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RESOLVING THE CLIMATE WARS

by Dr. Alan D. Hecht*

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INTRODUCTION

From 2001 through 2008 the United States experienced a period of climate wars: politics vs. science, business vs. government, and states vs. the federal government. By early 2009 some of these conflicts started to move toward resolution through legal action, scientific advances, and shifts in business strategies. Decisions made today will determine whether a new era of climate protection begins or the climate cold wars continue. Business as usual is not in our nation's best interest and every effort must be made to end the period of continued infighting between business and government, federal-state conflicts, and denial of the root causes of climate change. This paper reviews several of the climate wars from 2001 to 2008, describes their historic context, and looks at lessons learned for the future.

ORIGIN OF THE CLIMATE WARS

For decades scientific uncertainty and the cost and regulatory approach of addressing global climate change have been at the root of the climate debate. When in 1983 the U.S. Environmental Protection Agency ("EPA") published a report evaluating the effectiveness of specific energy policies to reduce greenhouse emissions ("Can We Delay a Greenhouse Warming?"), responses from Congress, business, and federal agencies were highly polarized.¹ A sense of urgency among some Congressional leaders emerged in 1986. "Deeply disturbed" by the implications of published reports on carbon dioxide ("CO₂")-induced climate change, Senators Chafee, Stafford, Bentsen, Durenberger, Mitchell, Baucus, Leahy, and Gore began to pressure the White House to take action on climate change.

While the United States wavered on actions to address climate change, the United Nations Environment Programme ("UNEP") was committed to initiating international and domestic actions to reduce greenhouse gas ("GHG") emissions. UNEP had a clear sense of purpose and in 1985 called for a legal convention on climate change and began to lead international scientific efforts to establish the foundation for negotiating such an agreement. As discussed later, this effort had a major impact on the U.S. climate debate.

When candidate George H.W. Bush took office in 1988, he declared: "Those who think we're powerless to do anything about the greenhouse effect are forgetting about the White House effect. As President I intend to do something about it."² But President Bush may have underestimated the underlying economic

challenges. After EPA Administrator William Reilly briefed the cabinet on climate change and the prospect for an international climate convention, he reported to EPA officials³ what he had heard at the briefing. Despite growing agreement among climate modeling groups, White House chief of staff John Sununu declared that the climate models were fundamentally flawed and that the best atmospheric scientists had yet to become involved

in climate research. Office of Management and Budget director Richard Darman called the concept of a climate convention "clean air for the whole world." Council of Economic Advisors ("CEA") chairman Michael Boskin advised the president that an international treaty on climate change was a "bet-your-economy decision."

Listening to the above advice would scare anyone worried about destabilizing the U.S. economy. But, in the end, President Bush supported the creation of the Intergovernmental Panel on Climate Change ("IPCC") as a way to address the division among scientific viewpoints. Later he also supported the development of the Framework Convention on Climate Change ("FCCC") that in turn led to the development of the Kyoto Protocol.

In the 1990s and during the Clinton Administration similar debates over science and economics continued. During the subsequent Bush Administration (2001–2009) these debates became more of a series of wars between politics vs. science, business vs. government, and states vs. the federal government.

Decisions made today will determine whether a new era of climate protection begins or the climate cold wars continue.

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My review of several of the confrontations during this period suggests a written or unwritten strategy aimed at:

- Avoiding new federal legislation and regulations. This meant not allowing CO₂ to be identified as a pollutant under the Clean Air Act or as an endangerment to human health. One approach used to prevent legislation was to emphasize the uncertainty in the science of climate change.
- Doing nothing to hamper economic growth. The sluggish economy didn't need extra burdens on business. Instead, federal actions promoted voluntary programs on climate change, many of which have helped to slow the growth of greenhouse gases.
- Doing nothing until China, India, and other developing countries commit to reduce GHG emissions. The United States walked away from both the intention of the 2002 UNFCCC and the Kyoto Protocol largely based on economic considerations.

At the beginning of 2009, many of the conflicts surrounding climate change are moving toward resolution and the time may be at hand to resolve long-standing conflicts over regulations and economic impacts and launch a new era of energy-climate policy. While legitimate policy differences remain, as evidenced by different approaches advanced by leading economists like Sir Nicholas Stern⁴ who argues for immediate action on climate change and William Nordhaus who proposes a modest and slower response,⁵ steps to resolve differences must be based on a different federal-business and federal-state-local government model. Business as usual is not in our nation's best interest.

This paper will examine several of the most significant recent climate wars and their historic roots and suggested future actions. Given the current economic recession, now more than ever new government and business partnerships and close cooperation with non-government conservation, environmental, and economic groups are needed to help the public understand the economic and social costs of dealing with climate change, stimulate the economy, create a broader energy portfolio, mitigate and adapt to climate change, and advance a new business and foreign policy agenda.

RESISTING GHG REGULATIONS: THE 2001 G-8 MEETING

During the 2000 presidential campaign, candidate George W. Bush promoted legislation to "require the mandatory reduction in U.S. of emissions of sulfur dioxide, nitrogen oxide, mercury and carbon dioxide from power plants."⁶ Many observers saw this as a significant departure from past history and were optimistic that a new era of climate change would begin.

Unfortunately, the campaign promise in 2000 was reversed in March 2001 following an international conference among the G-8 countries. The reversal, a surprise to the newly appointed EPA Administrator Christine Todd Whitman, was a clear indication of behind-the-scene concerns about energy policy, economics, and government regulations.

At a meeting of the G-8 industrial countries in Trieste, Italy, Governor Whitman announced that the United States was committed to regulation of GHG emissions. Whitman assured her counterparts that the United States wanted a mandatory cap on

Underlying the opposition to CO₂ regulation was the critical issue of the supposed economic impacts that would result from regulating CO₂ and who would pay for it.

