

THE EVOLUTION OF STATE CLIMATE CHANGE
POLICY IN THE UNITED STATES:
LESSONS LEARNED AND NEW DIRECTIONS

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INTRODUCTION

Climate change mitigation policy has evolved rapidly among the states following unsuccessful efforts at national policy development through a global treaty.¹ The trend for state leadership in the face of uncertain federal action is consistent with the history of many national environmental laws in the United States,² and is likely to result in future convergence between state and congressional efforts to enact comprehensive national climate change legislation.³ The timing and design of new federal climate change policy is likely to be strongly influenced by state, local and regional actions.

The evolution of climate change policy in the United States appears to fall in three distinct time periods and thematic trends, including: 1) The 1990s decade, where the United States' position was characterized by international engagement and activism beginning with the first Bush Administration and a supportive Congress and evolving, in the period from 1995-2000, to a situation where the Clinton Administration pressed for a "top down" international treaty approach against a reluctant Congress;

¹ The global treaty is the Kyoto Protocol. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc. FCCCC/CP/1997/L.7Add.1 (1998) [hereinafter Kyoto Protocol], *available at* www.unfccc.int/resource/docs/convkp/kpeng.pdf.

² Robert B. McKinstry, *Laboratories for Local Solutions for Global Problems: State, Local and Private Leadership in Developing Strategies to Mitigate the Causes and Effects of Climate Change*, 12 PENN ST. ENVTL. L. REV. 15, 15-16 (2004) (discussing the history and trend of state and federal action in environmental laws).

³ Legislation efforts will probably be achieved through the pending Global Climate Security Act of 2003 in the United States Senate. Global Climate Security Act of 2003, S. 17, 108th Cong. (2003) (suggesting possible measures such as early warning systems).

2) the current period, 2000-2005, in which states, regions and localities have stepped forward to assume greater leadership and demonstrated tangible pathways for progress; 3) and the emerging period, 2005-2010, in which the states, Congress and, ultimately, the federal government are likely to converge on the needs and directions for national and international climate agreements.

In this article, we will examine each of these periods in more detail to understand the underpinnings of actions taken or not taken, lessons learned and the implications for policy development, and potential future scenarios for convergence and agreement.

BACKGROUND: THE 1990S

When the Clinton Administration began negotiating terms of the Kyoto Protocol in 1995, the issue was not a priority in Congress or well understood by Americans, despite the fact that Congress had provided consent to the United States' signature of the United Nations Framework Convention on Climate Change (UNFCCC) only three years earlier in 1992.⁴ As Congress became aware of administration plans and potential impacts of the treaty, the issue of global climate change was quickly positioned as a controversial long-term issue, but not as an immediate priority. At the time, Congress was preoccupied with more fundamental issues raised by the wholesale change in political leadership created by the 1994 national election sweep by the Republicans.⁵

United States Congressional Background and Issues

Immediately after the elections, in 1995, the 104th Congress began to fundamentally challenge United States congressional approaches and attitudes toward environmental law. With a "new

⁴ United Nations Framework Convention on Climate Change, May 29, 1992, U.N. Doc. A/AC.237/18 (1992), available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>.

⁵ Prior to the 1994 national elections, the White House and both houses of Congress were held by Democratic leadership. Following the election, the House and Senate assumed Republican leadership. U.S. SENATE, SENATE STATISTICS: MAJORITY AND MINORITY PARTIES (PARTY DIVISION), at http://permanent.access.gpo.gov/lps1246/www.senate.gov/learning/stat_13.html (last visited Oct. 22, 2004).

right" Republican leadership in both houses for the first time in forty years,⁶ new initiatives were crafted to revise environmental regulation and mandate directional changes.⁷ Initiatives were based on the hypothesis that regulation, in general, and environmental regulation in particular, had harmed the competitiveness of the United States economy, injured individual companies and industries, and were not cost effective.⁸ The most noteworthy of these was the "Republican Contract With America,"⁹ developed and touted by Representative Newt Gingrich as new Speaker of the House. This initiative included a package of three legislative proposals¹⁰ designed to reverse decades of previous law making held by Gingrich to be "an anomaly in American History."¹¹

The Contract With America included proposed legislation known as "The Job Creation And Wage Enhancement Act"¹² with three key provisions, including: 1) the so called "Unfunded Mandates" legislation that aimed to halt the delegation of responsibility of regulatory implementation to states without adequate financial authority;¹³ 2) the so called "Regulatory Reform" legislation designed to revise the methods and processes by which environmental problems and policies underwent

⁶ Glen Kessler & Martin Dasindorf, *GOP Agenda: A Right Turn GOP Charts a Turn to the Right*, *NEWSDAY*, Nov. 11, 1994, at A04.

⁷ See REPUBLICAN CONTRACT WITH AMERICA [hereinafter CONTRACT WITH AMERICA], at <http://www.house.gov/house/contract/CONTRACT.html> (last visited Oct. 22, 2004).

⁸ See *id.*

⁹ *Id.* The contract with America was a detailed agenda for national renewal, proposed by the Republican members of the House of Representatives to restore the bonds of trust between the people and their elected representatives.

¹⁰ *Id.*

¹¹ Personal communication with legislative staff of the Speaker. During this period the author served as a Brookings Legislative Fellow to United States Senator Joe Lieberman and represented the Senator on global climate change and other environmental issues.

¹² CONTRACT WITH AMERICA, *supra* note 7; THE JOB CREATION AND WAGE ENHANCEMENT ACT, PROPOSAL [hereinafter PROPOSAL], at www.house.gov/house/contrat/cre8jobsd.txt (last visited Oct. 22, 2004); see also Tax Relief Act of 1995, H.R. 1215, 104th Cong. (1995).

¹³ PROPOSAL, *supra* note 12; see also Unified Mandates Reform Act of 1995, Pub. L. No. 104-4, 48 Stat. 109 (codified at 2 U.S.C. §§ 1501-55 (2000)).

economic review and were translated into policy;¹⁴ and 3) the so called "Takings" bill designed to codify judicial approaches to determination of takings under the Fifth Amendment with the intent of obligating environmental regulations to measurable economic criteria.¹⁵

The Unfunded Mandates Reform Act of 1995 was signed into law without serious opposition, although numerous adjustments were made that bring it more closely in line with existing policies and procedures of the federal government.¹⁶ The remaining proposals on Regulatory Reform and Takings were strongly opposed by the Clinton Administration and many constituencies, and did not reach the floor for action. However, a serious national debate was held over a two-year period as Congress looked more closely at proposals by the new leadership.¹⁷

United States Senate Debates

Committees in both houses held several hearings with testimony from a wide range of experts and stakeholders. This included a wide array of empirical analysis on the economic effects of environmental regulation in response to claims in the Contract With America.¹⁸ Key testimony on competitiveness and economic impacts was provided by Paul Portney.¹⁹ Citing peer reviewed

¹⁴ PROPOSAL, *supra* note 12.

¹⁵ *Id.* National environmental groups labeled the three proposals in the Contract with America as an "unholy trinity." Personal communications with legislative representatives of several environmental organizations.

¹⁶ Unified Mandates Reform Act of 1995, Pub. L. No. 104-4, 48 Stat. 109 (codified at 2 U.S.C. §§ 1501-55 (2000)).

¹⁷ See generally John E. Blodgett, *Environmental Reauthorizations From the 104th Congress to the 105th*, [updated Feb. 10, 1998] CRS Report for Congress, 96-949 ENR (CRS), available at <http://countingcalifornia.cdlib.org/crs/pdf/96-949.pdf>.

¹⁸ Official descriptions of the Contract with America by its cosponsors on file in the United States House of Representatives state: "Government-imposed mandates and regulations suppress wages and excessive taxation of capital and investment stifles economic growth and job creation. Current federal policies threaten the competitiveness of American business, stifle entrepreneurial activity and suppress economic growth and job creation." PROPOSAL, *supra* note 12.

¹⁹ Paul R. Portney, Regulatory Improvement Act of 1997: Testimony for Presentation to the Committee for Governmental Affairs (Sept. 12, 1997), available at www.rff.org/Documents/REF-CTst-95-portney.pdf. Paul Portney is

studies, Portney and others concluded: "Overall, there is relatively little evidence to support the hypothesis that environmental regulations have had a large adverse effect on competitiveness, however that elusive term is defined."²⁰ The congressional record and an outpouring of public concern persuaded the majority in Congress to reject claims that environmental regulations had created systematic harm to the nation's competitiveness, or that they had caused a systematic "taking" of private property and declined to pass either bill.

However, the congressional debate raised important related points. First, while systematic harm from environmental regulation could not be demonstrated, exceptions might exist that justify special mitigation mechanisms for affected sectors and parties.²¹ Second, the next generation of environmental regulation was likely to be more expensive than the last and compel Congress to more carefully examine cost impacts and alternative approaches, particularly market based mechanisms gaining increased recognition.²²

The last point had important implications for global climate change policy. Estimates at the time put the combined cost of all United States national regulations to protect the environment, health and safety of United States consumers and workers at about \$300 billion.²³ Direct cost estimates of United States compliance with the proposed Kyoto Protocol alone ranged from \$102 billion to \$437 billion.²⁴ These figures are beyond the comfort zone of

a senior Fellow and President of the Resources for the Future. Resources for the Future is a large and well recognized environmental policy think tank and research institution in Washington, DC that is frequently consulted by Congress on legislative issues. See RES. FOR THE FUTURE, at www.rff.org.

²⁰ Adam B. Jaffe et al., *Environmental Regulations and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, 33 J. ECON. LITERATURE 132, 157 (1995), available at <http://www.jstor.org/>.

²¹ See generally Portney, *supra* note 19.

