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BOOTLEGGERS, BAPTISTS, AND THE GLOBAL WARMING BATTLE

*Bruce Yandle**

Stuart Buck-

I. INTRODUCTION

Since the 1997 International Conference on Climate Change in Kyoto, Japan, the world's industrialized nations have been grappling with negotiations over the Kyoto Protocol. Passionate expressions of concern about global warming have given way to tough political bargaining, most recently seen in the heated negotiations at the Sixth Session of the Conference of the Parties to the Protocol ("COP6") in November 2000.¹ The most stunning blow to prospects for ratification of the Kyoto Protocol came in March 2001, when the Bush administration rejected it.² Although some members of Congress have publicly groused about the decision, there should be little doubt that most of Congress supported the administration's action.³

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¹ COP6 proceedings can be found at the Conference Web site *See* Sixth Session of the UNFCCC Conference of the Parties, COP6, at <http://cop6.unfccc.int> (last visited Dec. 3, 2001).

² The rejection originated in a letter from President George W. Bush to several senators. *See* Letter from President George W. Bush to Sen. Chuck Hagel, et al., (Mar. 13, 2001), available at <http://www.whitehouse.gov/news/releases/2001/03/20010314.html> (on file with the Harvard Environmental Law Review). Other Bush administration officials confirmed the rejection: Condoleezza Rice reportedly told EU ambassadors, "Kyoto is dead." Jeffrey Kluger, *A Climate of Despair*, TIME, Apr. 9, 2001, at 30.

³ The U.S. Senate passed a resolution on July 25, 1997, by a margin of 95-0, requesting the executive branch not to sign the Kyoto Protocol unless developing countries made a commitment to reduce emissions and the Protocol was shown not to cause serious harm to the U.S. economy. *See* S. Res. 98, 105th Cong. (1997). A subsequent appropriations bill prohibited federal funds from being used to implement Kyoto unless the Senate ratified that treaty. *See* Departments of Veteran Affairs and Housing and Urban Development, Independent Agencies Appropriations Act, Pub. L. No. 106-74, 113 Stat. 1047 (1999) (codified in scattered sections of U.S.C.). Another congressional bill with thirty cosponsors also required Senate ratification before any expenditures to implement Kyoto. *See* Small Business, Family Farms, and Constitutional Protection Act, H.R. 2221, 106th Cong. (1999). For an indication of senatorial opposition to Kyoto, see the following article by the former chairman of the Senate Energy and Natural Resources Committee: Frank H. Murkowski, *The Kyoto Protocol Is Not the Answer to Climate Change*, 37 HARV. J. ON

What has the public response to the action been? Generally speaking, the action has been met by outrage among Europeans and environmentalists.⁴ Environmental activists, as one might expect, are already planning a worldwide boycott of U.S. oil firms and other businesses.⁵ Eileen Claussen of the Pew Center on Global Climate Change called the decision a "profound disappointment" and a "very serious setback."⁶ Alden Meyer of the Union of Concerned Scientists called the action the "most anti-environmental act by an American president in modern history" and added that the United States had become a "rogue nation."⁷ European leaders accused Bush of being "irresponsible" and "arrogant," while Margo Wallstrom, the environment commissioner for the European Union, said, "We cannot allow one country to kill the process."⁸ British Deputy Prime Minister John Prescott accused the United States of "freeriding" and of sitting in "glorious isolation."⁹ Dominique Voynet, the French environment minister, said that the decision was "completely provocative and irresponsible" and that the United States was guilty of "sabotage."¹⁰

The outrage expressed by the Europeans may, of course, be slightly on the hypocritical side. None of the EU countries had ratified the Kyoto Protocol themselves when the United States pulled out. And little wonder: in the words of *The Economist*, "[t]he EU's dirty little secret is that very few of its own members are on track to meet their tough Kyoto tar

LEGIS. 345 (2000).

⁴ There are exceptions, of course. The Teamsters and the American Federation of Labor and Congress of Industrial Organizations ("AFL-CIO") had officially opposed Kyoto in its present form because of the potential for job losses. See Int'l Bhd. of Teamsters, General Executive Board Resolution on the Kyoto Protocol (Jan. 2001), available at <http://www.ujae.org/NewsRes/Teamster%20resolution%20on%20Kyoto%20Protocol.pdf> (on file with the Harvard Environmental Law Review); AFL-CIO Executive Council, The Kyoto Protocol (Jan. 30, 1998), available at <http://www.ujae.org/NewsRes/AFLCIOCLimResJan1998.pdf> (on file with the Harvard Environmental Law Review). Likewise, Australia had expressed skepticism about Kyoto because it would have been required to reduce its own emissions when its neighboring countries would not be limited. See, e.g., Peter O'Connor, *Australia May Back U.S. Over Withdrawal From Kyoto Agreement*, AP, Apr. 1, 2001, at WL, APWIRES directory.

⁵ See Andrew Marshall, *Boycotts Target Friends of Bush*, CHRISTIAN SCI. MONITOR, Apr. 20, 2001, at 6; U.S. *Climate Stance Triggers Boycott Threats*, ENV'T NEWS SERVICE, Apr. 5, 2001, at LEXIS, News Library, Wire Services Stories File.

⁶ Press Release, Pew Center on Global Climate Change, Statement by Eileen Claussen on U.S. Rejection of the Kyoto Protocol (Mar. 28, 2001), available at <http://www.pewclimate.org/media/pr-327kyoto.cfm> (on file with the Harvard Environmental Law Review).

⁷ Press Release, Union of Concerned Scientists, President Caves on Global Warming Treaty (Mar. 28, 2001), available at <http://www.ucususa.org/releases/03-28-01.html> (on file with the Harvard Environmental Law Review).

⁸ *The Next Step on Global Warming*, ECONOMIST, Apr. 4, 2001, at 15.

⁹ Anthony Browne, *Prescott Blasts Free-rider Bush for Kyoto Pull-out*, OBSERVER (London), Apr. 1, 2001, 2001 WL 26834525.

¹⁰ Edmund L. Andrews, *Bush Angers Europe by Eroding Pact on Warming*, N.Y. TIMES, Apr. 1, 2001, at 3.

gets by the deadline anyway."¹¹ Canada's environment minister, David Anderson, has even said that the EU deliberately sabotaged the Kyoto negotiations by "adopt[ing] a position they knew would force the United States to pull out."¹² Why? In the words of Gregg Easterbrook, "[b]ecause Europe didn't want to do anything about the greenhouse effect but wanted the United States to take the blame."¹³

The fury over Kyoto's failure is misplaced. Good evidence suggests that the Kyoto Protocol would have been a potentially huge drag on the United States' economy,¹⁴ while producing environmental benefits that would in all likelihood be too small to measure.¹⁵ Moreover, the burden borne under Kyoto would have been unevenly placed: if the United States had signed the Kyoto Protocol, it would have been required to reduce the emissions projected for the years 2008 to 2012 by some 40% to meet its Kyoto goal.¹⁶ Yet the developing world, which emits large quantities of greenhouse gases, would have faced no limits at all. As President George W. Bush's letter pointed out, the Kyoto Protocol "exempts 80 percent of the world, including major population centers such as China and India, from compliance . . ."¹⁷ With the majority of the world's population free to expand emissions, it is highly likely that total carbon emissions would have continued to rise almost unchecked by Kyoto, rather than decreasing.¹⁸ This fact suggests that Kyoto involved much more than a publicspirited commitment to reduce carbon emissions. Far from being a high

¹¹ *The Next Step in Global Warming*, *supra* note 8, at 15; see also David G. Victor, Editorial, *Piety at Kyoto Didn't Cool the Planet*, N.Y. TIMES, Mar. 23, 2001, at A19 (writing that "Kyoto's unachievable targets have forced governments into bizarre diplomatic contortions. Some, especially in Europe, approached the Kyoto talks and subsequent negotiations in The Hague with no serious plan for how they would comply with the targets."); Robin Pomeroy, *Energy Experts Say EU May Not Meet Kyoto Target*, REUTERS, May 23, 2001, at <http://www.planetark.org/dailynewsstory.cfm?newsid=10922> (on file with the Harvard Environmental Law Review); *Minister Doubts Germany Can Meet Pollution Target*, REUTERS NEWS SERVICE, Apr. 2, 2001, available at <http://www.planetark.org/dailynewsstory.cfm?newsid=10327> (quoting Germany's economy minister as saying that it would be "hardly possible" for Germany to meet its Kyoto targets) (on file with the Harvard Environmental Law Review); *Green-aware Scandinavia Hard-pressed on Kyoto Targets*, REUTERS, Nov. 23, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=907> (reporting that Scandinavian countries will probably not be able to meet Kyoto targets) (on file with the Harvard Environmental Law Review).

¹² Gregg Easterbrook, *Health Nut*, NEW REPUBLIC, Apr. 30, 2001, at 16.

¹³ Easterbrook adds, "American commentators have happily parroted Europe's line." *Id.* Canadian minister David Anderson was also quoted as calling the Europeans "obstructionist" and "intransigent," and as saying, "Those who think that the problems [with Kyoto] started with Bush are wrong." Ambrose Evans-Pritchard, *Salvaging Kyoto: EU Won't Fight Bush, Seeks Modifications to Climate-control Agreement U.S. Won't Sign*, DAILY TELEGRAPH (London), Apr. 9, 2001, at A14.

¹⁴ See *infra* notes 133-179 and accompanying text.

¹⁵ See *inj* notes 47-57 and accompanying text.

¹⁶ ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, REPORT NO. SR/OIAF/98-03, IMPACTS OF THE KYOTO PROTOCOL ON U.S. ENERGY MARKETS AND ECONOMIC ACTIVITY (1998), available at <http://www.eia.doe.gov/oiaf/kyoto/kyotorpt.html>.

¹⁷ Letter from President George W. Bush, *supra* note 2.

¹⁸ See *inj* notes 49-52 and accompanying text.

mind and objective solution to the world's climate problems, the Kyoto Protocol would have created a new and enhanced arena for nations, groups, and companies to pursue their special interests. The outcomes may ultimately have been more destructive than helpful.

The "bootleggers and Baptists" theory of economic regulation provides insight into what really happened with the Kyoto negotiations.¹⁹ This Article argues that this theory best explains the actions and maneuvering displayed by many countries and corporations, in both their support for and opposition to Kyoto. Part II begins with a brief description of Kyoto's terms and then illustrates the limitations on its capacity to effect positive environmental change. This Article also highlights the fact that alternative factors, extending beyond mere desire for environmental regulatory reform, have informed support for the Protocol. Part III puts forth various theories of regulation, and then explores in great detail the negotiations over Kyoto in light of the "bootleggers and Baptists" theory. The conclusion is that various nations and corporations have tried to influence Kyoto's terms to serve their own parochial interests at the expense of the public good.

11. THE ORIGIN AND TERMS OF KYOTO

After the participants in the 1992 Rio Earth Summit Conference adopted the United Nations Framework Convention on Climate Change,²⁰ the Intergovernmental Panel on Climate Change began issuing a series of reports on the potential effects of global warming caused by human emissions of greenhouse gases.²¹ The end result, after a 1997 "Conference of the Parties" in Kyoto, Japan, was a massive international agreement to limit the emissions of such greenhouse gases: the Kyoto Protocol.²² As of

¹⁹ This theory was first described in Bruce Yandle, *Bootleggers and Baptists: The Education of a Regulatory Economist*, REGULATION, May-June 1983, at 12; see also Bruce Yandle, *Bootleggers, Baptists, and Global Warming*, HOOVER DIG., Winter 2001; Bruce Yandle, *After Kyoto: A Global Scramble for Advantage*, INDEP. REV., Summer 1999, at 19, 34; Bruce Yandle, *Bootleggers and Baptists in Retrospect*, REGULATION, Vol. 22, No. 3, available at <http://www.cato.org/pubs/regulation/regv22n3/bootleggers.pdf>.

