

*MIT Joint Program on the Science  
and Policy of Global Change*



**A game of Climate Chicken:  
Can EPA regulate greenhouse  
gases before the U.S. Senate  
ratifies the Kyoto Protocol?\***

*V. Bugnion and D.M. Reiner*

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The MIT Joint Program on the Science and Policy of Global Change is an organization for research, independent policy analysis, and public education in global environmental change. It seeks to provide leadership in understanding scientific, economic, and ecological aspects of this difficult issue, and combining them into policy assessments that serve the needs of ongoing national and international discussions. To this end, the Program brings together an interdisciplinary group from two established research centers at MIT: the Center for Global Change Science (CGCS) and the Center for Energy and Environmental Policy Research (CEEPR). These two centers bridge many key areas of the needed intellectual work, and additional essential areas are covered by other MIT departments, by collaboration with the Ecosystems Center of the Marine Biological Laboratory (MBL) at Woods Hole, and by short- and long-term visitors to the Program. The Program involves sponsorship and active participation by industry, government, and non-profit organizations.

To inform processes of policy development and implementation, climate change research needs to focus on improving the prediction of those variables that are most relevant to economic, social, and environmental effects. In turn, the greenhouse gas and atmospheric aerosol assumptions underlying climate analysis need to be related to the economic, technological, and political forces that drive emissions, and to the results of international agreements and mitigation. Further, assessments of possible societal and ecosystem impacts, and analysis of mitigation strategies, need to be based on realistic evaluation of the uncertainties of climate science.

This report is one of a series intended to communicate research results and improve public understanding of climate issues, thereby contributing to informed debate about the climate issue, the uncertainties, and the economic and social implications of policy alternatives.

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# ARTICLES

## A GAME OF CLIMATE CHICKEN: CAN EPA REGULATE GREENHOUSE GASES BEFORE THE U.S. SENATE RATIFIES THE KYOTO PROTOCOL?

BY

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*How best to take action to address phenomenon of global warming has spawned a variety of scientific, political, and legal debates in the United States. This Article discusses the United States Environmental Protection Agency's (EPA) authority under the Clean Air Act (CAA) to regulate greenhouse gas emissions, which scientists have identified as leading to human-induced climate change. Further, the Article attempts to disentangle the domestic regulation of these emissions from an attempt to implement the terms of the Kyoto Protocol to the Framework Convention on Climate Change without ratification by the United States Senate. The Article concludes that EPA's regulatory authority in this area is uncertain and that Congress could control global warming effectively and legitimately by amending the CAA to explicitly authorize EPA to promulgate standards for greenhouse gas emissions.*

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## I. INTRODUCTION

In the face of strong opposition to ratification of the Kyoto Protocol,<sup>1</sup> the United States Environmental Protection Agency (EPA) has indicated a willingness to use existing provisions of the Clean Air Act (CAA)<sup>2</sup> to promulgate and enforce regulations that would enact standards addressed by the Kyoto agreements. EPA has suggested that the section 302(g) definition of "air pollutant" includes greenhouse gas emissions, but it has not indicated which provisions of the CAA it would use to regulate emissions of these gases. Seemingly, EPA could use sections 108, 109, 112, 115, 202, and Title VI in order to regulate those emissions. However, any intimation by EPA that it might extend its regulatory authority to include greenhouse gas emissions raises opposition. Conservative politicians and their allies who oppose ratification of the Kyoto Protocol cite treaty law to assert their position that EPA cannot so extend its authority.<sup>3</sup> These opponents contend that, in the absence of language in the Protocol authorizing provisional implementation of its terms, EPA's proposal to regulate greenhouse gases is illegal.

This Article addresses the issue of whether EPA has the authority under the CAA to regulate pollutants that are widely, but not universally, believed to lead to harmful climate change. In assessing this issue, the article examines several key questions:

- Can the Administration implement the Kyoto Protocol without Senate ratification?

<sup>1</sup> Conference of the Parties to the Framework Convention on Climate Change: Kyoto Protocol, Dec. 10, 1997, 37 I.L.M. 22 [hereinafter Kyoto Protocol].

<sup>2</sup> 42 U.S.C. §§ 7401-7671q (1994 & Supp. III 1997).

<sup>3</sup> *Infra* notes 20, 32-33, 36-37, 41-43, & 45-46.

- Do any specific provisions of the CAA grant EPA the authority to regulate greenhouse gases at *any* level?
- What instruments are available to carry out such regulations?
- Apart from promulgating regulations, what actions can EPA take in the absence of further legislation from Congress?

Ultimately, the resolution of these issues depends on the central questions of law arising from the CAA's regulatory provisions, but those difficult legal questions will be resolved within, or alongside, an equally difficult set of political issues. Part II describes the political context within which this controversy arises. Part III reviews the legal basis for any attempt to carry out commitments made in Kyoto prior to Senate ratification of the Protocol. Part IV reviews the various sections of the CAA that EPA might invoke in order to regulate greenhouse gases. Part V discusses EPA's authority to devise a market-based approach to regulating greenhouse gases. Part VI examines the reasonableness of EPA's market-based strategy in light of Congress's continuing authorization, which allows or requires EPA to carry out research programs and cooperative, voluntary efforts with industry in order to reduce pollution. Part VII highlights the fact that the debate over regulating carbon dioxide (CO<sub>2</sub>) and other greenhouse gases is not only a legal question but also a political one.

Any successful voluntary or regulatory program to reduce greenhouse gases will move the United States toward meeting the obligations enumerated in the Kyoto Protocol—not only in advance of Senate ratification, but against opposition that makes ratification, at best, doubtful. Although the CAA appears to offer some justification for EPA's contemplated actions,<sup>4</sup> it is necessary to recognize the fundamental differences between domestic environmental regulation and provisions that result from an international agreement—especially one that arose out of heated negotiations resulting in a difficult compromise among the original positions of the United States, the European Union, and Japan. Because of these differences, efforts to prevent EPA from carrying out the terms of the Kyoto Protocol must not interfere with the evolution of programs to reduce greenhouse gas emissions in the United States that have received widespread, bipartisan support.

## II. SETTING THE POLITICAL STAGE

Opponents of curbs on U.S. greenhouse gas emissions have expressed

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<sup>4</sup> For a discussion of the potential uses of the National Environmental Policy Act of 1969 (NEPA) see Jennifer Woodward, *Turning Down the Heat: What United States Laws Can Do To Help Ease Global Warming*, 39 AM. U.L. REV. 203, 218–21 (1989) (discussing the possible use of Environmental Impact Statements and of the “action-forcing” section of NEPA, which requires agencies to consider environmental factors when making significant decisions). Recent legislative proposals in the 106th Congress have sought to amend the Energy Policy Act instead of the Clean Air Act. See Energy and Climate Policy Act of 1999, S. 882, 106th Cong. (1999); Credit for Early Action Act of 1998, S. 2617, 105th Cong. (1998).

alarm that the Clinton Administration is attempting to devise domestic regulations without seeking new legislation or to meet its international commitments without waiting for ratification of the recent Kyoto Protocol by the Senate.<sup>5</sup> Such opposition raises a legally, politically, economically, and scientifically controversial question: can EPA use its existing authority under the CAA to regulate pollutants that are widely believed to affect climate change? Although the legal basis is tenuous, advocates of aggressive regulation within the Administration have not ruled out the use of existing provisions of the CAA to control CO<sub>2</sub> and other greenhouse gases.<sup>6</sup> In response, political opponents have balked at the proposition that EPA's authority is sufficiently expansive to undertake such regulation. Moreover, even establishing the legality of such actions would seem unlikely to change the perception that such a course would be politically imprudent.

A number of positive steps could be taken in the short term to reduce the long-term danger of possible anthropogenic climate change. Instead, the dispute between Congress and the Administration has threatened educational programs, a voluntary crediting program for early action, pilot emissions trading programs, voluntary energy-efficiency programs, and even basic climate change research.<sup>7</sup> The absence of clear legislative authority provides opponents of climate change regulation a justification to oppose any program that proposes to mitigate climate change. Consequently, a shaky stalemate has emerged between opponents and proponents of climate change regulations. Two questions are central to the debate: what is the legal basis for regulating greenhouse gases under the Clean Air Act, and, more speculatively, why has the Administration pursued the course of regulating without congressional approval?

Questions of domestic law and politics arise within the context of United Nations-sponsored negotiations that attempt to mitigate potential human-induced climate change. At the Third Conference of the Parties (COP-3) to the United Nations Framework Convention on Climate Change, held in Kyoto in December 1997, the participating nations agreed to reduce their emissions of carbon dioxide and other greenhouse gases at least 5% below 1990 levels by 2008–2012.<sup>8</sup> The United States has agreed to a 7% reduction, while the European Union has agreed to an 8% reduction, and Japan has agreed to a 6% reduction.<sup>9</sup> If ratified, the Kyoto Protocol will

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<sup>5</sup> *Infra* notes 21, 32–33 and accompanying text.

<sup>6</sup> The Framework Convention on Climate Change, ratified by the United States on October 15, 1992, originally addressed CO<sub>2</sub> and "other greenhouse gases not controlled by the Montreal Protocol." United Nations Conference on Environment and Development: The Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 856–57 [hereinafter Framework Convention]. See also Montreal Protocol on Substances That Deplete the Ozone Layer, Annex 1, Sept. 16, 1987, 26 I.L.M. 1550, 1561 (entered into force Jan. 1, 1989).

<sup>7</sup> See *infra* notes 195, 202, 212–15, 221, & 226 and accompanying text.

<sup>8</sup> Kyoto Protocol, *supra* note 1, art. 3.1, 37 I.L.M. at 33.

<sup>9</sup> *Id.* Annex B, 37 I.L.M. at 42. Other nations that have agreed to restrict their emissions relative to their base year rates (usually 1990) include Iceland (+10%), Australia (+8%), Norway (+1%), New Zealand (0%), Russia (0%), Ukraine (0%), Croatia (-5%), Poland (-6%), Hungary (-6%), Canada (-6%), and other nations of Eastern and Central Europe (-8%).

commit these nations not only to legally binding restrictions, which would be carried out via domestic regulations, but also to the Kyoto Protocol's provisions for international cooperation.<sup>10</sup> The Kyoto Protocol significantly tightens the restrictions created by the 1992 Framework Convention on Climate Change, which the United States has signed and ratified.<sup>11</sup>

Few are optimistic about whether the United States will ratify the Kyoto Protocol.<sup>12</sup> Prior to COP-3, the U.S. Senate unanimously passed the Byrd-Hagel Resolution, expressing the Senate's sentiment that

[t]he United States should not be a signatory to any protocol . . . which would — (A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States.<sup>13</sup>

Although the Byrd-Hagel Resolution was not binding—as there is no agreement on what would constitute a sufficient commitment by developing countries or on what would constitute “serious harm to the economy”—the resolution reflects broad bipartisan agreement on the need for commitments from developing countries and for keeping costs as low as possible by using economic instruments.<sup>14</sup> A ratification vote probably will not occur until well beyond the 2000 election in the United States.<sup>15</sup>

The Administration's position on the intent of the Byrd-Hagel

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<sup>10</sup> Kyoto Protocol, *supra* note 1, arts. 4, 6, 12, 17, 37 I.L.M. at 34, 35, 38, 40. At the Fourth Conference of the Parties in Buenos Aires in November 1998, the nations agreed to finalize the details of these provisions by the Sixth Conference of the Parties, which will occur in late 2000.

<sup>11</sup> The Framework Convention called for a *voluntary* commitment to return the emissions of those greenhouse gases not controlled by the Montreal Protocol to 1990 levels by the year 2000. Framework Convention, *supra* note 6, art. 4.2, 31 I.L.M. at 856–57. The United States was the first developed country to ratify the Framework Convention. Framework Convention on Climate Change—Secretariat, UPDATE ON RATIFICATION OF THE CONVENTION, at <http://www.unfccc.de/resource/conv/ratlist.pdf> (Dec. 9, 1999). The Senate ratified the Framework Convention unanimously, after the Bush Administration reassured several concerned Senators that the Framework Convention would in no way commit the United States to binding targets or timetables. 138 CONG. REC. S17,150-1, S17,154-5 (Oct. 7, 1992). See also *Senate Approves Earth Summit's Global Warming Treaty*, L.A. TIMES, Oct. 8, 1992, at A13. The Climate Change Action Plan was developed early in the Clinton Administration to meet those goals. See *infra* note 122. However, U.S. emissions are expected to be 15% above 1990 levels by 2000. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ANNUAL ENERGY OUTLOOK 2000 (2000).

<sup>12</sup> See *Global Warming Treaty Ratification Faces "Tough Haul" in Congress*, INSIDE EPA'S CLEAN AIR REP., Dec. 25, 1997, at 9; Peter Baker & Helen Dewar, *Long Road Ahead for Global Warming Pact*, WASH. POST, Dec. 12, 1997, at A1; Bruce Clark, *Senate Rejection of Pact Predicted*, FIN. TIMES, Dec. 11, 1997, at 6; James Gerstenzang, *Frosty Reception Awaits Global Warming Accord Environment*, L.A. TIMES, Dec. 12, 1997, at A1. For a more recent account, see David Mastio, *Battle Looms as U.S. Signs Warming Pact*, DET. NEWS, Nov. 15, 1998, at D1.

<sup>13</sup> S. Res. 98, 105th Cong., 143 CONG. REC. S8138 (1997) (enacted).

<sup>14</sup> Even ardent supporters of taking action to address the climate issue, such as Senators John Kerry (D-Mass.) and Joseph Lieberman (D-Conn.), do not believe that it is possible to submit the treaty for ratification without first meeting this condition. See Bonner R. Cohen, *Battle over Kyoto Protocol Already Under Way*, EARTH TIMES, Dec. 13, 1997, at 31.

<sup>15</sup> John H. Cushman, Jr., *Big Problem, Big Problems: Getting to Work on Global Warming*, N.Y. TIMES, Dec. 8, 1998, at G4.