CO₂ emissions. The Joint Communiqué expressed an international commitment to "take the lead by strengthening and implementing national programs and actions, to reduce greenhouse gas emissions, as well as to promote and disseminate environmentally sound technologies and practices and renewable energy sources."⁷

Unfortunately, Administrator Whitman was unaware of a behind-the-scenes effort led by Senators Chuck Hagel, Jesse Helms, Larry Craig, and

Pat Roberts to reverse this commitment. In a letter to the president, these senators made clear their view that the commitment was unwise. The letter attracted the attention of Vice President Cheney who, according to Barton Gellman, embarked on a plan to "walk the president away from his promise."⁸ Cheney's staff prepared a four-page memo "that would put the White House on record against the collective judgment of the world's climate scientists."⁹ The memo said Bush should be nudged toward the position that the "current state of scientific knowledge about causes of and solutions to global warming is inconclusive. Therefore it would be premature at this time for the president to propose any specific policy or approach aimed at addressing global warming."¹⁰

The President accepted this approach and signed a letter responding to the senators that was prepared by Cheney's staff and given to the President (by Cheney) without any consultation across the government, especially with Governor Whitman. In a White House press release the president said: "I do not believe, however, that the government should impose on power plants mandatory emissions reductions for carbon dioxide, which is not a 'pollutant' under the Clean Air Act."¹¹

Chief of Staff Josh Bolten ultimately assumed responsibility for the president's reversal, asserting that he had been in error: the intended designation for CO₂ was "emission" not "pollutant."¹² Underlying such a distinction was fear of establishing a legal basis for regulating CO₂. After Bolten's admission, Vice President Dick Cheney agreed, arguing that putting a cap on CO₂ "was bad energy policy."¹³

Underlying the opposition to CO₂ regulation was the critical issue of the supposed economic impacts that would result from regulating CO₂ and who would pay for it. The Bush administration's priority for economic growth was clearly evident in all policy actions. A key chapter of the *Economic Report of the President* submitted to Congress in 2002 focused on the cost of environmental regulations. Recognizing the significant achievement of the past decades in reducing the most obvious risks to health and the environment, the report states, "there is evidence that further improvements in air quality would improve health and reduce mortality, but these improvements might be extremely expensive."¹⁴

Risk and cost-benefits analyses were key factors driving public policy in 2001 through 2008. Regulating emissions that affect climate change was recognized as potentially very valuable but not as an immediate priority in light of the cost and questions about the potential risks. "We are uncertain about the effect of natural fluctuations on global warming. We do not know how much the climate could or will change in the future. We do not know how fast climate change will occur, or even how some of our actions could affect it. Finally, it is difficult to say with any certainty what constitutes a dangerous level of warming that must be avoided."¹⁵

Fearing the economic impact of any climate legislation, promoting scientific uncertainty and denying global warming became the operating plan for many business and government leaders.

PROMOTING SCIENTIFIC UNCERTAINTY: CHALLENGING THE 2001 AND 2007 IPCC ASSESSMENTS

The Intergovernmental Panel on Climate Change ("IPCC") has become the world's preeminent scientific body assessing the impacts of and proposing options for responding to climate change. A key element of its 2001 assessment was its statement on the growing evidence for human-induced climate change.¹⁶ And one specific diagram—later termed the "hockey stick"—was ultimately to cause considerable angst among policy makers. What is the IPCC? What are its assessments? And how does this relate to domestic energy policy?

In 1985 UNEP, in cooperation with other international organizations and non-government organizations, organized a conference and prepared a scientific assessment of the impacts of climate change.¹⁷ UNEP Executive Director Moustafa Tolba sent the report to then Secretary of State George Schultz urging the United States to take appropriate policy actions on climate change and to launch negotiations on a climate convention. The State Department passed the letter to the National Climate Program Office ("NCPO") and its senior interagency policy board to draft a response. (The NCPO, created within NOAA by Congress as a coordinating body among all federal agencies, was mandated to develop a climate action plan. From 1982 to 1989 I was the director of NCPO, which was later replaced by the interagency Global Change Research Program.)

The NCPO policy board, which included all relevant federal agencies, vigorously debated the merit of the report. The U.S. Department of Energy ("DOE") representative argued that it was inadequate, in part because it had no government sanction. DOE vocally insisted on a government-led international scientific assessment. At the same time, EPA and the Department of State representatives supported the idea of a convention on climate change and suggested that perhaps it was timely for governments to prepare an international scientific assessment, especially in light of conflicting scientific evidence. During the debate, I offered a consensus proposal where the United States would support an international government-led scientific assessment and would agree to international negotiations if the seriousness of the problem were affirmed. For different reasons, each agency agreed to the proposal. At a time when it was difficult to get interagency agreement on any action, there was agreement around the concept of an international scientific assessment.

The action of the NCPO Policy Board eventually led to the U.S. proposal for "an intergovernmental mechanism" to conduct a government-led, scientific assessment of the climate change issue.¹⁸ This "mechanism" later became the IPCC, which continues today as the preeminent global scientific court on climate change. In the end, the IPCC report confirmed the seriousness of the climate problem and triggered the beginning of negotiations for a climate convention.

Back to the climate wars—because of their relevance to policy, the 2001 and 2007 scientific assessments came under intense scrutiny. One figure in the 2001 report triggered particularly intense reaction. This report drew on data from a 1998 publication by Michael Mann, Raymond Bradley, and Malcolm Hughes that reconstructed temperature patterns over the past 1000 years ("MBH98").¹⁹ The controversial graph depicted a sharp rise in temperatures over the past 100 years, which the authors attributed to human activity. The graph, with its "hockey stick" pattern, was a key piece of supporting evidence in the 2001 IPCC report.

Mann, who has been an author of the IPCC report, testified before Congress in 2003 that: "It is the consensus of the climate research community that the anomalous warmth of the late 20th century cannot be explained by natural factors, but instead indicates significant anthropogenic, that is human influences."²⁰ Nevertheless the underlying scientific methods used by MBH98 were criticized by other authors who challenged the evidence that the sharp rise in global temperature was being caused by human activities.²¹

The hockey stick became an element of the climate war when, in June 2003, Representative Joe Barton of Texas, the Republican chairman of the Committee on Energy and Commerce, requested that Mann provide responses to eight detailed questions related to his credentials and past work.²² The Subcommittee ultimately asked the National Academy of Science ("NAS") to review the issue, and NAS formed a committee of twelve scientists to assess the main areas of uncertainty, the principal methodologies used, any problems with these approaches, and how central the debate is to the state of scientific knowledge

on global climate change. In the end, the NAS report agreed that there were statistical shortcomings in the analysis but concluded that the conclusions were in fact correct.

