabe, 2009). Not coincidentally, 2007 also marked the return of the Democratic majorities in both the House and the Senate.

3. *Policy Developments*

Over the past eight years, much attention from outside of the US has been directed to the intransigence of the Bush administration and the Congressional legislative gridlock it supported. However, this very gridlock has contributed to substantial movement via alternative channels (Klyza and Sousa 2008) and a considerable amount of movement has occurred. The Obama Administration has already moved decisively, for example, in Cabinet and agency appointments, with Executive Orders, through the State Department – and through the stimulus package. And quite separately from the Executive Branch and Congress, climate policy has progressed via channels that largely bypass Washington. Each of the various pathways and alternatives entails its own particular tools, capabilities and limitations, as we examine below.

3.1 *Recontextualizing Climate Change: A Green New Deal*

In spite of the struggling economy, Mr. Obama has taken several steps which emphasize his previous commitments, leaving no doubt about the Administration's seriousness about climate change. Especially interesting is the way measures to combat global warming are now being contextualized and framed rhetorically by the Administration, and how that rhetoric is being put into practice. Mr. Obama has shifted the discourse about climate change policies from being a potential threat to the economy, to instead being an important means for pulling the US out of the economic crisis. Investments in infrastructure and renewable energy, the Administration argues, will create millions of new jobs and also increase US competitiveness in the long run. As we shall see, considerable resources have been invested in both items in the recently approved economic stimulus package.

This overall approach has obvious parallels with President Roosevelt's efforts the 1930s and more than a few observers have characterized the Obama program as a *Green New Deal* (Dickerson 2009, Griffiths 2009, Maher 2009). This is not the first time environmental sustainability has been cast as a vehicle for fostering energy security and economic growth. Sweden adopted similar policies already in the late 1990s under the banner "Green Peoples'

Home” (Gröna folkhemmet), which began with the adoption of public investment policies aimed at reducing fossil fuel dependency while supporting local initiatives and the creation of green jobs (Naturvårdsverket 2004, 2005). While one might take issue with direct historical comparisons or efforts outside of the United States, the notion of a Green New Deal only further underscores the conceptual and practical shift currently being engineered regarding climate change. Rather than being understood exclusively as an end in itself, climate change mitigation is integrated with other high-priority issues on the Obama Administration’s agenda. As such, it serves as a means to achieve an array of related policy objectives – energy security, job creation, and regional development, all intended to revitalize the US economy – as well as support various geopolitical goals. In essence, US climate change policy can be more fully understood as part of a broader strategic plan for national economic recovery and development – and as an important step in a process of restoring America’s global moral standing and leadership.

This recontextualization is not only rhetorical, but is also embedded in the objectives and principle features of the Obama Administration’s overall climate and energy agenda. Below we discuss it from the perspective of: 1) the broader economic development objectives it entails; 2) the particular goals that reflect these ambitions; 3) the concrete targets it sets up to meet these goals; and 4) the means by which this is to be achieved. An examination of the Administration’s stated climate change and energy agenda as presented on the White House website, offers some interesting initial observations (The White House 2009). The Obama agenda includes a mixed bag of broader policy declarations and concrete measures that superficially, at least do not appear entirely coherent. Interestingly, the suggested ‘energy and environment agenda’ is also presented as an Energy Plan Overview, which only emphasizes the strong connection between energy and climate change in the US context. The overview establishes four policy goals that, in our interpretation, correspond to separate overarching goals:

-
- “Provide Short-term Relief to American Families” (*sustainable livelihoods*)
 - “Eliminate Our Current Imports from the Middle East and Venezuela within 10 Years” (*energy security*)
 - “Create Millions of New Green Jobs” (*job creation*)
 - “Reduce our Greenhouse Gas Emissions 80 Percent by 2050” (*climate change*)

The critical point is that independent of the explicitly stated goals, each package of suggested measures contributes to a reduction of greenhouse gases. In that sense, greenhouse gas mitigation is transformed from being an end in itself to also become a means for achieve other important policy objectives.

Each of the four broader policy objectives is in turn further linked to other policy priorities. One example is energy security via a reduction of dependence on imported oil. Achievement of that goal is to be supported by, among other things, the introduction of 1 million plug-in hybrid cars on American roads by 2015. To reach this target, the government proposes financial incentives to American carmakers so that they can retool their production lines, which will then serve the additional objective of preserving domestic industry and creating new jobs. Importantly, the ambition to link various policy issues may also work the other way around and, in effect support the more explicit energy and climate agenda. Clearly, the ambition to re-engage in the UNFCCC process is not only driven by a concern for global warming; it is also a means for the Obama Administration to re-establish US credibility and leadership on the international scene. This, in turn, is linked to other pressing international concerns, such as the WTO negotiations and the US position in the Middle East.

This broader climate and energy agenda is essentially a declaration of policy priorities, and is for obvious reasons short of details and does not provide a complete picture of the intended measures. The economic stimulus package, or *American Recovery and Reinvestment Act* (ARRA), that was finally signed by the President on February 17th, provides a preliminary look at the Administration’s concrete

agenda. Finally amounting to \$787 billion, the legislation finances a variety of measures to stimulate the economy, with an estimated 18 percent in some way related to climate change (in its initial form) (Sheppard 2009).

Perhaps not surprisingly, many of the measures found in the economic stimulus package were taken directly out of the Energy Plan. Yet, some modifications can be seen that presumably reflect the new economic and political context. One is the increased emphasis on infrastructure investments. The ARRA provides, for example, more than \$11 billion to modernize and expand the electrical grid. Similarly, it invests \$17.7 billion in updating and expanding transit systems, along with an additional \$29.1 billion to upgrade roads and bridges, all with the ambition to achieve major energy cost savings. Another new component is the emphasis on science and technology. The ARRA allocates \$1.6 billion for research in areas such as climate science, biofuels, high-energy physics, nuclear physics and fusion energy sciences. In line with this there is also \$3.4 billion allocated for carbon capture and sequestration technology demonstration projects. A critical component, and contentious component of the stimulus package, is also the support to state and local governments to achieve greater energy efficiency and reduce energy usage. The total money allocated on clean energy green jobs amounts to some \$115.8 billion and it is expected to rescue or create 3.5 million jobs. Finally, the ARRA also provides various tax incentives for investments in various environmental technologies, ranging from cars to housing (Foshay and Schneider 2009, Pelosi 2009).

It should first be noted that there are also provisions in the stimulus package that will have negative climate consequences. One example is incentives provided to buy new cars, including light trucks and SUVs, with a tax deduction for state and local sales taxes paid on the purchase (2009 *Stimulus Package: What's in It for You, and When* 2009). Similar concerns have also been expressed regarding infrastructure (Ward 2009). Others, such as modernizing the electrical grid, will produce significant long-term benefits, but will likely contribute to short-term increases in greenhouse gas emissions during the construction phase.

The direct climate impacts of the ARRA are, for obvious reasons, extremely difficult to measure. Yet, a recent report commissioned by Greenpeace suggests that the Obama administration's initial ARRA proposal would deliver GHG emissions savings of 61 million tons a year – equivalent to taking 13 million cars off the road – and potentially result in far deeper emission cuts. Most of these projected savings are achieved through building efficiency measures (ICF International 2009). At the same time, the politically negotiated economic stimulus package also has several shortcomings as a plan to address global warming. Most noteworthy is the emphasis on supply-side, rather than demand-side, policies. As already noted, there is a strong emphasis on technological development and production efficiency criteria; but the real discipline is waiting around the corner in an eventual cap-and-trade bill that can lock in the benefits of positive incentives by increasing the cost of CO₂ and other GHG pollution.

Interestingly, discussion of adaptation is also largely absent – at least in explicit terms. Some of the investment in housing and infrastructure could certainly be defined in terms of adaptation, as can money for coastal restoration and protection. However, the fact that these items are not explicitly characterized as adaptation is illustrative of the fact that many of the consequences of climate change are perceived as occurring outside the US. We see this as a missed opportunity to communicate in more concrete terms that warming will have real and problematic consequences and that these are already in the pipeline. In practice, it also makes it more difficult for Americans to identify with people around the world who must struggle to adapt to changes already set in motion, but with fewer resources and often fragmented or non-existing infrastructure. However, this is an omission that could rather quickly be corrected, and it could ultimately have an important impact on the UNFCCC negotiations.

In summary, the Obama administration's climate and energy agenda specifies a wide range of measures that will have substantial positive climate impacts, and important pieces are already being set in place. Equally important for current circumstances and for the longer run is the paradigm shift it engenders – the conceptual

reconstruction of the relationship between climate change and economic prosperity which emphasizes climate change initiatives as a means to achieve other high-priority policy objectives, and delivering greenhouse gas reductions as an intended side-effect. If this takes hold, the US could not only be leading the battle against global warming in just a few years, but also effectively be the main exporter of climate change solutions to the rest of the world. As Thomas L. Friedman writes in his book *Hot, Flat, and Crowded*, “emulation is always more effective than compulsion” (Friedman 2008:176). Such an approach, with its strong emphasis on issue linkages and a reversal of ends/means identification, has important potential for teasing out hitherto unexplored drivers for action. It could also provide the impetus for a new economic recovery/development model that others might copy.

3.2 Many Roads to Rome: Multiple Policy Channels

Outside of US borders, it is quite natural that most attention has focused on the role of the President and Congress as the most visible and obvious actors engaged in constructing US public policy. However, there is a more complex reality, in which other important pathways are available. The system shares important parallels with the European Union and other complex, federal or quasi-federal policymaking systems, which share power between “states” and central authorities, and with a system of interpretation of law that enjoys some measure of autonomy from the legislative function. American states do enjoy a significant measure of autonomy, but there is an ongoing tension in the balance of authority between central government and states. Even if this kind of tension is less dynamic in the EU, it is hardly unusual for American states to challenge the directives of the Federal government. As is the case with the European Union, the courts exercise a significant measure of authority in the interpretation and application of law, and they adjudicate disputes between levels.

Because alternative pathways are available, roadblocks and gridlock hampering the development of US climate change mitigation policies have already been partially bypassed. The result is that the possibilities for reducing CO₂ and other greenhouse gas emissions

have been steadily evolving along four separate channels which up to this point have operated to some extent in isolation and with mixed records of success. This could generate additional momentum so that the different paths become mutually reinforcing and combine to break the long-standing gridlock on climate change. This provides a major strategic opportunity for the Obama administration, which already has demonstrated its ambition to operate at all levels in order to create synergies, to bring within reach the possibility of enacting and implementing the economy-wide cap-and-trade system the President called for in the campaign, and again most recently in the budget proposal submitted to Congress (OMB 2009).

3.2.1 Executive Powers, Administration, and Federal Bureaucracy

The expectations for Mr. Obama as President have been enormous – not only within the United States, but around the world. While this optimism is largely related to his persona, it is also based on a certain understanding about the power of the Office of the Presidency. The powers of the US President are in a formal sense circumscribed. A Constitutional separation of powers combined with an elaborate system of checks-and-balances makes the President in certain ways quite dependent on both the Legislative (the Congress) and the Judicial (the Supreme Court) Branches of government. However, there are three especially important ways in which the Executive Branch can exert particular influence on climate related matters.