²⁰ See Edith Brown *United Nations Conference on Environment and Development: Introductory Note*, 31 I.L.M. 814 (1992); United Nations Framework Convention on Climate Change, June 3-June 14, 1992, 31 I.L.M. 849.

²¹ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 1995: THE SCIENCE OF CLIMATE CHANGE (1996), available at http://www.epa.gov/globalwarming/publications/reference/ipcc_tar/wgl-science-tech.pdf.

²² For a quick lay summary of the protocol, see Peter G. Sparber & Peter E. O'Rourke, *Understanding the Kyoto Protocol*, in 2 PERSPECTIVES ON LEGISLATION, REGULATION, AND LITIGATION (George C. Landrith III ed., 1998). For the complete protocol, see *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (Dec. 1997), available at <http://www.cop4.org/resource/docs/cop3/107a01.pdf> [hereinafter *Kyoto Protocol*] (on file with the Harvard Environmental Law Review). For a thorough examination of the Protocol's genesis and terms, see MICHAEL GRUBS, ET AL., THE KYOTO PROTOCOL: A GUIDE AND ASSESSMENT (1999).

December 11, 2001, only forty-six countries (most of them small and non-industrialized) had actually ratified the Protocol.²³

Kyoto has as its fundamental premise the idea that developed countries, which are large energy users and greenhouse gas producers, should bear the brunt of reducing emissions to avoid climate change. By the years 2008 to 2012, developed countries are required to bring their total greenhouse gas emissions to 5% less than they were in 1990.²⁴ The United States in particular was expected to reduce emissions to 7% below 1990 levels by the years 2008 to 2012.²⁵ This decrease in emissions is to be achieved by reducing greenhouse gas emissions from sources and by creating "sinks," that is, by increasing absorption of greenhouse gases by forestation or other measures.²⁶

Meanwhile, developing countries, as defined in the Protocol, are treated with much more solicitude. These countries, which include China, India, South Korea, Mexico, and some 130 other countries, have the option of using a base-year period other than 1990 from which to measure their reductions (if any),²⁷ and will be given a "certain degree of flexibility" by the Conference of Parties to the Protocol.²⁸ The result is that, in effect, developing countries will face no limits at all under Kyoto.

The Protocol allows limited trading in emissions. A country may buy the right to emit a certain amount of carbon dioxide from another country that values the money more than the right to emit." But such trading may occur only under certain conditions: the trading has to involve a "reduction in emissions by sources, or an enhancement of removals by sinks, that is *additional* to any that would otherwise occur";³⁰ the country buying emissions rights must be in compliance with its obligations under Articles 5 and 7 for measuring emissions;" and any trading must be "supplemental to domestic actions" for the purpose of reducing emissions.³² The requirement of supplementarity would have the effect of reducing the gains of trade on all sides."

²³ U.N. Framework Convention on Climate Change, *Kyoto Protocol: Status of Ratification*, at <http://www.unfccc.de/resource/kpstats.pdf> (last modified Dec. 17, 2001).

²⁴ *Kyoto Protocol*, *supra* note 22, art. 3, § 1.

²⁵ See U.S. DEPT OF ENERGY, REPORT NO. SR/OIAF/98-03, IMPACTS OF THE KYOTO PROTOCOL ON U.S. ENERGY MARKETS AND ECONOMIC ACTIVITY (1999), available at <http://www.eia.doe.gov/oiaf/kyoto/pdf/sroiaf9803.pdf>.

²⁶ *Kyoto Protocol*, *supra* note 22, art. 3, § 3.

²⁷ *Id.* art. 3, § 5.

²⁸ *Id.* art. 3, § 6. The Conference of the Parties is the Protocol's term for the "supreme body of the Convention." *Id.* art. 13, § 1.

²⁹ See *id.* art. 3, §§ 10, 11, art. 6, § 17.

³¹ *Kyoto Protocol*, *supra* note 22, art. 6, § 1(b).

³² *Id.* art. 6, § 1(c).

³³ *Id.* art. 6, § 1(d).

³³ See Thomas Black-Arbelaez, *Supplementarity at COPE: Fewer Benefits and Less Development for Asian Countries*, in Australian Bureau of Agricultural and Resource Economics ("ABARE"), Outlook 2001, at 29 (2001), available at <http://www.abareconomics.com/pdf/12IntCC.pdf> (on file with the Harvard Environmental Law Review) It is fair to

Just as significantly, the Protocol allows countries to band together in voluntary associations in order to have their emissions considered collectively"-a "bubble" scenario that is widely understood as applying primarily, if not solely, to the European Union." If the EU has its emissions considered as a whole, the individual countries comprising the EU have a great deal more flexibility in meeting any individual emissions targets, without necessarily having to explicitly "trade" emissions rights. If Greece has higher emissions one year for whatever reason, while another EU country has lower emissions, no trading need occur unless the overall sum of EU emissions surpasses the overall limit.

Two other features of the Kyoto Protocol involve international cooperation on carbon reduction projects. Under "Joint Implementation," two industrialized countries (or "Annex I" countries) may create a joint project to reduce emissions in one country, with the reduction counting toward both of their targets." Specifically, any Annex I party "may transfer to, or acquire from, any other such Party emissions reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy"37 Such a project, however, must "provide a reduction in emissions by sources, or an enhancement of removals by sinks, that is additional to any that would otherwise occur."38 The project must provide reductions that are "supplemental to domestic actions," and any country involved must "not acquire any emission reduction units if it is not in compliance with its obligations under Articles 5 and 7."40 The "clean development mechanism" feature is similar, except that it involves industrialized countries funding "certified project activities" that would reduce emissions by *developing* countries." Such projects would be allowed only if they produced "[r]eal, measurable, and

note, however, that this result depends on the definition given supplementarity. One could argue that by definition any emissions bought or created elsewhere in the world are supplemental to domestic reductions. Many developing countries, however, wanted "supplemental" to mean that the United States, for example, would have to meet its percentage reductions entirely through domestic actions and engage in trading or sink projects only in addition to those domestic actions. See GRUBS ET AL., *supra* note 22, at 217-18.

³⁷ See *Kyoto Protocol*, *supra* note 22, art. 4, § 1.

³⁸ See Commission of the European Communities, Green Paper on Greenhouse Gas Emissions Trading Within the European Union 9 (Aug. 3, 2000), available at http://europa.eu.int/comm/environment/docum/0087_en.htm (on file with the Harvard Environmental Law Review)

³⁹ The International Climate Change Project Fund, sponsored by the U.S. Agency for International Development ("USAID"), is currently seeking to fund joint implementation projects in USAID-assisted countries in Asia, Africa, and Latin America.

⁴⁰ *Kyoto Protocol*, *supra* note 22, art. 6, § 1.

¹ *Id.* art. 6, § 1(b).

⁹ *Id.* art. 6, § 1(d).

^o *Id.* art. 6, § 1(c). Articles 5 and 7 contain requirements about how countries must track and report their own greenhouse emissions. *Id.* arts. 5,7.

⁴¹ *Id.* art. 12.

long-term benefits," as well as emissions reductions that are "additional to any that would" otherwise occur.²

What does this mean in real-world terms? To give the reader an idea of relative emission magnitudes, the industrialized world produced roughly 49% of all carbon dioxide emissions coming from the consumption of fossil fuels in 1990, which then totaled 5.821 billion tons annually.⁴³ The developing countries and the countries of the former Soviet Union produced the remaining 51%. (Russia produced 18% of total world emissions and China, 11%.)⁴⁴ By 1999, total world emissions of carbon emissions had reached 6 billion tons, with the industrialized countries still contributing 51% and the developing countries the other 49%.⁴⁵ If emissions are not controlled, emissions for the year 2020 are expected to be 9.8 billion tons, with the industrialized world contributing about 41%. In other words, forecasts predict that the industrialized world's share of world emissions of carbon dioxide will decrease by 8% over the next twenty years, even without any broad attempts at emissions reductions.⁴⁶

What are the potential environmental benefits of Kyoto? Possibly not much at all. Whatever one thinks of the science underlying global warming predictions,⁴⁷ and whatever one thinks about the consequences

⁴² *Kyoto Protocol*, *supra* note 22, art. 12, § 5(b),(c). For further discussion of the Clean Development Mechanism, see Jean-Charles Hourcade & Michael Toman, *Policies for the Design and Operation of the Clean Development Mechanism*, at http://www.weathervane.rff.org/research/toman_policies_CDM.htm (last visited Dec. 3, 2001) (summarizing discussions at a 1999 multinational workshop organized by the Centre International de Recherche Sur l'Environnement et le Developpement and Resources for the Future) (on file with the Harvard Environmental Law Review).

⁴³ See ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, REPORT NO. DOE/EIA-0484 (2001), INTERNATIONAL ENERGY OUTLOOK 2001, app. A, tbl. 10, at 185 (2001), available at <http://www.cia.doe.gov/oiat/ieo/pdf/appa9-a16.pdf>.

as *Id.*

as *Id.*

⁴⁴ *Id.* For a table of worldwide carbon dioxide emissions for the years 1990 to 1999, broken down by country, see ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, REPORT No. DOE/EIA-0219(99), INTERNATIONAL ENERGY ANNUAL 1999, tbl. H1, at 227 (2001), available at http://www.cia.doe.gov/pub/international/ieapdf/th_01.pdf. For further useful tables on energy consumption for the years 1990 to 2020 (broken down by category and nation), see ENERGY INFO. ADMIN., U.S. DEPT. OF ENERGY, REPORT NO. DOE/EIA0484(99), INTERNATIONAL ENERGY OUTLOOK 1999, this. A1--A8, at 141-49(1999), [hereinafter INTERNATIONAL ENERGY OUTLOOK] available at <http://www.cia.doe.gov/oiat/ieo99/tbla1-8.html>.

⁴⁵ Scientists continue to debate whether atmospheric global warming has, in fact, occurred. While oceanic temperatures appear to have risen about a tenth of a degree Fahrenheit since 1955, see Eric Pianin, 2 *Studies Affirm Greenhouse Gases' Effect*, WASH. POST, Apr. 13, 2001, at A6, it is far from clear that atmospheric temperatures have followed suit. One prominent professor of meteorology at the Massachusetts Institute of Technology has observed that much support for the global warming thesis has come from scientists working in other fields, not to mention activists and actresses, rather than from scientists who actually work and publish in climatology. Richard S. Lindzen, *Global Warming: The Origin and Nature of the Alleged Scientific Consensus*, REGULATION, Spring 1992, at 87.

of any global warming that does occur," it is not clear that the Kyoto Protocol will make that much of a difference. Because the Kyoto Protocol requires only the industrialized countries to cut back on emissions, it is highly unlikely that the goal of limiting total worldwide emissions to 1990 levels can possibly be met.⁹ Even if the industrialized world manages to cut back to 1990 levels, the developing world's emissions would in all likelihood outweigh any reductions.¹⁰ As one scientist put it, Kyoto "won't prevent total greenhouse emissions from rising" because the "cuts will be swamped early in the next century by increases in emissions from developing nations such as China and India"¹¹ Thus, British Environment Minister Michael Meacher has said that to achieve any meaningful climate control, industrialized countries would probably have to cut emissions by about fifteen times what the Kyoto Protocol would require.¹²

As a result, even scientists who support Kyoto often admit that it would make little difference to the earth's climate.¹³ And yet another reason that Kyoto might not make that much difference is that many large corporations are already trying to limit energy usage on their own.¹⁴ As reported in the *Wall Street Journal*, a British Petroleum ("BP") natural gas manager found that by installing \$2 million worth of new valves to prevent methane leaks, he could "reap a 60% return in the form of increased methane available for sale to customers."¹⁵ Another company

⁹ Some scientists argue that increased CO₂ emissions will benefit agricultural production. See generally THE IMPACT OF CLIMATE CHANGE ON THE UNITED STATES ECONOMY (Robert O. Mendelsohn & James E. Neumann eds., 1999).