Considering that the essence of the scientific process is peer review and reproduction of results, why was this an issue for a Congressional oversight subcommittee? Who or what was the real focus of this debate? Two objectives seemed to underlie this debate: to dispute any claim of human-induced climate change and hence any need for legislation; and to challenge the IPCC process and its current and future credibility by showing it relied on publishing flawed papers.

In 2001, the IPCC assessment scientists concluded that it was “likely” (which it defined as with a greater than sixty-six percent probability) that climate change was caused by human activities.²³ Six years later, the 2007 report raised the probability of human influences on climate to “very likely” (indicating a probability greater than ninety percent) and detectable in observational records.²⁴ This stronger conclusion reflected a great deal of scientific progress made over the intervening years, both in direct observations of the impacts of climate change, and in computer modeling. Nearly all scientists have concluded that current trends could not be explained without including human-related increases in greenhouse gases. While the 2007 report strengthened the consensus among most scientists and governments, a number of critics argue either that the report was too conservative or too alarming.

Using scientific uncertainty to undermine support for climate legislation was further advanced by reliance on an obscure law known as the Federal Data Quality Act (“FDQA”).

REGULATING SCIENCE BY LAWSUITS ON DATA QUALITY

FDQA, a little-known rider to the 2001 Consolidated Appropriations Act, directed the director of the Office of Management and Budget (“OMB”) to issue government-wide guidelines that “provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.”²⁵ The law requires that any scientific document issued by the government include clearly supportable data and any uncertainties related to the topic. It was approved without any congressional hearings. Many businesses supported the Act as a means to reign in regulation perceived to be unsupported by science. Environmentalists criticized its passage and predicted it would be used to stop regulations aimed at protecting public health and the environment.

The first lawsuit to be filed under the FDQA asked the government to cease dissemination of the 2000 *U.S. National Assessment of the Potential Consequences of Climate Variability and Change*. The 2003 suit filed by the Competitive Enterprise Institute (“CEI”) against President Bush asked the federal courts to order the White House Office of Science Technology and Policy (“OSTP”) to withdraw the assessment report. The suit asserted that data in the Assessment was derived from “demonstrably inaccurate computer models, and dissemination of historical

temperature data that it modified to inaccurately omit the occurrence of recognized climatic periods. This Act prohibits Defendant from disseminating data failing to meet its standards.”²⁶ The CEI claimed that the assessment failed to meet the DQA’s scientific standards for objectivity and utility, because two of the models used “are incapable of providing reliable predictions.”²⁷

Understanding this morass requires some history. In 1990, Congress enacted the Global Change Research Act that required the preparation of national climate assessments.²⁸ The Act established the United States Global Change Research Program with the aim of understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions toward international protocols in global change research, and for other purposes. The Act requires “on a periodic basis (not less frequently than every 4 years)” the preparation of an assessment report to the President and Congress that among other things “analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity,” and “analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years.”²⁹

The National Assessment Synthesis Team (“NAST”) a federal advisory committee, consisting of experts from government, universities, industry, and non-governmental organizations prepared the first of these assessments completing it in late 2000. Using results from two different climate models, the team developed two different but plausible scenarios of future climate change and evaluated their environmental impacts.

Considering the potential impact of climate change on the United States, NAST leader Michael MacCracken’s staff sent the report to every state governor. Ironic as it may be, then Texas Governor George Bush responded, “Thank you for your letter and the enclosed copies of your assessment about the potential consequences to the U.S. of a climate change. I appreciate the work that went into preparing this information.”³⁰

The 2000 Assessment Report, completed before the enactment of the FDQA, became the foundation for the U.S. annual report to the UN on climate change required under the 2002 UNFCCC. The third U.S. report in 2002, based on the 2000 assessment report, concluded: “Greenhouse gases are accumulating in Earth’s atmosphere as a result of human activities, causing global mean temperature and subsurface ocean temperatures to rise. While the changes observed over the last several decades are likely due mostly to human activities, we cannot rule out that some significant part is also a reflection of natural variability.”³¹

This conclusion, which seemed at odds with federal policy, prompted *The New York Times* science writer Andrew Revkin to report (June 3, 2002) “[i]n a stark shift for the Bush administration, the United States has sent a climate report to the United Nations detailing specific and far-reaching effects that it says global warming will inflict on the American environment. In the report, the administration for the first time mostly blames human

actions for recent global warming. It says the main culprit is the burning of fossil fuels that send heat-trapping greenhouse gases into the atmosphere.”³²

Perhaps recognizing that the U.S. Report to the UN interpreted in this manner was setting a foundation for possible future regulatory action, President Bush dismissed the U.S. report by saying it had been put “out by the bureaucracy.”³³ Recognizing the potential legal implications of the U.S. Report, the rationale for the CEI lawsuit becomes clearer. On August 6, 2003, CEI filed a lawsuit against the Administration to invalidate the 2000 National Assessment of the Potential Consequences of Climate Variability and Change that formed the basis for many of the conclusions in the Climate Action Report.

Amid Congressional investigations of possible White House promotion of the initiation of the lawsuit, the lawsuit was ultimately withdrawn after the White House Office of Science and Technology Policy (“OSTP”) acknowledged that the National Assessment on Climate Change had not been subjected to the FDQA guidelines.

The use of the FDQA as a tool in the war on science is not over. In August 2008 the U.S. Chamber of Commerce asked the government to withdraw the Second National Climate Report that argued that it is “likely that there has been a substantial human contribution to surface temperature increases in North America.”³⁴ The Chamber argued that the report contained unpublished data that made it difficult to assess its scientific reliability. The Bush Administration settled the dispute by inserting a disclaimer that the National Report was not subject to FDQA guidelines.