²² *Id.*

²³ *Id.*

²⁴ These dollar amounts are equal to 1.0 to 4.2 percent of the Gross Domestic Product. Energy Information Administration (EIA) provides comprehensive, comparative analysis of cost estimates of the Kyoto Protocol. EIA, COMPARING COST ESTIMATES FOR THE KYOTO PROTOCOL, at www.eia.doe.gov/oiaf/kyoto/cost.html (last visited Oct. 22, 2004).

most congressional members.²⁵ Congress reacted with sticker shock to treaty proposals.²⁶ Global climate change policy appeared to require massive, long-term adjustments in energy policy that would involve major tradeoffs. Cost effective solutions did not appear to be available in adequate supply to support proposed United States obligations.²⁷ As a result, Congress balked at mandatory provisions in the Kyoto Protocol that were aggressive in scale and asymmetrical in the treatment of developed versus developing nations.²⁸ Treaty negotiations failed to resolve a series of related issues, and the Clinton Administration did not submit the treaty for advice and consent by the United States Senate.²⁹

During this period, a well-known resolution was passed by the senate, the so-called "Byrd-Hagel" resolution.³⁰ Popular interpretations hold that the 95-0 vote in favor of the resolution was a demonstration of near unanimous opposition by the United

²⁵ See 144 CONG. REC. 194-01, 195 (1998).

²⁶ See generally Carol M. Morrissey, *Congress Line: The Kyoto Protocol—A Political Maelstrom* (Feb. 1, 1998), at www.llrx.com/congress/0298.htm.

²⁷ Members of the congressional delegation in Kyoto repeatedly asked: "Where will the tons (Greenhouse Gas emissions reductions) come from?" Personal communication with Senate and House members in Kyoto, Japan (1997).

²⁸ UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CONTROL, CONFERENCE OF THE PARTIES, 1st Sess. U.N. Doc. FCCC/CP/1995/7/Add.1 (June 6, 1995); UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, DOCUMENTS OF THE AD HOC GROUP ON THE BERLIN MANDATE, 1st-8th Sess., U.N. Docs. FCCC/AGBM/1995/1 et seq. [hereinafter BERLIN MANDATE], available at <http://unfccc.int/cop4/agbm97.html> (provides complete text and description of the Berlin Mandate). The United States Senate interpreted this agreement by the United States administration as tantamount to a sellout of national economic interests on the theory that a differential in binding commitments between developed and developing nations under the treaty would harm United States competitiveness. The root of this concern was the potential for significant differentials in energy cost impacts in a carbon constrained world with asymmetrical constraints. See also 144 Cong. Rec. 194-01, 195 (1998).

²⁹ PACE LAW SCHOOL, GLOBAL WARMING CENTRAL, US FEDERAL INITIATIVES, at <http://www.law.pace.edu/globalwarming/US.html> (last visited Oct. 5, 2004).

³⁰ S. Res. 98, 105th Cong. (1997).

States Senate to the treaty and national action on climate change.³¹ However, this interpretation neglects negotiated changes to the resolution and floor statements by many members who indicated clearly that they supported treaty negotiations.³²

One key issue has frequently been overlooked. In draft form, the resolution established crisp, numerical thresholds by which requirements in the resolution for no "serious harm to the economy of the United States" and "new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period" could be accomplished.³³ These requirements were dropped during negotiations out of concern that a "bright-line" test could have been used as a tool to make otherwise reasonable versions of the treaty unachievable.³⁴

During passage of the resolution, Senator Byrd was pressed for a definition of "new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period." He responded with the position that "we'll know it when we see it."³⁵ This reaction was in

³¹ Gregg Van Helmond, *Squandering the Surplus: \$11 Billion on the Unratified Kyoto Protocol*, BACKGROUND, Sept. 17, 1999, at 5, available at www.heritage.org/Research/EnergyandEnvironment/BG1322.cfm.

³² Senator Kerry made numerous public remarks that the Byrd-Hagel Resolution was not intended to be a "treaty killer." 143 CONG. REC. S8113, S8139 (1997) (statement of Senator John Kerry).

³³ S. Res. 98, (1) (A), (B) 105th Cong. (1997).

³⁴ During this period the author served as Senior Advisor and Congressional Liaison for the White House Climate Change Task Force and represented White House staff on global climate change issues in the United States Senate and House.

³⁵ 144 CONG. REC. 194-01, 196 (1998). Alteration of the bright-lines test was crucial to enlisting the support of Democratic Party leadership. As a consequence of its removal (and additional language clarifying the intent to support treaty negotiations), the Clinton Administration chose not to oppose the resolution, and embraced the need for greater focus on these points. Several members of both parties, who had opposed the original language of the resolution, chose to support the revised form in hopes of avoiding a vote that contained any clear opposition to the treaty. In that light, subsequent reaction to the resolution by some as a "treaty killer" was unsettling to many Senate members. Personal communications with legislative staff of Senator Byrd and other members.

line with earlier sentiments expressed toward proposed takings legislation and regulatory reform during earlier debates of the 104th Congress. During testimony on these bills, many expert witnesses advised Congress: (1) not to overly codify economic analysis (due to inherent limitations in the science that could lead to potentially inaccurate and unfair outcomes), and (2) to abide by 200 years of jurisprudence in which United States courts had steadfastly held to a case-by-case "balancing-test" of economic taking in lieu of numerical standards. A majority of the United States Senate agreed. As global climate change issues were debated, congressional precedents from the national debates on regulatory reform and Fifth-Amendment takings were resident in efforts to preserve future options for climate change treaty passage.

In the years that followed Senate Resolution 98, congressional views shifted toward more proactive support for climate change policy, including a resolution by the Senate Foreign Relations Committee in 2003 directing the United States to reengage in international climate treaty discussions,³⁶ and the launch of the McCain-Lieberman Global Climate Change Security Act of 2003.³⁷

Federal Policy Conflicts

The period of the 1990s appears paradoxical in that Congress ratified the United Nations Framework Convention on Climate Change³⁸ (UNFCCC) and rejected efforts to weaken existing national environmental laws,³⁹ but also rejected new lawmaking directed at the largest unresolved environmental issue of the

³⁶ Sense of the Senate Resolution adopted by the Senate Foreign Relations Committee for inclusion in the State Department Authorization bill, April 9, 2003.

³⁷ S. 17, 108th Cong. (2003).

³⁸ John R. Justus & Susan R. Fletcher, *Global Climate Change*, [updated March 27, 2002] CRS Issue Brief for Congress, IB89005 (CRS), available at www.FPC.State.gov/documents/orginations/9549.pdf. The UNFCCC is also known as the Rio Accord.

³⁹ Robert V. Percival, *Regulatory Evolution and the Future of Environmental Policy*, 1997 U. CHI. LEGAL F. 159, 167-71 (1997).

day—global climate change.⁴⁰ In retrospect, it may not be so surprising that Congress did not fully support United States participation in the proposed global climate change treaty. The history of the treaty began with somewhat reluctant United States approval of the 1992 UNFCCC in Rio de Janeiro by the Bush Administration.⁴¹ Later, a Clinton Administration State Department decision to support the Berlin Mandate locked the United States into a mandatory system of compliance versus a voluntary system for developing nations and raised the prospect of national competitiveness issues.⁴² Congressional leaders apparently were not consulted on this decision and registered broad-scale disagreement.⁴³ A subsequent decision by the State Department to commit the United States to a system of targets and timetables under a protocol to the UNFCCC also did not involve consultation with Congress and inflamed concerns about domestic compliance and economic impact.⁴⁴

During this same period, few actions had been taken by the federal government or states to demonstrate pathways for compliance that might have built confidence. Congress had difficulty envisioning a resolution to economic and energy

⁴⁰ Lakshman Guruswamy, *Climate Change: The Next Dimension*, 15 J. LAND USE & ENVTL. L. 341, 343-44 (Supp. 2000).

⁴¹ Among other accounts of the internal controversy over the UNFCCC agreement, former United States EPA Administrator William Reilly provides a candid interview of his experience representing the Administration in Rio de Janeiro in an independent film production. *THE GOD SQUAD* (Emily Hart Productions 2002). A protracted debate also occurred in the United States Senate in 1992 led by former Vice President and United States Senator Al Gore, and former United States State Department Undersecretary and Former United States Senator Tim Wirth. See 138 CONG. REC. S17150, S17153-54 (1992) (statement of Sen. Gore); 138 CONG. REC. S6475, S6477-78 (1992) (statement of Sen. Wirth).

⁴² Testimony of Thomas J. Bliley, Jr. Chairman, House Committee Energy and Power, Global Climate Changes, Fed. Document Clearing House Cong. Test., May 19, 1995 (load date May 20, 1995).

⁴³ S. Res. 98 105th Cong. (1997) (expressing disapproval of the United States Senate).

⁴⁴ Personal communication with United States congressional and United States State Department staff.

conflicts.⁴⁵ In contrast, many other nations chose to move forward under the same international framework, placing the United States in an isolated position. Scientific evidence for climate change and understanding of its detrimental impacts continued to grow.⁴⁶ In response to growing public attention, national interest in the issue expanded and the door opened for states to explore the solutions and assume leadership.

Lessons Learned

These events significantly shaped climate policy developments in the years that followed, and three key trends emerged. First, top-down approaches by political leadership at the behest of environmental groups became less common and less likely to succeed without diverse backing. As one legislative director in the United States Senate put it after the advent of the 104th Congress, "there's no more legislating on the cheap—from now on it all has to be done the hard way, from the grass roots up."⁴⁷ Lawmakers now adopt a more distant and skeptical approach toward environmental science, policy and representation. This raises the burden of proof on constituency support (including industry) in federal and state lawmaking, including new state climate initiatives.

Second, public mandates for economic analysis have intensified, including attention to industry competitiveness and labor and consumer impacts issues. State climate change initiatives

⁴⁵ Former United States Senator Bennett Johnston commented at a 1998 United States State Department briefing by Undersecretary Tim Wirth that his responsibilities toward developing a global climate change treaty developing were "a daunting task." Personal communication.