¹⁰ The exclusion of China alone may undermine any possibility of keeping worldwide emissions from growing. See Deborah E. Cooper, *The Kyoto Protocol and China: Global Warming's Sleeping Giant*, 11 GEO. INT'L ENVTL. L. REV. 401 (1999).

¹¹ See Alan Manne & Richard Richels, *The Kyoto Protocol: A Cost-Effective Strategy for Meeting Environmental Objectives?*, in THE ENERGY JOURNAL: THE COSTS OF THE KYOTO PROTOCOL: A MULTI-MODEL EVALUATION 1, 20 (John P. Weyant ed., 1999); but see Walter V. Reid & Jose Goldemberg, *Developing Countries Are Combating Climate Change*, 26 ENERGY POLY 233 (1998).

¹² David Malakoff, *Thirty Kyotos Needed to Control Warming*, 278 SCIENCE 2048 (1997).

¹³ 'Massive' Pollution Cuts Needed, BBC NEWS ONLINE, Nov. 11, 2000, at http://news.bbc.co.uk/1/hi/english/sci/tech/newsid_1018000/1018874.stm (on file with the Harvard Environmental Law Review).

¹⁴ See, e.g., Bert Bolin, *The Kyoto Negotiations on Climate Change: A Science Perspective*, 279 SCIENCE 330, 331 (1998). A professor of environmental sciences at the University of Virginia calculated that if the Kyoto reductions were met in full throughout the world, the temperature difference in year 2047 would be 0.185 degrees Celsius cooler—a change so small that it probably could not "even be extracted from the ground-based temperature measurements, because of interannual climatic noise." PATRICK J. MICHAELS, CATO INSTITUTE, POLICY ANALYSIS NO. 307, THE CONSEQUENCES OF KYOTO (1998), available at <http://www.cato.org/pubs/pas/pa-307.html>.

¹⁵ See, e.g., Keith Bradsher & Andrew C. Revkin, *A Pre-emptive Strike on Global Warming: Many Companies Cut Gas Emissions to Head Off Tougher Regulations*, N.Y. TIMES, May 15, 2001, at C1.

¹⁶ Steve Liesman, *Inside the Race to Profit from Global Warming*, WALL ST. J., Oct. 19, 1999, at B 1.

found that investing \$3,600 in decals reminding employees to turn off their computers at night saved over \$200,000 in energy bills.⁵⁶ BP and Shell have reportedly set up carbon reduction plans that exceed the Kyoto percentages.⁵⁷ Indeed, this is what we should expect to the extent that reductions in energy usage (or more energy-efficient equipment) are cost-effective, businesses will normally make such reductions on their own, without the spur of regulation.

The obvious question is, therefore, why was Kyoto supported so strongly, and why was the United States' rejection so vehemently condemned? How could anyone expect the United States to support a treaty that imposed potentially great costs but offered such trivial environmental benefits? As for environmentalist groups, they still support Kyoto on the grounds that any carbon emissions reductions are worth achieving, and overall emissions may decline eventually. But others, including companies and countries that want more market power for themselves, appear to have been more interested in the strategic possibilities offered by regulation under the Kyoto Protocol. The economic distortion caused by Kyoto would have offered many opportunities for rent-seeking. The real reason for Kyoto's support, as argued in the next section, can be found in the "bootleggers and Baptists" theory of regulation.

111. THEORIES OF REGULATION: BOOTLEGGERS AND BAPTISTS

A. Regulatory Theories

The central problem with global environmental regulation is that it is a classic public good." That is, to the extent that reducing greenhouse emissions has a beneficial effect on the atmosphere, everyone will benefit, even those who refuse to contribute to greenhouse reductions. Thus, in more technical terms, consumption of the good of clean air is non-rivalrous and it is therefore impossible to exclude non-payers." Because of these two factors, the relevant actors (corporations and countries) have an incentive to limit their own contribution towards any global environmental goal (i.e., to free-ride), while attempting to maximize the contribution of other actors.

To understand why the Kyoto Protocol took the form it did, it is helpful to consider three basic theories that economists use to explain the forms of regulation." The first is called the public interest theory, and

se Id.

⁵⁶ Eric Roston, *Warming Up To Green*, TIME, Mar. 19, 2001.

⁵⁸ See generally Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. OF ECON. & STAT. 387 (1954).

⁵⁹ Johan den Hertog, *General Theories of Regulation*, in 5 ENCYCLOPEDIA OF LAW & ECONOMICS 223, 230 (1999) (discussing public goods).

¹⁰ The theories here are discussed more completely in BRUCE YANDLE, THE POLITICAL

reflects the traditional view of regulation that prevailed before it was studied carefully by economists and political scientists. This theory holds that governments regulate in order to eliminate forms of market failure or natural monopolies, and that politicians weigh the benefits and costs of policies and attempt to maximize net benefits for the public. For example, if a tax is to be imposed on fossil fuels to reduce the pollution externality, politicians will carefully calibrate and impose the tax in ways that cause the least economic harm.

The capture theory, versions of which were proposed as early as the 1950s,⁶¹ is more realistic. As William Jordan argued, politicians who want to regulate a particular area encounter persuasive special interests (such as producers), and end up serving the cartelizing interests of the producers by creating regulation that reduces output and raises prices.⁶² The dedicated politician or bureaucrat is thus "captured" by the special interest group.⁶³ One problem with this theory is that regulation may affect firms in many different ways, and this theory does not determine which of many special interest groups will succeed in winning the struggle.

The third and most developed theory, called the economic theory of regulation, acknowledges that, as historian Gabriel Kolko observed, "the dominant fact of American political life . . . was that big business led the struggle for the federal regulation of the economy."⁶⁴ To explain this fact, George Stigler formulated the economic theory of regulation, stating that "as a rule, regulation is acquired by the industry and is designed and operated for its benefit."⁶⁵

LIMITS OF ENVIRONMENTAL REGULATION (1989). For another good discussion of the economics of regulation, see Hertog, *supra* note 59, at 230, and for a good overview of the role of economics in environmental regulation, see Robert W. Hahn, *The Impact of Economics on Environmental Policy*, AEI-Brookings Joint Center for Regulatory Studies, Working Paper 99-4, May 1999, *available at* <http://www.aei.brookings.org/publications/working/working9904.pdf> (on file with the Harvard Environmental Law Review).

⁶¹See, e.g., MARVER H. BERNSTEIN, *REGULATING BUSINESS BY INDEPENDENT COMMISSION* (1955).

⁶²William A. Jordan, *Producer Protection, Prior Market Structure and the Effects of Government Regulation*, 15 J.L. & ECON. 151 (1972).

⁶³See, e.g., DAVID SCHOENBROD, *POWER WITHOUT RESPONSIBILITY: HOW CONGRESS ABUSES THE PEOPLE THROUGH DELEGATION* 109 (1993) (observing that, "[I]n many rulemakings, the regulated industry is the only private participant").

⁶⁴GABRIEL KOLKO, *THE TRIUMPH OF CONSERVATISM: A REINTERPRETATION OF AMERICAN HISTORY, 1900-1916*, at 57-58 (1963).

⁶⁵as George J. Stigler, *The Economic Theory of Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971). As Peltzman notes, the economic theory of regulation had predecessors in Anthony Downs's theory of voters' rational ignorance, see ANTHONY DOWNS, *AN ECONOMIC THEORY OF DEMOCRACY* (1957), and Mancur Olson's theory of collective action, see MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* (1965). See also Sam Peltzman, *The Economic Theory of Regulation after a Decade of Deregulation*, 1989 BROOKINGS PAPERS: MICROECONOMICS 1, 6. The theory was then further developed in Richard A. Posner, *Theories of Economic Regulation*, 5 BELL J. ECON. & MGMT. SCI. 335 (1974); Sam Peltzman, *Toward a More General Theory of Regulation*, 19 J.L. & ECON. 211 (1976); Gary S. Becker, *A Theory of Competition*

This theory asks us to consider the political arena as a marketplace where favors are bought and sold. Regulation does not apply evenhandedly to all firms or industries; rather, most regulatory efforts will benefit some firms or industries and harm others.⁶⁶ Interest groups that have the most at stake will bid the highest prices for favors. Politicians dedicated to preserving their jobs, and needing large amounts of campaign funds, auction off the favors. Under this theory, if carbon emissions are to be controlled, the politician will seek the group with the largest economic stake in the outcome (and therefore presumably the most generous with campaign funds) and favor that group. Generally, the smaller the group, the more each member may gain by crafting regulatory rules. The larger the group, the less likely each individual member will have a strong reward or heavy burden as a result of the rules. Consequently, small special interest groups usually are the most actively involved in the negotiations.⁶⁷

Sam Peltzman sums up the economic theory of regulation as follows:

Compact, well-organized groups will tend to benefit more from regulation than broad, diffuse groups. This probably creates a bias in favor of producer groups, because they are usually well organized relative to all consumers. But the dominant coalition usually also includes subsets of consumers.

Regulatory policy will seek to preserve a politically optimal distribution of rents across this coalition. Thus, over time, the policy will tend to offset changes in this optimal distribution arising from shifts in demand or cost conditions. At any one time, the price structure will cross-subsidize high-cost consumers from rents generated by prices to other groups.

Among Pressure Groups for Political Influence, 98 Q. J. ECON. 371 (1983); and Gary S. Becker, *Public Policies, Pressure Groups, and Dead Weight Costs*, 28 J. PUB. ECON. 329 (1985). A good overview of these developments can be found in Robert D. Tollison, *Regulation and Interest Groups*, in REGULATION: ECONOMIC THEORY AND HISTORY 59 (Jack High ed., 1991).

⁶⁶ For example, Ann P. Bartel and Lacy Glenn Thomas have shown that Occupational Safety and Health Administration ("OSHA") and Environmental Protection Agency ("EPA") regulations increase profits of large firms and firms in the Frost Belt, while harming smaller firms and those in the Sun Belt. As a result, they write, "regulation has become a predatory device that indeed is utilized to enhance the wealth of predators and to reduce the wealth of rivals." Ann P. Bartel & Lacy Glenn Thomas, *Predation Through Regulation: The Wage and Profit Effects of the Occupational Safety and Health Administration and the Environmental Protection Agency*, 30 J.L. & ECON. 239, 259 (1987); see also Peter Pashigian, *The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares*, 27 J.L. & ECON. 1 (1984) (describing regulation's uneven effects on plants of differing sizes); George R. Neumann & Jon P. Nelson, *Safety Regulation and Firm Size: Effects of the Coal Mine Health and Safety Act of 1969*, 25 J.L. & ECON. 183 (1982).

⁶⁷ For an article providing numerous examples of such regulatory struggles, see W. John Moore, *Golden Rules*, 26 NATL. J. 1124 (1994).

Because the political payoff to regulation arises from distributing wealth, the regulatory process is sensitive to deadweight losses. Policies that reduce the total wealth available for distribution will be avoided, because, other things being equal, they reduce the political payoff from regulation.⁶⁸

The economic theory of regulation is so instructive that, as one economist observes, "opposing theories of regulation have been pretty thoroughly driven from the scene."⁶⁹ Even the economic theory, however, is not necessarily complete. Not all small, well-organized special interest groups will be able to see their regulatory goals put into action. The theory of bootleggers and Baptists," a subset of the economic theory of regulation, further helps explain environmental regulation like the Kyoto Protocol. This theory indicates that while powerful interest groups still matter, the push for any given regulation will be most successful if at least two quite different interest groups are working in the same direction—"bootleggers" and "Baptists."