Resolution indicates its first point of disagreement with the Senate. In the wake of COP-3, the Administration began lobbying for commitments from developing countries.<sup>16</sup> Nevertheless, it pledged unconditionally to sign the agreement during the one-year period that the Protocol was open for signature.<sup>17</sup> By contrast, the Senate's Byrd-Hagel Resolution explicitly asks that the treaty not be *signed* unless the condition on developing country participation is met.<sup>18</sup> When the United States signed the Protocol on November 12, 1998, during the Fourth Conference of the Parties in Buenos Aires,<sup>19</sup> Senators opposed to the treaty immediately called for a quick vote on ratification.<sup>20</sup> However, the Administration has clearly expressed its unwillingness to conduct such a vote. Other opponents have tied demands to submit the Protocol for ratification—and hence defeat—to other Administration priorities, such as ratification of the Comprehensive Test Ban Treaty.<sup>21</sup> Faced with overwhelming opposition to the Protocol from the Republican majority and lukewarm support from the Democratic minority in the 105th and 106th Congresses, the Administration delayed the submission of the Protocol to the Senate for ratification by first seeking to fulfill the conditions of the Byrd-Hagel Resolution.<sup>22</sup> In the period between the signing of the Protocol and its submission to the Senate for ratification, any actions taken by the Administration that seem to implement the Kyoto Protocol, whether real or hypothetical, have become controversial.<sup>23</sup> To allay these

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<sup>16</sup> See Cheryl Hogue, *Climate Change: U.S. Not Ready to Reject Kyoto Deal, Eizenstat Tells House Science Committee*, DAILY ENV'T REP., Mar. 6, 1998, at A-5; Richard A. Horsch and Joseph D. Richards, *Does Kyoto Protocol Fall Short of the Mark?*, 219 N.Y.L.J., Apr. 27, 1998, at S4. Also, cooperation to reduce greenhouse gas emissions in India was a major topic during President Clinton's recent visit to India. Office of the Press Secretary, The White House, President Clinton's India Trip: Protecting the Environment, Promoting Clean Energy Development, and Combating Global Warming, at <http://usinfo.state.gov/regional/nea/mena/india13.htm> (last visited July 20, 2000). As of February 1999, Argentina and Kazakhstan were the only developing countries that had agreed to assume some sort of new commitment. See *infra* note 19, and Vanessa Houlder, *Climate Conference Skirts Contentious Issues*, FIN. TIMES (London), Nov. 14, 1998, at 4.

<sup>17</sup> See Stuart E. Eizenstat, Letters to the Editor: *Global Warming Pact: Let's Clear the Air*, WALL ST. J., Mar. 5, 1998, at A23; Cheryl Hogue, *Administration Plans to Sign Kyoto Deal, Will Hold Off Seeking Senate Ratification*, DAILY ENV'T REP., Feb. 12, 1998, at AA-1.

<sup>18</sup> S. Res. 98, 105th Cong., 143 CONG. REC. S8138 (1997) (enacted).

<sup>19</sup> John Herzfeld, *United States Signs Kyoto Protocol; White House Lauds Pledge by Argentina*, 28 Env't Rep. (BNA) 1373, 1373 (Nov. 13, 1998).

<sup>20</sup> Congressional Press Releases, *President Clinton Signing the Kyoto Protocol* (Nov. 12, 1998), available at LEXIS/All Sources/News/Wire Service Stories/Congressional Press Releases; see also Angela Antonelli & Brett D. Schaefer, HERITAGE FOUND., WHY THE KYOTO SIGNING SIGNALS DISREGARD FOR CONGRESS (1998).

<sup>21</sup> Thomas W. Lippman, *Seeking Liberation of Treaties in Limbo; Sen. Helms Wants Bipartisan Deal to Ratify or Scrap Shelved Accords that Date to 1949*, WASH. POST, Feb. 15, 1999, at A27 (stating that the committee will not consider major treaties such as the Comprehensive Test Ban Treaty until the President has submitted amendments to the Anti-Ballistic Missile Treaty and the Kyoto Protocol); see also Greg McDonald, *DeLay Suggests a Trade on Fast Track: He Wants New Global Warming Policy*, HOUST. CHRON., Jan. 28, 1998, at C1.

<sup>22</sup> See *infra* note 30.

<sup>23</sup> See *infra* notes 36-43 and accompanying text.



concerns, Stuart Eizenstat insisted that the Administration had “no intention, by executive fiat, of going around the Senate’s constitutional prerogatives—absolutely none.”<sup>24</sup>

Since the beginning of the Berlin Mandate negotiations, which led to the Kyoto Protocol, the United States has argued aggressively for new forms of commitment from developing countries and for the inclusion of economic instruments in the Protocol—especially emissions trading.<sup>25</sup> At Kyoto, the United States, its allies in the developed world, and the chairman of the negotiations succeeded in including emissions trading in the Protocol over strong opposition from developing countries and tepid support from the European Union.<sup>26</sup> However, the parties failed to convince developing countries that they must accept their own binding commitments.<sup>27</sup>

Presently, the Clinton Administration is engaging extensively in activities to recruit developing countries to assume binding obligations.<sup>28</sup> Indeed, Stuart Eizenstat<sup>29</sup> insisted unequivocally on developing country participation.<sup>30</sup>

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<sup>24</sup> *The Implications of the Kyoto Protocol: Hearings Before the Senate Foreign Relations Comm.*, 105th Cong. 10, 10 (1998) (testimony of Stuart Eizenstat, Undersecretary of State for Economic, Business, and Agricultural Affairs) [hereinafter Eizenstat Testimony].

<sup>25</sup> John J. Fialka, *Developing Nations Urged to Play Role in an Effort to Control Climate Changes*, WALL ST. J., Jan. 20, 1997, at B2.

<sup>26</sup> John J. Fialka, *Global-Warming Pact is Threatened by Dispute over Emissions Trading*, WALL ST. J., Dec. 10, 1997, at A4.

<sup>27</sup> The Framework Convention distinguishes developed nations that are listed in Annex I to the Convention from the so-called non-Annex I, or developing nations. Annex I includes the member countries of the Organization of Economic Cooperation and Development (as of 1992), the nations of Eastern and Central Europe, and the European states of the former Soviet Union. Framework Convention, *supra* note 6, art. 4.2., 31 I.L.M. at 872. Article 4.1 of the Framework Convention commits non-Annex I nations—“taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances”—only to submit inventories of national emissions and to engage in a number of cooperative efforts. *Id.* art. 4.1, 31 I.L.M. at 855. Under the Kyoto Protocol, Annex B nations—which are essentially the same nations listed in Annex I to the Framework Convention—assumed legal obligations to reduce their emissions. Kyoto Protocol, *supra* note 1, art 3.1, 37 I.L.M., at 33. Article 10 of the Kyoto Protocol asserts that the obligations of non-Annex I nations are identical to those agreed to in the Framework Convention (reaffirming existing commitments under Article 4.1 of the Convention and continuing to advance the implementation of these commitments). *Id.* art.10, 37 I.L.M. at 36–37. The only form of voluntary participation in mitigation measures specified in the Kyoto Protocol is via the Clean Development Mechanism enshrined in Article 12 of the Protocol, which allows Annex I investors to carry out projects in non-Annex I nations and receive credit against their overall national obligation. *Id.* art. 12 at 38.

<sup>28</sup> See Press Briefing by National Security Advisor Sandy Berger, et al., Santiago, Chile (Apr. 16, 1998) Office of the Press Secretary, The White House, at <http://usis.kapp.ro/USIS/Washington-File/98-04-17/eur510.htm> (last visited July 20, 2000). See also *supra* note 16.

<sup>29</sup> As Undersecretary of State for Economic, Business, and Agricultural Affairs, Eizenstat led the U.S. delegation at COP-3.

<sup>30</sup> Furthermore, top officials in the Clinton Administration have repeatedly expressed this commitment. For example, Vice President Gore asserted that “as we said from the very beginning, we will not submit this for ratification until there’s meaningful participation by key developing countries.” Remarks by the Vice President on the Kyoto Protocol, Office of the Press

As the President has indicated, the United States should not assume binding obligations under the protocol until key developing countries meaningfully participate in meeting the challenge of climate change. And more progress is clearly necessary. It obviously would be premature to submit something to the Senate when the Senate itself has asked for this kind of participation and we have not yet achieved it. That is the great obligation we have to assume over the coming months and, if necessary, years.<sup>31</sup>

At the time of Eizenstat's testimony, concern over "backdoor" implementation of the Kyoto Protocol was already simmering because of the contradiction between the Byrd-Hagel Resolution and the agreement negotiated at Kyoto.<sup>32</sup> Reports of internal proposals within EPA to regulate greenhouse gases, either as part of an electrical industry restructuring bill or via a regulatory finding under the Clean Air Act, heightened controversy.<sup>33</sup> For example, Senator James Jeffords (R-Vt.) submitted an electricity-restructuring bill that included a national "cap-and-trade" program for CO<sub>2</sub>.<sup>34</sup> However, the Administration ultimately chose not to include any limits on CO<sub>2</sub> in its own version of an electricity-restructuring bill.<sup>35</sup> Absent the possibility of using electricity deregulation as a vehicle for regulating greenhouse gases, media and legislative attention have focused on the potential for using one or more provisions of the Clean Air Act to regulate greenhouse gas emissions. For example, Representative David McIntosh (R-Ind.) organized a series of hearings<sup>36</sup> to provide further evidence of EPA's

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Secretary, The White House, at <http://www.pub.whitehouse.gov/uri...oma.eop.gov.us/1997/12/19/13.text.1> (Dec. 11, 1997).

<sup>31</sup> See Eizenstat Testimony, *supra* note 24.

<sup>32</sup> See Wayne A. Morrissey, *Global Climate Change: Congressional Concern About "Back Door" Implementation of the 1997 U.N. Kyoto Protocol*, Report 98-664, (Cong. Research Serv. 1999) (reviewing congressional attempts to prevent "backdoor" implementation of the Protocol).

<sup>33</sup> See Patrice Hill, *EPA Not Waiting for Senate to OK Warming Treaty*, WASH. TIMES, Mar. 7, 1998, at A1; William H. Lash, III, *Kyoto through the Back Door*, WASH. TIMES, Nov. 22, 1999, at A16; William H. Lash, III, *Kyoto Climate Treaty Advocates Act to Circumvent Senate Approval*, 9 Washington Legal Found. Legal Opinion Letter 11 (Apr. 2, 1999) (stating that "[i]n a radical power grab in furtherance of Kyoto, the EPA has already testified that it has preexisting authority to regulate CO<sub>2</sub> as a hazardous air pollutant, the same way it regulates sulfur dioxide, nitrogen oxide, and mercury under the Clean Air Act") available at LEXIS/All Sources/News/By Individual Publication/Washington Legal Foundation. However, sulfur dioxide and nitrogen oxide are *not* regulated as hazardous air pollutants, but rather as criteria pollutants under section 109. 42 U.S.C. § 7409 (1994 & Supp. III 1997).

<sup>34</sup> 143 CONG. REC. S3909-12 (May 1, 1997) (statement of Sen. Jeffords). Jeffords' bill was designed to bring the industry back to the 1990 standard and thus required a 13% reduction by 2005 and twice that by 2015. *Id.* at S3911.

<sup>35</sup> Martha M. Hamilton, *Clinton to Offer Plan to Deregulate Power; Electricity Proposal Steers Middle Ground*, WASH. POST, Mar. 25, 1998, at C11.

<sup>36</sup> See *Will the Administration Implement the Kyoto Protocol through the Back Door?: Hearing Before the Subcomm. on Nat'l Econ. Growth, Natural Resources, and Regulatory Affairs of the House Comm. on Gov't Reform and Oversight*, 105th Cong. 4 (1998). A subcommittee staff report detailing the nine worst Clinton Administration regulations asserted that the Kyoto Protocol deserved to be on the list "perhaps more than the other eight combined." The report assails the Administration's position on grounds of cost, science, and sovereignty, and criticizes the Administration's attempts to assert its regulatory authority by

plans to implement the Protocol before Senate ratification.<sup>37</sup>

While denying any intent to sidestep the ratification process or to begin implementation of the Kyoto Protocol without congressional approval, EPA Administrator Carol Browner has asserted that EPA has broad authority to regulate CO<sub>2</sub>.<sup>38</sup> Browner has repeatedly refused to establish an EPA policy prohibiting the regulation of CO<sub>2</sub> under the CAA.<sup>39</sup> Further, EPA's Office of General Counsel has produced a memorandum that outlines the legal basis for that authority.<sup>40</sup>

Not surprisingly, industries threatened by the possibility of such regulation quickly responded with their own analyses of EPA's authority.<sup>41</sup> For example, the National Mining Association asserted that "[t]he sweeping claims of regulatory power over such a pervasive, yet benign, substance as CO<sub>2</sub> presents the prospect of unparalleled bureaucratic, legal and economic burdens imposed on the entire heart of the American economy."<sup>42</sup> Even EPA's former Principal Deputy General Counsel, Gerald Yamada, has

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characterizing the Protocol as

a massive Tax on the American Dream levied by Clinton-Gore bureaucrats doing the bidding of environmental demagogues and foreign diplomats. Although the Treaty has not yet been ratified by the Senate, as required by the Constitution, the Administration has already jumped the gun on Congress through a regulatory back door approach—using regulation to implement a treaty that has not been ratified, for the sake of a theory that has not been proven.

David McIntosh, U.S. House of Rep. Subcomm. on Nat'l Econ. Growth, Natural Resources, and Regulatory Affairs of the House Gov't Reform and Oversight Comm., Staff Report, *The Noxious Nine: The Worst Clinton Regulations of 1997*, at <http://www.house.gov/reform/neg/press/Noxious9.html> (last visited July 20, 2000). See also Theresa Sotto, *House Members Assert EPA Cannot Regulate CO<sub>2</sub> under the Clean Air Act*, at <http://www.weathervane.rff.org/features/feature090.html> (last visited July 20, 2000).

<sup>37</sup> For example, State Senator Walaska from Rhode Island testified that EPA and "other agencies have begun a concerted effort to exert pressure on state environment agencies to implement programs designed to meet Kyoto emission reduction goals." *The Kyoto Protocol: Is the Clinton-Gore Administration Selling Out Americans?*, Hearings Before the Subcomm. on Nat'l Econ. Growth, Natural Resources, and Regulatory Affairs of the House Comm. on Gov't Reform and Oversight, 105th Cong. 169 (1998) (statement by state Senator Walaska).

<sup>38</sup> *Departments of Housing and Urban Development and Independent Agencies Appropriations for 1999: Hearings Before a Subcomm. of the House Comm. on Appropriations*, 105th Cong. 200 (1998) [hereinafter Browner Testimony] (testimony of Carol Browner, Administrator, United States Environmental Protection Agency). "CO<sub>2</sub> is in the class of compounds that could be subject to several of the Clean Air Act's regulatory approaches." *Before the Subcomm. on Nat'l Econ. Growth, Natural Resources, and Regulatory Affairs of the House Comm. on Gov't Reform and Oversight and the Subcomm. on Energy and the Env't of the House Comm. on Science*, 106th Cong. (1999) (prepared testimony of Gary S. Guzy, General Counsel, U.S. Env'tl Protection Agency) (forthcoming).

<sup>39</sup> See Browner Testimony, *supra* note 38, at 196-200, 207-11.

<sup>40</sup> *Id.* at 201-06 (referring to the memorandum from Jonathan Z. Cannon, EPA General Counsel, to Carol M. Browner, EPA Administrator, Apr. 10, 1998 [hereinafter Cannon Memorandum]).

<sup>41</sup> See *NMA Contends EPA Has no Legal Power to Regulate Carbon Dioxide*, COAL WEEK, Dec. 3, 1998, at 8.