The first is the capacity to draw attention to and define issues, and to formulate policy proposals. The Presidency, as lead institution of the Executive Branch, is in both practical and symbolic terms the most powerful agenda setting institution in US politics. By almost all accounts, Mr. Obama fills this position with uncommon skillfulness, and the re-conceptualization of climate change and its remedies has already influenced the public debate. In this effort he has also been able to build on a continuing high level of support in opinion polls. His campaign organization has been kept intact and is thus still capable of conveying his message unmediated to millions of activists and supporters who share his values and

goals (CBC News 2009). Similarly, the introduction of the new Administration's agenda in Congress has been aided by political dynamics that provide the Democrats with significant majorities in both Houses of Congress. After having been granted both the Presidency and clear majorities in both Houses for the first time since 1992, Democrats are now under strong pressure to demonstrate that they can govern effectively. At the same time, strong public support for Mr. Obama makes him also a difficult target for Republicans, who have instead directed their criticism at Democratic leadership in both Houses.

The importance of high-level appointments such as Cabinet posts and key agencies in the area of energy and environment has already been noted. Here the President has selected a team with impressive credentials. . Less obvious is the depth and breadth of commitment to greening the economy and tackling climate change. Labor Secretary Hilda Solis, for example, has been a dedicated green jobs advocate in her previous role as a Member of Congress, as has Vann Jones, who serves as the informal "green jobs" czar in the White House Council for Environmental Quality (CEQ). Nancy Sutley, Obama's Director of CEQ, was Deputy Mayor for Energy and Environment in Los Angeles and prior to that, energy advisor to former California Governor Gray Davis.

The President also wields major influence on climate change policies through the federal bureaucracy. This is a channel of action that is all too often disregarded in most analyses on US climate change. Yet, this is the arena where substantial changes are likely to be most visible in the short-term perspective. The various agencies are a key element and are highly influenced by the executive through nominations, Executive Orders, and through budget allocations. It was through this process that George W. Bush exercised his strongest influence over US climate policies (Román 2004). It also here where Barack Obama, in signing an Executive Order that is expected to result in California and other states gaining the right to more stringently regulate tailpipe emissions, has taken his first steps to reverse that process (Broder and Baker 2009). The importance of this move cannot be overstated. Undoubtedly, there will be more to come.

Still, there are also features in the process that may hamper the executive's ability to act both in the short- and medium term. One factor that will have an immediate effect is the time-consuming nomination process required for all upper-level staff appointments. Because of the economic crisis, this process was initially accelerated for high-level officials. However, earlier problems with key appointments have now slowed the vetting process, although the pace remains faster than in recent administrations. Given that staffing also involves a large contingent of technical and administrative staff, well-informed observers do not expect the Obama Administration to be fully operational before summer 2009. Even if this does not prevent the Administration from pursuing its policy priorities, it impairs the administration's shorter-term ability to define positions on important details. Another issue concerns institutional capacity more generally. After eight years of near climate change denial, the institutional arrangements and human capacity to effectively deal with implementing climate change measures are eroded. The EPA, for example, is said to be operating with a "skeleton crew" and has clearly lost important momentum with respect to incorporating climate change into the policy process. However, a substantial base of knowledge and practical experience can now be found at the state level. We return to this issue shortly.

3.3 Judicial channels may facilitate or obstruct

Another largely overlooked channel for climate action in the US context is the judicial system. Like the Executive Branch, the courts can be engaged with the potential to either stall or promote the further adoption and implementation of climate change policies. The capacity of US courts to influence the formulation of what become, in effect, new policies, is extremely important. The judicial system also influences the implementation of policies. Litigation may block, stall, hasten, or otherwise define the contours of this process. This can create time-consuming and potentially costly court procedures that may thus effectively stall implementation until a final decision has been reached. Adding to the complexity, there are also appeals courts that can further prolong stalemates. What is absolutely clear is that the courts will have a decisive impact also on the implementation of US climate policies.

An important case in point is the Supreme Court's 2007 decision (*The State of Massachusetts vs. Federal Environmental Protection Agency*), which decided that the Environmental Protection Agency (EPA) must take steps to regulate CO₂ under the Clean Air Act (Stevens 2007). This decision has set in motion an alternative mode of CO₂ regulation that will have already prompted reluctant business actors to seek an alternative in comprehensive federal climate legislation – which they can participate in shaping. The logic here is that industry tends to prefer the predictability of comprehensive federal legislation and potentially more rigid ad-hoc intervention in its activities, which it fears could be the case if the EPA pursues CO₂ regulation with administrative regulation. This provides an example of how the judicial system, under certain circumstances, may influence policy content, with all the repercussions this has on its subsequent implementation. Regulation of asbestos by the EPA provides a counter example. The EPA finalized regulations in 1989 to phase out most uses of asbestos under the 1976 Toxic Substances Control Act. However, responding to an asbestos industry court challenge, the conservative 5th Circuit Court of Appeals in New Orleans overturned the regulations on the grounds that the EPA had overstepped its authority (Carson 2009). Asbestos has been banned in Sweden since the 1970s and in the EU since 2005.

The way in which the judiciary process influences the climate agenda in the US is largely a function of the country's Common Law tradition and the particular role it gives to courts. In contrast to the legal systems typical in Europe, Common Law systems start from an assumption that legal codes should reflect a practical – and constantly changing – reality. In effect, the body of law is incrementally expanded through court cases that establish precedents for the future as judges are faced with new disputes in previously unanticipated and/or unregulated areas. Such litigation entails a process that is often adversarial, where the parties essentially battle over their differences. This basic conception of law and the weight it gives to court procedures differs fundamentally from a European Civil Law tradition. In Civil Law systems particular courts do not establish precedents. Rather, individual cases are decided based on the interpretation of what the law was intended to achieve (Zweigert and Kötz 1987).

The division of judicial competencies between states and the Federal Government also has consequences relevant for climate policies. There are specific policy areas – such as water quality, occupational health and safety, and hazardous materials transportation – in which the federal government has regulatory authority and others – such as energy savings and building codes – where state governments retain jurisdiction. This sometimes produces overlaps where the question of final regulatory authority becomes a matter of interpretation. One additional regulatory twist here is that California is the only state in the Union that has the right to set its own air quality standards – as long as it can demonstrate that its own regulations are more stringent, and needed to address its air pollution problems. Other states can then decide whether they want to follow the California lead or stick with the federal standard. Some states, such as Massachusetts, even have adopted constitutional obligations to follow California regulations. In order to take effect, however, the California initiatives have to be approved by the EPA. Similar waivers have been granted dozens of times during the last forty years.

The California air quality waivers are instructive of the occasional tensions between federal and state legislation. Also, it illustrates the opportunities and pitfalls in pursuing climate change policies through the judicial system. One recent example that demonstrates the point emerged two years ago (2007) when California supported by 13 other states, wanted to impose new regulations that would force automakers to cut emissions by nearly a third by 2016. This legislative proposal was swiftly appealed by the car industry, which argued that this was a hidden attempt to regulate fuel economy rather than air quality (according to some estimates, similar demands on air quality would in effect require an increase in fuel efficiency in the American car and light truck fleet to roughly 35 miles per gallon from the current 27 miles per gallon). The automakers wanted to avoid a situation with different production lines for different states. The Bush/Cheney administration quickly came to industry's defense, effectively ordering the federal EPA reject the Californian application. This situation, however, was reversed in the first days of the new administration, when Mr. Obama revoked that decision through a Presidential Decree and,

instead, directed the EPA to reconsider the Californian application. The expectation now is that this will tighten auto standards all across the board (Broder and Baker 2009).

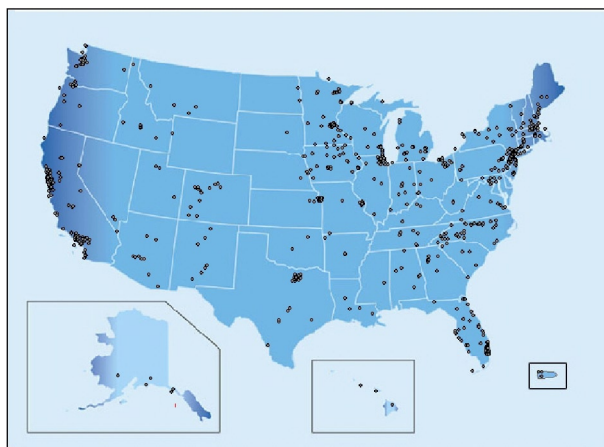
The courts have largely been engaged by states and NGOs to weigh in on climate policies. In those instances, the plaintiff states are overwhelmingly 'climate leaders' that raise lawsuits intended to: 1) compel federal regulations of GHGs; 2) take common law public nuisance actions against individual emitters; and 3) require considerations of climate impacts. However, industry has also initiated various litigation processes to preempt climate change initiatives, not the least with regards to the already mentioned vehicle emission standards in California. So far, the outcomes have been mixed and there are indications that courts occasionally are uncomfortable in this role. More generally, lawsuits have up to this point revealed inadequacies in current law and, in some instances, the need for federal regulation. Depending on how Congress chooses to act on these matters, future litigation threats are likely to be low in areas regarding cap-and-trade and carbon, but high under circumstances of cooperative federalism, where command-and-control statutes are fertile ground for lawsuits (Engel 2008).

3.4 Multi-level movement: local, state, and regional initiatives and effects

The image of the US at a near-complete climate policy "freeze" over the past eight years is largely inaccurate. Even as the international community has focused on Congressional gridlock and the Bush Administration's denial and delay in the international arena, an enormous amount of work has been set in motion at the local, state, and even regional levels – enough for Rabe (2008:4) to note two years ago that "the sheer volume and variety of state climate initiatives is staggering". Developing and implementing policy at the sub-national level is a normal element of the American multi-level political system. Given that many of the measures necessary to reduce greenhouse gas emissions must by nature be adapted to local circumstances and implemented by state and local governments (Rabe 2004), climate change efforts would be an unlikely exception to this rule. What might be considered surprising is the extent to which climate mitigation policies have been developed

at the state and local level in spite of the considerable obstacles thrown in the way by the Bush Administration. Ironically, the staunch opposition from the previous Administration has contributed to “venue shopping”, a practice also typical of the US Federal system, in which engaged actors select the policymaking arena(s) most receptive to the policy developments they favor. This process has had several long-term effects supportive of the passage of federal legislation that we take up at the conclusion of this section.