The term originated in the southern United States where, in places, Sunday closing laws prevent the legal sale of alcoholic beverages." This is advantageous to bootleggers, who sell alcoholic beverages illegally; they get the market to themselves on Sundays. Baptists and other religious groups support the same laws, but for entirely different reasons. They are opposed to selling alcohol at all, especially on Sunday. They take the moral high ground, while the bootleggers persuade politicians quietly, behind closed doors. Such a coalition makes it easier for politicians to favor both groups. In other words, the Baptists lower the costs of favor-seeking for the bootleggers because politicians can pose as being motivated purely by the public interest even while they promote the interests of well-funded businesses.³

⁶⁸ Peltzman, *Economic Theory of Regulation*, *supra* note 65, at 13 [hereinafter *Economic Theory of Regulation*].

⁶¹ Tollison, *supra* note 65, at 73.

¹⁰ Yandle, *Bootleggers and Baptists: The Education of a Regulatory Economist*, *supra* note 19.

"For examples of academic work built on this theory, see Elizabeth R. DeSombre,

Baptists and Bootleggers for the Environment: The Origins of United States Unilateral Sanctions, 4 J. ENV'T & DEV. 53 (1995); Aynsley Kellow, *Baptists and Bootleggers? The Basel Convention and Metals Recycling Trade*, 6 AGENDA 29 (1999); Jason F. Shogren, *The Optimal Subsidization of Baptists by Bootleggers*, 67 PUB. CHOICE 181 (1990); Jonathan Baert Wiener, *On the Political Economy of Global Environmental Regulation*, 87 GEO. L.J. 749 (1999).

² See, e.g., GA. CODE ANN. § 3-3-20 (2000); OKLA. STAT. ANN. tit. 37, § 213 (1999) (allowing localities to prohibit Sunday sales); S.C. CODE ANN. § 61-6-4160 (Law. Co-op. 2000); TEX. ALCO. BEV. CODE ANN. § 24.07 (Vernon 2000) (prohibiting sales of beverages over 14% alcohol on Sundays); *Martin v. Beer Bd. for Dickson*, 908 SW.2d 941 (Tenn. Ct. App. 1995) (upholding local Sunday sales ban against constitutional challenge).

³ This modification of the economic theory of regulation may help explain the deregulation of telecommunications and trucking-developments that Sam Peltzman counts

Global climate negotiations have been rich with bootlegger-Baptist coalitions. The Baptists are the active environmental groups pushing for ratification and enforcement of the treaty, and working to prevent backsliding." They are passionate and persuasive to the public as they argue that cutting back on carbon emissions is a moral necessity.

Many have noted the similarities between environmentalism and religion. One scholar has argued that the environmentalist movement shares many characteristics with Calvinist Puritanism, namely, a view of mankind as "deeply sinful," a view of the world as corrupted by greed and sin, and a belief that the remedy is to renounce our sinful ways for a more "pure" lifestyle." Another professor has explained the EU's reaction to Bush's rejection of Kyoto as follows: "In Europe, 'global warming' has become a necessary myth, a new fundamentalist religion, with the Kyoto protocol as its articles of faith. The adherents of this new faith want Mr. Bush on trial because he has blasphemed." Deepak Lal explains the connection:

The environmental movement (at least in its "deep" version) is now a secular religion in many parts of the West. It has great similarities with the religious fundamentalisms sweeping the world . . . For though it may appear that the environmental movement is "scientific" and hence "modern" whereas the religious fundamentalists are "non-scientific" and "pre-modern," they both share a fear and contempt of the modernity whose central features are rightly seen to be an instrumental rationality that undermines humankind's traditional relationship with God or Nature. The sense of loss with modernity's "disenchantment of the world" of the ecologists is paralleled by the fundamentalists' fear of losing cherished traditional lifestyles. Both are

as predictive failures of the economic theory of regulation (which would have predicted continued regulation, given the existence of rents). See Peltzman, *Economic Theory of Regulation*, *supra* note 65, at 39. That is, perhaps deregulation was spurred on in those areas by the erosion of any Baptist-like moralistic support for the regulations. At any rate, the question deserves further investigation.

"Indeed, Kyoto enjoys the support of a variety of religious groups, including some actual Baptists. For example, the South Carolina Interfaith Climate Change Campaign includes Catholics, Methodists, Lutherans, Presbyterians, and the Cooperative Baptist Fellowship. Dave Munday, *Religious Leaders Join Global Warming Battle*, POST & COURIER (Charleston, S.C.), Nov. 23, 2000, at B1. Reverend Joan Brown Campbell, general secretary of the National Council of Churches, has said that she wants to make support for Kyoto a "litmus test for the faith community." John H. Cushman Jr., *Religious Groups Mount a Campaign to Support Pact on Global Warming*, N.Y. TIMES, Aug. 15, 1998, at A10.

³ Robert H. Nelson, *Environmental Calvinism: The Judeo-Christian Roots of Ecology*, in TAKING THE ENVIRONMENT SERIOUSLY 233, 234 (Roger E. Meiners & Bruce Yandle eds., 1993).

⁶ Philip Stott, *Hot Air + Flawed Science = Dangerous Emissions*, WALL ST. J., Apr. 2, 2001, at A22. Stott is professor of biogeography at the University of London.

also premodern in that they "claim to have a privileged, uncontested view of the nature of reality, which brooks no discussion, a claim which still flies counter to the work of science, as it did in the great historical disputes."

The bootleggers are the special interest groups that are positioned to gain from regulatory enforcement and stringency or that must fend off losses that spring from proposed rules. Surveying the participants, we find that some countries, such as the United Kingdom, are positioned to exploit carbon reductions, which they have made in the past, by raising the cost to economies that still rely heavily on coal. The European nations can effectively rely on the bubble proposal⁷⁸ to keep their own compliance costs lower relative to other countries not favored with such a system. The developing countries, without limits on their emissions, see opportunities for payments from industrialized countries for reducing carbon emissions or for planting trees. Moreover, within countries, some industries are favored by the rules and, within industries, some firms will be favored. Environmental activists provide the cover story on which media attention is focused, while companies, industries, and countries work quietly in the background to gain benefits.

*B. The Battle over Tradable Permits:
The Implications of the Bootleggers and Baptists Theory*

1. The Theory of Permits

In the science of economics, perhaps nothing is so universally accepted as the greater efficiency of price incentives and property rights measures over regulatory standards. "In the case of the choice of instrument for pollution control, there is a remarkable degree of unanimity. In the academic literature there is near consensus on the proposition that price incentive instruments are superior to command-and-control approaches."⁷⁹ A famous letter written by five prominent economists (and ultimately signed by over 2000 economists) urged that global climate change be addressed through market-based policies such as an international emissions-trading agreement or a carbon tax rather than command-and-control regulation."

⁷¹ DEEPAK LAL, UNINTENDED CONSEQUENCES: THE IMPACT OF FACTOR ENDOWMENTS, CULTURE, AND POLITICS ON LONG-RUN ECONOMIC PERFORMANCE 108-09 (1998) (quoting MARY DOUGLAS & AARON WILDAVSKY, RISK AND CULTURE 30 (1983)).

⁷² See *supra* notes 35-36 and accompanying text.

MICHAEL COMMON, SUSTAINABILITY AND POLICY: LIMITS TO ECONOMICS 163 (1995).

⁷⁸ Letter from Kenneth J. Arrow et al. to American Economic Association (Jan. 3, 1997), reprinted in *Economists' Statement on Climate Change*, GLOBAL CHANGE, Feb.

Take the pollution tax. Since Arthur Pigou first proposed the idea of a pollution tax,⁸¹ economists have believed that such a tax is more efficient than a general emissions limit.⁸² Empirical evidence confirms this claim.⁸³ Reasons why this is so include the following: (a) taxes are sometimes more easily enforced than regulatory standards;⁸⁴ (b) uniform limits fail to account for increasing marginal costs of abatement,⁸⁵ whereas a tax allows the polluters to choose whether or not a particular reduction is cost-effective,⁸⁶ thus encouraging "the reduction of emissions where it can be done at least cost";⁸⁷ (c) uniform limits fail to allow flexibility according to local conditions (an industrial park need not be as clean as a children's park, for example);⁸⁸ (d) the proceeds of a tax may be used to alleviate the distortionary effects of other taxes, whereas standards simply limit production without any benefit to the public fisc;⁸⁹ and

vironmental Law Review). For more on such policies generally, see MARKET-BASED APPROACHES TO ENVIRONMENTAL POLICY: REGULATORY INNOVATIONS TO THE FORE (Richard F. Kosobud & Jennifer M. Zimmerman eds., 1997).

⁸¹ See ARTHUR C. PIGOU, *ECONOMICS OF WELFARE* 159-60 (1st ed. 1920).

⁸² See, e.g., DAVID W. PEARCE & R. KERRY TURNER, *ECONOMICS OF NATURAL RESOURCES AND THE ENVIRONMENT* 84 (1990); Richard N. Cooper, *Toward a Real Global Warming Treaty*, *FOREIGN AFF.*, Mar.-Apr. 1998, at 66; Bruce N. Stram, *A Carbon Tax Strategy for Global Climate Change*, in *SHAPING NATIONAL RESPONSES TO CLIMATE CHANGE: A POST-RIO GUIDE* 219, 219 (Henry Lee ed., 1995). William Baumol and Wallace Oates, for example, argue that the most efficient environmental policy is a pollution tax set at the marginal external cost associated with the desired level of pollution. See generally WILLIAM J. BAUMOL & WALLACE E. OATES, *THE THEORY OF ENVIRONMENTAL POLICY* (1975).

⁸³ See, e.g., WORLD BANK GROUP, *GREENING INDUSTRY: NEW ROLES FOR COMMUNITIES, MARKETS, AND GOVERNMENTS* 27-52 (2000), available at <http://www.worldbank.org/research/greening/cover.htm> (describing the success of pollution taxes versus regulatory standards in Colombia, Malaysia, the Philippines, and China).

⁸⁴ Enforcing a regulatory standard requires constant monitoring of either emissions or equipment usage. A tax, on the other hand, may be leveled directly on those products that cause carbon emissions (i.e., oil or coal), thus creating an incentive to use those products efficiently without requiring direct government monitoring of all usage. For more on the difficulties of enforcing standards, see STEPHEN BREYER, *REGULATION AND ITS REFORM* 267-69 (1982).

⁸⁵ Robert Hahn and Robert Stavins report that the "cost of controlling a given pollutant may vary by a factor of one hundred or more among sources, depending on the age and location of plants and the available technologies." Robert W. Hahn & Robert N. Stavins, *Trading in Greenhouse Permits: A Critical Examination of Design and Implementation Issues*, in *SHAPING NATIONAL RESPONSES TO CLIMATE CHANGE*, *supra* note 83, at 177, 180.

⁸⁶ BREYER, *supra* note 84, at 263-64.

⁸⁷ RICHARD N. COOPER, *ENVIRONMENT AND RESOURCE POLICIES FOR THE WORLD ECONOMY* 62 (1994).

⁸⁸ BREYER, *supra* note 84, at 263-64.