<sup>42</sup> Frederick D. Palmer, Legal Affairs Committee Report, Preface to *CO<sub>2</sub>: A Pollutant?* [hereinafter NMA Brief], available at <http://www.greeningearthsociety.org/Articles/1999/pollutant.htm> (Oct. 12, 1998).

affirmatively asserted that EPA has no such authority.<sup>43</sup> In sum, no clear agreement exists among the legislative and executive branches as to whether EPA may regulate greenhouse gases under the CAA.

### III. PROVISIONAL IMPLEMENTATION OF THE KYOTO PROTOCOL

While Congress's slow pace toward ratifying the Protocol might suggest that the prospects for ratifying it are especially poor, this protracted approach mirrors the majority of the Senate's recent slow and contentious attempts to ratify international agreements—even for issues that have commanded widespread bipartisan and popular support.<sup>44</sup> Faced with the possibility of a long delay between signature and ratification and fearing the strong interest in the subject evinced by both President Clinton and especially Vice-President Gore, some staunch opponents of government regulation and zealous defenders of American sovereignty—in Congress, industry, and the media—have voiced alarm. President Clinton has been criticized for not allowing “a little thing like the Constitution to get in the way of his policy goals. He wants to put the Kyoto global warming treaty in place without Senate ratification.”<sup>45</sup> Following this approach, opponents of ratification fear that the President might access the energy supply that is intended for times of emergency.<sup>46</sup> For example, the President could invoke Executive Order 12,919<sup>47</sup> or Executive Order 10,997<sup>48</sup> under this extreme scenario.<sup>49</sup>

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<sup>43</sup> Gerald H. Yamada, *EPA Lacks Authority to Regulate Carbon Dioxide Emissions*, 8 Washington Legal Found. 23 (1998).

<sup>44</sup> For example, the U.S. Senate ratified the Chemical Weapons Convention by a vote of seventy-four to twenty-six after a delay of several years and only then under pressure of a looming deadline. S. Res. 75, 105th Cong., 143 CONG. REC. 3651 (1997). See also David L. Marcus, *Poison Weapons Accord Passed: Senate Votes after Lott Voices Backing*, BOSTON GLOBE, Apr. 25, 1997, at A1 (describing the circumstances that led to the Senate's approval of the Chemical Weapons Convention).

<sup>45</sup> Editorial, *Kyoto Duplicity*, INVESTOR'S BUS. DAILY, May 7, 1998, at A32.

<sup>46</sup> Eric Peters, Editorial, *Kyoto by Decree? It Could Happen Here*, INVESTOR'S BUS. DAILY, May 5, 1998, at A34. See also William Rusher, *New Reading on the Global Thermometer*, WASH. TIMES, Jan. 2, 1999, at C11.

<sup>47</sup> Executive Order 12,919, 59 Fed. Reg. 29,525 (June 3, 1994) (dealing with national defense and international resource preparedness).

<sup>48</sup> Executive Order 10,997, 27 Fed. Reg. 1522 (Feb. 16, 1962), which was revoked by Executive Order No. 11,490, 34 Fed. Reg. 17,567 (Oct. 28, 1969), which, in turn, was revoked by Executive Order No. 12,656, 53 Fed. Reg. 47,491 (Nov. 18, 1988). President Kennedy signed Executive Order 10,997, which allows the Secretary of the Interior to seize energy production facilities in times of emergency.

<sup>49</sup> Eric Peters, *supra* note 46, at A34. A recent Executive Order issued by President Clinton calls for a cut in the federal government's greenhouse gas emissions by 30% below 1990 levels by 2010. Exec. Order No. 13,123, 64 Fed. Reg. 30851 (June 3, 1999). This attempt led Senator Cochran (R-Miss.) to include an amendment in the FY00 Interior Department Appropriations bill to block implementation of this Executive Order, referring to Clinton's order as a “not well-disguised effort” to implement portions of the Kyoto Protocol. Associated Press, *Bills Would Ease Mining Restrictions, Allow Congressional Pay Increase* (June 24, 1999), available at LEXIS/All Sources/News/Wire Service Stories. To justify their apprehension that a “Clinton-Gore” Administration would act capriciously in regulating greenhouse gases, these voices often

Only a weak legal basis would support an explicit attempt to carry out the commitments made at Kyoto prior to ratification of the Protocol. A recent report concluded that no basis exists under international law to implement the Kyoto Protocol provisionally (*i.e.*, before the treaty is ratified and comes into force).<sup>50</sup> For example, the Vienna Convention on the Law of Treaties mandates that a treaty can be applied provisionally if the treaty itself so provides, or the negotiating States have in some other manner so agreed.<sup>51</sup> Recently, the United States agreed to the provisional application of a revised deep seabed regime under the United Nations Convention on the Law of the Sea,<sup>52</sup> several maritime boundaries agreements,<sup>53</sup> the 1971 International Wheat Agreement,<sup>54</sup> and, arguably, the Strategic Arms Limitation Talks Treaty (SALT II).<sup>55</sup> Aside from those few agreements, provisional implementation is rare for the United States. As the Kyoto Protocol does not contain any explicit language authorizing provisional implementation of its terms, only widespread agreement among state parties to carry out provisional measures—which would require congressional approval for the United States to participate—could justify this approach.<sup>56</sup> Congress demonstrated that it disfavored piecemeal implementation of the Kyoto Protocol by not authorizing any provisional application of the Kyoto Protocol and by unanimously approving the Byrd-Hagel Resolution in the Senate.<sup>57</sup> In addition, the Administration has promised repeatedly that it would not even consider provisional application of the Protocol without Senate ratification, and it has thus made such an approach unlikely.

Although the legal basis for implementing the Protocol's terms prior to

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refer to the alarmist rhetoric in Gore's book, *Earth in the Balance*. A commonly cited passage from Gore's book states that the cumulative impacts of the automobile pose "a mortal threat to the security of every nation that is more deadly than any military enemy we are ever likely again to confront." AL GORE, *EARTH IN THE BALANCE: ECOLOGY AND THE HUMAN SPIRIT* 325 (1992).

<sup>50</sup> David M. Ackerman, *Congressional Research Service Report for Congress 98-349: Global Climate Change: Selected Legal Questions About the Kyoto Protocol*, at <http://www.cnre.org/nle/clim-15.html> (last modified Nov. 24, 1998). A non-partisan group created this report.

<sup>51</sup> Vienna Convention on the Law of Treaties, May 23, 1969, art. 25, 8 I.L.M. 679, 688-90 (1969) (entered into force Jan. 27, 1980). Although the United States has not ratified this Convention, it is commonly considered to be customary international law.

<sup>52</sup> G.A. Res. 48, U.N. GAOR, 48th Sess., 101st mtg., at ANNEX, U.N. Doc. A/RES/48/263/ANNEX (1994); see also Ackerman, *supra* note 50, n.24 (citing Jonathan I. Charney, *U.S. Provisional Application of the 1994 Deep Seabed Agreement*, 88 AMER. J. INT'L L. 705-14 (1994)).

<sup>53</sup> See, e.g., Maritime Boundary Agreement between the United States of America and the Republic of Cuba, Dec. 16, 1977, S. Exec. Doc. H, 96-1, at art. V (1979), and Treaty on Maritime Boundaries between the United States of America and the United Mexican States, May 4, 1978, S. Exec. Doc. F, 96-1 (1979); see also Ackerman, *supra* note 50, nn.18-19 (citing S. REP. NO. 9649 (1979)).

<sup>54</sup> See Ackerman, *supra* note 50, n.20 (citing CONGRESSIONAL RESEARCH SERVICE, 103D CONG. 1st Sess., TREATIES AND OTHER INTERNATIONAL AGREEMENTS: THE ROLE OF THE UNITED STATES SENATE 85 (Comm. Print 1993)).

<sup>55</sup> *Id.* The U.S. and the U.S.S.R. each agreed to observe the provisions of the treaty as long as the other party did so. Ackerman, *supra* note 50, n.21.

<sup>56</sup> See Martin A. Rogoff & Barbara E. Gauditz, *The Provisional Application of International Agreements*, 39 ME. L. REV. 29, 29 (1987).

<sup>57</sup> S. Res. 98, 105th Cong. (1997) (enacted).

its ratification is tenuous, the Administration may still be able to regulate greenhouse gas emissions while ratification is pending. For example, the Vienna Convention requires signatories to "refrain from acts which would defeat the object and purpose of a treaty until that State shall have made its intention clear not to become a party to the treaty."<sup>58</sup> Thus, although the United States did not authorize provisional implementation of the Protocol by signing it, the United States nonetheless undertook the duty to refrain from undermining the Protocol while the Senate decides whether or not it will ratify the Protocol.<sup>59</sup> Further, the United States's inability to implement the Kyoto Protocol does not prohibit it from adopting and carrying out policies that might "parallel or support the obligations" assumed under the Protocol.<sup>60</sup> Therefore, resistance to provisional implementation of the Protocol should not diminish the potential to employ other mechanisms in order to regulate greenhouse gas emissions in the United States.

#### IV. THE CLEAN AIR ACT AND THE REGULATION OF GREENHOUSE GAS EMISSIONS

While provisional implementation of the Kyoto Protocol is unlikely, EPA might still attempt to impose legally binding restrictions on greenhouse gases through an independent assessment of the dangers of climate change. The Clean Air Act<sup>61</sup> would be the most likely vehicle for such an effort. With its expansive discretion, EPA might be able to invoke several sections of the CAA to regulate greenhouse gas emissions. For example, under sections 108 and 109, EPA regulates criteria air pollutants by issuing criteria documents and then setting air quality standards.<sup>62</sup> EPA could also invoke section 112, which allows the agency to regulate hazardous air pollutants and to mandate the use of certain control technologies.<sup>63</sup> Finally, section 115 could be invoked to address the international nature of the problem.<sup>64</sup>

However, before imposing limits on the emissions of CO<sub>2</sub> and other greenhouse gases, EPA would have to classify these substances as air pollutants.<sup>65</sup> EPA has taken the first step in that direction by citing section 302(g)—which defines "air pollutant" as virtually anything emitted into the ambient air, including precursors—in a memo discussing its authority to regulate greenhouse gases under the CAA.<sup>66</sup> Despite the statute's "catch-all"

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<sup>58</sup> Vienna Convention on the Law of Treaties, *supra* note 51, art. 18, 8 I.L.M. at 686.

<sup>59</sup> RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES §312, cmt. d (1987).

<sup>60</sup> Ackerman, *supra* note 50, § 4.

<sup>61</sup> 42 U.S.C. §§ 7408-7409 (1994 & Supp. III 1997).

<sup>62</sup> *Id.* §§ 7408-7409.

<sup>63</sup> *Id.* § 7412.

<sup>64</sup> *Id.* § 7415 (requiring EPA Administrator to notify a state whose emissions contribute to air pollution that may reasonably be anticipated to endanger health or welfare in a foreign country).

<sup>65</sup> *See id.* § 7602(g).

<sup>66</sup> Cannon Memorandum, *supra* note 40, at 202 (citing 42 U.S.C. § 7602(g)). The CAA defines air pollutants as

any air pollution agent or combination of such agents, including any physical, chemical, biological [or] radioactive . . . substance or matter which is emitted into or otherwise

definition of air pollutant, EPA has not asserted unequivocally whether sufficient evidence exists to warrant regulating greenhouse gas emissions.<sup>67</sup> Consequently, EPA has not yet established which sections of the CAA it would invoke to regulate these emissions.

*A. Sections 108 and 109: National Ambient Air Quality Standards (NAAQS)*

Sections 108 and 109 of the CAA authorize EPA's Administrator to add new substances to the list of criteria pollutants and to set air quality standards for those substances.<sup>68</sup> Through the CAA, Congress charged EPA with the responsibility for regulating six criteria pollutants: carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter, oxidants, and hydrocarbons.<sup>69</sup> However, upon finding that the primary and secondary NAAQS for hydrocarbons were "technically inadequate," EPA removed hydrocarbons from the list of criteria pollutants.<sup>70</sup> EPA decided to control hydrocarbons indirectly by using the ozone standard and by regulating them as section 112 hazardous air pollutants.<sup>71</sup> EPA then added lead as a criteria pollutant because of its pervasive nature.<sup>72</sup> Similarly, EPA could characterize CO<sub>2</sub> and other greenhouse gases as pervasive and attempt to regulate them also as criteria pollutants.

Section 108 requires EPA to prepare the criteria documents that it must issue for a substance "which in the ambient air results from numerous or diverse mobile or stationary sources."<sup>73</sup> These documents summarize the available scientific knowledge and inform the air quality standards set under section 109. Criteria pollutants are those that "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare."<sup>74</sup> To promote public health, EPA sets primary standards, and it sets secondary standards to protect public welfare.<sup>75</sup> The EPA Administrator

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enters the ambient air. Such term includes any precursors to the formation of any air pollutant, to the extent that the Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollution' is used.

42 U.S.C. § 7602(g).

<sup>67</sup> Cannon Memorandum, *supra* note 40, at 206 (stating that the Administrator never determined whether any provision of the CAA authorizes EPA to regulate greenhouse gases).

<sup>68</sup> 42 U.S.C. §§ 7408(a)(1)-(2), 7409(d)(1) (1994).

<sup>69</sup> *Id.* § 7408.

<sup>70</sup> National Primary and Secondary Ambient Air Quality Standards, 48 Fed. Reg. 628, 628 (Jan. 5, 1983).

<sup>71</sup> *See id.*

<sup>72</sup> The Administrator recognized that lead exposure is not caused by air pollution alone, but believed that regulation was justified because the aggregate exposure was dangerous. 40 C.F.R. § 80 (1999). *See also* Ethyl Corp. v. Environmental Protection Agency (*Ethyl Corp.*), 541 F.2d 1, 29-30 (D.C. Cir. 1976).

<sup>73</sup> 42 U.S.C. § 7408(a)(1)(B) (1994).

<sup>74</sup> *Id.* § 7408(a)(1)(A). The CAA defines "welfare" to include effects on "soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate." 42 U.S.C. § 7602(h) (1994). The references to climate and weather date back to the 1970 version of the CAA. Cannon Memorandum, *supra* note 40, at 204 n. 3.