⁴⁶ See generally INT'L PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS (2001), available at http://www.grida.no/climate/ipcc_tar/wg1/index.htm. See also COMM. ON THE SCI. OF CLIMATE CHANGE, CLIMATE CHANGE SCIENCE: AN ANALYSIS OF SOME KEY QUESTIONS (2001) [hereinafter CLIMATE CHANGE SCIENCE], available at <http://books.nap.edu/html/climatechange/climatechange.pdf>.

⁴⁷ Personal communication with Bill Bonvillian, Legislative Director for United States Senator Joe Lieberman (1995).

are expected to meet a higher burden of proof than existed previously, and technical standards for analysis have grown.⁴⁸

Third, the importance of conflict resolution related to energy policy is paramount. Because fossil energy use is regarded as a critical ingredient to state economic performance and is also the leading source of greenhouse gas (GHG) emissions, energy and climate conflicts are assumed. Climate change initiatives face a burden of proof that these conflicts can reasonably be resolved.⁴⁹

CURRENT STATUS OF STATE CLIMATE CHANGE POLICY: 2000-2005

Status and Background of State GHG Actions

During the 1990s, a variety of state level climate policy actions were developed in response to the potential United States participation in the Kyoto protocol. Several states developed GHG inventories, and many also developed state action plans.⁵⁰ In some cases, states began to focus GHG actions as a co-benefit to energy and air quality policy issues.⁵¹ Few states, however, developed comprehensive climate action plans with leadership at the level of the Governor or Cabinet.⁵² Most action plans involved little or no

⁴⁸ Congressional debate over the importance of economic issues related to environmental regulations impacted state government attitudes and policies.

⁴⁹ Tom Peterson & Adam Z. Rose, *Reducing Conflicts Between Climate Policy and Energy Policy in The U.S.: The Important Role of States*, ENERGY POL'Y (forthcoming 2004) (on file with authors).

⁵⁰ These action plans have typically been partial rather than comprehensive in scope. For a list of states that have enacted state climate change action plans, see <http://yosemite.epa.gov/globalwarming/ghg.nsf/StatePolicyOptionsSearch?OpenForm>.

⁵¹ LELAND DECK, THE MULTIPLE BENEFITS OF REDUCING GREENHOUSE GASES 1 (Nov. 22, 2001), reprinted in FIFTH STATE AND LOCAL CLIMATE CHANGE PARTNERS' CONFERENCE (Nov. 20-22, 2001), available at [http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/ADIM5H4QPT/\\$File/16_Leland_Deck.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/ADIM5H4QPT/$File/16_Leland_Deck.pdf).

⁵² See COMMW. OF MASS., MASSACHUSETTS CLIMATE PROTECTION PLAN, available at www.mass.gov/ock/docs/MAClimateProtectionPlan.pdf (last visited Oct. 25, 2004). New Jersey and Wisconsin are the exception, having developed partial plans with overt support from their Governors. See *infra* pp. 117-18.

public input, little technical analysis, and very little attempted implementation.

Since 2000, however, a number of states have undertaken far more serious efforts along with significant local and regional actions. To date, eight states (or significant sub-state jurisdictions) have undertaken comprehensive, statewide climate change planning efforts, including Connecticut, Massachusetts, New York, New Jersey, Rhode Island, Maine, Oregon, and Puget Sound (Washington).⁵³ Others are likely to be launched in the coming year; with the likelihood that one quarter of all states will have undertaken such plans by 2006, with more to follow.⁵⁴ The New England Governor's/Eastern Canadian Premier's (NEG/ECP) regional agreement was launched in 2001⁵⁵ and the West Coast Climate Initiative⁵⁶ was launched in 2003. Other regions may follow suit by 2006.⁵⁷ A number of local governments have undertaken GHG plans (ICLEI).⁵⁸ Together, the pool of GHG emissions covered by these agreements constitutes eight percent of global GHG emissions.⁵⁹

⁵³ See *infra* p. 116-18.

⁵⁴ Personal communications with state officials.

⁵⁵ COMM. ON THE ENV'T & N.E. INT'L COMM. ON ENERGY OF THE CONFERENCE OF NEG/ECP, NEW ENGLAND GOVERNORS/EASTERN CANADIAN PREMIERES: CLIMATE ACTION PLAN 2001, at 7 (Aug. 2001) [hereinafter CLIMATE ACTION PLAN 2001], available at <http://www.negc.org/documents/NEG-ECP%20CCAP.PDF>.

⁵⁶ CAL. ENERGY COMM'N & CAL. EPA, WEST COAST CLIMATE INITIATIVE REPORTS (Apr. 13, 2004), available at http://www.energy.ca.gov/global_climate_change/westcoastgov/.

⁵⁷ Personal communications with state officials.

⁵⁸ For a list of local governments undertaking GHG plans, see INT'L COUNCIL FOR LOCAL ENVTL. INITIATIVES, CITIES FOR CLIMATE PROTECTION CAMPAIGN – US, at 1 (2002), reprinted in THE 2ND ANNUAL GODDARD FORUM, GLOBAL WARMING: CAUSES, EFFECTS AND MITIGATION STRATEGIES FOR STATES AND LOCALITIES (Apr. 17-18, 2002) available at <http://www3.iclei.org/US/participants.cf>.

⁵⁹ GLOBAL DEVELOPMENT RESEARCH CENTER, CASE STUDY: ICLEI'S CITIES FOR CLIMATE PROTECTION, at www.gdrc.org/uem/mea/case-study-1.html (last visited Oct. 25, 2004).

Individual policy actions on climate change or related energy and air quality issues have grown substantially in this period.⁶⁰ Over 200 specific policy actions with GHG objectives are under development or have been implemented by states in aggregate, including: renewable energy portfolio standards, system benefit funds, appliance standards, building codes, farm and forestland conservation programs, transportation efficiency measures, alternative fuels mandates, solid waste management reform, industrial process reform, and other programs.⁶¹

These actions use a variety of voluntary and mandatory approaches, including: codes and standards, market-based incentives, funding instruments, technical assistance, voluntary agreements, information and education, and reporting and disclosure.⁶² Actions span all GHG emitting sectors, including: power supply, residential, commercial, industrial, transportation and land use, forestry, agriculture, and waste management sectors.⁶³ In addition, actions span all GHG's, including: carbon dioxide, nitrous oxide, methane, synthetic gases, and black carbon.⁶⁴ Together, they constitute a relatively comprehensive portfolio⁶⁵ of specific approaches that governments can draw upon in formulating new policies.⁶⁶

This flurry of sub-federal activity is not without precedent.⁶⁷ The often quoted notion of states as "laborator[ies . . . of] social and economic experiments"⁶⁸ by Justice Brandeis has manifested

⁶⁰ For a list of state plans, see *supra* note 50.

⁶¹ See *supra* note 50.

⁶² See STEPHEN BERNOW, ET AL., TELLUS INSTITUTE, MICHIGAN'S GLOBAL WARMING SOLUTIONS: A STUDY FOR THE WORLD WILDLIFE FUND, at 15 (April 2000), available at <http://www.tellus.org/energy/publications/final-wwf-michigan.pdf>.

⁶³ John Dernbach, *Moving the Climate Change Debate from Models to Proposed Legislation: Lessons from State Experience*, 30 ENVTL. L. REP. NEWS & ANALYSIS 10933, 10945 (2000) (discussing strategies for reducing emissions to conform to the requirements of the Kyoto protocol).

⁶⁴ McKinstry, *supra* note 2, at 40.

⁶⁵ Dernbach, *supra* note 63, at 10935, 10941, 10944.

⁶⁶ Personal assessments by the author.

⁶⁷ McKinstry, *supra* note 2, at 16.

⁶⁸ *Id.* (quoting *New State Ice Co. v. Leibmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting)).

itself in many national environmental laws significantly shaped by state law and policy.⁶⁹ Notable examples include provisions of the Clean Air Act, Clean Water Act, and other legislation.⁷⁰ State actions have influenced adoption of national laws for civil rights, consumer protection, occupational safety, and other public policy areas as well. Federal lawmaking appears to have been influenced by state actions through a number of factors, including: the demonstration of state political willpower, development of tangible solutions, resolution of key conflicts, and the emergence of state coalitions.⁷¹ In some cases, the convergence and harmonization of state standards has motivated congressional adoption of like measures at a national scale.⁷² In others, a patchwork of non-convergent standards has motivated national harmonization by Congress.⁷³ In either case, proactive stances by states have had a catalytic effect on national action.⁷⁴

The process by which states determine that climate change justifies comprehensive policymaking is complex and not fully understood.⁷⁵ A number of key elements exist that include: the progression and depth of science; public awareness and pressure; political leadership opportunities;⁷⁶ agency leadership and policy entrepreneurs;⁷⁷ concern about state level environmental damages and fiscal impacts; opportunities for co-benefits in economic, energy and environmental policy; favorable positioning for future federal mandates;⁷⁸ influence of federal legislative design; opportunities to bank low cost actions against higher cost options

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ McKinstry, *supra* note 2, at 62.

⁷⁴ *Id.*

⁷⁵ See generally BARRY G. RABE, PEW CENTER ON GLOBAL CLIMATE CHANGE, GREENHOUSE & STATEHOUSE: THE EVOLVING STATE GOVERNMENT ROLE IN CLIMATE CHANGE (November 2002), at www.pewclimate.org/global-warming-in-depth/all_reports/greenhouse_and_statehouse_/index.cfm.

⁷⁶ *Id.* at 3-10.