⁸⁹ As some economists point out, a carbon tax could produce a "revenue-recycling effect," which means that the revenue raised by the carbon tax could be used to reduce the distortionary effect of other pre-existing taxes on other sectors or activities. See Ian W. H. Parry et al., *When Can Carbon Abatement Policies Increase Welfare? The Fundamental Role of Distorted Factor Markets 2* (Resources for the Future, Discussion Paper 97-18, Dec. 1996), available at <http://www.rff.org/CFDOCS/disc-papers/PDF-files/9718.pdf>. Due to the revenue-recycling effect, a 5% reduction in carbon emissions could be "seven times more costly under a quota than a carbon tax." *Id.* at 3; see also Dale W. Jorgenson &

(e) under flat limits, producers who meet the standard have no incentive to reduce pollution further, whereas a tax provides an incentive to keep searching for more efficient technologies.⁹⁰ A disadvantage of a carbon tax, however, is that in the international context, it is practically impossible to imagine that hundreds of sovereign nations would ever approve any centralized authority that would be able to implement a global carbon tax.⁹¹

But tradable permits are another market-based solution to the problem of the pollution externality. Economists favor tradable emissions permits as more efficient than direct regulatory limits.⁹² Allowing free and unfettered trading in emissions permits is generally to the benefit of all concerned.⁹³ Permits share many of the same advantages of pollution taxes, including a lower total cost of pollution abatement because reductions can be made where they are most cost-effective.⁹⁴ Additionally, under a permit system, non-polluters can buy pollution permits and retire

Peter J. Wilcoxon, *The Economic Effects of a Carbon Tax*, in SHAPING NATIONAL RESPONSES TO CLIMATE CHANGE, *supra* note 82, at 237, 237 (noting that GNP could increase if the revenue from a carbon tax were used to "reduce taxes on capital"). Jason Shogren points out, however, that the political "odds of a tax or permit system that raises revenues to be recycled is as likely as seeing a Democratic Senator from Wyoming." Jason Shogren, *Benefits & Costs of Kyoto* 21 (Apr. 4, 1999), available at <http://business.uwo.edu/people/Shogren/jaysho/kyoto.pdf> (unpublished manuscript, on file with the Harvard Environmental Law Review).

⁹⁰ PEARCE & TURNER, *supra* note 82, at 106.

⁹¹ See Ronald B. Mitchell & Abram Chayes, *Improving Compliance with the Climate Change Treaty*, in SHAPING NATIONAL RESPONSES TO CLIMATE CHANGE, *supra* note 82, at 115, 130-31; Cooper, *supra* note 82, at 66 (writing that "[t]axation goes to the heart of parliamentary prerogative, and most democracies will not relish taxation by international agreement . . .").

⁹² See, e.g., COMMON, *supra* note 79, at 306. The concept of tradable permits originated in J. H. DALES, POLLUTION, PROPERTY AND PRICES (1968). Some economists point out, however, that even a system of tradable emissions rights can cause a decrease in social welfare in some circumstances. See Ian W. H. Parry & Wallace E. Oates, *Policy Analysis in a Second-Best World I* (Resources for the Future, Discussion Paper No. 98-48, Sept. 1998), available at <http://www.rff.org/CFDOCS/disc-papers/PDF-files/9848.pdf> (on file with the Harvard Environmental Law Review)

⁹³ See generally Jae Edmonds et al., *International Emissions Trading & Global Climate Change: Impacts on the Costs of Greenhouse Gas Mitigation* (Pew Center on Global Climate Change, Dec. 1999), available at <http://www.pewclimate.org/projects/econ-emissions.pdf>; Erik Haites & Malik Amin Aslam, *The Kyoto Mechanisms and Global Climate Change: Coordination Issues and Domestic Policies* (Pew Center on Global Climate Change, Sept. 2000), available at http://www.pewclimate.org/projects/kyoto_mechanisms.cfm (on file with the Harvard Environmental Law Review).

⁹⁴ PEARCE & TURNER, *supra* note 82, at 112. It is a disputed matter, however, how a pollution tax compares in efficiency to a permit system. As Breyer points out, one's choice between the two can depend on whether there is a large jump in abatement costs somewhere on the curve (in which case one would favor a tax, because a small mistake in the tax level would not require industries to incur the large jump in abatement costs), or a large jump in pollution damage (in which case one would favor tradable permits, because it would be more important not to let aggregate pollution exceed the tipping point). BREYER, *supra* note 84, at 273. For more on the differences between permits and taxes, see generally INCENTIVES FOR ENVIRONMENTAL PROTECTION (Thomas Schelling ed., 1983).

the pollution credits.⁹⁵ The concept of permit trading is so popular among influential economists that the chance to open a market in carbon permits sometimes seems to justify taking action on global warming, irrespective of what the economics or science might say. A disadvantage of permits in the international context, however, is the dilemma of initial allocation:⁹⁶ if, as seems likely, permits are initially allocated to individual countries (which would then sell to industries), how are those permits to be allocated? By gross domestic product? This measure favors the larger, richer countries. By population? This favors the populous, poorer countries (such as India and China), creating opportunities for global redistribution. A global tax, by contrast, would not create the same problems of initial allocation, because it would apply equally everywhere.⁹⁷ Regardless of the difficulties that might arise in implementing a global tax or global permit trading system, both are theoretically superior to command-and-control standards.

But an important implication of the bootleggers and Baptists theory is that global environmental regulation will overwhelmingly favor flat command-and-control standards, rather than taxes or tradable permits. Despite (or because of) the fact that direct taxes or tradable permits are more efficient, industries usually prefer standards. In a classic article,⁹⁸ James M. Buchanan and Gordon Tullock demonstrate that this is so because under a penalty tax, the expected earnings of any firm will be reduced, while under a regulatory standard, those firms that are able to stay in the industry will receive gains from the cartelization effect of a reduction in output.⁹⁹ As Stephen Breyer notes, standards have two primary anti-competitive effects: raising barriers to entry and imposing disadvantages on smaller firms (which are less able to attain economies of scale).¹⁰⁰ Because the firms to be taxed or regulated are a more concentrated special interest group than the public (who would benefit from the

⁹⁵ PEARCE & TURNER, *supra* note 82, at 114.

⁹⁶ See, e.g., WILLIAM R. CLINE, *THE ECONOMICS OF GLOBAL WARMING* 351-54 (1992). Cline argues for initial allocation of permits according to the average of three measures: percentage of world GDP, percentage of world emissions, and percentage of world population. As of 1992, this would have meant that the United States would receive initially 16% of the tradable permits. See *id.* at 354.

⁹⁷ See COOPER, *supra* note 87, at 66 (writing that "[a]n effective treaty cannot be based on the allocation of valuable emissions rights since there will be no generally agreed principle for allocation. If the international community is to organize itself at all for the significant mitigation of greenhouse warming, it should be on the basis of . . . a uniform carbon tax . . .").

⁹⁸ James M. Buchanan & Gordon Tullock, *Polluters' Profits and Political Response: Direct Controls Versus Taxes*, in *THE POLITICAL ECONOMY OF ENVIRONMENTAL PROTECTION* 31 (Roger D. Congleton ed., 1996).

⁹⁹ *Id.* at 34-35. Of course, the smaller firms that might go out of business will oppose the regulatory standard—which is precisely why the larger firms support it.

¹⁰⁰ BREYER, *supra* note 84, at 269-70.

tax proceeds), the firms naturally are able to "exert more influence on political choice making."⁹¹

Environmental activists tend to prefer standards as well. This is because of the moralistic attitude they adopt, in keeping with the Baptist role. Baptists, after all, would not be content with a mere tax on Sunday sales of liquor. Any liquor sales on Sunday are deemed immoral and should be blocked completely. Similarly, a prohibition on emissions over a certain level seems more appealing to the environmentalist moralist than does a tax, which would allow any given corporation to emit as much as it pleased if it could afford the tax, and indeed, would allow a corporation to increase emissions if it found a cost-saving technology.⁹² "[T]he most dedicated environmentalists see pollution fees and taxes as a way for rich polluters to buy licenses to pollute, which in the extreme view is seen as the equivalent of selling permits to commit murder."⁹³

Similarly, in the international context, poorer nations tend to see tradable permits as unfair. As Frances Cairncross notes, "When the richer countries have offered to meet their goals for carbon dioxide cuts partly by paying for energy-saving measures in the developing world, the poorer countries have sometimes accused them of trying to buy their way out of their environmental responsibilities."⁹⁴ Another accusation that would surely become more common under an international permittrading scheme is the charge that rich countries are exploiting poor countries.⁹⁵ For example, two Norwegian companies—Tree Farms and Norwegian Afforestation Group—acquired several thousand hectares of

⁹¹ Buchanan & Tullock, *supra* note 98, at 36.

⁹² Along the same lines, Michael Leidy and Bernard Hoekman suggest that environmental activists may prefer standards over taxes because the "flexibility and autonomy remaining in the hands of polluting firms under a penalty tax is undesirable." Michael E. Leidy & Bernard M. Hoekman, *Pollution Abatement, Interest Groups, and Contingent Trade Policies*, 172 *THE POLITICAL ECONOMY OF ENVIRONMENTAL PROTECTION*, *supra* note 98, at 43, 54.

⁹³ Bruce Yandle, *Public Choice and the Environment: From the Frying Pan to the Fire*, in *POLITICAL ENVIRONMENTALISM: GOING BEHIND THE GREEN CURTAIN* 31, 42 (Terry L. Anderson ed., 2000) (citing Nelson, *supra* note 75, at 234). Nelson quotes one prominent leftist thinker as saying that selling pollution rights is like selling permits to commit "felonies." *Id.* at 248 (quoting Todd Gitlin, Editorial, *Buying the Right to Pollute, What's Next?*, N.Y. TIMES, July 18, 1989, at A27).

⁹⁴ FRANCES CAIRNCROSS, *GREEN, INC.: A GUIDE TO BUSINESS AND THE ENVIRONMENT* 73 (1995).

⁹⁵ The exploitation, however, might not be all one-way. If the number of carbon permit sellers is few enough (that is, if only a small number of countries have emissions low enough that they can sell permits to other countries), there would arise a "considerable potential for extracting monopoly rents." Manne & Richels, *supra* note 50. If, as seems likely, the former Soviet states (especially Russia and the Ukraine) dominated the market for permits, the "expected efficiency gains from establishing a permits market among Annex I countries could be reduced by about a third." Jean-Marc Burniaux, *How Important Is Market Power in Achieving Kyoto? An Assessment Based on the GREEN Model*, Paper Presented at OECD Workshop, "Economic Modelling of Climate Change," 1 (Sept. 17-18, 1998), available at <http://www.oecd.org/dev/news/environment/Chap13.pdf> (on file with the Harvard Environmental Law Review).

land in Uganda, Tanzania, and Malawi. ¹¹⁶ **They plan to plant** trees in order to be able to sell carbon dioxide permits in the future. The companies leased the land for a fifty-year period for a one-time fee of \$312, along with annual rents of \$3 per hectare of forest for a total expense of some \$530,000 over a twenty-five-year period.¹⁰⁷ According to the calculation of an environmentalist group, however, assuming a carbon price of \$13.50 per ton, the companies would stand to make a total of \$42.3 million selling carbon permits during the same period.¹⁰⁸ This benefit to the corporations inspired the title of the environmentalist report: "Carbon Colonialism." One can expect to see similar charges made if international permit trading and implementation projects in less-developed countries become more widespread.¹⁰⁹

Thus, the bootleggers and Baptists theory, in complement with Buchanan and Tullock's public choice theory, explains why regulatory standards, as opposed to the more efficient solution of penalty taxes, are so often the result of political bargaining. Both firms and environmental activists effectively collude in lobbying for the most inefficient form of regulation.

2. Permits Under Kyoto

The Kyoto treaty, viewed in this light, is an interesting mix of possibilities. At the international level, Kyoto seeks to impose a homogeneous rule on a diverse set of global communities. A "one-size-fits-all" rule applied to diverse situations generally leads to waste and inefficiency. Furthermore, such a rule can compromise constitutional constraints and domestic rules of law and property that normally protect property rights and spur competition in domestic economies. Kyoto's percentage-based standards open up possibilities for anti-competitive effects between countries, cartelization among countries (recall the EU bubble proposal), and rent-seeking. Such percentage limits would "not lead to standard at

¹⁰⁶ *Carbon Colonialism*, EQUITY WATCH, Oct. 25, 2000, at <http://www.cseindia.org/html/vcomp/climate/ew/art20001025-4.htm> (on file with the Harvard Environmental Law Review).