<sup>75</sup> 42 U.S.C. § 7409 (1994).

must propose and promulgate national primary and secondary ambient air quality standards for all criteria pollutants.<sup>76</sup> Accordingly, EPA set secondary standards at the same level as primary standards for four of the six criteria pollutants.<sup>77</sup>

One of the few certainties in regulation based on scientific findings is that some level of uncertainty exists. Congress acknowledged the uncertainty inherent in this type of endeavor by using the phrase "may reasonably be anticipated" in section 108(a)(1)(A). The statutory language also suggests that the CAA does not require EPA to know the precise health and welfare effects that a pollutant causes in order to justify adding that pollutant to the list. For example, in *Ethyl Corp. v. Environmental Protection Agency (Ethyl Corp.)*,<sup>78</sup> manufacturers of lead additives and gasoline refiners challenged lead standards that EPA had promulgated. The court acknowledged that some of the questions involved in the promulgation of environmental regulations are "on the frontiers of scientific knowledge" and therefore require decisions based more on judgment than "purely factual analyses."<sup>79</sup> Further, the court asserted that "reliance on 'facts' . . . will provide little guidance. However, sole reliance on facts was not demanded by Congress."<sup>80</sup> Current scientific findings, though uncertain, suggest some degree of human interference with the climate. Thus, *Ethyl Corp.*'s result would support the regulation of greenhouse gases as a policy decision if, in EPA's judgment, human interference translates into endangerment.

In *Ethyl Corp.*, the flexibility that the court gave to EPA's Administrator "recognizes the special judicial interest in favor of protection of the health and welfare of people, even in areas where certainty does not exist."<sup>81</sup> The court asserted that

the Administrator's decision may be fully supportable if it is based . . . on the inconclusive but suggestive results of numerous studies. By its nature, scientific evidence is often cumulative; the more supporting, albeit inconclusive, evidence available, the more likely the accuracy of the conclusion.<sup>82</sup>

For climate change, the scientific evidence, albeit contested, supports a finding that action should be taken.<sup>83</sup> Some scientists challenge the very

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<sup>76</sup> *Id.* § 7409(a)(2).

<sup>77</sup> See 40 C.F.R. §§ 50.6–50.12 (1999).

<sup>78</sup> 541 F.2d 1 (D.C. Cir. 1976).

<sup>79</sup> *Id.* at 27 (quoting *Industrial Union Dep't, AFL-CIO v. Hodgson*, 499 F.2d 467, 474 (D.C. Cir. 1974)).

<sup>80</sup> *Id.* at 20 (citing *Amoco Oil Co. v. Environmental Protection Agency*, 501 F.2d 722, 740–41 (D.C. Cir. 1974)).

<sup>81</sup> *Id.* at 24 (citing *Environmental Defense Fund, Inc. v. Ruckelshaus*, 439 F.2d 584, 598 (D.C. Cir. 1971)).

<sup>82</sup> *Id.* at 37–38.

<sup>83</sup> The so-called "fingerprint" studies that attempt to determine whether a human influence on the climate system can already be identified are still contested. Klaus Hasselmann, *Optimal Fingerprints for the Detection of Time-Dependent Climate Change*, 6 J. CLIMATE 1957, 1957–71 (1993). However, evidence of human interference was accepted in the most recent IPCC study. IPCC, CLIMATE CHANGE 1995: THE SCIENCE OF CLIMATE CHANGE 263–97 (1995) [hereinafter IPCC



basis for global warming and the accuracy of the models used to predict future warming.<sup>84</sup> Some commentators have argued that because increased CO<sub>2</sub> would benefit plant life and because human civilizations have thrived in warmer climates, global warming would provide a net benefit to the planet.<sup>85</sup> Nevertheless, the precautionary mandate of the CAA has been consistently upheld, and contradictory claims, many of which have not been peer-reviewed, should not affect the deference that courts grant to agency judgments based on scientific findings.<sup>86</sup>

For lead emissions, the bulk of the evidence considered by the Administrator supported the Administrator's findings, even though none was dispositive to *Ethyl Corp.*'s result.<sup>87</sup> Similarly, in the area of climate change, several factors signal a trend of global warming. For example, a recent panel of the National Academy of Sciences offered the consensus conclusion that the recent warming of the Earth's surface is "undoubtedly real."<sup>88</sup> Many factors support the consensus: First, the 1990s was the warmest decade of the millennium, and 1998 was the warmest year on record.<sup>89</sup> Second, a high correlation exists between temperatures in paleoclimate records, especially

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<sup>84</sup> Richard S. Lindzen, *On the Scientific Basis for Global Warming Scenarios*, 83 ENVTL. POLLUTION 125, 125-34 (1994).

<sup>85</sup> THOMAS GALE MOORE, CLIMATE OF FEAR: WHY WE SHOULDN'T WORRY ABOUT GLOBAL WARMING 69-128 (1998); Greening Earth Society, *In Defense of Carbon Dioxide: A Comprehensive Review of Carbon Dioxide's Effects on Human Health, Welfare, and the Environment*, at <http://www.greeningearthsociety.org/Articles/1999/defense2.htm> (last visited Jan. 5, 2000).

<sup>86</sup> In a recent D.C. Circuit decision relying on *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. 495 (1935), and *Panama Refining Co. v. Ryan*, 293 U.S. 388 (1935), the court faults EPA for assuming too much discretion in implementing sections 108 and 109. *American Trucking Ass'n, Inc. v. Environmental Protection Agency (American Trucking)*, 175 F.3d 1027 (D.C. Cir. 1999) (asserting that "EPA has construed sections 108 & 109 of the Clean Air Act so loosely as to render them unconstitutional delegations of legislative power...[and that] [a]lthough the factors EPA used in determining the degree of public health concern associated with different levels of ozone and PM are reasonable, EPA appears to have articulated no 'intelligible principle' to channel its application of these factors." The decision, if upheld, would refute much of the deference that courts have traditionally shown to EPA in this and other areas of regulation. *Id.* at 1034 (citing *J.W. Hampton, Jr. & Co. v. United States*, 276 U.S. 394, 409 (1928)). The court also noted that the "standards in question affect the whole economy, requiring a 'more precise' delegation than would otherwise be the case." *Id.* at 1037 (citing *A.L.A. Schechter Poultry Corp. v. United States*, 295 U.S. at 553). See also Cass R. Sunstein, *Is the Clean Air Act Unconstitutional?*, 98 MICH. L. REV. 303, 309-10 (1999) (discussing the nondelegation doctrine in the context of the Clean Air Act).

<sup>87</sup> *Ethyl Corp.*, 541 F.2d 1, 37-38 (D.C. Cir. 1976). For a recent review of the evidence, see Valerie M. Thomas, *The Elimination of Lead in Gasoline*, 20 ANN. REV. ENERGY & ENV'T 307 (1995).

<sup>88</sup> PANEL ON RECONCILING TEMPERATURE OBSERVATIONS, NATIONAL RESEARCH COUNCIL, RECONCILING OBSERVATIONS OF GLOBAL TEMPERATURE CHANGE 2 (2000). See also IPCC SECOND ASSESSMENT REPORT, *supra* note 83, at 1-7.

<sup>89</sup> Michael E. Mann & Raymond S. Bradley, *Northern Hemisphere Temperature During the Past Millennium: Inferences, Uncertainties and Limitations*, 26 GEOPHYSICAL RES. LETTERS 759-62 (1999) (temperatures are the warmest of the last 1000 years); Michael E. Mann, et al., *Global-Scale Temperature Patterns And Climate Forcing over the Past Six Centuries*, 392 NATURE 779 (1998).

ice cores and the atmospheric concentration of CO<sub>2</sub> and CH<sub>4</sub>.<sup>90</sup> Third, numerical modeling studies predict a warming of the atmosphere of 1.8 to 6.3 °F (or 1–3.5 °C) by 2100.<sup>91</sup> Considered together, these factors demonstrate that the scientific community's acceptance of the idea of global warming is reasonable and that the United States should create precautionary mechanisms to address the phenomenon.

In addition to uncertainty, as discussed above, the phrase "may reasonably be anticipated" in section 108 refers to an effect that has not yet happened but could occur in the future and should be prevented; this highlights the precautionary nature of the CAA.<sup>92</sup> As the court noted in *Ethyl Corp.*, "[d]anger . . . is not set by a fixed probability of harm, but rather is composed of reciprocal elements of risk and harm, or probability and severity."<sup>93</sup> Accordingly, the CAA allows for regulation to prevent a catastrophic event, even if the probability that the event will occur is low. For example, a large-scale disruption of the Earth's climate could lead to the weakening or collapse of the ocean's thermohaline circulation.<sup>94</sup> Even the significant weakening of thermohaline circulation would be catastrophic because it would dramatically reduce the supply of heat to the eastern North Atlantic Ocean, and it also could cause devastation to the climates of Northern and Western Europe.<sup>95</sup> Thus, the potential severity of its effects on the Earth's climate suggests that carbon dioxide warrants regulation under the Clean Air Act, despite the remoteness of those effects.

However, the EPA Administrator's authority to take precautionary action under the CAA does not justify setting a standard absent a compelling scientific basis. The language and history of the Clean Air Act seem to indicate that this threshold would be difficult to achieve for emissions of CO<sub>2</sub> and the other greenhouse gases. The legislative history of the 1990 Amendments to the CAA specifies that EPA must set primary standards by "identifying through research the lowest level at which health effects are observed and applying a margin of safety to arrive at the ambient

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<sup>90</sup> T.S. GRAEDEL & PAUL J. CRUTZEN, *ATMOSPHERIC CHANGE: AN EARTH SYSTEM PERSPECTIVE* 4 fig. 1.4, 224 (1993).

<sup>91</sup> IPCC SECOND ASSESSMENT REPORT, *supra* note 83, at 6.

<sup>92</sup> The court in *Ethyl Corp.* noted that "the power to assess risks, without relying solely on facts, flows inexorably from the nature of the 'will endanger' standard." 541 F.2d 1, 20 (D.C. Cir. 1976). "Will endanger" was changed to "may reasonably be anticipated to endanger" in the 1990 Amendments, a change that only reinforces the precautionary nature of the Act. Clean Air Act, 42 U.S.C. § 7408(a)(1)(A) (1994), Historical and Statutory Notes; H.R. REP. 95-294, at 43–51 (1977), *reprinted in* 1977 U.S.C.A.N. 1077, 1121–29.

<sup>93</sup> *Ethyl Corp.*, 541 F.2d at 18.

<sup>94</sup> Syukuro Manabe & Ronald J. Stouffer, *Multiple-Century Response of a Coupled Ocean-Atmosphere Model to an Increase of Atmospheric Carbon Dioxide*, 7 J. CLIMATE 5, 5–23 (1994).

<sup>95</sup> S. Rahmsdorf, *Risk of Sea-Change in the Atlantic*, 388 NATURE 825, 825–26 (discussing local sea surface cooling of 5–8 °C, with an even larger cooling in the atmosphere); Wallace S. Broecker, *Thermohaline Circulation, The Achilles Heel of Our Climate System: Will Man-Made CO<sub>2</sub> Upset the Current Balance?* 278 SCIENCE 1582–88; Nigel Hawkes & Nick Nuttall, *Europe May Catch Cold from Global Warming*, TIMES (London), Nov. 28, 1997, at 7; Steve Farrar, *Europe Faces an Ice Age as World Warms*, SUNDAY TIMES (London), Jan. 17, 1999, at 8.

standard.<sup>96</sup> Under this definition, a primary standard for carbon dioxide or methane would not prevent climate change because the concentrations of these substances necessary to induce climate change are much lower than the concentrations that would cause adverse health effects in humans.<sup>97</sup> Moreover, the concept of a standard expressed in terms of a parts per million concentration is especially problematic for greenhouse gases because the United States is "only" responsible for perhaps one-quarter of the global concentration of the gases.<sup>98</sup> Thus, setting a national standard in the United States for greenhouse gas emissions would only accomplish a fraction of the emissions reductions needed to meet a global concentration target.<sup>99</sup>

Most of the six criteria pollutants have both cumulative and indirect effects. It has been established that such effects also warrant action; the importance of non-acute, non-direct effects has been recognized explicitly for the cases of photochemical oxidants (ozone)<sup>100</sup> and lead.<sup>101</sup> Nonetheless, defining the health effects caused by greenhouse gases remains elusive even if indirect effects are admitted.<sup>102</sup> While other standards are based on epidemiological evidence and laboratory studies involving plants, animals,

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<sup>96</sup> S. REP. NO. 101-228, at 5 (1990), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3391.

<sup>97</sup> Canadian Centre for Occupational Health & Safety (CCOHS), *Health Effects of Carbon Dioxide Gas*, at [http://www.ccohs.ca/oshanswers/chemicals/chem\\_profiles/carbon\\_dioxide/health\\_cd.html](http://www.ccohs.ca/oshanswers/chemicals/chem_profiles/carbon_dioxide/health_cd.html) (last visited Mar. 7, 2000). CO<sub>2</sub> is not harmful at concentrations below 2% (or 20,000 ppm). At concentrations of 3.5–5.4% increased depth of breathing is observed. At 7.5% a perceived inability to breathe is reported as well as increased pulse rates and headaches. By contrast, the current atmospheric level is approximately 350 ppm, and even uncontrolled, concentrations are unlikely to exceed roughly 1000 ppm in 2100. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IPCC SECOND ASSESSMENT SYNTHESIS OF SCIENTIFIC-TECHNICAL INFORMATION RELEVANT TO INTERPRETING ARTICLE 2 OF THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (1995).

<sup>98</sup> Carbon dioxide is a well-mixed gas in the atmosphere, as CO<sub>2</sub> emissions in one part of the world are distributed fairly evenly across the entire atmosphere. Concentrations are, however, slightly higher in the Northern Hemisphere because of the far greater emissions from the industrialized nations. Intergovernmental Panel on Climate Change, CLIMATE CHANGE 1994: RADIATIVE FORCING OF CLIMATE CHANGE AND AN EVALUATION OF THE IPCC IS92 EMISSION SCENARIOS 15 (J.T. Houghton et al., eds., 1995).

<sup>99</sup> Although the United States is by far the largest emitter of greenhouse gases, its share of global carbon emissions is only approximately 25 percent of world totals. This percentage is projected to decrease slightly between 1990 and 2020. ENERGY INFO. ADMIN., U.S. DEPARTMENT OF ENERGY, ANNUAL ENERGY OUTLOOK 2000 tbl. A10 (2000). The U.S. share of global emissions has generally dropped since the immediate post-World War II period when the U.S. share was at its apex. American emissions in 1945 amounted to 54 percent of global emissions, declined to 42 percent by 1950, and declined to 31 percent by 1960. G. Marland et al., *Global, Regional, and National CO<sub>2</sub> Emission Estimates from Fossil Fuel Burning, Cement Production, and Gas Flaring: 1751–1996* (1999), at [http://cdiac.esd.ornl.gov/trends/emis/em\\_cont.htm](http://cdiac.esd.ornl.gov/trends/emis/em_cont.htm) (last visited July 20, 2000).

<sup>100</sup> S. REP. NO. 101-228, at 6 (1990), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3392 (discussing the "potentially more troubling and less well-understood . . . effects of long-term chronic exposure to summertime ozone concentrations").

<sup>101</sup> *Ethyl Corp.*, 541 F.2d 1, 8–9 (D.C. Cir. 1976).