The war on science is likely to continue, but specific actions could go a long way toward restoring the independence and integrity of scientific assessment by rescinding the FDQA and any executive orders that provide political oversight of science, such as the controversial Executive Order 13422, which requires that “[f]ederal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating.” On February 4, 2009, President Obama repealed EO 13422.³⁵

Peer review—not lawsuits—is the underlying framework for evaluating science. This traditional process allows critical examination of new ideas and theories and forces scientists to

defend their work. One critical element of peer review needed for policy makers is estimating scientific uncertainty. Translating science into policy is well illustrated by the IPCC. While the IPCC reports are designed to reflect scientific consensus, an IPCC *policy summary* is a document prepared for policy makers. Reflecting governments’ concerns, the IPCC process was designed to allow governments to review and approve a summary for policy makers while being faithful to the underlying science. Although a good deal of climate change science is fundamental physics, a large portion of the impacts of climate change reflects modeling that may include uncertainties in extent and timing.

Although the negotiations and approval of the policy summaries by governments can be torturous, the IPCC process has been successful in both preserving integrity and forging consensus among governments and scientists. This process underscores that there is some discretion in how scientists and policy makers can communicate the significance and the need for action. The situation was less clear in 2003 when EPA was finalizing its first *Draft Report on the Environment* (“RoE”).

EDITING EPA’S 2006 DRAFT REPORT ON THE ENVIRONMENT

The EPA *RoE*, launched in 2001 by Governor Whitman aimed to give the public a snapshot of the quality of the U.S. environment and to establish a set of indicators or metrics to measure improvements (or declines) over time. One contentious issue was the chapter on climate change. Initially, the Chairman of the White House Council on Environmental Quality (“CEQ”) argued that such a chapter was not needed since so many other climate reports were available. It was later recognized that an EPA *RoE* without a chapter on climate change would not be credible.

The interagency review of the chapter on climate change was heated. (From October 2002 to June 2003 while on detail as CEQ Associate Director for Sustainable Development, I was given the task of helping resolve interagency disagreements.) Flagging the chapter’s section on climate change, White House staff noted: “This section should be thoroughly reviewed for content and usefulness of that content. The section ‘What are the contributions to climate change . . .’ is not balanced and virtually ignores any mention of natural variability If this cannot be balanced, it needs to be removed.” Office of Management and Budget staff commented to CEQ Chief of Staff Philip Cooney on March 4, 2003, “Phil, I don’t know whether you have reviewed the Climate Section of the EPA report, but I think you and Jim [Connaughton] need to focus on it before it goes final.

The war on science is likely to continue, but specific actions could go a long way toward restoring the independence and integrity of scientific assessment.

Even though the information is generally not new, I suspect this will generate negative press coverage.”³⁶

While the review was underway, CEQ’s chief of staff was promoting a new paper by Willie Soon and Sally Baliunas that contradicted published accounts of historic climate trends. The Soon-Baliunas paper asserted that it was an authoritative review of the literature and concluded: “that the 20th century is probably not the warmest nor a uniquely extreme climatic period of the last millennium.”³⁷ Shortly thereafter, thirteen of the authors of papers cited by Soon and Baliunas refuted the Soon-Baliunas interpretation of their work and contradicted “thousands of papers that go into a document like the IPCC report.”³⁸

Four versions of the *RoE* climate change chapter went back and forth between CEQ and EPA, which was finally instructed to take the changes or leave it. On May 23, 2003, after several days of internal EPA discussions, EPA Administrator Whitman yanked the chapter from the report. This war is one of several described in the House Oversight Committee’s review of science editing. Two years later on June 8, 2005, a similar incident of heavy CEQ editing of a NOAA report was described in *The New York Times*. On March 19, 2007, Chairman Connaughton and Chief of Staff Cooney of CEQ testified before Congress and defended their editing as necessary to make the final report consistent with published literature. The hearing highlighted the role of policy-makers distorting or asserting their own interpretation of scientific results. In the IPCC policy-makers summary that governments negotiate, all scientists must agree with the changes thus preventing any government from distorting the results.

The hearing failed to invite the one key witness whose judgment ultimately decided the fate of the report. In the end it was the EPA administrator (and former Republican governor of New Jersey) who decided that the revised chapter should not be included. Administrator Whitman said in effect that the chapter—as edited—would diminish EPA’s credibility as an environmental agency. EPA staff advised Whitman that the benefits of removing the chapter “were that it would provide little content for attacks on EPA’s science and that it may be the only way to meet White House and EPA needs.”³⁹

STATES VS. FEDERAL GOVERNMENT: A SUPREME COURT DECISION

In 1999 the International Center for Technology Assessment, the Sierra Club, Greenpeace, and other environmental groups petitioned the EPA to regulate and set limits for CO₂ and other GHGs emitted from new motor vehicles, arguing that such action was EPA’s duty under Section 202 of the Clean Air Act. The petitioning groups’ central argument was that CO₂ was a pollutant and that its impact on global warming was negatively affecting human health and the environment. EPA failed to respond to the petition within three years, leading to a lawsuit brought by the environmental groups in 2002.⁴⁰

Subsequently, Massachusetts, Connecticut, and Maine filed a petition in June 2003 arguing that by failing to regulate CO₂ EPA was violating its mandatory duty under Section 108 of the

Clean Air Act. EPA denied the petition arguing that the Clean Air Act did not authorize the agency to issue mandatory regulations to address global warming, and that even if the EPA did have such authority, the agency believed it would be neither “effective or appropriate” to establish GHG emissions standards for motor vehicles at this time.⁴¹

After EPA denied the petition to regulate CO₂, a coalition of twelve states led by Massachusetts; the cities of New York, Washington, DC, and Baltimore; and thirteen environmental groups filed appeals in the U.S. Court of Appeals for the District of Columbia in October 2003.⁴² The three-judge panel faced three issues: the standing of the petitioners, EPA’s authority to regulate GHG emissions, and the agency’s decision not to establish GHG standards for new vehicles. On July 15, 2005, the court of appeals issued three opinions in the case. Two of the judges agreed, although on differing grounds, to let stand EPA’s position that it lacked the requisite authority. However Judge David Tatel issued a lengthy dissent, agreeing with the Massachusetts position on all grounds. Following the petitioners’ request, the Supreme Court granted a *writ of certiorari* directing the Appeals Court to forward the case record for its review; The Supreme Court heard arguments on November 29, 2006.