¹⁰⁷ *Id.* ¹⁰⁸ *Id.* to g Michael Grubb reports the following from a meeting he attended in the early 1990s:

An economist from a US environmental NGO (one long associated with promoting market instruments) had . . . explained how much cheaper it could be to absorb CO₂ in Africa than to limit emissions in the United States. Shaking with anger, an African present rose and asked "why should African governments let their land be used as a toilet for absorbing emissions from Americans' second cars?" Needless to say, the ensuing debate was not a very productive one.

GRUBS ET AL., *supra* note 22, at 99 n.25.

tainment at least cost" and would create "inefficiency for the world economy."¹⁰

On the other hand, any flat standard for percentage reductions by nation could still be flexible with respect to how each country attains its required reductions. That is, each country might attain its goals by standards, taxes, permit markets, or some combination of the above. While the global inefficiency would still exist, it would be ameliorated if individual nations chose to use market mechanisms to achieve their own percentage reductions. And the inefficiencies would be even more reduced if all nations agreed to an international permit-trading scheme. This is, however, politically unlikely, because an international permit program would probably be inhibited by "large transactions costs, likely government participation, and absence of a well functioning market."¹¹

As it happens, the battle over the extent of any international tradable permit market shows the environmental bootleggers in fine form. In this new international setting, trade becomes quite different from trade as we normally think of it. Actions that might be seen as attempts by industries to restrict output and raise rivals' costs (what might be called attempts at cartelization) are encouraged rather than frowned upon in the name of global environmental protection. This change of attitude magnifies the ability of well-organized interest groups to obtain advantages by crafting the rules for trading.¹²

Even though unfettered permit trading would reduce the overall cost of controlling carbon emissions (assuming that a viable international market could be constructed), the prospect of having the United States reduce its costs was apparently more than some European politicians could bear. In earlier rounds of negotiation, British Deputy Prime Minister John Prescott expressed concern that Washington would "buy tradable greenhouse emission permits from Russia." As he put it, "Europe has always been clear that while we will accept the [emission] trading possibilities in this matter, they should not be used as a reason for avoiding

¹⁰ COMMON, *supra* note 79, at 304. Other economists agree that the different abatement cost curves for various countries make ceilings an inefficient policy choice. See Johannes Bollen et al., Compliance with the Kyoto Protocol, at 5, Paper Presented at OECD Workshop, "Economic Modelling of Climate Change," 5 (Sept. 17-18, 1998), available at <http://www.oecd.org/dev/news/environment/modelling/htm> (on file with the Harvard Environmental Law Review).

¹¹ Robert W. Hahn & Robert N. Stavins, What Has Kyoto Wrought? The Real Architecture of International Tradable Permit Markets ii (Resources for the Future, Discussion Paper. 99-30, Mar. 1999), available at <http://www.rff.org/CFDOCS/disc-papers/PDF-files/9930.pdf> (on file with the Harvard Environmental Law Review).

¹² For a good analysis of the dilemma that permit regimes face in distributing the rents created thereby, see A. Denny Ellerman, Obstacles to Global CO₂ Trading: A Familiar Problem (American Council for Capital Formation ("ACCF") Center for Policy Research, Oct. 1998), available at <http://www.accf.org/ellermanj098.htm> (on file with the Harvard Environmental Law Review).

taking action in your own country."'' A report published by groups including the World Wildlife Fund and the Union of Concerned Scientists, was similarly indignant: "The US could purchase credits from countries such as Russia equal to 14 per cent of America's required reductions. But this is a paper reduction which will do nothing to benefit the atmosphere."''⁴ Frances MacGuire of London's Friends of the Earth said that the United States should make most of its reductions within its own territory: "From the European perspective, we think that should be a priority. There is a place for trading, but it shouldn't be without limit."''⁵ One economist has suggested that Europe's high energy taxes have stifled economic growth, and that Europe wants to "force countries like the United States who have relatively low energy taxes to give up their competitive advantage in this area."''⁶ In perhaps the most scathing indictment of the EU's position on permits, Canada's environment minister, David Anderson, offered this assessment:

There's absolutely no difference whether you pull a tonne of carbon out of the atmosphere in Kenya, or in Canada. And it doesn't make the slightest bit of intellectual sense of the Europeans to pretend otherwise . . . Unless they [the EU] compromise, not over trivia but in a genuine rethinking of fundamentals, then I don't think there'll be a climate agreement. It's stalemate, and the world's concern should not be held to ransom by Europe."

Ironically, the EU's opposition to unlimited permit trading (as shown in the supplementarity requirement of Article 6 of the Protocol'^x) would have the result of harming the smaller and poorer nations that would be able to make money selling permits to larger, richer countries. In one analysis prepared for the Australian Bureau of Agricultural and Resource Economics, it was shown that five developing countries (Thailand, Pakistan, the Philippines, Korea, and Vietnam) stood to gain some \$6.1 billion a

'' *World Global Warming Deal at Risk*, BBC NEWS ONLINE, Apr. 26, 1998, at http://news6.thdo.bbc.co.uk/hi/english/world/newsid_83000/83867.stm (on file with the Harvard Environmental Law Review).

⁴ Nick Nuttall, *US Accused of 'Con Trick' Over Pollution*, TIMES (London), Nov. 20, 2000, <http://www.thetimes.co.uk/article/O,,38579,00.html>.

⁵ Andrew C. Revkin, *New Report Backs Planting More Trees to Fight Warming*, N.Y. TIMES, Feb. 10, 2001, at A6.

⁶ Roy E. Cordato, *Global Warming, Kyoto, and Tradeable Emissions Permits: The Myth of Efficient Central Planning* 18 (Inst. for Research on the Economics of Taxation, Studies in Social Cost, Regulation, and the Environment: No. 1, Sept. 1999), available at <ftp://ftp.iret.org/pub/SCRE-1.PDF> (on file with the Harvard Environmental Law Review).

'' Alex Kirby, *Europe Blamed for Climate 'Stalemate'*, BBC NEWS ONLINE, Feb. 13, 2001, at <http://news.bbc.co.uk/hi/english/sci/tech/newsid-1168000/1168016.stm> (on file with the Harvard Environmental Law Review).

^x See *supra* notes 22-24 and accompanying text.

year from selling certified emissions reductions to rich countries like the United States, versus \$1.4 billion if tradable emissions reductions were limited to 25% of the rich countries' reductions."¹¹⁹ Yet the fact that the producers' surplus would also be reduced by unfettered trading¹²⁰ was apparently enough to make the EU want to impose supplementarity requirements.

C. The Economic Impact of Kyoto-Generalities

Measuring the economic impact of something as far-reaching as the Kyoto Protocol is inherently speculative, given the rather dismal ability of economists to make macroeconomic predictions in general.¹²¹ The predictions that have been made differ vastly from each other, mostly because of the assumptions embedded in the economic models. Depending on their purposes, economists make different assumptions about projected population growth, economic growth, baseline greenhouse emissions, technological innovation and substitution of products, consumer and business elasticity of demand for energy usage, the flexibility and range of governmental policies for emissions controls (for example, how many countries choose trading permits rather than quotas¹²²), and the uses to which the proceeds of any carbon tax are put. For example, if the proceeds are used simply for government spending, the results will be more costly than if the proceeds are used to cut other taxes.¹²³

The foregoing covers only the cost side of the analysis. Economists can also make widely disparate assumptions about the potential benefits of greenhouse gas controls. Some economists, for example, assume that uncontrolled emissions will cause a net GDP loss in the future (and therefore assume great benefits from cutting emissions).¹²⁴ Others see potential benefits from allowing emissions to grow unchecked.¹²⁵ In fact,

¹¹⁹See Black-Arbelaez, *supra* note 33, at 35 tbl. 12.

¹²⁰*Id.*

¹²¹See generally PAUL ORMEROD, BUTTERFLY ECONOMICS: A NEW GENERAL THEORY OF SOCIAL AND ECONOMIC BEHAVIOR (2000).

¹²²For more on this important aspect, see generally Hahn & Stavins, *supra* note 111.

¹²³See generally John P. Weyant, An Introduction to the Economics of Climate Change Policy 1-2 (Pew Center on Global Climate Change, July 2000), available at <http://www.pewclimate.org/projects/econ-introduction.pdf> (on file with the Harvard Environmental Law Review).

¹²⁴See, e.g., WILLIAM R. CLINE, THE ECONOMICS OF GLOBAL WARMING 132 (1992) (estimating that a doubling of carbon dioxide in the atmosphere would cause a 1 to 2% decline in U.S. GDP); ROBERT STAVINS & BRADLEY WHITEHEAD, THE GREENING OF AMERICAN TAXES: POLLUTION CHARGES AND ENVIRONMENTAL PROTECTION 18 (1992) (estimating a 1 to 2% loss to U.S. GDP from global warming).

¹²⁵While the authors are unaware of any specific calculations of GDP gains from global warming, some scientists have noted that increased atmospheric carbon may actually help agricultural production. See, e.g., Elizabeth Cullota, Will *Plants Profit From CO₂*?, 268 SCIENCE 654 (1995) (reporting that "in the agricultural realm, experimental evidence suggests that higher CO₂ concentrations may be a boon, helping many crops grow

a few scientists (admittedly a minority) even argue that the use of greenhouse gases should be promoted, to keep the earth from eventually receding into another ice age (as has been the pattern throughout world history)."¹²¹ "Here's a sobering thought," say two climate scientists, "20th century temperatures rose about 10 times the amount that Kyoto would prevent in the next 50 years, and, at the same time, life span doubled, crop yields quintupled, and the greatest democratization of wealth in the world's history took place: "Whether one thinks that greenhouse emissions are a problem or a benefit, the magnitude of the cost or benefit is almost impossible to measure. Even John Weyant, a wholehearted proponent of Kyoto, has said, "Although there are still considerable uncertainties about mitigation costs, the level of uncertainty about climate impacts (and the corresponding benefits of reducing those impacts through greenhouse gas mitigation) is much *greater*." ¹²¹

There are, of course, other complications that make meaningful cost-benefit analysis even more difficult, if not impossible, to perform. In the analytical eyes of some, we live in a second-best world, where preexisting distortions can eliminate the welfare gains from environmental regulation. ²⁹ And there is simply no agreed-upon objective methodology for calculating the economic value of environmental areas that are not specifically used by human beings (for example, the value of some unspoiled plot of wilderness). In addition, any attempt to perform economic valuations will run into the difficulty of choosing between the amount people are willing to pay to avoid a particular harm versus the value people would demand to allow that harm to happen.³⁰ Given all these un

faster and yield more"); Graham D. Farquhar, *Carbon Dioxide and Vegetation*, 278 *SCIENCE* 1411 (1997) (writing that "for the individual plant, water use efficiency is almost directly proportional to the level of CO₂, . . . doubling the CO₂ concentration is almost like doubling the rainfall as far as plant water availability is concerned").

¹²⁶ See, e.g., THOMAS GALE MOORE, *CLIMATE OF FEAR: WHY WE SHOULDN'T WORRY ABOUT GLOBAL WARMING* (1998). Similarly, Fred Hoyle and Chandra Wickramasinghe, two prominent astrophysicists, point out that the overall greenhouse effect has kept the earth about forty degrees warmer than it otherwise would be, and that without greenhouse gases, the earth would be in a perpetual ice age. Fred Hoyle & Chandra Wickramasinghe, *On the Cause of Ice Ages*, Cambridge Conference Network (1999), at <http://abob.lib.uga.edu/bobk/ccc/ce120799.html> (on file with the Harvard Environmental Law Review).