Figure 11. Signatories – US Mayors Climate Protection Agreement



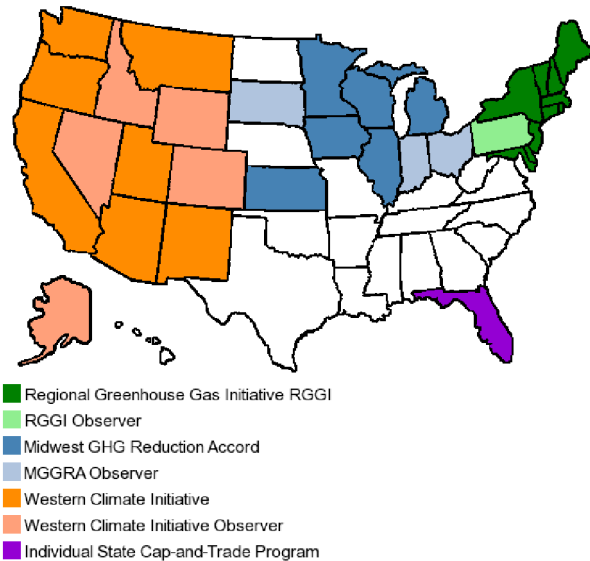
Source: US Mayors, 2009

As of mid-February, 2009, some 912 cities across the US had joined the US Council of Mayors, Climate Protection Agreement. The effort was launched on February 16th, 2005, the day the Kyoto Protocol went into effect, and was unanimously endorsed by the 2005 meeting of the US Council of Mayors. Among other things, signatories have individually committed to work to meet or exceed Kyoto targets within their own boundaries, to urge state and federal governments to enact policies aimed at meeting the US emissions targets indicated in the Kyoto agreement (7 % under 1990 levels by 2012), and to urge the US Congress to establish a national emissions trading system (US Mayors 2009).

Across the US, individual states have undertaken a wide array of initiatives for increasing energy efficiency and reducing greenhou-

se gas emissions, although the ambition level, comprehensiveness, and actual progress made to date varies greatly (Pew, 2008¹⁴). More than two-thirds of the states have now adopted energy standards for residential, commercial, and public buildings, and a similar number has adopted standards for renewable fuels in the form of ethanol mandates and incentives. Even more states (44) have mandated Green Pricing mechanisms for electricity production, which is regulated at the state level, and just over half of the states (27) had adopted Renewable Portfolio Standards as of March, 2008). Concern over climate change was one consideration leading to the adoption of these measures, although pressure from rising energy prices was a major driver.

Figure 12. Participation in Regional GHG Initiatives



Source: Pew Climate 2008

Somewhat more surprising, therefore, is the extent of state-level engagement in taking control of greenhouse gas emissions. Most states (41) have now set up a greenhouse gas registry – a necessary precursor for taking steps to reduce emissions, while two-thirds (37) have completed or are working on climate action plans. A minority of states (17) has actually established greenhouse gas targets, but more than two-thirds of the states are now involved in one of the three regional initiatives for reducing emissions. Three

¹⁴ Appendix B includes a table from the Pew Climate Center detailing efforts on a state by state basis.

major cap-and-trade initiatives are currently underway and have reached differing levels of development. This expanding regional collaboration is among the more interesting developments, and one with significant consequences for the prospects of an economy-wide cap-and-trade system in the US (Raymond 2009).

Regional Greenhouse Gas Initiative (RGGI) – The Regional Greenhouse Gas Initiative (RGGI) collaboration among 10 eastern states has come furthest, having as of this writing completed its second auction. Set in motion in December of 2005, the first mandatory cap-and-trade system in the US covers only utility sector emissions, and begins by capping GHG emissions at 2009 levels, then reducing by 10 % by 2019. Auction proceeds go to the individual participating states (RGGI 2009).

Western Climate Initiative (WCI) – On the western side of the country, the Western Climate Initiative (WCI) was launched in February 2007 by 5 western states. Two additional states have since come on board, also joined by four Canadian Provinces. WCI plans to conduct its first auctions in 2012 within what will after its phase-in period be an economy wide cap that includes 90 % of the region's emissions, with the goal of reducing those emissions by 15 % below 2005 levels by 2020. Covered emissions include all six primary GHGs listed by the UNFCCC. Five additional states, Idaho, Wyoming, Colorado, Nevada, & Alaska are formal observers of the WCI process, a step generally seen as a precursor to eventual full participation. As a whole, WCI participants make up 20 % of the US economy and over 70 % of the Canadian economy (WCI 2009).

Midwestern Greenhouse Gas Reduction Accord (MGGRA) – The third and most recent effort to be set in motion began in November 2007. The Accord, which includes six Midwestern states and one Canadian province as full participants and three states as observers, is scheduled to be fully implemented by May 2010. The agreement calls for establishing a regional cap-and-trade system as one of the means for reaching a long-term target of 60-80 % GHG reductions below current levels (MGGRA 2009).

In practice, the current regional experiments are to a significant extent either expansions of previous efforts or build on such efforts. The regional cap-and-trade experiments now getting underway represent a second phase of activity – either a consolidation or expansion of previous individual and multi-state activities. New England governors agreed on a Climate Change Action Plan back in 2001 to establish a collaborative effort with specific targets to reduce GHG emissions; Western governors agreed in 2004 to pursue a goal of 30,000 megawatts of clean energy by 2015; Arizona and New Mexico governors created the Southwest Climate Exchange in 2006 to support their states’ efforts to reduce GHG emissions, improve energy efficiency, and expand green energy production. More recently, states participating in RGGI agreed in December 2008 to develop a regional low carbon fuel standard (LCFS). In addition to the efforts identified above, an array of other collaborative efforts is also underway.

The most straightforward conclusion from an assessment of the state and regional initiatives underway is that even in the absence of a federal cap-and-trade system, the US has already begun the process of establishing systems for capping GHG emissions, and these efforts will lend momentum and support to Congressional efforts to adopt cap-and-trade legislation. On their own terms, the scale of these efforts is significant. Thirteen of the individual US states rank among the top 40 emitters in the world (Rabe 2006). Each of the three regional initiatives accounts for enough GHG emissions to be globally significant. However, they lack the legal authority to be signatories to the successor agreement to Kyoto.

Other aspects of the local, state, and regional initiatives are also important and instructive. First, mitigation efforts are generally built around particular local or regional consequences of climate change, both anticipated or already experienced. Coastal states have led much of the effort in the US, but states such as New Mexico and Arizona, which face increasing problems with water shortages, have also been among the early movers. Successful initiatives have also tended to couple efforts to reduce emissions with economic development opportunities and energy efficiency measures (Rabe, 2006). Executive leadership has played key role

in defining and advancing a climate policy agenda, and in contrast to the highly partisan atmosphere in Washington, sub-national initiatives have been strikingly bi-partisan. Governors Pataki of New York, Schwarzenegger of California, and Crist of Florida are Republicans; Governors Richardson of New Mexico, Deval of Massachusetts, and Rendell of Pennsylvania are Democrats.

The range of initiatives from local to regional has important implications for the prospects of a national cap-and-trade system in the US. As they move through the planning process and eventual implementation, these initiatives are contributing to the development of the highly important, regionally relevant expertise and organizational capacity that will also be essential to a national system. Such initiatives also act as a catalyst by providing policy models for neighboring states to emulate in their own efforts, not least by moving public debates on GHG reduction across the states from the realm of promises and scare scenarios to that of concrete results and effects. These processes typically entail significant mobilization of NGOs and the local and state level. Grassroots mobilization serves an important function not only by generating public engagement, but also by facilitating the process of making the kinds of close to home issue linkages that resonate with publics and increase the base of support. For similar reasons, the road to Congressional action on major national issues has frequently been paved by innovative policies adopted in a critical mass of individual states.¹⁵ In addition, the shift from debating climate change to implementing mitigation measures appears to give greater legitimacy and urgency to Congressional efforts. Members of Congress who are opposed to mitigation efforts such as a national cap-and-trade system come overwhelmingly from states that have taken the fewest steps. This is true not only of the Gulf South states, which are heavily Republican, but also of states such as Michigan or West Virginia, which are represented in the Senate by Democrats.

State and regional efforts exert one additional, quite significant impact on prospects for federal legislation. Many industries ope-

¹⁵ This has been the case, for example, with major voter registration reforms, with federal labor laws, as well as Social Security (the US federal pension system), and with federal policies requiring public disclosure of toxic emissions (Rabe 2006).

rate on a regional or national basis, and they find substantial advantages in regulatory uniformity and predictability within US borders. The breadth and ambition level of the current range of sub-national initiatives effectively removes both. This has contributed to a reorientation of important players in the business community that were formerly part of the opposition, including some large regional energy companies. US CAP, for example, has been explicit in calling for a national cap-and-trade system, and there are other similar efforts.

A core question that remains to be answered is this: what is the fastest path to an effective, economy wide cap-and-trade system that is national in its scope? There is little doubt that the regional efforts will eventually be consolidated into a single US system. The regional systems are in fact being designed with such an eventual integration in mind.

3.5 The US Congress and Federal Climate Legislation

Some of the key background dynamics in the US Congress that might contribute to perpetuating gridlock have already been taken up earlier in this report. In this section, we examine three items: 1) current partisan dynamics within the Congress that will influence the votes available for passing cap-and-trade legislation and the votes required; 2) anticipated time frames for taking up climate legislation in the respective Houses; 3) a brief overview of the legislative proposals introduced in the previous Congress, since these will provide much of the material from which proposals for the current Congress are likely to be designed.

The new bi-partisanship – Developments in Congress in recent weeks suggest that rather than an easing of Congressional partisanship following the election, we will see a hardening of partisan lines. This trend can be seen in the vote on the stimulus package, with no House Republicans and only three Senate Republicans lending their support. Given the thorough defeat handed to Republicans in the 2008 election, one might have expected humility and a willingness to cooperate in a bi-partisan fashion with the Democrats to get the country back on its feet. However, the apparent direction is toward hyper-partisanship, indicating that

the Republican Party and the conservative movement that forms its base is attempting to chart another path to its own recovery. Back in January, Dean Baker (2009) predicted that the Republican strategy would be to delay and dilute the stimulus package. Such a tactic would be an easy political calculation if Baker (2009) is correct in his assessment that for Republicans, the “ominous lesson of the New Deal is that it left the Democrats firmly in power for more than 20 years...Imagine how terrifying the prospect of 20 years of Democratic presidencies must be for the current generation of Republican leaders”.