⁷⁷ *Id.*

⁷⁸ Future federal mandates such as Clean Air Act State Implementation Plans (SIPs). SIPs are delegations of federal authority to states to implement air quality plans in response to federal standards. See 42 U.S.C. § 7410 (2000).

and commitments in the future; and strategic alliances with political and economic jurisdictions.⁷⁹ Whatever the cause, an increasing number of elected officials at the local, state and federal level are advancing climate change mitigation policy and have fundamentally changed the American political landscape on the issue.

Current State GHG Policy Trends

A number of trends are evident from state policy initiatives undertaken since 2000:

The level of public input has grown in planning efforts as they tackle increasingly diverse and difficult issues. In Connecticut, Maine, Puget Sound, Oregon and Rhode Island, for instance, all stakeholder and technical work group meetings were public, with open document postings on the internet and opportunities for public review and comment.⁸⁰

The level of involvement from Governors and Cabinet officials has grown. For instance, the Governor of Maine appeared twice before stakeholders to encourage their work, and the Governor's Steering Committee in Connecticut was comprised of eight cabinet level officials with direct responsibility for outcomes.⁸¹

Technical analysis and modeling has intensified, typically involving high-level consulting teams and state-of-the-art economic models. Federal standards for analysis and federal data sources are commonly used in state GHG planning today.⁸² In Maine, guidelines for economic analysis were developed in concert with United States EPA Guidelines.⁸³ Accounting systems for analysis of Maine forestry options were closely coordinated with

⁷⁹ RABE, *supra* note 75, at 4, 20, 32-35, 40-41.

⁸⁰ Website listings are available for each of these state plans and processes. *See infra* text at 116-18.

⁸¹ STATE OF CONN., EXECUTIVE OFFICE OF GOVERNOR JOHN G. ROWLAND, CLIMATE CHANGE FACT SHEET, at <http://www.ct.gov/governorowland/cwp/view.asp?a=1551&Q=272224&pm=1> (listing the names of six of the eight members of the committee).

⁸² *See* EPA, GUIDELINES FOR PREPARING ECONOMIC ANALYSES, EPA 240-R-00-003 (Sept. 2000) at <http://yosemite.epa.gov/ee/epa/eed.nsf/Webpages/Guidelines.html>.

⁸³ *Id.*; *see also* <http://maineghg.raabassociates.org>.

United States Forest Service and United States EPA National Inventory Guidelines.⁸⁴ In New York, Connecticut, and the Regional Greenhouse Gas Initiative (RGGI)⁸⁵ process the power sector model officially used by the United States EPA (Integrated Planning Model) for national assessments has been deployed, and the National Emissions Modeling System (NEMS) energy model by EIA was routinely used for forecasting and scenario development.⁸⁶ The United States Forest Service FORCARB and HARVCARB models were recalibrated and updated during the Maine Stakeholder Advisory Group process to address state level science and policy issues.⁸⁷ The REMI model⁸⁸ has been used for macroeconomic assessments in Rhode Island and Connecticut.⁸⁹

The design of policy actions and the data that supports them for a growing number of approaches has become more

⁸⁴ The Maine forestry analysis addressed a series of science and accounting issues that are not fully resolved at the federal and international level, including the consistent and comprehensive use of full life cycle accounting for pre-harvest and post-harvest biomass. Import and export issues are not adequately treated through current IPCC guidelines, and recent work by the Subsidiary Body on Science and Technical Assessments has convened work groups on the issue. Analysis in Maine addressed similar issues. See <http://maineghg.raabassociates.org>.

⁸⁵ See TOM PETERSON, CTR. FOR CLEAN AIR POL'Y, CLIMATE CHANGE MITIGATION: PROCESS AND POLICY OPTIONS FOR STATE GREENHOUSE GAS PLAN 14 (Feb. 2004), at www.ccap.org/pdf/2004-Feb--State_Climate_Process_and_Policy_Options.pdf (providing additional information regarding the Regional Greenhouse Gas Initiative).

⁸⁶ McKinstry, *supra* note 2, at 23; see also Regional Greenhouse Gas Initiative Stakeholder Group Meeting Process, Final RGGI Meeting Summary, New York City 7 (Apr. 2, 2004), available at http://www.rggi.org/docs/rggi_ms_4-2-04-final.pdf; see also *Maine Electricity & Solid Waste Baseline 1990-2020*, at <http://maineghg.raabassociates.org/Articles/MaineESWConsumptionBaseline.final.doc>.

⁸⁷ AGRIC. AND FORESTRY TECHNICAL WORKING GROUP, MAINE GREENHOUSE GAS ACTION PLAN DEVELOPMENT PROCESS: FORESTRY GREENHOUSE GAS REDUCTION OPTIONS 5 (July 29, 2004) [hereinafter MAINE ACTION PLAN DEVELOPMENT], at <http://maineghg.raabassociates.org/Articles/ME%20Forestry%20Options.pdf> (provides an introductory memo by the author).

⁸⁸ Regional Economic Models, Inc. Additional information on REMI, at www.remi.com.

⁸⁹ For further discussion see <http://maineghg.raabassociates.org/Articles/RIGHGPlanAppendices7-19-02.doc>.

standardized with replication, allowing lower cost and more rapid development in new jurisdictions. For instance, policy menus for renewable energy and energy efficiency are becoming more standard.⁹⁰

The architecture of comprehensive plans has converged on a hybrid combination of actions and sectors that is supported by a set of targets and timetables and a monitoring and reporting system. This model is quite similar to those developed by nations now complying with the Kyoto Protocol and is equivalent in scale and scope.⁹¹

The formula for conflict resolution is progressing, including techniques for stepwise development of technical consensus and policy consensus. These include the use of open and democratic process, efficiency instruments that reduce mitigation cost, equity instruments across socio-economic groups, regions and generations, and instruments for interregional cooperation.⁹² The development of processes that support intensive exploration of alternative policy designs is particularly important.⁹³ Typically, this requires intensive technical support and opportunities for multiple iterations of design, analysis and modification.⁹⁴ As processes are more comprehensive in the coverage of sectors, GHG's, policy mechanisms and time periods they are more able to identify low conflict pathways toward reduction goals.⁹⁵

Increasingly, state efforts are linked to multi-state regional levels of implementation. For instance, the Northeast is pursuing power supply reforms through the nine state RGGI process, and the adoption of automobile GHG standards in development by California is viewed as a regional initiative.⁹⁶

Increasing attention is being paid to federal legislative design issues as the relevance of the Climate Security Act (CSA)⁹⁷ and the

⁹⁰ RABE, *supra* note 75, at ii.

⁹¹ McKinstry, *supra* note 2, at 65-66.

⁹² See PETERSON, *supra* note 85, at 4.

⁹³ RABE, *supra* note 75, at 40.

⁹⁴ *Id.* at 9.

⁹⁵ See *id.* at 40-46.

⁹⁶ *Id.* at 41.

⁹⁷ Referring to the Global Climate Security Act of 2003, S.17, 108th Session on Cong. (2003).

need for state input becomes apparent. For instance, the CSA does not fully define a state/federal role at large or on key issues such as transportation, landscape protection, and energy efficiency—all of which are common elements of state GHG plans.⁹⁸

*Launch and Configuration of State
GHG Planning Processes*

The convening party and the purpose by which state climate change plans are justified is important because state climate policies involve diverse constituencies, conflicts, and high stakes. Stakeholders typically do not invest substantial time, resources, or political capital into processes that are not convened at the highest levels of the executive branch.⁹⁹ Without overt knowledge and support by a governor, state processes typically cannot explore truly difficult issues or expand the implementation horizon significantly. For instance, the Maine Stakeholder Advisory Process was convened by a legislative mandate signed by Governor Baldacci,¹⁰⁰ and he opened the first stakeholder meeting and subsequently appeared at a later meeting to provide encouragement and direction.¹⁰¹ In New York and Connecticut, stakeholders were invited through letters signed by close political advisors and associates of the Governors, and they provided continual liaison with the Governor throughout the process.¹⁰² In contrast, the Maryland Energy Administration (MEA) launched a fledgling stakeholder process prior to the election of the current Governor.¹⁰³ The process was terminated after one meeting due to a lack of support by the Governor and his new cabinet.¹⁰⁴

⁹⁸ RABE, *supra* note 75, at 4.

⁹⁹ PETERSON, *supra* note 85, at 19.

¹⁰⁰ Maine passed the first statewide greenhouse gas target and mandate. *See* Waters and Navigation—Climate Change, 2003 Me. Laws 237.

¹⁰¹ Meredith Goad, *Disaster Film Fires Up Global Warming Talk: Environmental Groups Use a Far-Fetched Blockbuster to Focus People's Attention on the Issue*, PORTLAND PRESS HERALD, May 27, 2004, at 1B.

¹⁰² PETERSON, *supra* note 85, at 20.

¹⁰³ *See* MARYLAND ENERGY ADMINISTRATION, 2003 ANNUAL REPORT: A 2003 FISCAL PROGRESS REPORT (2003) [hereinafter MARYLAND PROGRESS REPORT], available at www.energy.state.md.us/about/reports/Annual-Report-2003.pdf.

¹⁰⁴ Personal communication with MEA staff.

Since climate mitigation policy is not mandated by law¹⁰⁵ (with the exception of Maine)¹⁰⁶ states look to other mandates or purposes to bolster support as a convening purpose.¹⁰⁷ The role of regional agreements in New England¹⁰⁸ and West Coast¹⁰⁹ has been important in launching statewide action plans in both regions. In Connecticut, for instance, Governor Rowland convened the Connecticut Climate Change Stakeholder Dialog for the purpose of "mak[ing] progress toward or beyond"¹¹⁰ the targets set by the NEG/ECP.¹¹¹ Energy issues have also been important drivers for climate action plans.¹¹² Governor Pataki of New York convened the New York GHG Task Force to provide recommendations to the State Energy Plan.¹¹³ The prospect of negative environmental impacts that result from global climate change also play a role.¹¹⁴ In Arizona, Governor Napolitano will convene a stakeholder dialog in response to growing concerns over the impacts of climate change on water and other natural resources in the state, as well as regional interest in solutions.¹¹⁵ Whatever the case, the justification by which action plans are formulated will be tested by opponents for validity, and used by proponents as an enforcing decision for

¹⁰⁵ McKinstry, *supra* note 2, at 17, 26.