PATRICK J. MICHAELS & ROBERT BALLING, JR., *THE SATANIC GASES: CLEARING THE AIR ABOUT GLOBAL WARMING* 208 (2000). Balling is the director of the Office of Climatology at Arizona State University and Michaels is a research professor of environmental sciences at the University of Virginia, a visiting scientist with the Marshall Institute in Washington, D.C., and a past president of the American Association of State Climatologists.

²⁵ Weyant, *supra* note 123, at 28 (emphasis added). Weyant notes that the "current range of estimates for the direct benefits of reducing GHG emissions now is from \$5 to \$125 per ton" in 1990 dollars. *Id.*

²⁹ See Andrew P. Morriss, *Implications of Second-Best Theory for Administrative and Regulatory Law: A Case Study of Public Utility Regulation*, 73 *CHI.-KENT L. REV.* 136 (1998); Parry & Oates, *supra* note 92 at 1.

³⁰ This so-called WTP-versus-WTA disparity has empirical confirmation, see, e.g., PEARCE & TURNER, *supra* note 82, at 125-29, but there is no objective way of deciding

certainties and complications, it is no wonder that the results of the many cost-benefit analyses span a vast range of possible outcomes. As one economist summed it up:

A rigorous social cost/benefit analysis of the effects of global warming and alternative abatement strategies may be flatly impossible and must inevitably be arbitrary. To do a cost/benefit analysis of this issue, the nature and amount of the costs of global warming must be known, as well as the costs of avoiding the global warming. We know nothing of the former; the latter appear to be large.

To be certain of the costs and benefits, we must know how the resources that would have to be shifted to avert global warming would be used if no action were taken, and how people would value those resources in their alternative uses. We must be able to guess the choices and gauge the feelings of people not yet born, living during a period 50 to 100 years from now and beyond. There is no scientific way to determine this information; it is beyond our knowledge."

One thing, however, is certain: implementation of greenhouse controls like those in the Kyoto Protocol will introduce further distortions into the current economic state, creating opportunities for rent-seeking and bootlegging among the industries and countries affected by regulation. If the Kyoto Protocol is fully implemented, the relative prices of major energy commodities will change. The demand for natural gas will rise, and possibly even the demand for oil, while the demand for coal will plummet. Thus, many nations that now have comparative advantages based on large coal reserves, related technologies, and manufacturing will lose those advantages. Certain ozone-depleting chemicals will be banned, expanding markets for their substitutes. National governments will engage in trade with other governments, but the items to be traded will be such things as the still-undefined "marketable emission permits" and "offsetting" actions to reduce greenhouse gases. In addition, countries will make bilateral agreements to transfer clean technology and provide development assistance, possibly creating emissions offsets for participating countries.

Long before Kyoto, academic economists were turning out vast numbers of studies on the effects of controlling greenhouse gases."z As

which valuation is "better."

³ Cordato, *supra* note 116. Even William Nordhaus, proponent of one of the most sophisticated models, admits to the "enormous uncertainties concerning both future climate change and our knowledge of the future." WILLIAM D. NORDHAUS, *MANAGING THE GLOBAL COMMONS: THE ECONOMICS OF CLIMATE CHANGE* 101 (1994).

¹³² See, e.g., Carlo Carrato et al., *Environmental Taxation and Unemployment: Some Evidence on the 'Double Dividend Hypothesis' in Europe*, 62 J. PUB. ECON. 141 (1996);

Kyoto approached, these broad studies were supplemented by studies of the proposed protocol's impact on specific sectors. There are three key observations that can be made about the numerous studies done so far. First, most studies predict that the cost to the United States of ratifying the Kyoto Protocol would likely have been quite great. Second, most studies indicate that the Kyoto Protocol would have had widely disparate impacts on various industries. Third, most studies indicate that the Kyoto Protocol would have had quite different effects on different countries. This section will review these findings in turn.

Take the GDP predictions—again, remember that such predictions should be viewed with appropriate skepticism from all sides. The potential economic losses are striking. In one table prepared by the Energy Information Administration (an independent statistical agency within the U.S. Department of Energy ("DOE")) comparing the predictions of several prominent studies, the average predicted GDP loss in 2010 was \$251 billion in 1996 dollars.¹³¹ A study by the DOE found that if trading in permits is solely domestic, total United States GDP losses generated by the controls will reach \$418 billion.¹³²

Let us look more specifically at some of the studies. In a relatively optimistic econometric simulation, one group of researchers tried several different assumptions about permit trading, finding that with no permit trading, U.S. GDP would fall by 0.5 to 0.6% in 2010 to 2020.¹³³ With trading among Annex I countries and the EU bubble in effect, U.S. GDP

Zhiqi Chen, *Negotiating an Agreement on Global Warming: A Theoretical Analysis*, 32 J. ENVTL. ECON. & MGMT. 170 (1997); Douglas Holtz-Eakin & Thomas M. Selden, *Stoking the Fires? CO₂ Emissions and Economic Growth*, 57 J. PUB. ECON. 85 (1995); Dale W. Jorgenson & Peter J. Wilcoxon, *Reducing U.S. Carbon Dioxide Emissions: An Assessment of Different Instruments*, 115 J. POLY MODELING 491 (1993); Richard F. Kosobud et al., *Tradable Cumulative CO Permits and Global Warming Control*, ENERGY J., 1994, 213; Bjorn Larsen & Anwar Shah, *Global Tradeable Carbon Permits, Participation Incentives, and Transfers*, 46 OXFORD ECON. PAPERS 841 (1994); William D. Nordhaus, *The Cost of Slowing Climate Change: A Survey*, ENERGY J., 1991, 37; David Pearce & Edward Barbier, *The Greenhouse Effect: A View from Europe*, ENERGY J., 1991, 147 (1991); Peter J. N. Sinclair, *On the Optimum Trend of Fossil Fuel Taxation*, 46 OXFORD ECON. PAPERS 869 (1994); John Whaley & Randall Wigle, *Cutting CO₂ Emissions: The Effects of Alternative Policy Approaches*, ENERGY J., 1991, 109.

¹³¹ ENERGY INFO. ADMIN., U.S. DEPT OF ENERGY, REPORT NO. **SR/OIAF/98-03**, IMPACTS OF THE KYOTO PROTOCOL ON U.S. ENERGY MARKETS AND ECONOMIC ACTIVITY, tbl. 30 at 140 (1998), available at <http://www.eia.doe.gov/oiaf/kyoto/tbl30.html>. For another summary of a few recent studies, see Global Climate Coalition, *The Impacts of the Kyoto Protocol* (May 2000), at <http://www.globalclimate.org/KyotoImpacts.pdf> (on file with the Harvard Environmental Law Review).

¹³² OFFICE OF POLICY AND INTERNATIONAL AFFAIRS, U.S. DEPT OF ENERGY, REPORT NO. **SR/OIAF/97-01**, ANALYSIS OF CARBON STABILIZATION CASES (1997).

¹³³ Warwick J. McKibbin et al., *Emissions Trading, Capital Flows and the Kyoto Protocol 20* (1998) (unpublished manuscript), available at <http://www.eco.utexas.edu/faculty/Wilcoxon/papers/KyotoPaper22.pdf> (on file with the Harvard Environmental Law Review).

would remain at its baseline level in 2010 and fall by 0.2% in 2020.¹³⁶ With full global trading in place, GDP loss would be even less.¹³⁷

A study conducted by the economic consulting firm WEFA and sponsored by the American Petroleum Institute is more pessimistic. The analysts assume that due to population increases, the United States would have to decrease projected emissions for the year 2010 by over 50% per capita.¹³⁸ They also assume that permit trading would occur only within the United States.¹³⁹ With these assumptions (which one might call either pessimistic or realistic, depending on one's outlook), the United States' GDP would be \$300 billion lower by the year 2010 (or some \$2,700 per household), and job losses would exceed 2.4 million.¹⁴⁰ John Moroney of Texas A&M also predicted a reduction in GDP growth from 3% to 2.1%, which would lead to "living standards in 2010 that are 15 percent lower than they would be with no restrictions on energy usage."¹⁴¹

The GDP losses caused by Kyoto might well have fallen more harshly on minority groups. Several minority organizations, including the National Black Chamber of Commerce and the Latin American Management Association, requested an assessment by Management Information Services.¹⁴² Based on a survey of studies relating to GDP (and on the fact that increases in energy prices would have regressive effects), the study predicted that Kyoto might cause 1.4 million blacks and Hispanics to become unemployed, cause four million blacks and Hispanics to become impoverished, and reduce by 10% the incomes of some twenty-five million black and Hispanic workers.¹⁴³ The study noted that in the energy-induced recessions of the 1970s, both blacks and Hispanics suffered disproportionately.¹⁴⁴

Labor union opposition to Kyoto was also based on the predicted job losses for U.S. workers.¹⁴⁵ The group Unions for Jobs and the Environ

¹³⁶*Id.* at 25.

¹³⁷*Id.* at 26-27.

¹³⁸ WEFA, INC., GLOBAL WARMING: THE HIGH COST OF THE KYOTO PROTOCOL, NATIONAL AND STATE IMPACTS 1 (1998), available at <http://geosci.uchicago.edu/~archer/PS134/nt198a.pdf>. Another summary of WEFA's study is available in Mary Novak, Global Climate Change Policies: The Impact on Economic Growth, U.S. Consumers, and Environmental Quality (ACCF Center for Policy Research, Oct. 1997), available at <http://www.accforg/Novak1097.htm> (on file with the Harvard Environmental Law Review).

¹³⁹ WEFA, INC., GLOBAL WARMING, *supra* note 138, at 2.

¹⁴⁰ *Id.* at 3.

¹⁴¹ John R. Moroney, Energy, Carbon Dioxide Emissions, and Economic Growth 6 (ACCF Center for Policy Research, Oct. 1998), available at <http://www.accforg/moroney1098.htm> (on file with the Harvard Environmental Law Review).

¹⁴² See Management Information Services, Inc. Potential Economic Impacts of the Kyoto Climate Change Protocol on Blacks and Hispanics in the U.S., Executive Summary (June 2000), available at <http://www.ujac.org/NewsRes/BH%20Executive%20Summary.pdf> (on file with the Harvard Environmental Law Review).

¹⁴³*Id.* at vii.

¹⁴⁴*Id.* at ix.

¹⁴⁵ See *supra* note 4.

ment ("UJAE")¹⁴⁶ sponsored a study conducted by Consad Research Corporation. Depending on the assumptions made about carbon prices under Kyoto, the study found that job losses would be between 1.8 million and 2.7 million in year 2005, and that higher energy prices would result in higher prices for all consumer goods."¹⁴⁷ Similarly, a study performed by Data Resources, Inc., commissioned by the United Mine Workers of America, found that if 58% of U.S. carbon reductions were to be achieved by curtailing energy usage or switching energy sources, the result would be a GDP loss in 2010 of \$107 billion and a job loss of 1.1 million, while electricity prices would soar by 54%.¹⁴⁸

Janet Yellen, then chair of President Bill Clinton's Council of Economic Advisers, offered a more optimistic outlook.¹⁴⁹ She testified before a House committee that the direct cost to the United States from implementing Kyoto would be between \$7 billion and \$12 billion per year for permit trading, and that the average increase in energy prices would be between \$70 and \$110 per year per household.¹⁵⁰ Yellen indicated that her estimates were not based on a single model but were derived by applying different assumptions to existing econometric models. But Yellen's optimism was based on several unrealistic assumptions: that the United States would purchase emissions credits from a host of developing countries, that global technology transfers would induce "dean economic development" yielding U.S. emissions credits, and that carbon sinks developed by improved forestry practices would cheaply offset carbon emissions."¹⁵¹

More pertinent to the thesis of this Article are the findings about how Kyoto would impact different energy industries. Jorgensen and Wilcoxon's simulations indicated that meeting Kyoto's goals would require that coal be taxed at \$11.01 per ton, oil at \$2.31 per barrel, and natural gas at \$0.28 per thousand cubic feet."¹⁵² As a result, they estimated that coal prices would go up by 40% and coal production would drop by 26%.¹⁵³ Manne and Richels found that under the most stringent Kyoto

¹⁴⁶See generally Unions for Jobs & the Environment, at <http://www.ujae.org> (last visited Dec. 3, 2001) (on file with the Harvard Environmental Law Review).