Two important criteria are required to have standing to sue the federal government: that at least one petitioner must be able to show injury from an actual or imminent action traceable to a federal agency and that the injury is one that a court can address.⁴³ Hence the real underlying issue was whether the impacts of climate change on a state serve as justification for a suit in federal court. A positive finding on this question would mean any state could petition the federal government for national action.⁴⁴

The Supreme Court decision affirmed that, “The harms associated with climate change are serious and well recognized.”⁴⁵ Massachusetts declared that its harm includes prospective loss of coastline that would be caused by the rise in sea level resulting from global warming. Because EPA “does not dispute the existence of a causal connection between man-made gas emissions and global warming,” and “EPA’s refusal to regulate such emissions ‘contributes’ to Massachusetts’ injuries,” the Plaintiffs satisfied the traceability requirements.⁴⁶

Writing for the Court, Justice John Paul Stevens summarized three important holdings: (1) As quasi-sovereigns, states are entitled to an elevated level of deference on standing issues; (2) CO₂ and other GHGs are “air pollutants”; and (3) EPA’s reasons for not regulating GHG emissions were insufficient.⁴⁷ Four justices dissented (Roberts, Scalia, Thomas, and Alito), arguing that states did not have any special rights of status and that nothing the Court could do would address the injuries complained of because “any decrease in emissions here will be overwhelmed many times over by emissions increases elsewhere in the world.”⁴⁸

In his assessment, Justice Stevens quoted climate scientist Michael MacCracken who argued that the harms associated with climate change are serious and well recognized. Also citing a National Research Council assessment, which EPA itself regards as an “objective and independent assessment of the relevant

science,” a number of environmental changes that have already inflicted significant harms were identified, including:

... the global retreat of mountain glaciers, reduction in snow-cover extent, the earlier spring melting of rivers and lakes, [and] the accelerated rate of rise of sea levels during the 20th century relative to the past few thousand years [and] petitioners allege that this only hints at the environmental damage yet to come. According to the climate scientist MacCracken, “qualified scientific experts involved in climate change research” have reached a “strong consensus” that global warming threatens (among other things) a precipitate rise in sea levels by the end of the century, and severe and irreversible changes to natural ecosystems.⁴⁹

The Court’s decision changed the legal and political landscape. President Bush issued an Executive Order in May 2007 that directed EPA and the Departments of Transportation, Energy, and Agriculture to coordinate in developing possible regulatory actions to address emissions from mobile sources contributing to global climate change.⁵⁰ This is a complicated process requiring that the EPA assert that the carbon emissions endanger public health and welfare under the Clean Air Act. While it might seem that this federal-state battle is over, that is not the case. Battles between federal agencies, again reflecting economic concerns, were clearly evident in an agency public comment on the proposed greenhouse gas rulemaking under the Clean Air Act. Comments received from the Secretaries of Energy, Agriculture, Commerce, and Transportation—underscoring economic concerns—noted:

The EPA staff now has prepared a draft suggesting the Clean Air Act can be both workable and effective for addressing global climate change by regulating emissions from stationary and mobile sources of virtually every kind. Our agencies have serious concerns with this suggestion because it does not fairly recognize the enormous—and we believe insurmountable—burdens, difficulties and costs and likely limited benefits of using the Clean Air Act to regulate GHG emissions.⁵¹

Consequently OMB advised EPA Administrator Johnson that: “The issues raised during interagency review are so significant that we have been unable to reach interagency consensus in a timely way, and as a result, this draft cannot be considered Administration policy.”⁵² EPA action to implement the Supreme Court decision has been deferred to the new Administration.⁵³

RESOLVING THE CLIMATE WAR

The climate wars of the past decades between business and government and between federal and state governments have inhibited the convergence of four critical factors needed to address climate change: (1) advances in science and technology; (2) effective application of government regulations and policies; (3) adoption of green business practices; and (4) new foreign policy initiatives. Overcoming these conflicts requires a different government and business approach. Federal interactions with business should include GHG regulations, market incentives,

and collaborative programs; cooperation with state and local governments should focus on promoting alternate energy systems and mitigation and adaptation to climate change; and new foreign policies should highlight the need for an energy-climate economy, especially with China.

The use of science as a tool in fueling the climate wars must end. Scientific consensus on human-induced climate change is now stronger than ever and efforts to undermine, edit, or otherwise discredit scientific reports should end. The focus should be on the value of science in helping decision-makers make the right decisions. Now more than ever the interface of physical and behavior science and economics will be needed to rebuild the economy and move society toward more sustainable energy systems. Anticipating the importance of this goal, the 1998 House Committee on Science argued in the report *Unlocking Our Future*:

While acknowledging the continuing need for science and engineering in national security, health, and the economy, the challenges we face today cause us to propose that the scientific and engineering enterprise ought to move towards center stage in a fourth role: that of helping society make good decisions. We believe this role for science will take on increasing importance, particularly as we face difficult decisions related to the environment.⁵⁴

Preparing for the presidential election in 2008, dozens of organizations prepared hundreds of recommendations for action by the new Administration. Overall all of these actions should be judged on how well they advance a consensus among business and government and end the climate wars of the past decades. Three strategic directions for future actions stand out and are detailed below.

NEW BUSINESS AND GOVERNMENT APPROACHES ON REGULATING GREENHOUSE GAS EMISSIONS

Effective national climate regulations and policies are needed to mitigate GHG emissions. A key challenge for the new administration will be to launch a new era of government-industry partnerships.