¹⁰⁶ *Id.* at 35 (Referring to the Maine Act to Provide Leadership in Addressing the Threat of Climate Change, ME. REV. STAT. ANN. tit. 38 §§ 574-789 (2003)).

¹⁰⁷ *Id.* at 26.

¹⁰⁸ Information pertaining to the New England Governors & Eastern Canadian Premiers agreement is available at www.negc.org/environment.html.

¹⁰⁹ The states of Washington, Oregon and California formed the West Coast regional agreement. Additional information is available at <http://www.ef.org/westcoast/climate>.

¹¹⁰ C T R . F O R C L E A N A I R P O L ' Y , C O N N E C T I C U T C L I M A T E C H A N G E S T A K E H O L D E R S D I A L O G : R E C O M M E N D A T I O N S T O T H E G O V E R N O R ' S S T E E R I N G C O M M I T T E E c h . 2 (J a n . 2 0 0 4) [h e r e i n a f t e r S T A K E H O L D E R S D I A L O G] , a t www.ctclimatechange.com/ct_action_plan.html.

¹¹¹ NEG/ECP information is available at www.negc.org/environment.html.

¹¹² For additional information on state action plans see <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsStateActionPlans.html#Developed#Developed>.

¹¹³ The complete history and content of the New York plan is available at www.nyserda.org

¹¹⁴ McKinstry, *supra* note 2, at 34.

¹¹⁵ Personal communication with state officials.

commitments to the process. As a result, it is critical to successful group formation and process.

Goal setting is also critical to the formation and success of groups formulating state action plans.¹¹⁶ If clear and compelling goals are not set at the outset of a process, chaos may ensue. Ideally states will set goals¹¹⁷ that clarify key issues that include the:

- Expected level of effort.
- Degree to which state-specific innovation and leadership actions are desired (versus replication of existing efforts).
- Timing of the recommendation process, including follow up processes to implement solutions.
- Level of consensus desired.
- Depth and breadth of analysis expected (generally expressed in term of quality control).
- Degree to which implementation of recommendations is expected (actual versus rhetorical plans).

A number of key parameters¹¹⁸ of the planning process are also important to clarify at the outset, including:

- Decision criteria that will be used for selecting priorities for analysis and final recommendations (typically including GHG impact, cost effectiveness, feasibility issues and ancillary benefits, and costs).¹¹⁹
- The role of co-benefits,¹²⁰ the scope of the planning effort in terms of the coverage of sectors, gases, implementation mechanism and time periods.
- The geographic focus of the plan¹²¹ (unilateral state actions versus multi-state actions).
- The degree to which legislative change may be envisioned (versus administrative actions only).
- The degree to which recommendations must be supported by quantitative analysis.

¹¹⁶ PETERSON, *supra* note 85, at 4-9.

¹¹⁷ *Id.*

¹¹⁸ *Id.* at 8-11, 16-30.

¹¹⁹ *Id.* at 4.

¹²⁰ *Id.* at 11.

¹²¹ *Id.* at 14, 17.

- The degree to which the process will be open (versus closed) and how public input will be accommodated.
- Voting procedures for stakeholders.
- The degree to which recommendations are binding on the state.
- Roles and responsibilities for parties, including stakeholders, the state, the public, facilitators, and technical consultants.

Comprehensive state climate plans include the development of:¹²²

- 1) Emissions inventories and baseline forecasts;¹²³
- 2) Mitigation actions and implementation mechanisms;¹²⁴
- 3) Goals and/or targets;¹²⁵
- 4) Monitoring and reporting systems for all sectors, gases and time periods.¹²⁶

The development of each is interdependent and occurs both sequentially and in parallel throughout a process. For instance, emissions inventories and forecasts are typically developed initially in a general format, and then formulated in a greater level of detail that supports policy design in each sector. Frequently, the first step is completed at the outset of a process, and the refined version follows.¹²⁷

The typical starting place for emissions inventories is the use of the United States EPA state GHG inventory tool.¹²⁸ Forecasts typically start with regional data from the Annual Energy Outlook (AEO) provided by the Energy Information Administration

¹²² See EPA, STATE GUIDANCE DOCUMENT: POLICY PLANNING TO REDUCE GREENHOUSE GAS EMISSIONS 2D, ch.9 (May 1998).

¹²³ *Id.* at 9.4.

¹²⁴ *Id.* at 9.4, 9.6-9.8.

¹²⁵ *Id.* at 9.2, 9.5.

¹²⁶ *Id.* at 9.9.

¹²⁷ See Adam Rose, *Greenhouse Gas Mitigation Action Planning: An Overview*, 12 PENN ST. ENVTL. L. REV. 153 (2004) (comprehensive description of state climate mitigation action planning).

¹²⁸ ICF CONSULTING & U.S. ENVTL. PROT. AGENCY, GREENHOUSE GAS INVENTORY TOOLS FOR STATES, at <http://www.epa.gov/ttn/chief/conference/ei11/poster/freed.pdf>.

(EIA).¹²⁹ At the next stage additional data sources, methods, and assumptions are developed jointly with stakeholders and technical work groups toward state policy development and technical consensus. When inventory and forecasting systems use different data sources or methods they may be replaced by harmonized systems unique to each sector, or adjusted to harmonize discontinuous data sets.¹³⁰ For instance, inventories of electric power emissions by the United States EPA eGRID¹³¹ system use data collected by different methods than the AEO, often with significant differences (related to restructuring of the electric supply industry, and consumption versus production based accounting systems).¹³² Production versus consumption-based accounting system differences also affect other sectors and may be important for policy design that are targeted at state level activities. These two approaches typically need reconciliation through methodological adjustment or alternate assumptions.¹³³

Inventories and forecasting are particularly important in diagnosing problems and solutions as well as determining levels of effort expected from individual sectors.¹³⁴ For instance, the Maine Agriculture and Forestry Working Group used the United States Forest Service FORCARB inventory for an initial assessment of

¹²⁹ ENERGY INFO. ADMIN., SUPPLEMENTAL TABLES TO THE ANNUAL ENERGY OUTLOOK 2004, at <http://www.eia.doe.gov/oiaf/aeo/supplement/>.

¹³⁰ See STATE AND TERRITORIAL AIR POLLUTION PROGRAM ADMINISTRATORS (STAPPA) & ASSOCIATION OF LOCAL AIR POLLUTION CONTROL OFFICIALS (ALAPCO), REDUCING GREENHOUSE GASES AND AIR POLLUTION: A MENU OF HARMONIZED OPTIONS (Oct. 1999), at <http://www.4cleanair.org/comments/execsum.pdf>.

¹³¹ EPA, WHAT IS EGRID?, at www.epa.gov/cleanenergy/egrid/whatis.htm.

¹³² See CENTER FOR CLEAN AIR POL'Y, PRODUCTION AND CONSUMPTION EMISSIONS: THE IMPLICATIONS FOR GREENHOUSE GAS MITIGATION IN THE ELECTRICITY SECTOR (Mar. 2004), at http://maineghg.raabassociates.org/Articles/Production_vs_Consumption_Emissions-Final.doc.

¹³³ Imports and exports of energy may result in differences in measurements of GHG emissions based on consumption versus production based systems. *See Id.*

¹³⁴ See EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2002, EPA 430-R-04-003, EXECUTIVE SUMMARY (APRIL 15, 2004), at [http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR5WNMK2/\\$File/04executivesummary.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR5WNMK2/$File/04executivesummary.pdf) (summarizing U.S. greenhouse gas trends from 1990-2002).

forestry emissions and storage in Maine using regional assumptions.¹³⁵ Based on a thorough review of the model and its results, the group requested that the model be recalibrated using the best available state data, and supplemented with data that was important to policy issues (such as imports and exports of post harvest biomass).¹³⁶

Design of State GHG Policies

Depending on the goals and parameters of a process, recommended policy actions may vary in the detail needed for implementation. In the Connecticut Climate Change Stakeholder Dialog, for instance, final stakeholder recommendations for most of the fifty five recommendations were supported by detailed analysis of implementation mechanisms and needs.¹³⁷ Within ninety days of recommendation the Governor announced implementation of thirty eight measures,¹³⁸ and committed to ongoing actions by the state to explore implementation of the remaining seventeen.¹³⁹ In the Puget Sound Climate Change Advisory Process, recommendations were deliberately kept at a more directional level to abide by time and resource constraints. This provides flexibility for subsequent action planning by the state of Washington.¹⁴⁰

The level of effort for each sector frequently is not proportional to its emissions contribution due to variation in cost effectiveness, supply, political acceptability and feasibility of

¹³⁵ MAINE ACTION PLAN DEVELOPMENT, *supra* note 87. Additional documents are available at <http://maineghg.raabassociates.org/grpsfo.asp>.

¹³⁶ The author acted as lead consultant to the Maine Agriculture and Forestry Working Group.

¹³⁷ See STAKEHOLDERS DIALOG, *supra* note 110, at ES-1, ES-2.

¹³⁸ See GOVERNOR'S STEERING COMM., SHORT LIST OF ACTION ITEMS (Accepted Mar. 8, 2004), *available at* www.ctclimatechange.com/documents/shortlist_000.pdf.

¹³⁹ See GOVERNOR'S STEERING COMM., LIST OF ACTIONS TO REDUCE GREENHOUSE GAS EMISSIONS IN CT (Aug. 19, 2004), *available at* www.ctclimatechange.com/documents/CT_climatechange_17RemainingActions_081904.pdf (provides a progress report of action items not yet approved by the Governor's Steering Committee or Governor's Office).