On the one hand, Republicans in Congress seem to be circling the wagons in an effort to turn defeat into victory in the 2010 mid-term elections. The strategy entails holding a critical distance from Obama’s policies and to deny Republican support for the Democrats’ major initiatives. As an example of their seriousness, Republican National Committee Chairman Mikael Steele suggested the possibility of denying party campaign funding to the three Senators who broke ranks and voted with the Democrats on the stimulus package. The unified opposition tactic is being supported and encouraged by the core conservative base, led by highly visible Conservative figures such as talk-show host Rush Limbaugh, and is built on a strategy drawn directly from the party archives. Some 15 years ago, Republican strategist William (Kristol 1994) authored a series of articles that urged Republican unity to deny the Clinton any form of success in its efforts at health reform – and to use that Democratic failure as a springboard to win a new Republican majority. That strategy succeeded. What had started in 1992 with the election of Bill Clinton and Democratic majorities in both Houses of Congress was followed up with a Republican takeover of the House and the Senate in 1994. For the Republicans, the current plan would seem to be a double-or-nothing bet. If the Democrats succeed in moving their green “New Deal” agenda and getting the economy rolling again, the Republicans suffer a further loss of credibility and perhaps a few more seats in Congress. More importantly, Republicans likely lose any real hope of engineering a political recovery at any point in the near future (Baker 2009). If Democrats fail to bring the economy out of chrisis – or fall victim to internal bickering that hampers a successful adoption of their

agenda, the Republicans have an opening in the 2010 elections and again in 2012. Clearly, the Republicans are engaged in a high-stakes gamble that enthusiasm for Obama will wane long before the policies being undertaken are able to produce any significant effect on economic recovery.

For their part, the Obama Administration and the Democrats appear to be shopping elsewhere for bi-partisanship. First, they are working to cultivate a multi-level bi-partisanship at the state and local level through collaboration with key Republican elected officials such as Governors Schwarzenegger of California and Crist of Florida. These leaders backed the President and his economic recovery plans and have also made their states leaders on climate change. Second, long-time important Republican allies in the business community such as the Chamber of Commerce and the National Association of Manufacturers broke ranks with Congressional Republicans and endorsed the stimulus package and the budget bill. At this point the business groups are also being included in discussions about health care reform and other priority issues. Third, and part of the added complexity of winning in moderate and conservative districts, is that the Democratic Party is itself more representative of the ideological spectrum. At least a portion of the “bi-partisan” negotiation that takes place in Washington in the near-term will undoubtedly occur between liberal and conservative Democrats.

This means in practice that the cap-and-trade bill will be modified and compromised based on the concerns of conservative Democrats from the South, and moderate Democrats from the Midwestern Rust Belt, and from coal and other energy producing states. Support from Congressional Republicans will likely be hard to come by in the near term. In the House, that is not likely to become a critical factor. In the Senate, however, it remains a challenge to the 60 votes needed to overcome the delaying tactic known as a filibuster and bring the legislation to a vote (it then requires a 51-vote majority). By all accounts, this will be close, but the legislation will be modified as necessary to garner the required votes. However, the distance remains quite large between the 60 votes needed to free a cap-and-trade bill from filibuster and other procedural hurdles, and the 67 required to ratify a new climate treaty.

Congressional Movement toward Cap-and-Trade – Even if it is premature to declare victory, the Congress has moved significantly moving closer to being able to pass landmark cap-and-trade legislation. Internal changes in the House of Representatives will ease the way. John Dingell, the Chairman of the key House Commerce and Energy Committee for the past 28 years and the longest-serving House Member, had long opposed or weakened environmental legislation that came through his committee to protect jobs in the auto industry. Dingell lost his post on November 20th, 2008 to challenger Henry Waxman, a progressive California Democrat known to favor an aggressive response to combating climate change. Another strong climate leader, Massachusetts Democrat Edward Markey, will have a central role in drafting the initial House legislation. Other factors – the makeup of the House leadership, combined with a clear Democratic majority and procedural rules that present fewer obstacles than those of the Senate, – are believed to offer very good odds of passing cap-and-trade legislation through the House.

House Speaker Nancy Pelosi and House Energy Committee Chairman Henry Waxman have come out of the starting gate quickly, promising a cap-and-trade bill from committee by Memorial Day (May 31st). This would set the stage for a House debate and vote, in all likelihood, before summer recess. As noted previously, a positive outcome in the House is widely anticipated, and it would mark the first time a Federal economy wide cap-and-trade bill passed either chamber of Congress.

The Senate is more difficult. In June of 2008, a bi-partisan cap-and-trade bill sponsored by Senators Joe Lieberman (independent) and John Warner (Republican) failed to pass the Senate – not because it didn't have the support of a majority of Senators, but because the 54 of 100 votes they had fell short of the 60 votes needed to overcome the filibuster. Although some of those votes were cast or committed with certain reservations over details, the result represented a significant improvement over earlier efforts with two different cap-and-trade proposals by Senators John McCain (Republican) and Russ Feingold (Democrat), which garnered 43 votes in 2003, and 38 in 2005. On the one hand, the content

and quality of the 2008 debate was described by some observers as “disappointing” (Arroyo, 2008), in part because much of the discussion focused on procedural maneuvers and not on the merits of the legislation per se. Nevertheless, the exercise is considered an important dress rehearsal for action already taking shape in the 2009-2010 Congress, with chances improved by a larger Democratic majority combined with Presidential leadership.

One additional point is that amendments offered by Senator Barbara Boxer (Democrat) specified in considerable detail how the allowance proceeds would be allocated. This apparently disgruntled some Senators who felt that the allocations made it look more like a budget bill. It is worth noting that with the Boxer amendments, some \$342 billion would have been directed to international adaptation efforts through 2050. A separate proposed amendment from Republican Senators John Corker and Judd Gregg would have returned all the proceeds to taxpayers – the so-called “cap and dividend” model.

The Senate leadership has also indicated preliminary timelines, with Committee Hearings on a Senate bill planned to begin before the summer recess. We find no-one predicting with any confidence that cap-and-trade legislation will have passed through the process to the President’s desk for signature prior to the negotiations in Copenhagen. However, most observers fully expect that legislation will have passed at least the House, and a plan is being formulated to try moving the companion bill through the Senate before Copenhagen. These time frames are quite ambitious for the Congress, especially o:

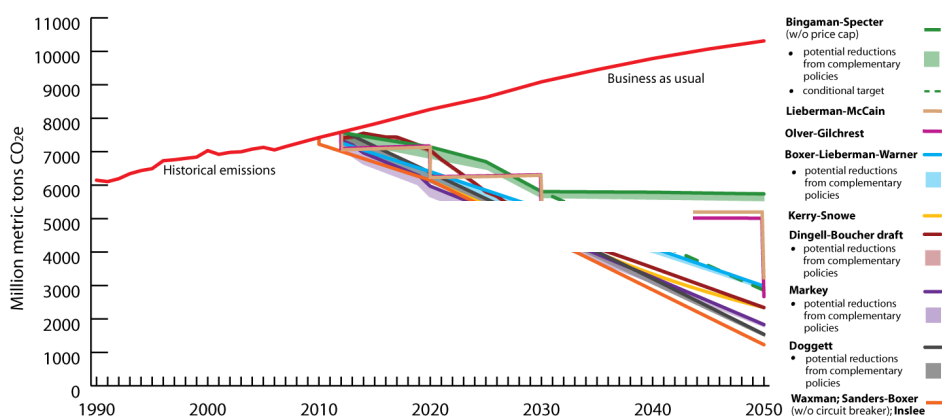
hough these two separate pieces of cap-and-trade legislation are not likely to be merged, finally passed, and signed into law before the Copenhagen negotiations, it would provide concrete evidence not only of a broad new level of US commitment to taking action, but also an increasingly clear outline of what the Congress is prepared to enact.

Preliminary Outlines for Cap-and-Trade – Ten separate proposals for cap-and-trade were introduced in the 110th Congress, with varied coverage of GHGs, widely differing ambition levels, and

diverse strategies for setting an economy-wide system in place. A table of providing a detailed comparison of those proposals is included in Appendix B, and is probably the most useful means at this point for anticipating the likely proposals for the 111th Congress. Figure 13 below (Pew Climate 2008) provides an analysis of the GHG effects of the different proposals ranging from most ambitious (Markey, H.R. 6186) to the least ambitious (Bingaman-Specter, S. 1766). It is worth noting that one of the important Republican Senate co-sponsors, John Warner of Virginia, has retired.

At this juncture, three kinds of numbers are especially important but can only be estimated. The first is emissions targets, the second is allocations, the third is votes – particularly in the Senate. Although the exact level of the targets and how the auction revenues will be allocated cannot yet be predicted, Figure 13 below illustrates the range of proposals from the last Congress. Indications are that at least the initial drafts of the legislation will tend to track toward the more ambitious targets and the administration has also made its wishes clear in its budget proposal. Ultimately, these figures are expected to be a function of negotiations with Democrats from the regions likely to be most negatively affected. Much of this negotiation will take place in the Senate.

Figure 13. Comparison of legislative climate change targets in the 110th Congress 1990-2050



Source: Pew Climate 2008

An Energy and Environment Daily (2009) analysis of the positions of the 100-member Senate identified 32 Senators who are certain or likely to oppose a cap-and-trade bill (30 Republicans and 2 Democrats), 21 “fence sitters” who will make their decision based on the details, 12 likely supporters (including 4 Republicans and 8 Democrats), and 35 virtually certain supporters (33 Democrats, 2 Independents). Interestingly, the combined total of all the certain supporters, likely supporters, and the “fence sitters” comes to 68 votes – one more vote than that required to ratify a treaty. This means that ratifying a climate treaty by normal means requires reaching deep into Republican territory – a task that could become at least somewhat less difficult if treaty obligations have already been embraced in Congressional cap-and-trade legislation.

4. Overall Analysis and Implications for Copenhagen

It is clear from the preceding pages that many of the central factors that influence the development of US climate change policy are relatively static or move very sluggishly. At the same time, key elements have changed dramatically in only the past few months with the recent elections, with the economic crisis, and with the emphasis the Obama Administration and Democratic Congress have placed on climate change. As a whole, these diverse factors come together in a convergence of ebbs and flows that might best be interpreted as a tipping point. What remains in question is the direction of the tip.

We find it especially interesting that the various assessments of the prospects for success that we have heard in interviews or read from a variety of different sources tend toward optimism or pessimism depending on the selection of key factors on which the analyses have been based. In many ways, this is no surprise. Analysts and observers who have focused on more structural elements or historical path dependencies have tended to be somewhat more pessimistic, while the optimistic assessments have come from those focusing on a confluence of factors, including political developments, that are more challenging to specify and pin down.

We believe it is important to note that one of the significant changes – the recasting of climate policy as a tool for achieving energy security – remains subject to external events over which there is little control. We see what Jonathan Pershing (2009) characterized as a bipolar tension between two distinct modes of defining energy security, and both were apparent during the presidential election. One pole defines energy security in terms of domestic access to inexpensive energy, including fossil fuels such as oil or coal. This was largely the direction taken by the McCain Campaign and the Republicans. The Obama Campaign defined energy security in terms of domestically available energy sources as well, but extended that definition to security issues worsened by global warming. In short, the Obama version of energy security requires developing renewable sources and phasing out fossil fuels. As this report goes to press, the broader Obama/Democratic definition dominates, but unforeseen external events could quickly change that, increasing the policy challenges in the US and elsewhere.

Throughout our analysis we see a mix of elements moving forward and other that remain largely constant. The table below lists some of the key areas where flow is constant or comparatively rapid.