Historically, industry has met every new proposed environmental or health regulation with declarations of impending economic disaster. In remarks following EPA’s creation in 1970 the director of the U.S. Chamber of Commerce warned of the potential collapse of entire industries from pollution regulations.⁵⁵ Given the current economic crisis in the auto sector, it is ironic to recall Lee Iacocca’s 1972 prediction (quoted by Thomas Friedman) that, “If EPA does not suspend the catalytic converter rule, it will cause Ford to shut down and would result in reduction of GDP by \$17 billion, increase unemployment by 800,000, and decrease tax receipts of \$5 billion all levels of government.”⁵⁶ U.S. electric utilities claimed that the cost of meeting the 1990 Clean Air Act would reach \$4–5 billion per year. But by 1996, utilities were actually saving \$150 million per year due to the act. When EPA announced a phase-out of substances that damage the ozone layer, many industries claimed that alternative

substances did not exist or were too expensive. In 1993, automobile manufacturers warned that regulation of chlorofluorocarbons (“CFCs”) would increase the price of new cars by up to \$1,200. Just four years later, the industry admitted that costs of following the new rules had declined to as little as \$40.⁵⁷ More recently, studies by Roland Hwang and Matt Peak (as quoted by Thomas Friedman) “found that the target industries dramatically and consistently overestimate the costs that regulations would impose on them and dramatically underestimate the innovation they would inspire.”⁵⁸

In all of these cases the costs of complying with environmental regulations were far lower than industry—and even government—estimated that they would be. More recently a second perspective on regulations has emerged emphasizing potential economic advantages. General Electric’s (“GE’s”) 2005 “ecomagination” initiative launched the notion that “green is green.”⁵⁹ The GE initiative is part of a broader greening of industry as demonstrated by interviews with dozens of key industrial leaders⁶⁰ and a convergence of government and business policies moving toward more sustainable behavior.⁶¹ For example, GE is one of a number of large companies that for the first time are energetically advocating national legislation to address GHG emissions.⁶²

The formation of the U.S. Climate Action Partnership (“USCAP”) and its proposal for GHG controls further illustrate the change of some company attitudes. USCAP members include dozens of the world’s largest companies who now argue for a mandatory cap-and-trade program and market based incentives.⁶³

Broader support from industry for the USCAP’s business approach will depend on exactly how GHG regulations are formulated and implemented. Many companies will want credit for their past carbon-reducing actions, many others will be looking for incentives before moving forward and many will want equitable economic impacts across all business sectors. USCAP’s member support for mandatory approaches to GHG reduction is at odds with historic business models. Smart business strategies will be needed to achieve that goal.

The costs of GHG reductions—and who will bear them—have always been a concern for policy makers. In 2002, the Bush administration saw an economy with a meager 1.6% growth rate in GDP as the nation struggled to recover from bursting of the high tech bubble and the 9/11 attacks. Even by 2007 the U.S. GDP growth rate was only 2.2%. In response to declining housing markets, GDP growth projections of just 1.9% per year prevailed in 2007. Today in 2009, with the U.S. and international economies adjusting to financial collapse in many financial sectors, any scheme for taxing or capping carbon emissions will need to include energy-economic models such as those envisioned by green business advocates. But despite a significant downturn in the economy, the time is right to launch a new era of government-business cooperation whereby GHG regulations and green energy initiatives both stimulate the economy while reducing GHG emissions, and protect human health and ecosystems for ecological services.

The new government-business strategy must include advancing new technologies, setting carbon limits, facilitating implementation of other new regulations, and creating new incentives for industry. Corporations must put aside tired refrains of resisting federal regulations as inherently anti-business. Strong federal support to regulate existing GHG emissions and to support Research & Development on new technologies to reduce GHG emissions is essential. Incentives to do both can enhance economic competitiveness and protect the environment. Both government and business must see the role of environmental regulations in a new light recognizing the fallacies of past actions. Both government and business, with support from non-government organizations and the public, must agree on the sense of urgency and work together to implement a new business strategy.

Given today’s economic downturn, former CEA chair Michael Boskin’s comment (cited earlier) that an international treaty on climate change was a “bet-your-economy decision” might in fact be right if viewed as a step toward economic recovery and the launching of a new era of a green economy.

FEDERAL-STATE COOPERATION ON REDUCING GHG AND ADAPTING TO CLIMATE CHANGE

States and cities have been in the lead in developing policies to reduce GHG. Past federal-state conflicts need to end and new partnerships developed.

Worldwide power generation is the largest GHG emitter generating nearly 10 billion tons of CO₂ per year.⁶⁴ With over 8,000 power plants (out of more than 50,000 globally), the U.S. accounts for about 2.8 billion tons of CO₂ annually—about 25% of worldwide emissions.⁶⁵ The U.S. power plants that produce the most CO₂ are all coal-fired and are located in the states with the largest GHG emissions (including the top five of Texas, Pennsylvania, Ohio, Illinois, and Indiana).⁶⁶ These states (and many others), through the use of renewable portfolio standards (“RPS”), are on the front lines in efforts to reduce GHG emissions.

Around the country many states are requiring utilities to provide specific amounts of power from renewable energy sources. Twenty-three states and the District of Columbia established RPSs by mid-2007.⁶⁷ By the same time, forty-seven states were engaged in state or regional energy planning, forty-one had established standards to allow rooftop solar systems and other distributed-generation technology to connect to the electric grid, ten had created energy-efficiency portfolio standards, and sixteen had implemented public benefit funds to support clean energy programs.⁶⁸ According to a Pew Center review of state RPS programs, while these standards range from modest to ambitious, “the use of renewable energy does deliver significant GHG reductions. For instance, Texas is expected to avoid 3.3 million tons of CO₂ emissions annually with its RPS, which requires 2000 megawatts of new renewable generation by 2009. Increasing a state’s use of renewable energy brings other benefits as well, including job creation, energy security, and cleaner air.”⁶⁹

Public and investor support for renewable energy is growing as is evident by the 2007 \$32 billion buyout of the Texas power company TXU Corp. by private equity firms Kohlberg Kravis Roberts & Co. (“KKR”) and the Texas Pacific Group. TXU had been battling environmentalists and others who had been working to prevent the company from more than doubling its fleet of coal-fired power plants in Texas. Opponents to the expansion claimed the new plants would drastically increase emissions of sulfur dioxide, nitrogen oxides, mercury, and carbon dioxide. As part of their plan to purchase Texas electricity provider TXU Corp., Texas Pacific Group and KKR have agreed to terminate the applications for eight of TXU’s eleven proposed coal plants in Texas and will adopt a platform of initiatives that will significantly reduce the company’s environmental impact in Texas.⁷⁰

Federal-state cooperation must build on two key factors: passing appropriate legislation and policies to coordinate and reduce GHG emission and developing strategies needed to adapt to climate change.