¹⁴⁰ The author served as lead consultant to the Puget Sound Climate Advisory Process Agriculture, Forestry and Waste Technical Work Group.

solutions across sectors. For instance, roughly sixty percent of all emissions in the Puget Sound region are generated by transportation,¹⁴¹ yet only a small percentage of recommended measures for 2010 implementation fell into this sector. In 2030, the percentage will rise a greater percent as a wider range of alternatives become available.¹⁴² During stakeholder discussions, the number and aggressiveness of actions pursued will depend on: 1) potential targets and timetables as they compare with baseline forecasts, 2) flexibility across sectors, gases, implementation methods and time periods, 3) the quality and level of technical analysis and support, 4) and time and techniques for consensus building.

The rate at which final actions are adopted and implemented by the state depends on a number of variables, including: the level and depth of consensus behind actions; the depth of analysis behind actions; the level of commitment by state political leaders to new policymaking; the support of stakeholders and the public toward new policy actions; the political and financial climate in the state and its legislature; and the degree of difficulty involved in implementation.¹⁴³ Adoption rates vary greatly. For instance, the New York GHG Task Force Report recommended twenty seven major actions in 2003,¹⁴⁴ and to date three have been

¹⁴¹ Puget Sound Clean Cities Coalition, *Impact of Motor Vehicles*, at <http://pugetsoundcleancities.org?ImpactsofMotorVehicles.htm> (last visited Oct. 19, 2004).

¹⁴² See generally PUGET SOUND REGIONAL COUNCIL, FINAL ENVIRONMENTAL IMPACT STATEMENT—PROPOSED DESTINATION 2030: METROPOLITAN TRANSPORTATION PLAN FOR THE CENTRAL PUGET SOUND REGION (May 10, 2001) [hereinafter DESTINATION 2030], available at www.psrc.org/datapubs/pubs/mtp/d2030feis.pdf. Additional Puget Sound Documents are available at www.pseleanair.org/specprog/globclim/cpsp/meet.shtml#es.

¹⁴³ See EPA, STATE ACTIONS—LEGISLATIVE INITIATIVES, at <http://yosemite.epa.gov/globalwarming/ghg.nsf/actions/LegislativeInitiatives> (last visited Nov. 6, 2004).

¹⁴⁴ Press Release, Center for Clean Air Policy, CCAP Release Report, Recommendations of the New York Greenhouse Gas Task Force, 1 (May 8, 2003) [hereinafter Recommendations for New York], available at <http://www.ccap.org/pdf/2003-May-08-CCAP-Report-to-NY-GovernorPressRelease.pdf>. The author served as a consultant to NYSERDA and supported technical work group analysis the New York Greenhouse Gas Task Force. A

implemented;¹⁴⁵ although more continue to be under internal consideration by the state.¹⁴⁶ The Connecticut Climate Change Stakeholder Dialog recommended fifty five actions in 2003, and to date thirty eight have been implemented with formal commitments in place for resolution of the remaining seventeen.¹⁴⁷

The general architecture of climate policy recommendations fits a matrix of actions by sector and implementation mechanism (the portfolio approach), including multi sector actions or cross cutting mechanisms (Table 1). States, like other nations, have opted repeatedly to formulate hybrid portfolios of voluntary and mandatory actions across multiple sectors instead of using single instruments for all sectors (such as carbon taxes or economy wide cap and trade programs).¹⁴⁸ In the future, action plans may rely upon fewer different types of implementation mechanisms, as support for cross cutting instruments grows, and they become more technically feasible. At this stage, however, action plans have converged on increasingly comprehensive matrix-type portfolios.¹⁴⁹ These portfolios also include dimensions of time and geography. Typically a separate portfolio is crafted for each compliance (or budget) period by decade starting in 2010, and by geographic level including unilateral state actions and multi-state actions. Actions may also be sorted by executive branch versus legislative implementation pathways, or other variables such as sectors, implementation approaches, cost categories, etc.

complete copy of the activities of the Task Force is available at www.nyserda.org.

¹⁴⁵ Recommendations for New York, *supra* note 144, at 2-3.

¹⁴⁶ Press Release, Center for Clean Air Policy, The Center for Clean Air Policy applauds Governor Pataki and northeastern governors decision to develop a regional cap and trade program for carbon emissions from electric utilities (July 25, 2003), at http://www.ccap.org/pdf/2003-July-25--CCAP_Applauds_NE-Govs_on_CO2_Initiative--Press_Release.pdf.

¹⁴⁷ STAKEHOLDERS DIALOG, *supra* note 110, at ch.1.

¹⁴⁸ Observations are based on familiarity with international plans through a variety of professional contacts and briefings.

¹⁴⁹ See generally McKinstry, *supra* note 2.

TABLE 1. MATRIX OF SECTORS AND POLICY ACTIONS¹⁵⁰

		Mechanism							
		Codes & Standards	Market Mechanisms	Funding Mechanisms	Voluntary Agreements	Technical & Financial Assistance	Information & Education	Pilots & Demos	Reporting & Disclosure
Sector	Agriculture								
	Commercial, Residential and Industrial								
	Energy Supply								
	Forestry								
	Transportation and Land Use								
	Waste Management								
	Cross Cutting Issues								

Quantification of mitigation actions is essential for technical and policy consensus building, but the concept of structuring quantitative targets for action plans is often controversial at the outset for a number of reasons.¹⁵¹ Policy makers and stakeholders typically do not begin process formation with broad knowledge of available solutions and fear commitment to the unknown. Political

¹⁵⁰ See generally STAKEHOLDERS DIALOG, *supra* note 110.

¹⁵¹ EPA, *supra* note 112. But see THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, WORKING GROUP III, CLIMATE CHANGE 2001: MITIGATION (Feb. 28-Mar. 3, 2001), available at www.gcric.org/OnLnDoc/pdf/wg3spm.pdf.

leaders may fear commitment to binding standards that are not achievable (at least at low cost). And goal setting may not yet have established the recommendation process and likely targets as nonbinding. In the typical case each of these issues is resolved through process design and analysis, and some form of goals and or targets are established at the conclusion of, or following, the recommendation process.¹⁵²

In the goal setting stage states have typically dealt with the establishment of targets in two ways: (1) adherence to the NEG/ECP targets and timetables (stabilization of 1990 emissions by 2010, and a ten percent reduction by 2020)¹⁵³ or (2) a bottom up approach that references benchmark targets such as NEG/ECP and the Kyoto Protocol (roughly stabilization of 1990 levels between 2008-2012, with variation by country)¹⁵⁴ with a revisiting of the issue at the conclusion of the process based on progress made. Targets and timetables have a clear motivating effect on stakeholder levels of effort, bringing to mind the old adage that "if you aim at nothing, you're sure to hit it." Typically states want to encourage, but not mandate, high levels of effort in order to maximize the output of stakeholder discussions but provide a safe and credible platform for discussion.

Statewide program implementation toward targets and timetables requires ongoing inventory, monitoring, and reporting mechanisms to check progress against goals and provide feedback for program design and new policy development.¹⁵⁵ State action plans have been mixed in actual adoption of monitoring and reporting programs, but recommendations typically include both comprehensive assessments and program-level evaluations.¹⁵⁶ In some cases, this requires new legislative authority for industry or entity level disclosure of emissions, but typically it does not. For

¹⁵² See CLIMATE CHANGE ACTION PLAN 2001, *supra* note 55.

¹⁵³ *Id.* at 7.

¹⁵⁴ Kyoto Protocol, *supra* note 1, at Article 3. The Kyoto Protocol establishes net emissions targets that vary by nation but effectively average close to stabilization of 1990 levels by 2008-2012. For additional information on the Kyoto Protocol see EPA, FACT SHEET ON THE KYOTO PROTOCOL, OCTOBER 1999, at <http://yosemite.epa.gov>.

¹⁵⁵ For more information about state action plans, see *supra* note 112.

¹⁵⁶ *Id.*

instance, the New York GHG Task Force Report¹⁵⁷ recommended mandatory reporting of emissions by major industry based, in part, on the existing federal requirements for reporting on air emissions and energy use already in place under Title V of the Clean Air Act.¹⁵⁸ In New York, an estimated 85 percent of industry emissions were already indirectly reported through energy throughput data that could be translated into GHG emissions (primarily carbon dioxide).¹⁵⁹ In other cases, reporting and disclosure mechanisms may require significant new action. In the Connecticut Climate Change Stakeholder Dialogue, for instance, recommendations for the transportation sector included the energy and GHG impacts of location decisions for major new commercial developments, such as "big box" retail centers.¹⁶⁰

Consensus Building Issues

Significant new levels and types of policy action by states require the development of a new consensus on the need for and availability of solutions. This almost always requires exploration of heretofore controversial issues related to energy use, transportation, and land use systems, among others. As a result, state leaders are typically reluctant to step far beyond current levels of policy consensus without strong new backing from a diverse set of constituencies. Public input and stakeholder participation are, therefore, important strategic tools for exploring and expanding acceptable policy horizons.¹⁶¹ The design and management of advisory processes is critical in meeting this objective, and involves an effective marriage between political leadership, technical analysis, and democratic process. The specific methods by which states have deployed advisory processes has varied both in design and effectiveness, but generally follows a similar format

¹⁵⁷ THE CTR. FOR CLEAN AIR POL'Y, RECOMMENDATIONS TO GOVERNOR PATAKI FOR REDUCING NEW YORK STATE GREENHOUSE GAS EMISSIONS 43-44 (Apr. 2003) [hereinafter RECOMMENDATIONS TO GOVERNOR PATAKI], available at http://www.ccap.org/pdf/042003_NYGHG_Recommendations.pdf.