Elements remaining constant	Elements trending positive
<ul style="list-style-type: none"> ● Structure of Energy production 	<ul style="list-style-type: none"> ● Direction of Presidential Leadership
<ul style="list-style-type: none"> ● Partisan divide 	<ul style="list-style-type: none"> ● Public opinion (partly)
<ul style="list-style-type: none"> ● Low priority of climate change 	<ul style="list-style-type: none"> ● Development of regional cap-and-trade systems
<ul style="list-style-type: none"> ● Link to the energy side (regional factors) 	<ul style="list-style-type: none"> ● EPA regulation of CO₂ (<i>Mass vs EPA</i>)
<ul style="list-style-type: none"> ● State economy 	<ul style="list-style-type: none"> ● EPA administrative regulation of CO₂ (CA tail-pipe)
<ul style="list-style-type: none"> ● Leadership capacity of the Presidency 	<ul style="list-style-type: none"> ● US re-engagement in the UNFCCC process

Of the factors that have changed a great deal, the “sea change” produced by the election of Barack Obama is most significant in that it represents a near-complete reversal of the role played by the previous administration. Progress that was made at the regional and state level in spite of Administration opposition may now proceed with institutional support and political encouragement from the top. Less obvious but perhaps equally important – in part because it consists of a series of smaller changes – is the confluence of movement driven within the courts, bottom up through state and regional initiatives, and the increased momentum in Congress. These developments effectively lower the threshold for Congressional action in a variety of ways, including the fact that a single economy wide cap-and-trade system will very likely be more predictable and simpler to content with for many of the business organizations and energy producers that have remained reluctant. Even if they do not lend their support to Congressional efforts, they gain less from channeling scarce resources to opposition.

This means that the central question that remains to be answered is whether the whole of the movement elements will become larger than the sum of the parts, and whether it will be possible to overcome institutional inertia to create a situation conducive to more fundamental change. Conditions are ripe for such a break-

through, but whether it occurs will be contingent on the developments of the coming months – including the talks leading up to and including Copenhagen. We see the likelihood of these kinds breakthrough development as contingent upon how the Administration and Democratic leaders in Congress manage to play their hand, but also contingent on external events that no one can control for. These could include international security crises or a worsening of the economy, but also might include severe weather events or other developments that increase the sense of urgency about climate change.

What is clear is that the development of US climate change policies in the near-term will be a highly iterative process with an almost exclusively domestic focus. This implies that COP-15 in Copenhagen should not be seen as an end-point but, rather, a key consolidating event in a process of US reengagement on the global climate change arena.

5. *Important Considerations for the Swedish EU Presidency and COP-15*

This leaves us with a number of reflections for the Swedish Government as it assumes the role of the EU Presidency in July 2009. In addition to the significant responsibility that always comes with this role, Sweden will lead the EU delegation during COP-15 negotiations in Copenhagen that are expected to define a global post-Kyoto arrangement on climate change. The Swedish Government has repeatedly declared that it sees climate change – and a ratifiable treaty coming out of Copenhagen – as the single most important priority of its EU Presidency. It is now preparing for this task, and this report is part of a broader effort to gather the material essential to these preparations.

The talks in Copenhagen have long been regarded as an endpoint – a conclusion of the negotiations to produce a successor to the Kyoto Protocol when it expires in 2012. Accordingly, many have stressed the need to have a full-fledged, signed agreement at the conclusion of the meeting (Schreurs et al 2009). At the same time, many of the basic premises for global cooperation have also changed fundamentally over the last months. The most obvious is the economic situation which now casts its long shadow across the globe. Another concerns a new US Administration and the wide-ranging implications that follow from a US reengagement in the UNFCCC process. Yet another is the increasing sense of urgency resulting from the new scientific evidence that dangerous feedback effects are accelerating warming trends more rapidly than expected even just a year ago. But as we noted at the outset, Copenhagen is not an endpoint, but an important way stop on the way to saving the planet.

We began this report with a summary of the most important findings pertaining to the central factors influencing the development of US climate policy and we have outlined some of the principal dynamics of US climate and energy policies. Also, we have indicated how these considerations are likely to play out under the new Obama administration. In these final notes, we extend our findings to consider how they might relate to the global effort and the talks leading up to and including Copenhagen.

- The *Obama Administration is serious about addressing climate change*, is demonstrating that seriousness by maintaining climate policy among its top policy priorities, and is moving forward quickly on what is best described as a highly ambitious agenda. The fate of its key initiatives, particularly the outcome of efforts to adopt a national cap-and-trade system, will be driven almost entirely by domestic economic, social, and political factors. The EU should support and encourage US re-engagement in international climate negotiations, but with the understanding that the development of US climate change policies in the near-term is likely to be a domestic, highly iterative, process in which the Obama Administration's leadership is unlikely to be strengthened by actions perceived as efforts at external intervention.
- Given the commitment already being demonstrated by the Obama administration, the next challenge will be convincing the US Congress to pass domestic legislation. *It should be made clear not only to the new Administration, but also to the leadership in Congress and the American public, that the EU and the rest of the world wants and needs for the US to fully re-engage and exercise leadership on climate change.* The Obama Administration is off to a rapid start, but America must earn back its claim to global leadership. Copenhagen will be a key indicator of US capacity and commitment to doing so.
- The Swedish government would do well to *re-define success for COP-15*. For reasons already presented in the report, there are good reasons to question whether the Copenhagen negotiations will be able to produce a signed follow-up to Kyoto. Taking an early stand on an alternative agenda that locks in achievable building blocks and a defined process for continuing forward movement would be a wise and constructive strategy.
- In practice, this would imply *working with a multiple track strategy to ensure that the Kyoto agreement is replaced with a meaningful successor agreement(s)*. One track would entail preparing for multiple possible end points, aiming for the possibility of concluding talks on December 18th while simultaneously preparing for a somewhat extended time frame. The

other track entails preparation for replacing Kyoto, at least in the short term, with numerous bi-lateral and multi-lateral agreements. The latter strategy was advocated by US Climate Envoy Todd Stern (2007), among others, as a means of ensuring that continuing, if incremental progress is made, even if other countries step into the previous US role of opposing a global treaty.

- ***Funding for adaptation will be especially challenging.*** The US Congress is responsible for budget allocations, which are done on an annual basis, and there is likely to be reluctance to agreeing to multi-year commitments that can be perceived as ceding Congressional budget authority. As a whole, the American public has little awareness about mitigation and adaptation efforts underway in developing countries. In addition, given that adaptation has had a relatively minor role in US public discussion, lack of public support for committing resources during the current economic recession presents a further obstacle.
- In line with the previous points, the government will have ***to consider a redefined role for the EU*** in the upcoming negotiations. Our interviews have made it absolutely clear that the outcome of future discussions is highly contingent on the relationship between the US and China, and with other important developing countries such as India and Brazil. In this new context, the EU's role as a climate leader is less obvious and under all circumstances redefined. One reason the EU has had a prominent role in climate negotiations is its key leadership role over the past decade. Its continued relevance will be dependent on its ongoing commitment to leading by example and holding itself to ambitious standards.
- The Swedish Presidency could make an important contribution in defining this new role by ***energetically supporting the Obama Administrations efforts to reframe the climate change debate***, with investments in green jobs and renewable energy as a path to both revitalizing ailing economies and tackling climate change. This would not only support US re-engagement, but could also help revitalize EU leadership. Sweden's decade long investment in greening its economy provides strong standing for such an effort.

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- Given the weak awareness and understanding within the US about the efforts being made in China and other developing countries to reduce CO₂ emissions, we could suggest supporting efforts at *collaboration between Swedish Television and the US mainstream media* to identify and document such efforts in a way that could be addressed to American audiences.

On some of the more specific negotiation issues, we also like to make the following remarks.

- Almost all our interviewees stressed the need for *differentiated reduction targets*. Their argument was simply that one comprehensive target would not be politically feasible since it would have a disjointed impact on individual countries' competitiveness. Due to the particular conditions of each country, primarily in terms of energy profiles and economic structure, some would be more affected than others by a single uniform standard. Similar conditions will most certainly hamper the possibilities of reaching a global agreement on reduction targets.
- Similarly, many called for *additional substantive and concrete short- and mid-term targets* (the year 2020 was for various reasons often mentioned as a critical year). In this case, the reason was simply a recognition of the need for immediate action. While substantial long-term commitments are essential, they could easily distract attention away from more immediate actions that make meeting long-term commitments more likely.
- There was a general agreement on the need for *flexibility and creativity in evaluating progress*. This goes back to the general point about different local conditions and needs as well as the time lag in some of the structural adjustments needed to combat climate change. As one observer pointed out, some efforts to reduce GHGs will require measures that initially increase emissions. Hence, the suggested flexibility and creativity in evaluating progress should not only apply to the counting of direct emissions reductions, but also entail measures that will contribute to longer-term reductions, such as the ongoing update of a "smart" electricity grid, public transit infrastructure, CCS development, the development of climate friendly mortgages, etc.

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- One additional area where the Swedish Government could act with the weight of the EU Presidency and play a critical role by *servng as an organizer and broker for finding agreement on adaptation issues*, especially with those developing countries such as India and Brazil that are also large CO₂ emitters. Given the extensiveness and complexity of the US–China relationship, much of the US attention to adaptation is likely to be focused through US-Chinese bilateral discussions, and through discussions with other key developing countries such as India and Brazil. As pointed out earlier, adaptation is an area that has barely surfaced in the US debate, and there is correspondingly weaker understanding of its importance to developing countries. Mediating these different understandings will be critical to the outcome of any global climate agreement.