A short time after the TXU buyout, Kansas became the first state to reject a coal-fired power plant solely because of potential impacts of climate change. Since then, the state has become ground zero for a nationwide battle pitting environmental concerns against powerful economic and political interests. Kansas now faces legal actions to reverse this decision.⁷¹

Initiation of RPS programs is not the only way that states are seeking to reduce GHG emissions and expand economic development. Many states have petitioned the federal government for action on transportation fuel standards. On the basis of federal Clean Air Act provisions that allow California, subject to EPA approval, to set anti-pollution standards stricter than those of the federal government, the state petitioned EPA for a Clean Air Act waiver so that it could require stricter automobile regulations for carbon emissions. In December 2007, after the passage of federal legislation establishing national automotive fuel efficiency at 35 mpg, EPA denied the California petition.⁷² California and other states plan to appeal the EPA decision; more legal battles are likely in 2009 and beyond.

Other actions by California underscore the business side of GHG reductions. Because of its early commitment to energy efficiency and renewable energy, California expected to develop nearly 95,600 new jobs and \$21 billion in investment to manufacture the components of renewable energy systems.⁷³ While such forecasts may be delayed by the current economic crises, they are nonetheless inevitable as the economy rebounds. Cities (in the United States and around the world) are also leading efforts to reduce GHG emissions. Members of the C-40 group of the world’s largest cities are committed to tackling climate change and have committed to investing over \$1 billion to finance energy-saving measures in municipal buildings.⁷⁴

Looking ahead, federal-state cooperation must build on two key factors: (1) passing appropriate legislation and policies to coordinate and reduce GHG emission and (2) developing strategies needed to adapt to climate change. These city and state actions highlight shifting environmental and economic base that

is pushing the United States toward “a *de facto* national RPS through a tapestry of state-based programs.”⁷⁵ These state actions are challenging the federal government to find constructive and supportive ways to help. It is therefore not surprising that the bipartisan Presidential Climate Action Project has recommended the creation of “a federal-state partnership with \$1 billion annual in grants to states and communities to implement climate action plans, reform utility rates to encourage energy efficiency, and adapt to climate

change.”⁷⁶ Anticipating the need for federal-state cooperation, a new think tank has been launched at Georgetown University’s Law Center to develop policies and positions and recommendations related to state-federal issues.

Federal-state partnerships must also focus on giving state and local leaders the information they need to anticipate and adapt to impacts of climate change. A better understanding of regional and local impacts of climate change is critical for effective decision-making. Given the projected IPCC business as usual scenarios for CO₂ emissions and recognizing how long it might take to implement new mitigation strategies to reduce GHG emissions, adaptation may be the most immediate need to avoid potential serious impacts. Recognizing this, the National Research Council (“NRC”) in 2007 evaluated the many federal climate assessments and emphasized the need for better understanding of local impacts, better communication of scientific results, and more focus on social science issues.⁷⁷

These are important conclusions and should impact the scope and direction of federal research programs. As the NRC evaluation noted, “only \$25 million to \$30 million of CCSP’s [U.S. Climate Change Science Program] \$1.7 billion annual budget is devoted to such research.”⁷⁸ “In addition, few social scientists are in leadership positions at the participating federal agencies, making it difficult for CCSP to increase emphasis in this area or to establish links with the academic social science community.”⁷⁹

The NRC report recognized the importance of communicating scientific results to decision makers and urged a closer examination of the impact of climate change at regional and local scales.⁸⁰ “More accurate models, better regional observations, and the development of impact scenarios will be required

to improve predictions of how climate change will affect smaller spatial scales.”⁸¹ The preparation by CCSP of twenty-one separate assessment reports prompted Pew Center Director Eileen Claussen to note that everything is fragmented “so we never get a clear picture.”⁸² Anticipating the extra financial burden on states, cities, and the general population necessary to regulate greenhouse emissions, decision makers at all levels are going to need a clear understanding of potential impacts.⁸³

One recent EPA study highlights the economic impact on states of anticipating and adapting to climate change. Mundane as it might be, wastewater-collection systems or combined sewer systems (“CSSs”) are major systems designed to collect municipal wastewater and storm water runoff. These systems are prevalent in older cities, particularly in the Midwest, the Great Lakes, and the eastern United States. These systems can overflow if they lack adequate capacity to transport the combined volume of municipal wastewater and storm water during extreme or frequent storm events, resulting in combined sewer overflow (“CSO”) events. Current regulatory standards allow for four CSO incidents per year.⁸⁴ With predicted enhanced precipitation patterns in the Great Lakes, this number of overflow events is likely to be exceeded. This is important because today states face the issues of how to strategically invest billions of dollars into developing more robust and sustainable urban water and wastewater systems. The answer is clearly related to developing an integrated urban sustainability approach that includes climate-change scenarios. EPA is currently assessing how such climate change can impact future urban water and wastewater systems. This kind of analysis is essential to help decision makers at state and local levels make better decisions. The above example underscores the impact of climate changes at state and local levels and highlights the need for a major infusion of research to better quantify potential impacts and the most appropriate adaptation measures.

INTERNATIONAL COOPERATION AND A NEW UNITED STATES-CHINA PARTNERSHIP

Overcoming historical barriers between developed and developing countries will require new ways of identifying those barriers and proposing solutions. The timing may be right for a U.S.–China initiative targeting specific reductions of GHG emissions. Such a bilateral agreement would change the international landscape for climate negotiations.

The negotiations that led to the Framework Convention on Climate Change in 1992 were tortuous, as the developing nations blamed the rich nations for the existing problems and demanded compensation. But in the end an agreement was reached based on the principle of differential responsibilities among nations: each country would act according to its own needs but industrial countries would do more than developing ones. The Kyoto Protocol set binding GHG emission reductions targets for thirty-seven industrialized countries and the European Community. These targets averaged five percent below 1990 levels over the five-year period 2008–2012. Arguing that China, India, and other critical emitters should make firm commitments as well

as the more industrialized countries, the United States did not sign the protocol, contributing to a stalemate that still exists. In a 2008 policy paper, China reiterated its position that developed nations have done the most damage to the planet historically and should therefore bear the most responsibility.⁸⁵ Recognizing that its reliance on coal for energy makes GHG emission reductions especially difficult, China argues for the transfer to developing nations of high-technology equipment for reducing GHG emissions.