<sup>102</sup> See Mark L. Wilson, *Climate Change and Human Health* (book review) 38 CLIMATIC CHANGE 501, 501–06 (1998) (discussing the potential positive and negative effects of the greenhouse effect on human health).

and humans, the indirect health effects linked to a warming of the atmosphere, such as increased deaths during heat waves or the spreading northward of tropical diseases, are only speculative. Furthermore, these effects cannot be irrefutably attributed to greenhouse gases rather than to variation in climatic conditions, and they could even be offset by positive effects, such as decreased deaths from exposure to cold temperatures or increased agricultural productivity.<sup>103</sup>

EPA promulgates secondary standards to protect the "public welfare"<sup>104</sup> and sets them at the same or more stringent levels than primary standards, even though secondary standards allow a longer time period for achieving compliance.<sup>105</sup> While current estimates of the impacts of global warming contain significant uncertainties—in particular, those on mid-latitude countries such as the United States—it is certain that agriculture, coastal regions, and ecosystems will suffer the most direct effects.<sup>106</sup> These anticipated impacts, however uncertain, might be sufficient to invoke the precautionary principle<sup>107</sup> and to establish secondary standards for greenhouse gases. However, any attempt to base emissions limits on impacts would be undermined because most of the scientific community does not acknowledge regional climate modeling as a source of reliable forecasts.<sup>108</sup> Also, most studies of the impacts of climate change are based on global simulations that do not preclude the possibility that certain regions will benefit from the change in climate.<sup>109</sup>

Section 108's reference to emissions that "cause or contribute to air pollution"<sup>110</sup> addresses the indirect effects of greenhouse gas emissions on existing air pollution caused by chemical transformations that occur in the atmosphere. Such effects, however, are difficult to assess quantitatively.<sup>111</sup>

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<sup>103</sup> See generally World Health Organization, CLIMATE CHANGE AND HUMAN HEALTH (A.J. McMichael, et al., eds., 1996) [hereinafter WHO]; J. Patz et al., *Global Climate Change and Emerging Infectious Diseases*, 275 J. AM. MEDICAL ASS'N 217, 217-23 (1996) [hereinafter JAMA]; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IMPACTS, ADAPTATIONS AND MITIGATION OF CLIMATE CHANGE: SCIENTIFIC-TECHNICAL ANALYSIS 438, 438-45 (1995); Jonathan A. Patz et al., *The Potential Health Impacts of Climate Variability and Change for the United States: Executive Summary of the Report of the Health Sector of the U.S. National Assessment*, 108 ENVTL. HEALTH PERSP. 367 (2000) (concluding that the levels of uncertainty preclude any definitive statement on the direction of potential change for each of these health outcomes).

<sup>104</sup> Clean Air Act, 42 U.S.C. § 7409(b)(2) (1994).

<sup>105</sup> State Implementation Plans (SIPs) must achieve primary standards "as soon as practicable," while compliance with secondary standards should be achieved in a "reasonable time." 40 C.F.R. §§ 51.261 (1999).

<sup>106</sup> IPCC SECOND ASSESSMENT REPORT, *supra* note 83, at 445-516.

<sup>107</sup> See James E. Hickey Jr. & Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law*, VA. ENVTL. L. J. 423, 425 (1995).

<sup>108</sup> Filippo Giorgi & Linda O. Mearns, *Approaches to the Simulation of Regional Climate Change: A Review*, 29 REVS. GEOPHYSICS 191-92 (1991); IPCC SECOND ASSESSMENT REPORT, *supra* note 83, at 184-88.

<sup>109</sup> IPCC, CLIMATE CHANGE 1995, IMPACTS, ADAPTATIONS AND MITIGATION OF CLIMATE CHANGE: SCIENTIFIC-TECHNICAL ANALYSIS 438-45 (1995). Improved agricultural conditions demonstrate such a benefit. *Id.*

<sup>110</sup> Clean Air Act, 42 U.S.C. § 7408(a)(1)(A) (1994) (emphasis added).

<sup>111</sup> See RICHARD P. WAYNE, CHEMISTRY OF ATMOSPHERES, 237-42 (1991).

For example, greenhouse gas emissions could affect ozone chemistry in a variety of ways.<sup>112</sup> Increased carbon dioxide concentrations would produce a cooling of the stratosphere that in turn would increase the production of stratospheric ozone.<sup>113</sup> One estimate predicts that a doubling of atmospheric CO<sub>2</sub> content would cause approximately a 9% increase of stratospheric ozone.<sup>114</sup> By contrast, because nitrous oxide (N<sub>2</sub>O) reacts very slowly in the lower atmosphere, it penetrates into the stratosphere, where it helps to destroy ozone.<sup>115</sup> Studies have shown that a doubling of N<sub>2</sub>O concentrations would deplete ozone globally by between 9% and 16%, which would more than offset the potential gain associated with CO<sub>2</sub> emissions.<sup>116</sup>

To regulate the other greenhouse gases under sections 108 and 109, EPA would be obliged to issue secondary NAAQS to limit the emissions of the gases and their deleterious effects on the environment. EPA could also promulgate either a primary standard devoid of much significance or no primary standard at all. However, this approach would contradict EPA's motivation and experience with the other criteria pollutants for which the agency has emphasized human health effects.<sup>117</sup> Further, while primary air quality standards must be met "as expeditiously as practicable"<sup>118</sup> within the deadlines specified in the CAA, secondary standards are to be attained in a "reasonable" period of time.<sup>119</sup> Consequently, the rapid implementation of standards for CO<sub>2</sub>, CH<sub>4</sub>, or N<sub>2</sub>O through Title I seems unlikely.<sup>120</sup>

### *B. Section 112: Hazardous Air Pollutants*

Rather than listing carbon dioxide or other greenhouse gases as criteria pollutants, EPA could seek to list the substances as hazardous air pollutants under section 112 of the CAA.<sup>121</sup> In 1994, the Clinton Administration contemplated this approach as a supplement to its original Climate Change Action Plan (Action Plan), which was designed to return U.S. emissions to 1990 levels by 2000.<sup>122</sup> One of the thirty-nine EPA proposals that were meant to bolster the Action Plan, the proposal to "Establish Hazardous Air Pollutant Standards for Greenhouse Gases as a Backstop for the Action

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<sup>112</sup> *Id.* at 160-55.

<sup>113</sup> *Id.* at 174.

<sup>114</sup> *Id.* at 175.

<sup>115</sup> *Id.* at 172.

<sup>116</sup> *Id.*

<sup>117</sup> See 40 C.F.R. § 50.2 (1999).

<sup>118</sup> S. REP. NO. 101-228, at 5 (1990), reprinted in 1990 U.S.C.C.A.N. 3385, 3391.

<sup>119</sup> *Id.*

<sup>120</sup> However, states may issue their own ambient air quality standards, even though emissions from individual states would be far less capable of affecting atmospheric concentrations of greenhouse gases. Several states currently use ambient air quality standards to regulate air pollutants other than the six criteria pollutants. For example, Pennsylvania sets air quality standards for settled particulates, sulfates, fluorides, and hydrogen sulfide. 25 PA. CODE §131.3 (2000). California also sets standards for hydrogen sulfide and sulfates. CAL. CODE REGS. tit. 17, §70200 (2000).

<sup>121</sup> See 42 U.S.C. § 7412(b) (1994).

<sup>122</sup> The White House, UNITED STATES CLIMATE CHANGE ACTION PLAN (1993), at <http://www.gcrio.org/USCCAP/toc.html> (last visited July 20, 2000).

Plan" was deemed one of the most favorable of the assembled proposals.<sup>123</sup> Under the proposal, EPA could have listed greenhouse gases as hazardous pollutants and issued standards that required "major sources" of greenhouse gas emissions to employ Maximum Achievable Control Technology.<sup>124</sup>

Although the CAA Amendments provided a list of 189 hazardous air pollutants,<sup>125</sup> EPA may utilize new information to justify adding or removing pollutants from the list.<sup>126</sup> The Administrator may add pollutants if she finds that a particular substance poses a threat of adverse effects to human health or to the environment.<sup>127</sup> However, unlike the section 108 and 109 descriptions of welfare effects,<sup>128</sup> the statute does not mention "weather" or "climate" in its description of "environmental effects."<sup>129</sup> Instead, the statute focuses primarily on the impacts on biota.<sup>130</sup>

No bright line exists to separate criteria pollutants from hazardous pollutants. Nevertheless, hazardous pollutants generally refer to effects that are more localized and source-specific than effects of pollutants regulated by ambient standards.<sup>131</sup> Other parts of section 112 specify even more clearly that regulating carbon dioxide would contradict the legislative intent of the category of "hazardous air pollutants." For example, the concept of "exposure," which is essential to the definition of public health effects in section 112, would be meaningless in the context of carbon dioxide.<sup>132</sup>

The word "hazardous" identifies substances that are dangerous at relatively low concentrations.<sup>133</sup> A "major source" of hazardous air pollutants

<sup>123</sup> Memorandum from Michael Shelby, Office of Policy, Planning and Evaluation, United States Environmental Protection Agency, to Karl Hausker, David Doniger, and Dick Morgenstern, EPA (May 31, 1994) [hereinafter Shelby Memorandum] (on file with authors). Although the memorandum lists many possibilities, the possibility of regulating carbon dioxide under section 112 was one of the few proposals that received a rating of 10 on a scale of 1 to 10. *Id.*

<sup>124</sup> See 42 U.S.C. §7412(a)(1)-(b)(1) (1994).

<sup>125</sup> *Id.* §7412(b)(1).

<sup>126</sup> For example, the list now contains 188 compounds because EPA decided to remove caprolactam from the list. 40 C.F.R. §63.60 (1999).

<sup>127</sup> Human health effects may occur through "inhalation or other routes of exposure" while environmental effects may manifest "through ambient concentrations, bioaccumulation, deposition or otherwise . . ." 42 U.S.C. §7412(b)(2) (1994).

<sup>128</sup> See *supra* note 104 and accompanying text.

<sup>129</sup> See 42 U.S.C. § 7412(a)(7) (1994).

<sup>130</sup> Under the CAA, "adverse environmental effect" is defined as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas." *Id.*

<sup>131</sup> See Bradford C. Mank, *What Comes after Technology: Using an "Exceptions Process" to Improve Residual Risk Regulation of Hazardous Air Pollutants*, 13 STAN. ENVTL. L.J. 263, 290 n.121 (1994).

<sup>132</sup> See *supra* notes 96 & 127 and accompanying text. The direct effects of carbon dioxide are not harmful to humans, plants or animals. IPCC SECOND ASSESSMENT REPORT, *supra* note 83, at 454 (explaining that a short-term increase in CO<sub>2</sub> concentration causes an increase in photosynthesis at the level of individual leaves). In fact, the direct exposure to elevated CO<sub>2</sub> levels leads to the so-called CO<sub>2</sub> fertilization effect. *Id.*

<sup>133</sup> Henry A. Waxman et al., *Roadmap to Title I of the Clean Air Act Amendments of 1990: Bringing Blue Skies Back to America's Cities*, 21 ENVTL. L. 1843, 1848 n.2 (1991).

is defined as one that emits ten tons per year or more of any hazardous air pollutant or twenty-five tons per year or more of any combination of hazardous air pollutants.<sup>134</sup> The Administrator may establish lower thresholds, but section 112 does not authorize the Administrator to raise the thresholds.<sup>135</sup> Nevertheless, the concept of aggregating emissions of different hazardous air pollutants to arrive at an annual limit of twenty-five tons per year implies that the concentrations of hazardous air pollutants in the ambient air are roughly equivalent. However, carbon dioxide clearly is not equivalent to other hazardous pollutants. Because every single combustion process involving fossil fuels produces carbon dioxide, the quantities of CO<sub>2</sub> produced dwarf those of any other gas emitted into the ambient air.<sup>136</sup> The United States emits over five billion tons of CO<sub>2</sub> annually, or approximately twenty tons per person.<sup>137</sup> Thus, under the CAA's definition many single-family homes with oil or gas furnaces would qualify as major sources of carbon dioxide.<sup>138</sup>

Although EPA has not recognized these difficulties, it has deemed the proposal to list greenhouse gases under section 112 to be one of the most favorable, albeit dangerous, options. Accordingly, the same EPA memorandum that proposed using section 112 cautioned that "such aggressive use of Clean Air Act authority may create a backlash in Congress."<sup>139</sup>

### C. Section 115: Transboundary Air Pollution

Section 115 of the CAA addresses the endangerment of public health and welfare in foreign countries from pollution that originated in the United States.<sup>140</sup> Evidence that United States pollution inflicted such damage would provide a basis for changing State Implementation Plans (SIPs)<sup>141</sup> if the United States is treated with reciprocity (i.e., if the affected foreign country

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<sup>134</sup> 42 U.S.C. § 7412(a)(1) (1994).

<sup>135</sup> "The Administrator may establish a lesser quantity, or in the case of radionuclides different criteria, for a major source based on the potency of the air pollutant, persistence, potential for bioaccumulation, other characteristics of the air pollutant, or other relevant factors." *Id.*

<sup>136</sup> In 1997, total emissions of all six criteria pollutants combined amounted to less than 200 million tons. EPA, NATIONAL AIR QUALITY AND EMISSIONS TRENDS REPORT app. A (1997), at <http://www.epa.gov/oar/aqtrnd97/appenda.pdf> (last visited July 20, 2000).

<sup>137</sup> Per capita emissions of CO<sub>2</sub> in 1995 were 20.5 metric tons. WORLD RESOURCES INSTITUTE, WORLD RESOURCES 1998-99 345 (1998).

<sup>138</sup> Sample calculations for a typical home can be found by zip code at Lawrence Berkeley National Laboratory, *Home Energy Savings Page*, at <http://hes.lbl.gov/> (last visited July 20, 2000).

<sup>139</sup> Shelby Memorandum, *supra* note 123, at 4. As Woodward notes, "Administrative agencies may be reluctant to act in areas of controversy." Jennifer Woodward, *Turning Down the Heat: What United States Laws Can do to Help Ease Global Warming* 39 AM. U.L. REV. 203, 228 (citing Wood, *Acid Rain and the Clean Air Act: Agency Inaction and the Need for Legislated Reform*, 6 VA. J. NAT. RESOURCES L. 213 (1986)).

<sup>140</sup> 42 U.S.C. § 7415 (1994).

<sup>141</sup> *Id.* § 7410.

provides "essentially the same rights"<sup>142</sup> to the United States). Arguably, because the Kyoto Protocol could come into force through ratification by all other industrialized or Annex I nations except the United States, the United States's actions should require reciprocal treatment.<sup>143</sup> However, Canada never managed to obtain relief through section 115 for the acid rain problem exacerbated by U.S. emissions.<sup>144</sup> As well as being ineffectual on occasion, section 115 is ambiguous because it allows for SIP revision, but it does not specify whether the Administrator would be allowed to revise the list of criteria pollutants itself.<sup>145</sup>

At least one industry group has divined a clear interpretation of this provision of the CAA. The National Mining Association has asserted that "[s]ection 115 does not apply to carbon dioxide emissions because the provision is self-evidently designed to apply only to situations where wind borne pollution from the United States is being deposited in a nearby country."<sup>146</sup> Whether section 115 is in fact self-evident on this point is less obvious than the simple observation that climate change is a global problem. Therefore, setting an effective standard is contingent upon successful international cooperation.