References

- 2009 *Stimulus Package: What's in It for You, and When TurbTax*, 17 February 2009 [cited 21 February 2009]. Available from <http://turbotax.intuit.com/tax-tools/tax-tips/tax-planning-and-checklists/7108.html>.
- Ackerman, Frank , and Elizabeth A. Stant. *The Cost of Climate Change: What We'll Pay If Global Warming Continues Unchecked*. New York, NY: NRDC, 2008.
- Barcott, Bruce. "Changing All the Rules." *NY Times*, 4 April 2004.
- Baumert, Kevin A., Timothy Herzog, and Jonathan Pershing. *Navigating the Numbers: Greenhouse Gas Data and International Climate Policy*. Washington D.C.: World Resources Institute, 2005.
- Beattle, Alan. "Bernanke Says Deficit Is the Price of Growth." *Financial Times*, 4 March, 2009.
- Borick, Christopher. "The Climate of Opinion: American Beliefs about Climate Change and Policy Preferences" Presentation at the seminar *Governing the Climate: Lessons from the National Conference on Climate Governance* at the Environmental Change and Security Program, Woodrow Wilson International Center for Scholars on January 12 2009. Washington DC: Woodrow Wilson Center, 2009.
- Bowman, Tom. "Summary Report: A Meeting to Assess Public Attitudes About Climate Change." National Oceanic and Atmospheric Administration / George Mason University Center for Climate Change Communication, 2008.
- Broder, John M., and Peter Baker. "Obama's Order Is Likely to Tighten Auto Standards." *NY Times*, 26 January 2009.
- Broder, John M., and Matthew L. Wald. "Big Science Role Is Seen in Global Warming Cure." *NY Times*, 12 February 2009.
- Burns, Tom R., and Helena Flam, eds. *The Shaping of Social Organization: Social Rule System Theory with Applications*. London, England: Sage Publications Ltd., 1987.
- California Air Resources Board. *Climate Change Proposed Scoping Plan: A Framework for Change*. Sacramento, CA: CARB, 2008.
- Carson, Marcus. "Oceans Apart? Policy Reversals, Trans-Atlantic Politics, and the EU Asbestos Ban." In *Transatlantic*

- Environment and Energy Politics: Comparative and International Perspectives*, edited by Miranda A. Schreurs, Henrik Selin and Stacy VanDeever. London: Ashgate, 2009.
- Casten, Sean. *Beyond Coal: Coal Is No Longer Cheap - So What Comes Next?* Gristmill: The environmental news blog, 5 June, 2008 [cited 21 February 2009]. Available from http://gristmill.grist.org/print/2008/6/4/123223/5089?show_comments=no.
- CBC News. *CBS Poll: Americans Optimistic About Obama* CBC News,, 2009 [cited 22 February 2009]. Available from <http://www.cbcnews.com/stories/2009/01/17/opinion/polls/main4729887.shtml>.
- Central Intelligence Agency. *The World Factbook* Central Intelligence Agency, 2009 [cited 5 March 2009]. Available from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2186rank.html>.
- Creyts, Jon, Anton Derkach, Scott Nyquist, Ken Ostrowski, and Jack Stephenson. *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?* Washington D.C.: McKinsey & Company Analysis, 2007.
- Dickerson, Marla. "Why Obama's Green Jobs Plan Might Work." *LA Times*, 4 January 2009.
- Diringer, Elliot. *The U.S. Election and Prospects for a New Climate Agreement*. Washington D.C.: Heinrich Böll Stiftung, 2008.
- E&E. "Senate Climate Debate: The 60 Vote Climb." *Energy & Environment Daily*, 2009/02/09 2009.
- Edison Electric Institute. *Key Facts About the Electric Power Industry*. Washington D.C.: Edison Electric Institute, 2007.
- EIA. *State Energy Profiles* Energy Information Administration, 2009 [cited 2009/02/12].
- Elving, Ron. "GOP Borrows Strategy from Bible, Bolsheviks." *National Public Radio* (2009).
- Energy Information Administration. *U.S. Carbon Dioxide Emissions from Energy Sources 2007 Flash Estimate* Energy Information Administration. Latest update May2008 [cited 8 February 2009]. Available from <http://www.eia.doe.gov/oiaf/1605/flash/flash.html>.
- Engel, Kirsten. "Can the Courts Govern the Climate?" Presentation at the *National Conference on Climate*

- Governance* at the Miller Center, University of Virginia on December 12 2008. Charlottesville, VA: Miller Center of Public Affairs, University of Virginia, 2008. [cited 16 February 2009]. Available from http://webstorage3.mcpa.virginia.edu/conferences/presentations/climate/4_engel.ppt.
- EUbusiness. "US "Sea Change" On Climate Talks: EU, US." *EUbusiness* 2009.
- Foshay, Elena, and Keith Schneider. *Congress Approves Clean Energy Provisions of Stimulus; Consistent with Apollo Economic Recovery Act* Apollo Alliance, 13 February, 2009 [cited 15 February 2009]. Available from <http://apolloalliance.org/rebuild-america/energy-efficiency-rebuild-america/data-points-energy-efficiency/clean-energy-provisions-of-stimulus-are-consistent-with-apollo-economic-recovery-act/>.
- Frankfurter, Felix, and Jr. Hart, Henry M. "Rate Regulation" In *The Crisis of the Regulatory Commissions*, edited by Paul W. MacAvoy, 1-17. New York: Norton and Company, 1970.
- Friedman, Tomas L. *Hot, Flat, and Crowded: Why We Need a Green Revolution - and How It Can Renew America*. New York: Farrar, Strauss and Giroux, 2008.
- Garrahan, Matthew. "Californian Dream Turns into Nightmare." *Financial Times*, 17 February 2009.
- Griffiths, Peter. *UK's Brown: "Green New Deal" Will Help Fix Economy* Reuters, 6 March 2009 [cited 6 March 2009]. Available from <http://www.alertnet.org/thenews/newsdesk/L5661912.htm>.
- Herzog, Timothy, Kevin A. Baumert, and Jonathan Pershing. *Target Intensity: An Analysis of Greenhouse Gas Intensity Targets*. Washington D.C.: World Resources Institute, 2006.
- Hughes, Thomas Parke. *Networks of Power: Electrification in Western Society, 1880-1930*. Baltimore: Johns Hopkins University Press, 1983.
- ICF International. *Climate Impact of the Economic Stimulus Package: Preliminary Findings*. Washington D.C.: Greenpeace USA, 2009.
- IPCC. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (Eds.)]*. Geneva, Switzerland: IPCC, 2007.

- Johnson, Nicholas, Phil Oliff, and Jeremy Koulisch. *Facing Deficits, at Least 40 States Are Imposing or Planning Cuts That Hurt Vulnerable Residents*. Washington D.C.: Center on Budget and Policy Priorities, 2009.
- Kloberdanz, Kristin. "The Great California Fiscal Earthquake." *Time*, 8 January 2009.
- Klyza, Christopher McGrory, and David Sousa. *American Environmental Policy, 1990-2006*. Cambridge, MA: MIT Press, 2008.
- Leiserowitz, Anthony, Maibachm Edward, and Connie Roser-Renouf. "Global Warming's "Six Americas"." Bridgeport, CN; Washington, D.C.: Yale University School of Forestry and Environment; George Mason University Center for Climate Change Communications, 2009.
- Maher, Neil M. *Is It Time for a Green New Deal?* George Mason University's History News Network, 2009 [cited 6 March 2009]. Available from <http://hnn.us/articles/60053.html>.
- Massachusetts v. Environmental Protection Agency*, 549.U.S. 497 (2007).
- Mayhew, David R. *Divided We Govern: Party Control, Lawmaking, and Investigations, 1946-1990*. New Haven: Yale University Press, 1991.
- McCright, Aaron M., and Riley E. Dunlap. "Challenging Global Warming as a Social Problem: An Analysis of the Conservative Movement's Counter-Claims." *Social Problems* 47, no. 4 (2000): 499-522.
- McCright, Aaron, M., and Riley E. Dunlap. "Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy." *Social Problems* 50, no. 3 (2003): 348-73.
- McNichol, Elizabeth, and Iris J. Lav. *State Budget Troubles Worsen*. Washington D.C.: Center on Budget and Policy Priorities, 2009.
- Medaff, James L., and Andrew Harless. *The Indebted Society: Anatomy of an Ongoing Disaster*. Boston: Little, Brown and Company, 1996.
- MGGRA. *Midwest Greenhouse Gas Reduction Accord* 2009 [cited 2009/02/05]. Available from <http://midwestaccord.org>.
- Naturvårdsverket. "Local Investment Programmes - Environmental Technology for Export: A Summary of Local Investment Programme Projects with Potential for

- Transfer to Eastern Europe and Developing Countries.” Stockholm: Swedish Environmental Protection Agency (Naturvårdsverket), 2004.
- “Sju år med lip & klimp.” Stockholm: Swedish Environmental Protection Agency (Naturvårdsverket), 2005.
- Obama, Barack. *Obama’s Video Message to Schwarzenegger’s ‘Governors Global Climate Summit’* YouTube, 2008 [cited 2008/11/20]. Available from http://www.youtube.com/watch?v=hvG2XptIEJk&eurl=http://forcechange.com/2008/11/18/obamas-message-to-schwarzeneggers-governors-global-climate-summit/&feature=player_embedded.
- OMB. “A New Era of Responsibility: Renewing America’s Promise.” edited by White House Office of Management and Budget. Washington D.C., 2009.
- Oye, Kenneth A. “Technology Transfer, Development and Climate Change [a Memorandum Prepared for Unido].” Cambridge, MA: Center for International Studies, MIT, 2008.
- Pasternak, Judy. “The Rush to Build Power Plants Slows as Worries Grow About Global Warming, Building Costs and Transportation. Utilities Are in a Bind.” *Los Angeles Times*, 18 January 2008.
- Pelosi, Nancy. *American Recovery and Reinvestment Act* Nancy Pelosi Website, 13 February 2009 [cited 15 February 2009]. Available from <http://www.speaker.gov/newsroom/legislation?id=0273>.
- Peters, Jeremy W. “Governors Call for Rescue Package for States.” *NY Times*, 30 October 2008.
- Pew Research Center. “Economy, Jobs Trump All Other Policy Priorities in 2009.” Washington, D.C.: Pew Research Center for the People and the Press, 2009.
- Pollin, Robert, Heidi Garrett-Peltier, James Heintz, and Helen Scharber. “Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy.” Washington D.C.: Center for American Progress; Department of Economics and Political Economy Research, University of Massachusetts-Amherst, 2008.
- Rabe, Barry. “Second Generation Climate Policies in the American States: Proliferation, Diffusion, and Regionalization.” In *Issues In Governance Studies*, edited by Ellery Scott. Washington D.C.: Brookings Institution, 2006.