While its economy today is in turmoil, China is expected to possess the world’s largest economy by 2050, followed by the EU, the United States, and India.⁸⁶ As economic forces drive a good deal of the climate debate, it is clear that the United States and Chinese economies will shape future international agreements. China already surpasses the United States as the greatest GHG emitter.⁸⁷ Since more than fifty percent of global GHG emissions are produced by the United States, China, and the EU—with another fifteen percent coming from Russia, India, and Japan—these countries can effectively determine future global energy and climate policies.

Although the United States and other industrialized countries bear historic responsibility for existing GHG concentrations, as Joshua Bushy notes, China “will be increasingly fingered as a climate culprit in the future,” potentially creating a common interest between the United States and China in avoiding global condemnation as “climate villains. Today’s economic and environmental stresses present an opportunity for mutually reinforcing, positive outcomes if the United States and China help each other tackle immediate environmental problems and longer-term GHG emissions. A creative U.S.–China energy and security policy could benefit both countries.”⁸⁸

China’s leaders know that their nation’s current path is not sustainable and are keenly aware of the need to advance science and technology and to develop a green economy. China recognizes the public health benefits of reducing GHGs and air pollutants (such as sulfur dioxide, nitrogen oxides and fine particles). Citing data obtained from Chinese officials, Elizabeth Economy and Kenneth Lieberthal report that environmental degradation and pollution cost the Chinese economy the equivalent of ten percent of its GDP annually—as much as US\$36 billion from lack of water to run factories, US\$13 billion from the degradation of health impact of acid rain, and US\$6 billion from the spread of desert regions.⁸⁹

It is also apparent to China’s leaders that the impacts of climate change within China could exacerbate internal political and social stresses and hence tend to undermine the nation’s political stability.⁹⁰ Not only is China in transition from being a developing to becoming a developed nation, but it is also moving from a centrally directed economy to one strongly driven by market forces. In the words of Economy and Lieberthal, Chinese officials have the daunting task of shifting “from a planned socialist economy to an entrepreneurial market economy while maintaining one-party rule.”⁹¹

For the United States, a bilateral agreement with China could serve to foster other cooperative actions among developed

and developing nations while helping to avoid potential trade and other economic conflicts. But if not handled wisely, climate change could be a source of serious U.S.-China conflict. Joshua Busby has pointed to relevant strategic issues: “A climate bill currently before Congress would allow the president, if he or she deems a country’s climate efforts to be inadequate, to impose tariff-like fees on carbon-intensive imports such as steel beginning in 2019. Such legislation, if passed, would probably be used against China, adding to existing frictions over trade, intellectual property, and the level of China’s currency.”⁹²

Given the available benefits for both the United States and China, what strategy would best serve the United States? Jonathan Wiener has recently argued that the United States should appeal to China’s national interest as the best way forward in advancing a new partnership.⁹³ Wiener argues that demanding that China fulfill a perceived moral obligation to limit its GHG emissions would be ineffective, and that the United States would be wiser to emphasize China’s own interests—the possibility of reducing climate change damages to itself and its allies, securing public health benefits from reducing air pollution, and avoiding domestic political upheaval that may be associated with extreme climate events.⁹⁴

A new U.S.-China partnership should therefore first focus on actions and new technologies that address a broad range of gases and pollutants that are both short-lived (days to weeks) and long-lived (years and decades) in the atmosphere and of gases that will likely contribute to greenhouse warming. Different GHGs impact the environment in different manners: for example, the impact of methane on global warming is 62 times the impact of CO₂ and that of nitrous oxide is 116 times that of CO₂. Regulating these gases must therefore be a crucial aspect of any climate change strategy, especially for China. Based on data in EPA’s *Global Anthropogenic Emissions of Non-CO₂ Greenhouse Gases* report, in 2005, China’s estimated anthropogenic methane emissions ranked first in the world. Approximately twenty-five percent of its anthropogenic methane emissions—209.9 MMTCO₂E—come from agriculture (manure management), coal mines, landfills, and natural gas and oil systems.⁹⁵ China is also the world’s biggest emitter of sulfur dioxide. According to China’s own data, coal and oil-fired power stations were responsible for twenty-five million tons sulfide dioxide that it discharged in 2005, contributing to acid rain that affected a third of the country.⁹⁶

Wiener suggests that these considerations point to an ongoing shift in Chinese climate policy and to the possibility that an international climate treaty could offer positive incentives to engage China in cooperative action. The United States thus has an opportunity and an imperative to engage China in what Wiener describes as “effective action on climate change through realist persuasion—appeal to global and national interests, and global and national net benefits.”⁹⁷ In political and environmental terms, a new U.S.–China initiative with objectives of developing and testing new technologies to control a wide range of pollutants and GHGs could advance new alternate technologies, sharing the economic costs and benefits of a

new strategy for climate and energy. With both countries poised to invest hundreds billions in economic recovery, the timing is right for mutually re-enforcing efforts on promoting green infrastructure.

CONCLUSIONS

Future GHG emission and climate change scenarios are not optimistic. Global emissions of carbon dioxide grew at a rate of about 1.4% per year in the 1992 to 2002 time period. Recent data show an acceleration of emission: 3.3% in the 2000 to 2006 period. China’s major expansion of its coal-fired power generation capacity has been the key factor in this unexpected acceleration in growth rate. Looking ahead it is impossible to have an effective global mitigation program without a serious commitment by the major economies like the United States and China.

If current emission trends continue at three percent per year for the next twenty-two years, the projected warming will yield a best-guess average warming, relative to 1990, of 1.8°C in 2050 and 4.4°C in 2100. Since it is too late to prevent substantial additional warming, the world community has no alternative other than to pursue both mitigation and adaptation approaches aggressively.

Effectively pursuing a mitigation and adaptation strategy requires resolution of past climate wars. Fortunately many if not all of the climate wars of the 2001–2008 period are moving toward resolution. To be sure, the cost and methods of reducing GHG emissions will continue to raise contentious questions, especially in the current stage of global financial and economic distress. However, a positive vision of the future is possible: it would include enhanced support for technology research and development, collaboration between government and business, cooperation among different levels of government, and foreign policy initiatives that combine environmental concerns and economic goals to build an innovative and resilient economy. By taking such actions and ending the climate wars, the United States can lead the way to protect the world’s environment and stimulate the global economy.



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