#### *D. Reconciling the Legislative History*

Although EPA arguably could employ certain provisions of the CAA to regulate greenhouse gases, the legislative history of the Clean Air Act Amendments of 1990 indicates that at different junctures Congress considered but then explicitly decided not to regulate greenhouse gases under the CAA. James Huffman noted in a House Hearing on EPA's authority to regulate carbon dioxide that "[w]e are not concerned here with an isolated, toxic substance which Congress might have overlooked in the construction of its regulatory scheme. To the contrary, we are concerned with one of the most plentiful compounds in the Earth's atmosphere."<sup>147</sup>

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<sup>142</sup> *Id.* § 7415(c). See also Thomas W. Merrill, *Golden Rules for Transboundary Pollution*, 46 DUKE L.J. 931 (1997) (discussing the paucity of transboundary pollution regulation in an era of increasingly centralized environmental policy).

<sup>143</sup> The Protocol comes into force when ratified by 55 nations that contribute at least 55 percent of greenhouse gas emissions by industrialized countries in 1990. Kyoto Protocol, *supra* note 1, at art 24, 37 I.L.M. at 41. U.S. emissions in 1990 amounted to approximately 36% of Annex I emissions. See Framework Convention, *supra* note 6. It seems unlikely that other nations would actually take action without U.S. ratification. For example, when the European Union (EU) was debating imposing an EU-wide carbon tax in 1992, it made the tax contingent upon comparable actions in the United States and Japan. See John Palmer, *EC Plans Carbon Fuel Tax*, GUARDIAN, May 14, 1992, at 1.

<sup>144</sup> Merrill, *supra* note 142.

<sup>145</sup> 42 U.S.C. § 7415(b) (1994). See also Her Majesty the Queen of Right of Ontario v. Environmental Protection Agency, 912 F.2d 1525, 1528 (D.C. Cir. 1990).

<sup>146</sup> NMA Brief, *supra* note 42, at II.E.

<sup>147</sup> *Is CO<sub>2</sub> a Pollutant and Does EPA Have the Power to Regulate It?: Joint Hearing of the Subcomm. on Nat'l Econ. Growth, Natural Resources, and Regulatory Affairs of the House Gov't Reform and Oversight Comm. and the Subcomm. on Energy and the Env't of the House Science Comm.*, 106th Cong. (1999) (testimony of James L. Huffman, Dean, Northwestern School of Law of Lewis and Clark College) (forthcoming).



Moreover, the Supreme Court has affirmed repeatedly that “few principles of statutory construction are more compelling than the proposition that Congress does not intend sub silentio to enact statutory language that it has earlier discarded.”<sup>148</sup> Similarly, in *Russello v. United States*,<sup>149</sup> the Court concluded that “[c]ongressional rejection of a statute strongly militates against a judgment that Congress intended a result that it expressly declined to enact.”<sup>150</sup>

The Senate Report for section 202, which regulates mobile sources, had originally included a provision to limit the emissions of carbon dioxide from light-duty vehicles.<sup>151</sup> The Senate created this provision because initial steps were necessary to mitigate climate change even before more scientific information became available; because motor vehicles produce one-quarter of U.S. carbon dioxide emissions, light-duty vehicles were a logical starting point.<sup>152</sup> The bill’s intent was not to reduce the emissions of carbon dioxide<sup>153</sup> but simply to stabilize them, and it did not grant the Administrator any discretion to change the standards.<sup>154</sup> The provision was suppressed, however, in the conference committee.<sup>155</sup>

Another example of Congress’s deliberate decision not to regulate greenhouse gases is the legislative history of Title VI of the CAA, which regulates the chemicals that cause stratospheric ozone depletion.<sup>156</sup> Congress originally named Title VI of the CAA “The Stratospheric Ozone and Climate Protection Act,” and declared that its objective was to “restore and maintain the chemical and physical integrity of the Earth’s atmosphere, [and] to protect human health and the global environment.”<sup>157</sup> The goal of the climate protection portion of the proposed act (section 603) was to “reduce methane emissions in the U.S. and other countries; stimulate international agencies to fund projects in developing countries that will reduce methane emissions; and provide data in support of international efforts to reduce methane emissions.”<sup>158</sup> Congress ultimately reduced this section to the level of a free-standing provision of the 1990 Amendments.<sup>159</sup>

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<sup>148</sup> *Immigration and Naturalization Serv. v. Cardozo-Fonseca*, 480 U.S. 421, 442–43 (1987). See also *Gulf Oil Corp. v. Copp Paving Co.*, 419 U.S. 186, 200 (1974).

<sup>149</sup> 464 U.S. 16 (1983). See also *Ethyl Corp.* (citing *Amoco Oil Co. v. Environmental Protection Agency*, 501 F.2d 722, 733 (D.C. Cir. 1974) (the court insisted that the conference committee’s decision “was a deliberate one and was meant to have significance”).

<sup>150</sup> 464 U.S. at 23–24.

<sup>151</sup> S. REP. NO. 101-228, at 99 (1990), reprinted in 1990 U.S.C.C.A.N. 3385, 3484–85.

<sup>152</sup> *Id.* at 3484.

<sup>153</sup> *Id.* The standards are unlikely to ever hold emissions at current levels over the next two decades. *Id.*

<sup>154</sup> *Id.* at 3485.

<sup>155</sup> H.R. CONF. REP. NO. 101-952, at 336–38 (1990), reprinted in 1990 U.S.C.C.A.N. 3867, 3868–69.

<sup>156</sup> Clean Air Act, 42 U.S.C. §§ 7671–7671q (1994 & Supp. III 1997).

<sup>157</sup> S. REP. NO. 101-228, at 387 (1990), reprinted in 1990 U.S.C.C.A.N. 3385, 3770.

<sup>158</sup> *Id.* at 400–01.

<sup>159</sup> Clean Air Act Amendments of 1990, § 603(e) Methane Studies, Pub. L. No. 101-549, 104 Stat. 2670-1 (codified as amended at 42 U.S.C. § 7671(b) (1994)). See S. REP. NO. 101-228, at 400–01 (1990), reprinted in 1990 U.S.C.C.A.N. 3385, 3783–84.

However, because Title VI of the CAA aims to prevent ozone depletion, the statute provides a solid basis for regulating nitrous oxide.<sup>160</sup>

The Senate assessed the possibility of reducing methane emissions along with chlorofluorocarbons (CFCs) because "two distinct but closely related global environmental crises are (1) destruction of the stratospheric ozone layer, Earth's main shield against the sun's harmful ultraviolet radiation, and (2) massive, uncontrolled global climate change associated with intensification of the greenhouse effect."<sup>161</sup> Although the Senate Report correctly noted that CO<sub>2</sub> accounts for over half of the intensification of the greenhouse effect, the high global warming potentials of CFCs and CH<sub>4</sub><sup>162</sup> justified the regulation of these gases as an early and "effective step that can be taken to lessen the threat of human-induced global climate change."<sup>163</sup> The report conceded that while no scientific consensus existed regarding the precise timing or magnitude of the predicted changes, there was "a remarkable degree of scientific consensus concerning the threat of massive, uncontrolled global climate change."<sup>164</sup> In such circumstances, waiting for scientific proof would not be tenable because a "failure to act on the greenhouse effect on the basis of current scientific understanding would replicate the mistake made in the early 1980's with respect to destruction of the ozone layer."<sup>165</sup>

Any future effort to regulate these gases could be hindered by the Senate's suppression of the portion of a Senate Report that explicitly addressed global warming.<sup>166</sup> As in the case of CO<sub>2</sub> limitations on automotive emissions, the deliberate removal of any regulatory mandate to control greenhouse gases could suggest that Congress did not intend to pass legislation restricting greenhouse gases.<sup>167</sup>

Notwithstanding the legislative history of the CAA, EPA could invoke section 108, section 109, or even section 112, which preceded the 1990 Amendments, because the latest scientific knowledge supports restricting

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<sup>160</sup> See *supra* notes 115-16 and accompanying text. The Administrator may add a chemical to the list of substances regulated under Title VI if it is "known or may reasonably be anticipated to cause or contribute to harmful effects on the stratospheric ozone layer." Clean Air Act, 42 U.S.C. §7671a(b) (1994).

<sup>161</sup> S. REP. NO. 101-228, at 377 (1990), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3760.

<sup>162</sup> Because of their lifetime and chemical characteristics, each molecule of certain CFCs contributes approximately 20,000 times more to global warming than a molecule of CO<sub>2</sub>, and each methane molecule contributes 25 times more. The ratio of warming per molecule of a given substance to the warming produced by a molecule of CO<sub>2</sub> is known as the global warming potential. IPCC, SECOND ASSESSMENT REPORT, *supra* note 83, at 21.

<sup>163</sup> S. REP. NO. 101-228, at 378 (1990), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3761.

<sup>164</sup> *Id.* at 3762.

<sup>165</sup> *Id.* at 3763.

<sup>166</sup> Indeed, the only reference to global warming left in Subchapter VI is: "One year after [enactment of the Clean Air Act Amendments of 1990] . . . and after notice and opportunity for public comment, the Administrator shall publish the global warming potential of each listed substance. The preceding sentence shall not be construed to be the basis of any additional regulation under this chapter." 42 U.S.C. § 7671a(e) (1994).

<sup>167</sup> This construction also provides further evidence that it was not the intent of Congress to use the current legislation to impose limitations on greenhouse gases.

the emissions of greenhouse gases by issuing both primary and secondary standards.<sup>168</sup> Important new information that was not available at the time of the congressional deliberations in 1990, such as the Intergovernmental Panel on Climate Change's Second Assessment Report, could convince EPA that "the balance of evidence, from changes in global mean surface air temperature and from changes in geographical, seasonal and vertical patterns of atmospheric temperature, suggests a discernible human influence on global climate."<sup>169</sup> However, as discussed above, no existing section of the CAA explicitly authorizes EPA to address climate issues.

Implicit in the concepts of "ambient" air pollution in sections 108 and 109 and "exposure" to hazardous pollutants in section 112 is the notion that the action taken by the EPA Administrator and the states—which implement the section 108 and 109 air quality standards through SIPs—will affect the health and environmental problems caused by air pollution originating in the immediate geographic area. States would probably adamantly oppose programs requiring them to address pollution that originates outside of their jurisdiction. However, because CO<sub>2</sub> and the other greenhouse gases are well-mixed components of the atmosphere, alleviating anticipated local negative impacts of climate change would require a global reduction in concentrations—something that cannot be achieved solely by a local reduction in emissions.<sup>170</sup> The local and regional focus of the criteria air pollutant and hazardous air pollutant provisions seems to create an almost insuperable obstacle to the implementation of restrictions on the emissions of greenhouse gases through Titles I and II of the CAA.

If Congress determines that the scientific results are sufficient, it should amend the CAA to authorize EPA to regulate greenhouse gases. Such amendments should specify the measures that regulated parties must employ to reduce emissions. At the time of the 1990 Amendments, former EPA Administrator William Ruckelshaus testified before the Senate that Congress should explicitly delegate the authority to EPA in the CAA to regulate SO<sub>2</sub> and NO<sub>x</sub> emissions: "EPA may be in a much less defensible

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<sup>168</sup> Pub. L. 91-604, 84 Stat. 1678 (codified as amended at 42 U.S.C. § 7408 (1994)) (section 108); Pub. L. 91-604, 84 Stat. 1679 (codified as amended at 42 U.S.C. § 7409 (1994)) (section 109); Pub. L. 91-604, 84 Stat. 1685 (codified as amended at 42 U.S.C. § 7412 (1994)) (section 112). For reports on the potential adverse health effects of climatic change see WHO, *supra* note 103; JAMA, *supra* note 103; Paul B. Phelps, CONFERENCE ON HUMAN HEALTH AND GLOBAL CLIMATE CHANGE: SUMMARY OF THE PROCEEDINGS 1-27 (Valerie Setlow & Andrew Pope, eds., 1996); S. Lindsay & M. Birley, *Climate Change and Malaria Transmission*, 90 ANNALS TROPICAL MED. & PARASITOLOGY 580 (1996); Working Group on Public Health and Fossil-Fuel Combustion, *Short-Term Improvements in Public Health from Global-Climate Policies on Fossil-Fuel Combustion: An Interim Report*, 350 LANCET 1341 (1997).

<sup>169</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IPCC SECOND ASSESSMENT CLIMATE CHANGE 1995, 5 (1995). The IPCC was established by the United Nations Environmental Program and the World Meteorological Organization in 1988 and brings together over 2,500 government-appointed scientists to produce assessments of the policy, science, and effects of climate change. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, ABOUT IPCC, at <http://www.ipcc.ch/about/about.html> (last visited July 20, 2000).

<sup>170</sup> IPCC, CLIMATE CHANGE 1994: RADIATIVE FORCING OF CLIMATE CHANGE AND AN EVALUATION OF THE IPCC IS92 EMISSION SCENARIOS 12 (1995); see also *supra* notes 98-99.

position where those reductions are sought through creative use of existing authority, than where Congress clearly mandates reductions beyond those required to meet local ambient air quality concerns."<sup>171</sup> However, because climate change is a global problem, EPA should have difficulty justifying the use of the existing Titles I and II of the CAA to address the problem, when the rationale for adding new titles to address the acid deposition and stratospheric ozone problems suggested that they were inadequate for other regional and global problems.<sup>172</sup>

### *E. Vulnerability to Legal Challenges*

As illustrated by the above discussion, if EPA decides to issue standards for greenhouse gases, it seems unlikely that the agency's decision would escape legal challenges. In that inevitable situation, the court would apply the *Chevron* doctrine, a two-step analysis that is the standard of review for an agency's interpretation of a statute it administers.<sup>173</sup> Under the first step of the *Chevron* doctrine, the court must determine whether Congress has directly addressed the question at issue.<sup>174</sup> If Congress's intent is clear, the review ends because the court must give effect to the unambiguous intent of Congress. For example, if Congress has explicitly delegated authority to the agency to regulate, the court must give such regulations "controlling weight unless they are arbitrary, capricious, or manifestly contrary to the statute."<sup>175</sup> However, if a court determines that a statute is silent or ambiguous with respect to the disputed issue, *Chevron's* second step requires the court to determine whether the agency's construction is permissible.<sup>176</sup> When Congress implicitly delegates authority to the agency, the court "may not substitute its own construction of a statutory provision for a reasonable [agency] interpretation"<sup>177</sup> unless "it appears from the statute or its legislative history that the accommodation is

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<sup>171</sup> S. REP. NO. 101-228, at 290 (1990), reprinted in 1990 U.S.C.C.A.N. 3385, 3673.