¹⁵⁸ 42 U.S.C. §§ 7661a(b), 7661c(a)-(b) (2000).

¹⁵⁹ See RECOMMENDATIONS TO GOVERNOR PATAKI, *supra* note 157, at 43-44.

¹⁶⁰ STAKEHOLDER DIALOGUE, *supra* note 110, at 3.1-24 to 3.1-25.

¹⁶¹ *Id.* at 2-2.

of incremental exploration and analysis of policy options and designs with the support of technical analysis and process facilitation.

The track record for consensus building on climate policy at the state level has generally outdistanced expectations, and pleasantly surprised state leaders with new levels of policy support and direction. In particular, the role of states in resolving conflicts between energy policy and climate policy has been critical, since most GHG emissions result from fossil energy combustion.¹⁶² Key tools used for conflict resolution include: (1) the use of a stepwise process that builds technical consensus as a prerequisite for policy and political consensus, (2) the use of open democratic processes that are inclusive and transparent, (3) the use of efficiency instruments and options to reduce mitigation costs (particularly the use of flexibility across sectors, gases, and time periods) (4) the use of equity instruments to manage conflicts between socio economic and geographic population segments and generations, and (5) the use of collaborative instruments for inter-regional state cooperation.¹⁶³

The importance of technical consensus building has been particularly important to achieving policy consensus. Federal consensus building on climate change policy, both in the executive and legislative branches, has bypassed the technical consensus building stage in some instances.¹⁶⁴ For instance, the Clinton Administration sought to encourage voluntary commitments among economic sectors without thorough agreement among stakeholders on inventories, baseline forecasts, and cost benefit analysis approaches for options.¹⁶⁵ Discussions on commitments were dogged by disagreements over data issues and methods.¹⁶⁶ In Congress, the committee hearing process more typically builds a record of decision founded on technical evidence and agreement,

¹⁶² PEW CENTER FOR GLOBAL CLIMATE CHANGE, INNOVATIVE POLICY SOLUTIONS TO GLOBAL CLIMATE CHANGE, CLIMATE-FRIENDLY ENERGY POLICY: OPTIONS FOR THE NEAR TERM, IN BRIEF, NO . 5 at 8, *available at* http://www.pewclimate.org/docUploads/energy_policy_brief.pdf.

¹⁶³ Peterson & Rose, *supra* note 49.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ Personal communication with White House staff.

but has not followed this approach consistently on climate policy issues¹⁶⁷ (this may change as new hearings are developed in consideration of the Global Climate Security Act of 2003).¹⁶⁸

In contrast, the Connecticut Climate Change Stakeholder Dialogue and Maine Stakeholder Advisory Group (Issue see paper) consensus approval by stakeholders on the selection of models for analysis of mitigation options, including explicit approval of data sources, methods and assumptions.¹⁶⁹ In the case of Connecticut and Maine, the use of joint modeling was critical to consensus building.¹⁷⁰ Votes were held as needed on specific assumptions for modeling that were in disagreement (such as natural gas prices and nuclear relicensing). Sensitivity analysis was used to address alternate viewpoints, and voting results were provided to state policy makers. In the end, the degree of technical transparency and consensus had a major impact on the credibility of the recommendations in the view of the Governor's Steering Committee. This decision process more nearly follows the Law of the Sea Treaty¹⁷¹ model in which stakeholders debate alternative results of a jointly developed decision model instead of debating each other.¹⁷² The objectification of argument through quantification and sensitivity analysis has also been important in other state processes.

In sum, states are usually well versed in the use of advisory process but need to adapt them to the specifics of the climate

¹⁶⁷ Peterson & Rose, *supra* note 49.

¹⁶⁸ Global Climate Security Act of 2003, S.17, 108th Cong. (2003) ("A bill to initiate responsible Federal actions that will reduce the risks from global warming and climate change to the economy, the environment, and quality of life, and for other purposes.")

¹⁶⁹ STAKEHOLDER DIALOGUE, *supra* note 110, at 2.3; *see also* Report from Agriculture and Forestry Working Group on Recommendations Regarding Options to Reduce GHG Emissions From Agriculture and Forestry to GHG Stakeholder Advisory Group 2 (June 21, 2004) *available at* http://maineghg.raabassociates.org/Articles/MEAFWG_memoto_SAG_6-21.pdf.

¹⁷⁰ *Id.*

¹⁷¹ 42 U.S.C. § 9161 (2000).

¹⁷² Personal communication with Dr. Jack Kartez, the University of Southern Maine. *See also*: John R. Justus et al., *The National Ocean Policy Study: A Model for the Future?*, [Jan. 22, 2003] CRS Report for Congress, RL31705 (CRS), *available at* http://lugar.senate.gov/CRS%20reports/National_ocean_policy_study.pdf (for a further discussion of the Law of the Sea Treaty).

change issue and its potentially wide range of solutions, problems and constituencies.

Lessons Learned

Based on state actions in the past five years, some key lessons are apparent, including:

Scientific understanding of climate change continues to grow, and the strong, upward trend plays an important role in creating political leadership and stakeholder commitments. Personal commitments by opinion leaders inside and outside government have been heavily influenced by access to scientific data related to atmospheric changes and potential ground-level impact scenarios. Five-year assessments by the Intergovernmental Panel on Climate Change (IPCC) have consistently trended upward both in the evidence of climate change, and the potential severity of its effects at the state and regional level.¹⁷³ As these findings have been corroborated by the National Academy of Science,¹⁷⁴ and more recently by the United States Global Change Research Office of the Bush Administration,¹⁷⁵ the science platform has strengthened. The coverage of science issues by the United States media has grown and mainstreamed the issue.¹⁷⁶ There is little reason to believe that these upward trends will slow or reverse in the future. The political community is increasingly aware that the climate

¹⁷³ See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE AND BIODIVERSITY, IPCC TECHNICAL PAPER V (April 2002) [hereinafter TECHNICAL PAPER V].

¹⁷⁴ See generally CLIMATE CHANGE SCIENCE, *supra* note 46.

¹⁷⁵ Release of the United States Global Change Research Program (USGCRP) Report received significant media attention due to the absence of negative commentary by the White House and the President. See generally CLIMATE CHANGE SCIENCE PROGRAM, OUR CHANGING PLANET: THE U.S. CLIMATE CHANGE SCIENCE PROGRAM FOR FISCAL YEARS 2004 AND 2005 (July 2004), available at www.usgcrp.gov/usgcrp/Library/ocp2004-5/default.htm.

¹⁷⁶ In 2004 climate change has been the cover story for *Time*, *Newsweek*, *National Geographic*, and *Fortune* magazines. See J. Madeleine Nash, *Is Earth Getting Darker?*, TIME, May 24, 2004; Rana Foroohar, *Eclipse of the Sun*, NEWSWEEK, Sept. 20, 2004; Tim Appenzeller & Dennis R. Dimick, *Signs from Earth*, NAT'L GEOGRAPHIC MAG., Sept. 2004; David Stipp, *Climate Collapse: The Pentagon's Weather Nightmare*, FORTUNE MAGAZINE, Jan. 26, 2004.

change is here to stay and growing in urgency.¹⁷⁷ The cry for solutions and costs of inaction will only increase. As a consequence, opposition strategies are shifting among some groups from denial of the problem to prevention and shaping of solutions for particular interests.¹⁷⁸

Stakeholders have a high interest in formulating solutions, but are sensitive to support from political leadership. Jurisdictions that have undertaken climate plans with support from political leadership have succeeded beyond expectation. In jurisdictions where leadership is uncertain or negative, stakeholder processes have not performed as well.¹⁷⁹ The sensitivity of stakeholders to political leadership is highest among factions that face the highest potential sacrifice (typically industry groups and agencies representing economic interests). The use of effective group process can mitigate the negative effects of uncertain political leadership to a degree, but these processes face high risks. Where political leadership is open or clearly supportive of action, effective group process creates a high degree of synergy among stakeholder interests.¹⁸⁰

Conflict resolution between energy policy and climate policy remains a central focus of policy development, and it has been more successful than expected in most jurisdictions. The degree to which conflict resolution succeeds depends on many factors, including group process and technical analysis, as well as political leadership. The role of joint modeling and technical consensus building has been crucial to the exploration of alternative policy design scenarios. The frequency and duration of technical

¹⁷⁷ S. 17, § 301(a)(3)(A) (Title III—United States Reengagement in International Efforts to Reduce Greenhouse Gas Emissions), § 101(a) (Title I—Sense of the Senate on Climate Change Action).

¹⁷⁸ Arguments from science skeptics have died down significantly. Some believe this is due to the NAS report and its corroboration of the IPCC findings. *See generally* TECHNICAL PAPER V, *supra* note 173; CLIMATE CHANGE SCIENCE, *supra* note 46.

¹⁷⁹ In Maryland, incoming Governor Ehrlich threw skepticism into the early stages of the MEA stakeholder process that had been commissioned before his election, and the process was discontinued. *See* MARYLAND PROGRESS REPORT, *supra* note 103.

¹⁸⁰ Organizational behavior studies have long established that groups are more productive than individuals on a per capita basis.

considerations in a dialogue format appears to have a marked effect on the success of conflict resolution and consensus.¹⁸¹

Co-benefits play a substantial role in the decision making process by stakeholders and states. Key issues include ancillary benefits and costs on economic, energy and other environmental policies. Economic policy issues include economic development (including growth management), economic policy reform (including tax reform), and economic transition or hardship issues. Neutral or positive alignment of climate policy with these issues is often critical to reaching consensus on issues involving high costs or lifestyle changes. Key energy policy issues include alternative energy supplies, such as renewable energy; energy efficiency and conservation; energy independence and security (including expanded use of indigenous energy); and the reliability of energy supply and delivery. Neutral and/or positive alignment of these issues with climate policy has also been important to the consensus process. Key environmental issues include air quality, water quality, land and water supply (conservation), and wildlife conservation. Frequently stakeholders and policy makers weigh these variables heavily along with GHG emission reduction benefits.