- Rabe, Barry. "Can Congress Govern the Climate?" Presentation at the seminar *Governing the Climate: Lessons from the National Conference on Climate Governance* at the Environmental Change and Security Program, Woodrow Wilson International Center for Scholars on January 12 2009. Washington DC: Woodrow Wilson Center, 2009.
- Rappeport, Alan. "US Faces Worst Downturn in Postwar History" *Financial Times*, 27 February 2009a.
- . "US Job Losses Reach 697,000 in February." *Financial Times*, 4 March 2009b.
- Raymond, Leigh. "The Emerging Revolution in Carbon Emissions Trading" Presentation at the seminar *Governing the Climate: Lessons from the National Conference on Climate Governance* at the Environmental Change and Security Program, Woodrow Wilson International Center for Scholars on January 12 2009. Washington DC: Woodrow Wilson Center, 2009.
- RGGI. *Regional Greenhouse Gas Initiative* 2009 [cited 15 February 2009]. Available from <http://www.rggi.org>.
- Roberts, David. "Prospects for Climate/Energy Action." *Gristmill*, 2009/02/06.
- Román, Mikael. *The United Stances of America: Opportunities in US Climate Change Policies (NV Report 5481)*. Stockholm: Swedish Environmental Protection Agency, 2004.
- Rosenthal, Elisabeth. *China Clearly Overtakes U.S. As Leading Emitter of Climate-Warming Gases* The International Herald Tribune, 13 June 2008 [cited 16 June 2008]. Available from <http://www.ihf.com/articles/2008/06/13/business/emit.php>.
- Ruth, Matthias, Dana Coelho, and Daria Karetnikov. *The US Economic Impacts of Climate Change and the Costs of Inaction*. College Park, MD: Center for Integrative Environmental Research (CIER), 2007.
- Schreurs, Miranda A., Henrik Selin, and Stacy VanDeever, eds. *Transatlantic Environment and Energy Politics: Comparative and International Perspectives*. Edited by John J. Kirton and Miranda A. Schreurs, *Global Environmental Governance*. London: Ashgate, 2009.
- Schreurs, Miranda A., Henrik Selin, and Stacy D. VanDeever. "Conflict and Cooperation in Transatlantic Climate

- Politics: Different Stories at Different Levels.” In *Transatlantic Environment and Energy Politics*, edited by Miranda A. Schreurs, Henrik Selin and Stacy D. VanDeveer, 165-85. London: Ashgate, 2009.
- Schwartzenegger, Governor Arnold. *Governors’ Global Climate Summit 2008* [cited 2008/11/20]. Available from <http://site.governorsglobalclimatesummit.org/>.
- sea change. “Dictionary.Com.” In *The American Heritage® Dictionary of the English Language, Fourth Edition*: Houghton Mifflin Company, 2009.
- Sheppard, Kate. *How to Spend \$825 Billion: The Green Aspects of the American Recovery and Reinvestment Act* Gristmill: The environmental news blog, 15 January, 2009 [cited 15 February 2009]. Available from <http://gristmill.grist.org/story/2009/1/15/12394/1320>.
- Shipan, Charles R., and William R. Lowry. “Environmental Policy and Party Divergence in Congress.” *Political Research Quarterly* 54 (2001): 245-63.
- Stern, Nicholas. *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press, 2007.
- Stern, Todd, and William Antholis. “Creating the E-8.” Washington D.C.: Center for American Progress, 2007.
- The White House. *Energy and the Environment* The White House, 2009 [cited 15 February 2009]. Available from http://www.whitehouse.gov/agenda/energy_and_environment/.
- Thelen , Kathleen, and Sven Steinmo. “Historical Institutionalism in Comparative Politics.” In *Structuring Politics: Historical Institutionalism in Comparative Analysis*, edited by Sven Steinmo, Kathleen Thelen and Frank Longstreth, 1-33. Cambridge: Cambridge University Press, 1992.
- U.S. Census Bureau. *U.S. International Trade in Goods and Services (December 2008)*. Washington D.C: U.S. Department of Commerce, 2009.
- U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2006*. Washington D.C. 2008: EPA, 2008.
- U.S. Treasury. *The Debt to the Penny and Who Holds It* Treasury Direct, 12 February, 2009 [cited 14 February 2009]. Available from <http://www.treasurydirect.gov/NP/BPDLLogin?application=np>.

-
- Uchitelle, Louis. "U.S. Lost 2.6 Million Jobs in 2008." *International Herald Tribune*, 9 January 2009.
- United Nations. *World Urbanization Prospects: The 2007 Revision*. New York: United Nations 2008.
- VanDeveer, Stacy and Henrik Selin. "Continental and Multi-lateral Governance: Models for US International Re-engagement" Presentation at the seminar *Governing the Climate: Lessons from the National Conference on Climate Governance* at the Environmental Change and Security Program, Woodrow Wilson International Center for Scholars on January 12 2009. Washington DC: Woodrow Wilson Center, 2009.
- Wald, Matthew L. "Costs Surge for Building Power Plants." *NY Times*, 10 July 2007.
- . "Report Calls for Overhaul of Power Grid to Handle Sun and Wind Power." *NY Times*, 10 November 2008a.
- . "Wind Energy Bumps into Power Grid's Limits." *NY Times*, 27 August 2008b.
- Walker, David M. *Commentary: America's \$53 Trillion Debt Problem* CNN.com, 7 October 2008 [cited 13 February 2009]. Available from <http://www.cnn.com/2008/POLITICS/10/06/walker.bailout/index.html?iref=mpstoryview>.
- Walsh, Bryan. "The EPA's Move to Regulate Carbon: A Stopgap Solution." *TIME*, 2009/02/20.
- Ward, Andrew. "Infrastructure: Building Bridges and Roads to Everywhere." *Financial Times*, 19 January 2009. *Western Climate Initiative* 2009 [cited 2009/02/04].
- WCI. *Western Climate Initiative* 2009 [cited 2009/02/04]. Available from <http://www.wci.org>.
- World Resources Institute. *Climate Analysis Indicators Tool* World Resources Institute, 2009 [cited 8 February 2009]. Available from <http://cait.wri.org/>.
- Zweigert, Konrad, and Hein Kötz. *Introduction to Comparative Law*. Translated by Tony Weir. 2nd ed. Oxford: Clarendon Press, 1987.

Appendix A. Methodological note and data sources

In compiling and analyzing the data for this report, we have drawn on a neo-institutionalist framework that emphasizes the ubiquity of rule systems in social and political life (Burns and Flam 1987), of the influence of institutionalized path dependencies (Thelen and Steinmo 1992) and the role of conceptual models, problem definitions, and framing processes in policymaking process (Hall 1993; Sabatier and Jenkins-Smith 1993; Benford and Snow 2000; Burns and Carson 2002). Our analysis emphasizes four core dimensions considered particularly important in social science approaches to policymaking processes. These dimensions can be summarized as follows: 1) conceptual factors, as defined in the way issues such as climate change and its remedies are contextualized (or framed), and how they are linked to other important issues; 2) institutional arrangements of governance, including the distribution of policy authority across levels (national, state, local) and between different centers of authority (different branches of government); 3) other structural factors that influence the economic and social costs of policy change, such as regional differences in energy profiles and socio-economic structure; 4) alignments and configurations of key actor interests (partisan alignments and strategies, NGOs, labor and business organizations, among others). A fifth factor emerges in the interactions between these dimensions over time. The analyses take make use of qualitative data, such as policy documents, laws and treaties, news media coverage, and interviews with informants and interested parties. We have also made use of available survey data, as well as other forms of quantitative data available through a variety of sources, including government agencies.

This study has benefited extensively from the participation in a series of conferences.

One particularly important event was the conference *Governing the Climate: Lessons from the National Conference on Climate Governance* which the authors co-arranged with the Environmental Change and Security Program at the Woodrow Wilson International Center for Scholars, Washington DC, on January 12 2009. We are most grateful to the participants – Barry Rabe, Christopher

Borick, Leigh Raymond, Stacy VanDeveer, and Henrik Selin – for also providing for a separate session after the seminar.

Also, we have benefited greatly from intensive sessions on US climate change policies with colleagues in the Swedish research program Clipore, which eventually led up to the participation in the one-day conference *The 2008 US Presidential Election: What Might it Mean for International Climate Change Cooperation?* in Stockholm on October 15 2008.

Finally, we also attended the *CSIS Transatlantic Energy Forum* at the Center for Strategic and International Studies in Washington DC on October 30 2008.

In carrying out the study we have interviewed a wide range of experts, observers, and policymakers over the past months. To all those that shared their time and insights, we would like to extend our profound gratitude. In consecutive order, these individuals are:

Interviewee	Title	Location and date
Stacy VanDeveer	Ass. Prof. Dept of Political Science, University of New Hampshire	Boston MA, 20 Oct. 2008
Kenneth A. Oye	Ass. Prof., Center for International Studies, MIT	Cambridge MA, 21 Oct. 2008
Henrik Selin	Ass. Prof., Dept. of Int. Relations Boston University	Boston MA, 22 Oct. 2008
Sonia Hamel	Climate Protection Consultant	Boston MA, 24 Oct. 2008
Mark Helmke	Senior Professional Staff Member, US Senate Foreign Relations Committee	Washington DC, 27 Oct. 2008
James A. Thurber	Director, Center for Congressional and Presidential Studies, American University	Washington DC, 28 Oct. 2008
Joe Goffman	Senior Counsel for Global Warming and Air Issue to Senator Barbara Boxer	Washington DC, 28 Oct. 2008
James Greene	Senior Policy Advisor to Senator Joseph R. Biden, Jr.	Washington DC, 29 Oct. 2008
Dallas Burtraw	Senior Fellow Resources for the Future	Washington DC, 30 Oct. 2008
Peter C. Evans	General Manager Global Strategy and Planning, GE Energy	Atlanta GA, 3 Nov. 2008
Elliot Diringer	Vice President, Pew Center on Global Climate Change	Washington DC, 5 Nov. 2008
Manik Roy	Director Congressional Affairs, Pew Center on Global Climate Change	Washington DC, 5 Nov. 2008

David L. Pumphrey	Deputy Director & Senior Fellow, Center for Strategic and International Studies	Washington DC, 5 Nov. 2008
Johanna Mendelson Forman	Senior Associate, Center for Strategic and International Studies	Washington DC, 5 Nov. 2008
Ilana Solomon	Policy Associate, ActionAid	Washington DC, 6 Nov. 2008
Melinda Henneberger	Journalist	Glen Echo MD, 6 Nov. 2008
Frank E. Loy	Former Under Secretary of State for Global Affairs 1998-2001. Climate change advisor to Barack Obama.	Washington DC, 6 Nov. 2008
Debbie Boger	Director of US Climate Policy, World Resources Institute	Washington DC, 6 Nov. 2008
Kert Davies	Research Director, Greenpeace US	Washington DC, 7 Nov. 2008
Ned Leonard	Vice President - Technology Policy. American Coalition for Clean Coal Electricity	Arlington VA, 7 Nov. 2008
James Warner	Congressional Affairs Fellow, Pew Center on Global Climate Change	Arlington VA, 13 Jan. 2009
Jonathan Pershing	Director, Climate, Energy and Pollution Program, World Resources Institute	Washington DC, 13 Jan. 2009
Steve Cochran	National Climate Campaign Director, Environmental Defense Fund	Washington DC, 13 Jan. 2009
Thomas Michels	Senior Legislative Assistant, Louisiana Senator Mary Landrieu	Washington DC, 14 Jan. 2009
Vicki Arroyo	Executive Director, Georgetown State and Federal Climate Resource Center	Washington DC, 14 Jan. 2009

Climate Change Initiatives and Programs in the States, Arkansas through Montana

State	Climate Action				Energy Sector								Transportation Sector			Building Sector			Total*	
	Regional Initiatives	Climate Action Plan Completed or in Progress	Climate Change Commissions and Advisory Groups	GHG Targets	GHG inventory	GHG registry	Carbon capoffset for power plants	Public Benefit Fund	Renewable Portfolio Standard	Net Metering	Green Pricing	REC Tracking System	Energy Efficiency Resource Standard	Appliance Efficiency Standards	State Comsuments Purchasing Green Power	Poised to Adopt CA Vehicles GHG Standards	Bidical Mandates and Incentives	Green Building Standards for State Buildings		Residential Building Energy Codes
AK	✓	✓	✓														✓			5
AL		✓			✓	✓											✓			5
AR		✓	✓														✓		✓	7
AZ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	
CA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20	
CO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
CT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	19	
DC		✓					✓	✓	✓	✓	✓						✓	✓	7	
DE	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
FL		✓		✓	✓	✓										✓		✓	11	
GA					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	7	
HI	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	
IA	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	14	
ID	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10	
IL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	16	
IN	✓					✓										✓	✓	✓	8	
KS	✓	✓	✓		✓	✓										✓	✓	✓	8	
KY		✓			✓	✓										✓	✓	✓	8	
LA					✓	✓										✓	✓	✓	6	
MA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	17	
MID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	16	
ME	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	
MN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	15	
MI	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10	
MO		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	7	
MS					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3	
MT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	13	

* Total number of programs per state.