<sup>172</sup> Denise A. Hartman, Note, *Acid Precipitation: Limits of the Clean Air Act and the Necessary Role of the Federal Common Law*, 34 SYRACUSE L. REV. 619, 638-46 (1983). Only sulfur and nitrogen oxides can be controlled by the law. The sulfates and nitrates that produce acid rain may not be regulated because they form in the upper atmosphere. NAAQS only apply to air close to ground level where the regulated pollutants could contribute to adverse effects on human health. *Id.*

<sup>173</sup> *Chevron, U.S.A., Inc. v. Natural Resources Defense Council (Chevron)*, 467 U.S. 837, 842-43 (1984). Many articles have been written on the *Chevron* doctrine. See, e.g., Theodore L. Garrett, *Judicial Review After Chevron: The Courts Reassert Their Role*, 10 NAT. RESOURCES & ENV'T, 59 (1995); Damien J. Marshall, Note, *The Application of Chevron Deference in Regulatory Preemption Cases*, 87 GEO. L.J. 263, 263-64 (1998); David M. Gossett, Comment, *Chevron, Take Two: Deference to Revised Agency Interpretations of Statutes*, 64 U. CHI. L. REV. 681 (1997); O.S. Kerr, *Shedding Light on Chevron: An Empirical Study of the Chevron Doctrine in the U.S. Courts of Appeals*, 15 YALE J. ON REG. 1 (1998).

<sup>174</sup> 467 U.S. at 843-44.

<sup>175</sup> *Id.* at 844. But see *American Trucking*, 175 F.3d 1027, 1034-37 (D.C. Cir. 1999) (calling into question traditional judicial deference to agencies).

<sup>176</sup> 467 U.S. at 843-44.

<sup>177</sup> *Id.* at 844.

not one that Congress would have sanctioned."<sup>178</sup>

Section 108 of the CAA and its legislative history indicate that Congress has unambiguously given the EPA Administrator authority to maintain and update the list of criteria pollutants.<sup>179</sup> For this provision, Congress has explicitly left a gap for the agency to fill through its regulatory authority.<sup>180</sup> Therefore, a court reviewing section 108 would determine whether EPA's decision to add greenhouse gases to the criteria pollutant list was arbitrary and capricious.

## V. USING TRADING MECHANISMS TO IMPLEMENT THE KYOTO PROTOCOL

In announcing the U.S. strategy to reduce its emissions, President Clinton stated that "[a]fter we have accumulated a decade of experience, a decade of data, a decade of technological innovation, we will launch a broad emissions trading initiative to ensure that we hit our binding targets."<sup>181</sup> In the negotiations at Kyoto, the United States modified its targets, but both Secretary Eizenstat and Administrator Browner have affirmed that a market-based approach to reducing emissions remains the preferred option.<sup>182</sup>

The *American Petroleum Institute v. Environmental Protection Agency (American Petroleum)*<sup>183</sup> decision establishes the scope of EPA's statutory authority to devise new compliance mechanisms, such as a trading scheme.<sup>184</sup> In *American Petroleum*, the D.C. Circuit refused to presume a delegation of power to the agency based on the absence of Congress's explicit withholding of the claimed power: "[T]he authority to set a standard under the CAA does not authorize the EPA to mandate the manner of compliance or the precise formula for compliance without additional explicit authority."<sup>185</sup>

Even EPA's Office of General Counsel has asserted that the agency does not have the authority to require states to use emissions trading under Title I.<sup>186</sup> While EPA may have the authority to add new substances to the criteria pollutant list, it may only mandate a particular approach if an existing SIP issued under section 110 of the Clean Air Act is deemed a failure.<sup>187</sup> If a SIP is adequate to carry out the required standard, a state may

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<sup>178</sup> *Id.* at 845 (quoting *United States v. Shimer*, 367 U.S. 374, 382-83 (1961)).

<sup>179</sup> *See supra* note 68.

<sup>180</sup> Clean Air Act, 42 U.S.C. § 7408 (1994); S. REP. NO. 101-228, at 6 (1990), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3392.

<sup>181</sup> President William J. Clinton, Remarks by the President on Global Climate Change to the National Geographic Society (Oct. 22, 1997) *available at* [www.whitehouse.gov/initiatives/climate/19971022-6127.html](http://www.whitehouse.gov/initiatives/climate/19971022-6127.html).

<sup>182</sup> For example, Administrator Browner noted "the Clean Air Act does not provide the Agency with the authority to address certain pollutants using market mechanisms which we all agree have been tremendously successful." Browner Testimony, *supra* note 38, at 207.

<sup>183</sup> 52 F.3d 1113 (D.C. Cir. 1995).

<sup>184</sup> *Id.* at 1121.

<sup>185</sup> *Id.*

<sup>186</sup> Cannon Memorandum, *supra* note 40, at 205 (citing *Commonwealth of Virginia v. Environmental Protection Agency*, 108 F.3d 1397 (D.C. Cir. 1997)).

<sup>187</sup> Clean Air Act, 42 U.S.C. §7410(c) (1994).

enforce that SIP in any manner that it chooses.<sup>188</sup> Accordingly, EPA may not devise new compliance mechanisms such as emissions trading programs, even if greenhouse gases are deemed to be criteria pollutants.

Nevertheless, the Administration's analysis of the Protocol's costs quite optimistically assumes not only a fully operational domestic trading system, but also full global trading.<sup>189</sup> Most economic models estimate that an efficient global trading system would reduce costs by approximately a factor of ten.<sup>190</sup> Such an estimate assumes placing a cap on emissions in all developing countries and extending emissions trading to all nations.<sup>191</sup> While participating states have not agreed yet as to the "principles, modalities, rules, and guidelines" for trading, vehement non-Annex I opposition is likely to restrict non-Annex I participation to the Clean Development Mechanism.<sup>192</sup> Thus, the two prongs of the Administration's economic analysis, global emissions caps and full-scale emissions trading, reflect the spirit of the Byrd-Hagel Resolution.<sup>193</sup> Unfortunately, both the Senate's demands and the analytical assumptions of the President's Council of Economic Advisors would require new domestic legislation and would also require amendments to the Kyoto Protocol.<sup>194</sup> During the interim between signature and ratification of the Protocol, however, even pilot projects that would allow countries and firms to gain experience with emissions trading have been viewed as further evidence of backdoor implementation.<sup>195</sup>

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<sup>188</sup> *Id.* § 7410(a)(2) (1994). EPA cannot reject a SIP because of its views on "the wisdom of a State's choices of emissions limitations." *Train v. Natural Resources Defense Council*, 421 U.S. 60, 79 (1975). Similarly, EPA cannot reject a SIP because of any perceived technical unfeasibility of the SIP. *Union Electric Co. v. Environmental Protection Agency*, 427 U.S. 246, 265 (1976).

<sup>189</sup> Council of Economic Advisors, *THE KYOTO PROTOCOL AND THE PRESIDENT'S POLICIES TO ADDRESS CLIMATE CHANGE: ADMINISTRATION ECONOMIC ANALYSIS* (1998); Raymond J. Kopp & J.W. Anderson, *Estimating the Costs of Kyoto: How Plausible Are the Clinton Administration's Figures?*, at <http://www.weathervane.rff.org/features/feature034.html> (Mar. 12, 1998).

<sup>190</sup> *See, e.g.*, A. Denny Ellerman & Annelene Decaux, *REPORT #40 ANALYSIS OF POST-KYOTO CO<sub>2</sub> EMISSIONS TRADING USING MARGINAL ABATEMENT CURVES*, at <http://web.mit.edu/globalchange/www/rpt40.html> (1998).

<sup>191</sup> *Id.*

<sup>192</sup> Kyoto Protocol, *supra* note 1, art. 17, 37 I.L.M. at 40. For evidence of non-Annex I hostility see *supra* note 26.

<sup>193</sup> S. Res. 98, 105th Cong. (1997).

<sup>194</sup> Wiener provides an explanation of why both advocates and opponents of action on climate change would oppose trading. Advocates of aggressive climate protection may "fear that trading is so complex or open to abuse that it will not result in effective emissions limits, or simply [believe] that their support can be used as a bargaining chip to extract concessions from advocates of trading." Jonathan Baert Wiener, *On the Political Economy of Global Environmental Regulation*, 87 *GEO. L.J.* 749, 777 (1999). Meanwhile, skeptics "fear that the cost-saving claims of trading will entice countries to blithely adopt overly stringent quantity-based emissions caps which are then resistant to relaxation even as costs escalate." *Id.*

<sup>195</sup> Senator Hagel denounced a proposed US-Russian emissions trading pilot project: "Any emissions trading system is directly tied to implementing or preparing to implement the Kyoto Protocol.... This proposed 'pilot' emissions trading system is a partial, advance implementation of the Kyoto Protocol. Let me say this in a different way. An emissions trading system can have no value under the Framework Convention for Climate Change, because that is a voluntary treaty." *Second Confirmation Hearing for David B. Sandalow to be Assistant*

## VI. FUNDING OF RESEARCH AND VOLUNTARY PROGRAMS

Research into the causes and potential impacts of climate change largely seems to have escaped congressional criticism. In part, Congress has not focused on climate change research, because Congress sees the research as a means of taking "action" without imposing any regulatory costs. Even the most ardent congressional opponents of the Kyoto Protocol have acknowledged that research, education, and cooperative activities should be funded at some level and that the United States must meet its obligations under the 1992 Climate Change Convention.<sup>196</sup>

Historically, Congress has allowed or required EPA to carry out research programs and cooperative, voluntary efforts with industry to reduce pollution.<sup>197</sup> Section 103(g) of the CAA explicitly authorizes EPA to conduct research and to develop "improvements in non-regulatory strategies and technologies for preventing or reducing multiple air pollutants including . . . carbon dioxide."<sup>198</sup> Both industry and Congress have fairly unambiguously supported EPA's Climate Change Action Plan—which included such initiatives as Green Lights and Energy Star Buildings, along with the ClimateWise program for electric utilities and the Partnership for a New Generation of Vehicles—though never at the levels requested by the Administration.<sup>199</sup>

The Clinton Administration's proposed climate change budget for the 2001 fiscal year maintains an emphasis on research and voluntary programs.<sup>200</sup> The budget's increase in funding to "combat global climate change" is a combination of tax incentives and support for research and development in clean energy technologies and of funding for research and voluntary programs.<sup>201</sup> Although congressional attempts to impose restrictions on voluntary programs or educational outreach have failed, the most vocal opponents of "backdoor implementation" have criticized EPA's educational outreach and the use of voluntary programs.<sup>202</sup>

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*Secretary of State for Oceans and International Environmental and Scientific Affairs: Before the Senate Committee on Foreign Relations, 106th Cong. (1999) (statement of Senator Chuck Hagel) (forthcoming).*

<sup>196</sup> See, for example, the colloquy between the two leading opponents of the Kyoto Protocol in the House, Rep. McIntosh (R-Ind.) and Rep. Knollenberg (R-Mich.), which affirms the U.S. obligations under the Framework Convention. 144 CONG. REC. H6574 (July 29, 1998). *But see infra* notes 212–15 and accompanying text.

<sup>197</sup> EPA has justified its voluntary programs with various provisions of the Clean Air Act. 42 U.S.C. § 7402 (1994) ("Cooperative activities"); *Id.* § 7403(a),(b),(g) ("Research, Investigation, Training and other activities"); *Id.* § 7404 ("Research related to fuels and vehicles"); *Id.* § 7408(f); Pollution Prevention Act of 1990, *Id.* §§ 13101–13104; Global Climate Protection Act of 1987, § 1103, 15 U.S.C. § 2901 (1994); and Federal Technology Transfer Act, *Id.* § 3710a (1994). *See also* Framework Convention, *supra* note 6, at art. 4(1)(g), 31 I.L.M. at 856.

<sup>198</sup> 42 U.S.C. 7403(g) (1994).

<sup>199</sup> Laura H. Kosroff & Mark C. Tresler, *Global Warming, Climate-Change Mitigation, and the Birth of a Regulatory Regime*, 27 ENVTL. L. REV. 10012, 10013 (1997).

<sup>200</sup> Office of the Press Secretary, The White House, PRESIDENT CLINTON'S FY2001 CLIMATE CHANGE BUDGET, Feb. 3, 2000, available at 2000 WL 126381.

<sup>201</sup> *Id.*

<sup>202</sup> *See infra* notes 212–15 and accompanying text.

## VII. THE POLITICAL DEBATE

The debate over regulating CO<sub>2</sub> and other greenhouse gases involves not only a legal question but also a political question. Both the Administration and conservatives in Congress appear at times to be in favor of the same goals: energy efficiency, economic incentives, active participation of developing countries in a control regime, and a clear mandate from the Senate before undertaking binding regulation.<sup>203</sup> At the same Senate hearing where Secretary Eizenstat gave unambiguous assurances to the Senate subcommittee that the U.S. would seek developing country participation as a condition before the Protocol would be submitted to the Senate for ratification, he also insisted that

[w]e have no intention, through the back door or anything else, without Senate confirmation, of trying to impose or take any steps to impose what would be binding restrictions on our companies, on our industry, on our business, on our agriculture, on our commerce, on our country, until and unless the Senate of the United States says so.<sup>204</sup>

Problematically, when Eizenstat disavowed "taking any steps" to implement the Kyoto Protocol, he did not define what he considers a "step."

Those most vehemently opposed to the Administration's position would prefer, at best, to continue existing activities at past levels of support. Others would prefer to dramatically increase funding for ongoing EPA activities that are authorized explicitly by statute. The most liberal position would support the regulation of carbon dioxide under the Clean Air Act independent of any consideration of the Protocol. The conservatives who question the validity of the science and who wish to use "backdoor implementation" as the basis for not addressing the climate problem appear to be on a collision course with those in the Clinton Administration who wish to pursue an aggressive course toward the Protocol. However, such a course has an unsound legal basis and moreover, is counterproductive because it creates a legitimate pretense for opposing even reasonable efforts to regulate greenhouse gases.

In spite of the legislative history of the CAA and the weak basis for regulatory action under the statute,<sup>205</sup> advocates of immediate action have sought to exploit EPA's assertion that the CAA would allow the agency to regulate greenhouse gases. On October 20, 1999, the International Center for Technology Assessment (ICTA) filed a petition with EPA, on behalf of a number of environmental and renewable energy industry organizations,<sup>206</sup> to compel the agency to regulate emissions of greenhouse gases from motor

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<sup>203</sup> See *supra* notes 24, 28, 31, 182, 196 & 199.

<sup>204</sup> 144 CONG. REC. 53,242 (daily ed. Apr. 20, 1998) (Statement of Sen. Hagel).

<sup>205</sup> See *supra* Part IV.