Multi-state collaboration is critical to consensus building on actions involving regional markets or substantial federal jurisdiction. Stakeholders are concerned about potential competitiveness impacts of unilateral state actions and may also be sensitive to disruption of existing multi-state agreements.¹⁸² As a result, state processes have increasingly focused on institutional and economic issues at a regional and national level where

¹⁸¹ The Connecticut Climate Change Stakeholder Dialogue involved 66 technical work group meetings (across five work groups) on a regular basis over a nine month period—the highest frequency of work group meetings to date of any state climate process. See STAKEHOLDER DIALOGUE, *supra* note 110. The process also resulted in the highest number of recommendations by unanimous consent (fifty-two, with an additional three falling short by one vote each) and the highest rate of adoption into state policy (thirty eight of fifty five recommendations adopted in ninety days, with the remaining seventeen under formal commitment to resolution in the following year). *Id.* The ability of the work groups to explore alternative approaches multiple times played a critical role in the success of final negotiations and agreements.

¹⁸² McKinstry, *supra* note 2, at 68-69.

applicable.¹⁸³ For instance, standards for electric power generation, appliances and automobiles may be more effective when implemented regionally.¹⁸⁴ The definition and dynamics of regions are, therefore, important to policy design and consensus building.¹⁸⁵

Increasingly states and stakeholders expect federal action on climate change in the next few years. The wave of sub-federal action, combined with the growing seriousness and specificity of congressional debate, has created a foreseeable scenario for national law. While skepticism over timing and content of future law remains significant, states and stakeholders nonetheless are influenced by the momentum of the issue and the likelihood that current actions will be rewarded in various ways.¹⁸⁶ The result has been a general trend toward action that is increasingly deep and comprehensive.¹⁸⁷

FUTURE DIRECTIONS: 2005-2010

It is increasingly difficult to imagine a scenario in which the issue of global climate change will not be addressed by 2010 by the United States Congress. In all likelihood, state and regional agreements and actions will expand. International action and pressure will grow. Science will continue to reinforce the need for greater action. Conflict resolution will continue on a successful path at the sub-federal level. Political turnover will continue to provide opportunities for new leadership that is calibrated to public attitudes. And markets will form in advance of policy, creating important infrastructure and momentum.¹⁸⁸

The bridge between state and federal actions is likely to become increasingly salient. Presently, the Global Climate Security Act of 2003¹⁸⁹ is in its second full year of debate on a

¹⁸³ *Id.* at 69.

¹⁸⁴ *Id.* at 69-70.

¹⁸⁵ *Id.* at 70.

¹⁸⁶ *Id.* at 73-80.

¹⁸⁷ *Id.*

¹⁸⁸ Speculative markets for emissions credits are active in the United States, and brokerage firms are actively structuring potential transaction mechanisms and options.

¹⁸⁹ S. 17, 108th Cong. (2003).

presumed schedule of four to six years to passage in the United States Senate.¹⁹⁰ While the form and timing of this legislative plan is uncertain, the odds appear strong that the necessary ingredients for final passage will exist at some point in the next five years—including support by many Governors. More recently, a number of state attorneys general filed a petition for review challenging two United States EPA actions determining that GHG's should not be designated as pollutants under the federal Clean Air Act.¹⁹¹ This challenge appears to have legal merit and could, in time, materialize in a way that mandates inclusion of GHG's in State Implementation Plans.¹⁹² Congress could intervene to amend the Clean Air Act and reverse such a judicial action, but this would require members to oppose longstanding protections under the Clean Air Act that are strongly supported by voters.¹⁹³ More likely, Congress might try to preempt such a determination by excluding certain sectors or actions through other legislative vehicles.¹⁹⁴

At the same time, scenarios can be envisioned in which the inevitability of legal action, combined with public sentiment, drives the United States Senate to craft positive amendments to the Clean Air Act, perhaps through some incorporation of the Global Climate Security Act of 2003. One key provision that is currently lacking in the Clean Air Act and widely supported is the use of a cap and trade mechanism for electric power emissions.¹⁹⁵ At this stage, the circumstances of the pending Global Climate Security Act of 2003 and the state GHG petitions include many dimensions and much uncertainty.¹⁹⁶ But, historically, Congress responds to public pressure and political opportunity when pathways are provided. To this end, the role of states and regions in providing

¹⁹⁰ Personal communication with United States Senate staff. Note that campaign finance reform legislation required almost nine years to final passage.

¹⁹¹ McKinstry, *supra* note 2, at 69. This determination was contrary to EPA's prior determinations on the same issue. *Id.*

¹⁹² *Id.*

¹⁹³ *Id.* at 70.

¹⁹⁴ Personal communication with Robert McKinstry; *see also* McKinstry, *supra* note 2, at 70.

¹⁹⁵ *See* 42 U.S.C. §§ 4001-7700.

¹⁹⁶ S. 17, 108th Cong. (2003).

tangible pathways for mitigation policy may become potent in the next few years.

Assuming that federal law is coming, the role of states versus the federal government needs to be constructively resolved.¹⁹⁷ One default would be the framework of the Clean Air Act in which states and the federal government allocate and share jurisdiction through the selective delegation and reservation of power.¹⁹⁸ The structure of state implementation plans is not unlike the structure of current state (or international) climate plans. One can imagine a scenario in which a segment of United States emitters is covered by national mechanisms (such as a cap and trade program) and the remainder by traditional state air quality plans.¹⁹⁹ A number of ancillary laws may also be addressed to deal with transportation funding, forestry and agriculture, energy efficiency and renewable energy, and other GHG sectors and issues that do not fall cleanly within the four corners of a national climate change law. The experience of states in crafting multi-agency plans may be instructive.

As states and Congress deliberate over new climate change policies, they would do well to know the details and lessons from recent state climate actions, as well as historic precedents for the evolution of national environmental law.

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GREENHOUSE GAS MITIGATION PLANS:

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available at www.ctclimatechange.com/StateActionPlan.htm.

CALIFORNIA GLOBAL COMMISSION, 1997 GLOBAL CLIMATE CHANGE REPORT: GREENHOUSE GAS EMISSIONS REDUCTION STRATEGIES FOR CALIFORNIA (1997), *available at* http://www.energy.ca.gov/global_climate_change/documents/97_report.html (this report follows from the 1991 *Global Climate Change: Potential Impacts and Policy Recommendations* which

¹⁹⁷ See McKinstry, *supra* note 2, at 73.

¹⁹⁸ 42 U.S.C. § 7410.

¹⁹⁹ See McKinstry, *supra* note 2, at 73.

was a report submitted to the legislature and governor in November 1991.)

PEW CENTER, CLIMATE CHANGE ACTIVITIES IN THE UNITED STATES (June 2002), *available at* www.pewclimate.org/docUploads/us%5Factivities%2Epdf (Massachusetts reduced power plant CO₂ emissions by 10 %.).

MAINE STATE PLANNING OFFICE & MAINE CLIMATE CHANGE TASK FORCE, STATE OF MAINE CLIMATE CHANGE ACTION PLAN (2000) *available at* www.state.me.us/spo/pubs/origpdf/pdf/ClimateReport.pdf.

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APPENDIX 1. COMPARISON OF CO₂ EMISSIONS FOR U.S. STATES VERSUS NATIONS IN 1999 AND 2000²⁰⁰

Rank	National or Sub national Jurisdiction	MMTCE
1	United States	1528.70
2	China (Mainland)	761.59
3	Russian Federation	391.66
4	Japan	323.28
5	India	292.27
6	Germany	214.39
7	Texas	166.56
8	United Kingdom	154.98
9	Canada	118.96
10	Italy (Including San Marino)	116.86
11	Republic of Korea	116.54
12	Mexico	115.71
13	Saudi Arabia	102.17
14	France (Including Monaco)	98.92
15	California	94.83
16	Australia	94.09
17	Ukraine	93.55
18	South Africa	89.32
19	Islamic Republic of Iran	84.69
20	Brazil	83.93
21	Poland	82.25
22	Spain	77.22
23	Indonesia	73.57
24	Ohio	69.75

²⁰⁰ GREGG MARLAND ET AL., OAKRIDGE NAT'L LAB. & UNIV. OF N.D., RANKING OF THE WORLD'S COUNTRIES BY 2000 TOTAL CO₂ EMISSIONS FROM FOSSIL-FUEL BURNING, CEMENT PRODUCTION, AND GAS FLARING, *at* <http://cdiac.esd.ornl.gov/trends/emis/top2000.tot> (last visited Nov. 30, 2004); U.S. ENVTL. PROT. AGENCY, STATE CO₂ EMISSIONS FROM FOSSIL FUEL COMBUSTION, 1990-2000, *at* <http://yosemite.epa.gov/oar/globalwarming.nsf/content/EmissionsStateEnergyCO2Inventories.html>.

25	Pennsylvania	64.05
26	Florida	60.83
27	Turkey	60.47
28	Indiana	59.85
29	Illinois	58.58
30	Taiwan	57.99
31	Thailand	54.22
32	Michigan	52.96
33	New York	52.31
34	Democratic People's Republic of Korea	51.54
35	Louisiana	51.16
36	Georgia	43.11
37	Venezuela	43.05
38	Malaysia	39.41
39	Egypt	38.82
40	Netherlands	37.90
41	Argentina	37.72
42	North Carolina	37.19
43	Kentucky	36.43
44	Alabama	35.90
45	Missouri	35.17
46	Kazakhstan	33.10
47	Czech Republic	32.42
48	Uzbekistan	32.38
49	Tennessee	32.36
50	New Jersey	32.10
51	West Virginia	30.65