Climate Change Initiatives and Programs in the States, North Carolina through Wyoming

State	Climate Action			Energy Sector								Transportation Sector			Building Sector			Total*		
	Regional Initiatives	Climate Action Plan Completed or in Progress	Climate Change Commissions and Advisory Groups	GHG Targets	GHG Inventory	GHG registry	Carbon cap/offset for power plants	Public Benefit Fund	Renewable Portfolio Standard	Net Metering	Green Pricing	REC Tracking System	Energy Efficiency Resource Standard	Appliance Efficiency Standards	State Governments Purchasing Green Power	Poised to Adopt CA Vehicle GHG Standards	Ethanol Mandates and Incentives		Green Building Standards for State Buildings	Residential Building Energy Codes
NC		✓			✓	✓			✓	✓						✓	✓	✓		✓
ND	✓								✓	✓							✓		✓	✓
NE	✓								✓	✓								✓	✓	✓
NH		✓			✓	✓			✓	✓								✓	✓	✓
NJ	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
NM	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
NV	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
NY	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
OH	✓				✓	✓			✓	✓						✓	✓	✓	✓	✓
OK	✓				✓	✓			✓	✓						✓	✓	✓	✓	✓
OR	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
PA	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
RI	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
SC	✓	✓			✓	✓			✓	✓						✓	✓	✓	✓	✓
SD	✓									✓						✓		✓	✓	✓
TN	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
TX	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
UT	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
VA	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
VT	✓	✓			✓	✓			✓	✓					✓	✓		✓	✓	✓
WA	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
WI	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
WV	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
WY	✓	✓			✓	✓			✓	✓						✓		✓	✓	✓
Total	36	37	23	17	43	41	5	24	27	44	45	30	12	12	17	15	37	35	41	42

* Total number of programs per state.
 ** Total number of states with program.

For more on state climate action, visit: http://www.pewclimate.org/what_s_being_done/in_the_states/
 Get the latest summary of state climate initiatives: [Learning from State Action on Climate Change](#)



Economy-wide Cap-and-Trade Proposals in the 110th Congress As of December 1, 2008

Bill	Scope of Coverage	2010-2019 Cap	2020-2029 Cap	2030-2050 Cap	Allocation	Offsets and Other Cost Controls	Early Action	Technology and Misc.
Boxer-Lieberman-Warner Lieberman-Warner Climate Security Act of 2008 S. 3036 - Substitute amendment to S. 2191 considered by full Senate in June 2008	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Upstream for transport fuels & natural gas; downstream for large manufacturers and GHG separate HFC cap	4% below 2005 level in 2012	19% below 2005 level in 2020	71% below 2005 level in 2030	Sector allowances total 75.5% in 2012, including: 18% to manufacturers (transitions to zero in 2031); 12.75% to electricity and natural gas local distribution companies for consumers, 15% to states, etc. Increasing auction; 24.5% in 2012 rising to 68.75% from 2032- 2050 4.25% set-aside for, domestic agriculture and forestry	30% limit on supply of domestic and international offsets, with additional limits on each category Creates cost-containment auction using future year allowances Borrowing up to 15% per company Creates Carbon Market Efficiency Index to help states implement specific cost relief measures, including increased borrowing and expanded offsets	5% of allowances for early actions starting in 2012 with all value distributed within 4 years of cap and trade enactment	Bonus allocations for carbon capture and storage and renewables Provides funds for technology, and human and ecosystem adaptation to climate change Cap-and-trade system performance and targets subject to review
Bingaman-Specter S. 1766 – 7/11/2007 Low Carbon Economy Act	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Upstream for natural gas & petroleum; downstream for coal	Start at 2012 level in 2012	2006 level in 2020	1990 level in 2030 President may set long-term target 2006 level by 2050 contingent upon international effort	Some sector allocations are specified including: 9% to states, 53% to industry deducing 2%/year starting in 2017 Increasing auction; 24% from 2012-2017, rising to 53% in 2030 5% set-aside of allowances for agricultural	Provides certain initial categories including bio sequestration and industrial offsets President may implement use of international offsets subject to 10% limit \$12/bn CO ₂ e "technology accelerator payment" (i.e., safety valve) starting in 2012 and increasing 5%/year above inflation	From 2012-2020, 1% of allowances allocated to those entering GHG reductions prior to enactment	Bonus allocation for carbon capture and storage Funds and incentives for technology R&D Target subject to 5-year review by Congress and actions by other nations
Kerry-Snowe S. 485 – 2/1/2007 Global Warming Reduction Act	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Point of regulation not specified	Start at 2010 level in 2010	1990 level in 2020 2.5%/year reduction from 2020-2029	3.5%/year reduction from 2030-2050 62% below 1990 level in 2050	Determined by the President; requires unspecified amount of allowances to be auctioned	Includes provision for offsets generated from biological sequestration	Goal to "recognize and reward early reductions"	Funds for tech, R&D, consumer impacts, adaptation Standards for vehicles, efficiency, & renewables
Sanders-Boxer S. 309 – 1/16/2007 Global Warming Pollution Reduction Act	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Point of regulation not specified	Start at 2010 level in 2010 2%/year reduction from 2010-2020	1990 level in 2020	27% below 1990 level in 2030 53% below 1990 level in 2040 80% below 1990 level in 2050	Cap and trade permitted but not required. Allocation criteria include transition assistance and consumer impacts	Includes provision for offsets generated from biological sequestration "Technology-indexed stop price" freezes cap if prices high relative to tech options	Program may recognize early reductions under state or local laws	Standards for vehicles, power plants, efficiency, renewables, certain categories of bio sequestration
McCain-Lieberman S. 280 – 1/12/2007 Climate Stewardship and Innovation Act	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Upstream for transportation sector; downstream for electric utilities & large sources	2004 level in 2012	1990 level in 2020	20% below 1990 level in 2030 60% below 1990 level in 2050	Administrator determines allocation/auCTION split; considering consumer impact, competitiveness, etc.	30% limit on use of international credits and domestic reduction or sequestration offsets Borrowing for 5-year periods with interest	Credit for reductions before 2012 Early actions may use offsets to meet 40% of reductions	Funds and incentives for tech R&D, efficiency adaptation, mitigating effects on poor



Economy-wide Cap-and-Trade Proposals in the 110th Congress As of December 1, 2008

Bill	Scope of Coverage	2010-2019 Cap	2020-2029 Cap	2030-2050 Cap	Allocation	Offsets and Other Cost Controls	Early Action	Technology and Misc.
Dingell-Boucher Discussion Draft 10/7/2008	7 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , and NF ₃ Upstream for transport fuels & natural gas; downstream for electric utilities & large sources	Varies due to staggered coverage	6% below 2005 level in 2020	44% below 2005 level in 2030 80% below 2005 level in 2050	Four allowance value distribution options: 1) most value to covered entities and more value to complementary GHG reduction initiatives than first option, 3) some value to consumer covered entities or adaptation. All options include 100% auction by 2026	Increasing use of offsets (includes domestic and international): 5% initially reaching 35% by 2024 Cost-containment auction using future year reserve allowances Borrowing up to 15% per company with interest Creates carbon market oversight entity within FERC	3% of allowances go to early actors in 2012 and transitioning to zero in 2026	Funds for energy efficiency and clean technologies (including CCS and renewables) Includes border adjustment provision to zero in 2026 State authority for cap-and-trade programs preempted
Doggett H.R. 6316 – 6/19/2008 Climate Market Auction, Cap-and-Trade System Act of 2008 Climate Matters Act of 2008	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ Upstream for transport fuels & natural gas; downstream for large sources and large coal users	Start at 2012 level in 2012	1990 level in 2020	80% below 1990 level in 2050	5% of allowances to power plants and 10% to energy-intensive manufacturers in 2012 (transitions to zero in 2020) 85% of auction revenues directed to Citizen Protection Trust fund for consumer covered entities or technology, early action, etc.	Overall limit of 25% on use of offsets with further limit on types: 10% domestic offsets; 15% international offsets; 15% international forest allowances Creates Carbon Market Efficiency Board to monitor market and implement cost relief including increased borrowing and offsets	1% of Citizen Protection Trust Fund for early action in 2012, phasing to zero in 2015	Funds for energy efficiency & transportation State authority retention Includes border adjustment provision Cap-and-trade performance and targets subject to 3-year NAS review
Markey H.R. 6186 – 6/4/2008 Investment in Climate Action and Jobs Act Climate Protection Act (ICAP Act)	7 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , and NF ₃ Upstream for transport fuels, downstream for large sources, natural gas at LDCs	2005 level in 2012	20% below 2005 levels in 2020	85% below 2005 levels in 2050	6% of allowances to manufacturers from 2012-2020 Increasing auction: 94% from 2012-2019 rising to 100% from 2020-2050 Over 50% of auction proceeds used for tax credits/rebates to households for increases in energy costs	15% limit on use of domestic offsets 15% limit on use of international emission allowances or offset credits Creates carbon market oversight and monitor the market for allowances, derivatives, and offset credits Borrowing for 5-year periods with 10% interest	Program directed to penalize states and early reductions in distributing energy efficiency funds	Funds for clean energy efficiency, energy adaptation, job training, etc. Performance standards for coal-fired power plants
Waxman H.R. 1590 – 3/20/2007 Safe Climate Act of 2007	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Point of regulation not specified	2009 level in 2010 2%/year reduction 2011-2020	1990 levels in 2020 5%/year reduction 2020-2029	5%/year reduction from 2030-2050 80% below 1990 in 2050	Determined by the President; requires unspecified amount of allowances to be auctioned	Not specified	Goal to "recognize and reward early reductions"	Standards for vehicles, efficiency, renewables
Olver-Gilchrest H.R. 620 – 1/22/2007 Climate Stewardship Act	6 GHGs—CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ Upstream for transportation sector; downstream for electric utilities & large sources	2004 level in 2012	1990 level in 2020	22% below 1990 level in 2030 70% below 1990 levels in 2050	Administrator determines allocation/auction split; considering consumer impact, competitiveness, etc.	15% limit on use of international credits and domestic reduction or sequestration offsets Borrowing for 5-year periods with interest	Credit for reductions before 2012; early actors may use offsets for 35% of reductions	Funds and incentives for tech R&D, efficiency adapting, mitigating effects on poor



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