<sup>206</sup> *International Center for Technology Assessment, Petition For Rulemaking and Collateral Relief Seeking the Regulation of Greenhouse Gas Emissions From New Motor Vehicles Under §202 of the Clean Air Act*, at <http://www.icta.org/legal/ghgsum.htm>, at \*4-5 (Oct. 20, 1999). Among the petitioners were Public Citizen, Greenpeace, the National Environmental Trust, and the Solar Energy Industries Association.



vehicles under section 202(a)(1) of the CAA.<sup>207</sup> The petition asserted that greenhouse gases could be classified as pollutants under the CAA.<sup>208</sup> ICTA argued that federal law requires EPA to regulate emissions of carbon dioxide and other greenhouse gas emissions from motor vehicles.<sup>209</sup> In response, a group of more than twenty industry associations have filed a counter-petition challenging the legal and scientific basis for EPA's proposed regulation of greenhouse gases under the CAA.<sup>210</sup> These groups hope to "test [] the climate change scare," in part by emphasizing the "overwhelming positive externalities" of carbon dioxide in the air.<sup>211</sup>

For EPA, the critical issue underlying its decision on the regulation of greenhouse gases under the CAA is whether it wishes to test the limits of its statutory authority. Retaining the prerogative of regulating carbon dioxide is an important point of leverage in EPA's negotiations with industry, Congress, and even others in the executive branch. Thus, EPA may feel that it can extract concessions from its adversaries by explicitly relinquishing the possibility of command-and-control regulation of greenhouse gases. At the same time, it may be counterproductive for EPA to push too strongly, even in contemplation of regulating greenhouse gases under its existing statutory authority, because of the danger of congressional backlash.

For example, the Fiscal Year 1999 Independent Agencies Budget Resolution (FY99), which authorized EPA's budget, demonstrates congressional hostility to any perceived attempt to implement the Kyoto Protocol.<sup>212</sup> FY99 mandated that none of the appropriated funds could be used to "propose or issue rules, regulations, decrees, or orders for the purpose of implementation, or in preparation for implementation, of the Kyoto Protocol."<sup>213</sup> Accordingly, the House narrowly defeated an effort to eliminate EPA's educational outreach and information seminars amidst concerns that EPA would use the fora to advocate for climate change regulation.<sup>214</sup> Ultimately, the budget impasse between Congress and the White House led to a pre-election Omnibus Appropriations bill with little explicit language regarding the Kyoto Protocol; although the so-called Knollenberg Amendment, which prevents EPA from taking regulatory action, remains, it has little practical effect.<sup>215</sup> Nevertheless, those who

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<sup>207</sup> *Id.*

<sup>208</sup> *Id.* at \*9-11 (citing Clean Air Act, 42 U.S.C. §7602(g) (1994). For a broad interpretation of "pollutants," see *Alabama Power Co., v. Costle*, 636 F.2d 323, 353 (D.C. Cir. 1979).

<sup>209</sup> *Id.* at \*8.

<sup>210</sup> See Chris Holly, *Mission Impossible? Groups Ask EPA to Regulate Carbon Dioxide*, 27 ENERGY DAILY, Oct. 25, 1999, at 204.

<sup>211</sup> *Coal Challenges CO<sub>2</sub> Pollutant Status*, 13 ELECTRICITY DAILY, Dec. 6, 1999, at 106.

<sup>212</sup> H.R. REP. NO. 105-610, at 59 (1998).

<sup>213</sup> Pub. L. No. 105-276, 112 Stat. 2496.

<sup>214</sup> Joby Warrick, *House Backs Global Warming Education*, WASH. POST, July 24, 1998, at A10.

<sup>215</sup> H.R. REP. NO. 105-769, at 273-74 (1998) (stating that "[t]he conferees have also adopted new language prohibiting the use of funds to take certain actions for the purpose of implementing or preparing to implement the Kyoto Protocol, instead of language proposed by the House. The conferees note that this restriction on the use of funds shall not apply to the conduct of education activities and seminars by the Agency . . . . The bill language is intended to

oppose compulsory reductions in greenhouse gases could justify investigating any program aimed at reducing greenhouse gases by characterizing the program as an EPA attempt at "back-door" implementation of the Protocol.

In part, the timing of executive actions has caused Congress's agitation with the Clinton Administration's activities. For example, one month after the Kyoto conference, President Clinton presented his five-year, \$6.3 billion climate initiative proposal following his 1998 State of the Union Address.<sup>216</sup> Although President Clinton mentioned the policy initiative in his policy address outlining the U.S. negotiating position before Kyoto,<sup>217</sup> opponents of implementation have portrayed the initiative as an attempt to implement the Kyoto Protocol's terms.<sup>218</sup> The combination of injudicious remarks by certain Administration officials,<sup>219</sup> a proposed significant increase in activities related to climate change, and antipathy among certain congressional members towards emissions reduction has led to heightened tension over the goal and tenor of existing EPA programs.<sup>220</sup>

Ongoing domestic activities to regulate greenhouse gas emissions may lose congressional support if the Protocol is not ratified, even though these activities are not an effort to implement the Kyoto Protocol and are seemingly permissible under the Framework Convention on Climate Change and certain provisions of the CAA.<sup>221</sup> However, a failure to ratify the

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prohibit funds provided in this bill from being used to implement actions called for solely under the Kyoto Protocol, prior to its ratification"). For a discussion of the legality of EPA's actions see PETER F. GUERRERO, GENERAL ACCOUNTING OFFICE, CLIMATE CHANGE: OBSERVATIONS ON THE APRIL 1999 REPORT ON CLIMATE CHANGE PROGRAMS 10 (1999) (concluding that "the limitation does not preclude EPA from engaging in activities that are otherwise authorized by law").

<sup>216</sup> Jonathan Peterson, *Clinton Offers Breaks to Fight Global Warming*, L.A. TIMES, Feb. 1, 1998, at A1.

<sup>217</sup> Brian McGrory, *Clinton Emission Plan Takes a Middle Path*, BOSTON GLOBE, Oct. 23, 1997, at A1.

<sup>218</sup> See, e.g., Joel Bucher, *The Cost of Kyoto*, J. COMM., Feb. 5, 1998, at 6A (asserting that the State of the Union speech is evidence that President Clinton intends to thwart Senate approval and Congressional intent by immediately implementing the Protocol).

<sup>219</sup> See, e.g., Leyla Boulton, *Senate May Block Funds for Climate Control*, FIN. TIMES, Apr. 22, 1998, at 1 (citing Joe Romm, a senior official at the Department of Energy, who said the \$6.3 billion package would be the most cost-effective way for the United States to cut its greenhouse-gas emissions, as called for under the Kyoto Protocol).

<sup>220</sup> See *supra* notes 212-15 and accompanying text.

<sup>221</sup> In recent hearings, Prof. William Lash III of George Mason University argued that "in light of the fact that EPA chooses to interpret the Knollenberg Amendment as a practical nullity, Congress should seriously consider strengthening the Amendment to give it more teeth." *Global Climate Change: The Administration's Compliance with Recent Statutory Requirements: Hearings Before the Senate Subcomm. on Energy Research, Dev., Prod. and Regulation of the Energy and Natural Resources Comm. and the House Subcomm. on Natural Econ. Growth, Natural Resources and Regulatory Affairs of the Government Reform Comm.*, 106<sup>th</sup> Cong. (1999) (statement of William Lash III, Professor of Law, George Mason Univ.) (forthcoming). H. Con. Res. 68 is a recent proposal that would reaffirm the Byrd-Hagel Resolution with a sense of Congress that "funds should not be provided to put into effect the Kyoto Protocol prior to its ratification in compliance with the requirements of the Byrd-Hagel Resolution and consistent with previous Administration assurances to Congress." H.R. Con. Res. 68, 106<sup>th</sup> Cong. §329 (1999).

Protocol could bolster support for such programs and facilitate separate legislation to control greenhouse gas emissions. Congress could grant such authority through the proposed amendments to the CAA,<sup>222</sup> the Energy Policy Act,<sup>223</sup> or separate legislation, such as provisions of the Jeffords electricity-restructuring bill.<sup>224</sup> The Administration did not propose legally binding limits to control the emissions of carbon dioxide, because it did not believe that it could secure a majority in either the House or Senate for such a measure.<sup>225</sup>

Securing a two-thirds majority in the Senate to ratify the Kyoto Protocol appears to be an insurmountable task under even the most favorable circumstances. However, a refusal to submit the Kyoto Protocol for ratification would be problematic legally and counterproductive politically. Amending the Clean Air Act or including emissions controls in other legislation would seem to be the most direct path to reduce greenhouse gas emissions with or without ratification of the Kyoto Protocol. The Administration appears reluctant to contemplate this approach in advance of a serious effort to win Senate ratification of the Kyoto Protocol. Like parties in international negotiations, the Administration appears willing to sacrifice short-term reductions in order to attempt to achieve more substantial reductions at a later date.<sup>226</sup> Absent a ratification vote, every pilot project or

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<sup>222</sup> Credit for Early Action Act of 1998, S. 2617, 105th Cong. (1998).

<sup>223</sup> Energy and Climate Policy Act of 1999, S. 882, 106th Cong. (1999).

<sup>224</sup> See *supra* note 34. The 106th Congress has seen movement in this direction by even the most strident opponents of regulatory action. Most notably, Senators Murkowski and Hagel, and a number of other opponents of Kyoto introduced a bill that provided for many constructive, long-run proposals to address climate change. In his remarks introducing the Energy and Climate Policy Act of 1999, Sen. Murkowski spoke of the bill as a "first step" and of the need to: 1) ensure that the U.S. Global Climate Change Research Program "is conducting high quality, merit-based, peer-reviewed science"; 2) "remove regulatory obstacles that stand in the way of voluntary greenhouse gas emissions reductions"; 3) "promote voluntary agricultural and forest management practices"; 4) "promote U.S. exports of clean technologies to [developing] nations"; and 5) "pursue possible changes to the Tax Code to promote certain activities or practices designed to reduce, sequester or avoid greenhouse gas emissions." 145 CONG. REC. S4266-67 (daily ed. Apr. 27, 1999) (statement of Sen. Murkowski). Nevertheless, the opposing sentiment can be found in the words of one of Sen. Murkowski's co-sponsors. Sen. Larry Craig (R-Wyo.) expressed concern regarding:

the Administration's strong desire to drastically cut carbon and its seeming willingness to do so by whatever regulatory measure available. Demonstrative evidence of the Administration's thinking on this issue is contained in the April 10, 1998, EPA General Counsel memo to Carol Browner, describing EPA's authority to regulate carbon dioxide under the Clean Air Act. This memo, in my opinion, clearly overstates EPA's authority to regulate pollutants under the Clean Air Act. Moreover, this memo is indicative of the Administration's penchant for finding regulatory fixes for problems. Its allies in this campaign are those in the international community who are either indifferent to, or against our economic interests. We all know, or should know, that at this moment in history, when you cap carbon you cap economic growth. 145 CONG. REC. S4271 (daily ed. Apr. 27, 1999).

<sup>225</sup> See *supra* notes 12, 14, and 15.

<sup>226</sup> The legislative initiative for early action was created by the late Senator John Chafee (R-R.I.), who was then the Chairman of the Senate Environment and Public Works Committee, and a bipartisan group of Senators who have sponsored legislation that would award credit for near-

new initiative that could provide significant reductions in greenhouse gases or would act as an experimental testbed for future regulation of greenhouse gases—in whatever form it may assume—will be questioned or assailed as yet another attempt at “backdoor implementation of Kyoto.” This game of “chicken” with Congress may allow the Administration to portray itself as a staunch environmental advocate and to avoid proposing concrete regulatory measures or new legislation. The actual environmental benefits of this strategy, though, remain questionable.

EPA has the statutory authority, the congressional authorization, and the scientific justification, under both the CAA and the Framework Convention on Climate Change, to continue to carry out research and educational programs and to develop and engage in voluntary programs to reduce emissions of greenhouse gases.<sup>227</sup> Although Congress could discontinue or severely reduce funding for such programs, the programs should not be construed as attempts to fulfill the Kyoto Protocol’s legally binding restrictions.<sup>228</sup>

### VIII. CONCLUSION

The question of whether EPA has the authority to address the climate problem to any extent under the Clean Air Act should not be confused with the issue of implementing the terms of the Kyoto Protocol. Although EPA’s authority to regulate CO<sub>2</sub> and other greenhouse gases is unclear, the argument for regulating CO<sub>2</sub> under the existing statutory authority of the CAA appears tenuous.

An examination of section 112 demonstrates that CO<sub>2</sub> is ill-suited to be labeled as hazardous because of its diffuse nature and the absence of a direct threat to human health implicit in the concept of “exposure.”<sup>229</sup> However, a more compelling basis exists for issuing a secondary standard under section 108 for CO<sub>2</sub> and other greenhouse gases, because the statute defines “welfare” as including both “weather” and “climate.”<sup>230</sup>

Arguably, EPA should be authorized to regulate greenhouse gas emissions under the CAA because the statute gives EPA a clear precautionary mandate and scientific evidence establishes a link between these emissions and rising global surface temperatures. Problematically, though, aside from global mean surface temperature, results from climate models are often ambiguous, and results at the regional level are exceedingly poor—even for regions as large as the continental United States.<sup>231</sup> Furthermore, the evidence of impacts on public health or on other living things, which would justify establishing either a primary NAAQS

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term reduction in greenhouse gas emissions. S. 882, first proposed in the 105th Congress, *supra* note 222, has returned; in the 106th Congress, in a slightly modified version, as the Credit for Voluntary Reduction Act, S. 547, 106th Cong. (1999).

<sup>227</sup> See *supra* Part V; see also *supra* notes 197–201 and accompanying text.

<sup>228</sup> See Kyoto Protocol, *supra* note 1, art. 3, 37 I.L.M. at 33.

<sup>229</sup> See *supra* notes 132–38.

<sup>230</sup> See *supra* notes 74, 104 and accompanying text.

<sup>231</sup> See *supra* notes 106–09 and accompanying text.

standard or a hazardous air pollutant standard, is weak and primarily speculative.<sup>232</sup> Therefore, the current version of the CAA is not the proper mechanism for regulating emissions in the United States that precipitate climate change.

Clearly, Congress can most effectively regulate the causes of climate change by amending the Clean Air Act. Congress took a step in this direction with the 1990 CAA Amendments, which address the two atmospheric problems most similar to global warming: acid deposition and ozone depletion.<sup>233</sup> A decade later, if Congress finds compelling scientific evidence of global warming, it should take an important step toward addressing the problem by creating legislation that authorizes EPA to regulate greenhouse gas emissions.

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<sup>232</sup> See *supra* notes 102-03, 128-32 and accompanying text.

<sup>233</sup> 42 U.S.C. §§ 7651, 7671 (1994), but see *supra* notes 166-67 and accompanying text.



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