¹⁴⁷UJAE, *The Kyoto Protocol: A Flawed Treaty Puts America at Risk* (1998) (summary of May 1998 report by Consad Research Corporation), available at <http://www.ujae.org/NewsRes/Consad%20May98.pdf> (on file with the Harvard Environmental Law Review).

¹⁴⁸UJAE, *The Impact of Meeting the Kyoto Protocol on Energy Markets and the Economy*, available at <http://www.ujae.org/NewsRes/DR1%20Bkgrnd%20natl%20state%20empl.pdf> (last visited Dec. 3, 2001) (summary of report by Data Resources, Inc.) (on file with the Harvard Environmental Law Review).

¹⁴⁹Janet Yellen, *Testimony Before the House Committee on Commerce* (Oct. 6, 1998), available at http://www.state.gov/www/policy.remarks/1998/98_1006_yellen_climate.html.

¹⁵⁰*Id.*

¹⁵¹*Id.*

¹⁵²Jorgensen & Wilcoxon, *supra* note 89, at 491-520.

¹⁵³*Id.*

assumptions, the price of coal would increase fourfold, and the demand for oil would increase, not decrease. 114

WEFA's study found that to achieve the necessary reductions, carbon permit prices would have to rise by an estimated \$265 per metric ton, causing an increase of \$0.65 in the cost of a gallon of gas and a doubling of natural gas and electricity prices. 151 Industries producing chemicals, paper, textiles and apparel, and computer and electronic parts would be severely affected. 5s

Using an elegant econometric model, 5 Ronald J. Sutherland, a senior economist for the American Petroleum Institute, argues that it is practically impossible for the United States to achieve Kyoto's goals, especially if nuclear energy production is ultimately replaced by gas-fired turbines, as is now expected. 58 Sutherland also contends that the price increases necessary for achieving Kyoto goals will not be accepted. 64 Based on estimates of price elasticity of demand from ten large-scale studies, gasoline prices would need to rise to \$4.23 per gallon in 2010 just to achieve Kyoto levels. 160 In Sutherland's view, the Kyoto target can be met "only if the U.S. consumers, businesses, farmers and industry are willing to bear an enormous cost.." 161

DOE issued a study examining several different scenarios. If the market for tradable permits is strictly domestic, permit prices will rise to \$150 per ton of carbon emissions during the control period. 62 The price of United States coal will triple, and consumption of coal will fall by 50% by 2010. 163 With a world market in permits, however, the price of permits would be only \$40 per ton, the department estimated. 164 The relative magnitudes of costs varied significantly across different scenarios about timing and permit prices assumed by the DOE analysts. 165

The study by Consad Research Corporation mentioned above also found that certain industries (aluminum, pulp and paper, chemical, and others) "will experience persistent employment losses and lose market share." 166 Another study sponsored by UJAE, conducted by the Argonne

¹¹⁵ Manne & Richels, *supra* note 50, at 87-107. ¹⁵⁵ WEFA,

INC., *supra* note 138, at 2.

¹⁵⁶ *Id.* at 4-5.

⁵ Ronald J. Sutherland, *Achieving the Kyoto Protocol: An Analysis of Policy Options* (American Petroleum Institute, Issue Analysis #1038, Mar. 1998), *available at* <http://www.api.org/pasp/ia/j03r.pdf> (on file with the Harvard Environmental Law Review). This study is noteworthy for drawing an unusual amount of information from a simple economic relationship.

¹⁵⁸ *See id.* at v.

¹⁵⁹ *See id.* at vi. ¹⁰⁰

Id. at 12-13. ¹⁰¹

Id. at vi.

¹⁰² OFFICE OF POLICY AND INTERNATIONAL AFFAIRS, *supra* note 134. ¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ UJAE, *supra* note 147, at 1.

National Laboratory, found that U.S. steel production might be cut by 30%, that petroleum refining might be cut by 20%, and that all aluminum plants in the United States would likely have to shut down by 2015.¹⁶⁷

In a DOE study prepared by the Interlaboratory Working Group on Energy-Efficient and Low-Carbon Technologies, the analysts found the effects of meeting Kyoto's constraint would hardly be felt.¹⁶⁸ When the scientific journal *Nature* reported this good news, it indicated there would be "no net cost in cutting carbon emissions."¹⁶⁹ The reason: if the federal government invested "far beyond current efforts" to encourage switching to energy-efficient technologies, payments for energy would go down by between \$50 and \$90 billion per year.¹⁷⁰ These savings, *Nature* said, would be enough to offset the costs of switching.¹⁷¹ Unfortunately, when calculating costs and benefits, the DOE study did not account for the cost of government efforts to bring about these changes, nor did the study account for potential changes in energy prices.¹⁷²

Kyoto would also affect different countries in quite different ways. First, different countries would have different marginal costs of abatement, which means that their costs of complying with Kyoto would vary tremendously. Unfortunately, there are few if any studies that examine marginal costs of abatement broken down by country.¹⁷³ A good guess would be that countries that have already made substantial reductions in greenhouse emissions, passed environmental regulation internally, and invested in energy efficient products, would probably have higher marginal costs than those countries where energy emissions have been relatively unregulated. As Edward Parson and Richard Zeckhauser note:

¹⁶⁷UJAE, *The Impact of Potential Climate Change Commitments on Energy Intensive Industries* 3 (Jan. 12, 2000) (summary of July 1997 study by Argonne National Laboratory), available at <http://www.ujae.org/NewsRes/Argonne%20Laboratory%20Study%20summary%20for%20website.pdf> (on file with the Harvard Environmental Law Review).

¹⁶⁸OAK RIDGE NATIONAL LABORATORY ET AL., U.S. DEPT. OF ENERGY, SCENARIOS OF U.S. CARBON REDUCTIONS (1997), available at http://www.ornl.gov/ORNL/Energy_Eff_labweb.htm.

¹⁶⁹Tony Reichhardt, *No Net Cost in Cutting Carbon Emissions*, 389 NATURE 429 (1997).

¹⁷⁰*Id.*

¹⁷¹*Id.*

¹⁷²For a good critique of the study, see Henry D. Jacoby, *The Uses and Misuses of Technology Development as a Component of Climate Policy*, (ACCF center for Policy Research, Oct. 1998), available at <http://www.accf.org/jacoby1098.htm> (on file with the Harvard Environmental Law Review).

¹⁷³Edward A. Parson and Richard J. Zeckhauser note that as of 1995, "[f]ully characterizing nations' asymmetries of interest in emissions abatement would require consistent application of such a model to many countries. This work has not yet been done, though several sophisticated energy-economic models have been used to study carbon abatement costs in the United States and in a few aggregated world regions." Edward A. Parson & Richard J. Zeckhauser, *Equal Measures or Fair Burdens: Negotiating Environmental Treaties in an Unequal World*, in SHAPING NATIONAL RESPONSES TO CLIMATE CHANGE, *supra* note 82, at 81, 90.

Most observers agree that abatement costs are generally lower in developing countries than in industrial countries, because present capital stock is so inefficient and present emissions control efforts so limited that much cheap improvement is obtainable and because much of the impact on future emissions can be realized in new investment rather than in retrofits."⁴

Second, not all industries are distributed evenly among countries. Most countries have more of some industries and less of others. Given the differential impact that Kyoto will have on various industries, different countries will be affected to the extent they possess more or less of those industries. Any decrease in oil usage, for example, will be opposed by countries that depend heavily on oil sales for their national income."⁵

Third, the exemption for developing countries could have a distributional effect on where industries locate. Manne and Richels note that under Kyoto, "U.S. output of energy-intensive products such as steel, paper, and chemicals could be 15 percent less than under the reference case by 2020. . . . In contrast, countries such as China, India, and Mexico would increase their output of energy-intensive products."⁶ WEFA found that due to the exemption for developing countries, U.S. exports will become "relatively more expensive on the world market," while the prices of many imported products will fall." The Argonne study stated that "[t]he imposition of increased energy costs will devastate the US steel industry without a significant decrease in worldwide energy related emissions from steel making. Production will simply be shifted to developing countries and may possibly lead to higher levels of overall pollution due to lower standards in those countries."¹⁷⁸

The same study found that paper and aluminum imports would likely displace U.S. production, as well as 20% to 30% of the chemical industry. In a similar vein, Michael Grubb noted that Kyoto could "lead to preferential location of industries in developing countries, not just to avoid domestic emissions legislation but also to generate credits that would not be available for exactly the same action within Annex L"¹⁷⁹

¹⁷⁴ Id. at 102.

¹⁵ See *infra* notes 308-310 and accompanying text.

¹⁶ Alan S. Manne & Richard G. Richels, *Economic Impacts of Alternative Emissions Reduction Scenarios 4-5* (ACCF Center for Policy Research, Oct. 1998) available at <http://www.accf.org/manne-richels1098.htm> (on file with the Harvard Environmental Law Review).

¹⁷ WEFA, INC., *supra* note 138, at 2.

¹⁸ UJAE, *supra* note 167, at 1.

¹⁷⁹ GRUBS ET AL., *supra* note 22, at 202.

D. Corporations as Bootleggers

The arena of environmental regulation is rich with opportunities for favor-seeking, bootlegging, and exploitation by self-interested corporations on both sides of the global warming debate.⁸⁰ Industries or corporations that expect to benefit from the regulatory standards imposed by Kyoto lobbied to support it, while those that would be harmed opposed it.

1. The Squabble over Subsidies

One of the most potent arenas for rent-seeking involves government subsidies to industry for research and development on global warming projects. Government subsidy programs are quite often inefficient because subsidies should go only to projects that "promise great potential gains for society but are unlikely to yield profits to the innovator."⁸¹ Yet the government is often unwilling to restrict its funding to such projects, even if it is able to identify them in the first place. As a result, government research-and-development subsidies probably have the effect of crowding out private efforts that would already occur.⁸² As one economist has written, "The experience of the 1970s and 1980s taught us that if a technology is commercially viable, then government support is not needed; and if a technology is not commercially viable, no amount of government support will make it so."⁸³ Two economists summed up the evidence on government research and development as follows: "[t]he overriding lesson from the case studies is that the goal of economic efficiency-to cure market failures in privately sponsored commercial innovation-is so severely constrained by political forces that an effective,

¹⁸⁰ See generally BRUCE A. ACKERMAN & WILLIAM T. HASSLER, *CLEAN COAL, DIRTY AIR* (1981); Jonathan H. Adler, *Clean Politics, Dirty Profits: Rent-Seeking Behind the Green Curtain*, in *POLITICAL ENVIRONMENTALISM*, *supra* note 103, at 1; Andrew P. Morriss, *The Politics of the Clean Air Act*, in *POLITICAL ENVIRONMENTALISM*, *supra* note 103, at 263; How *to Make Lots of Money, and Save the Planet Too*, *ECONOMIST*, June 3, 1995, at 57. The legal industry is one which, while not a major player in the Kyoto negotiations, would likely support Kyoto. Any new regulation opens up opportunities for lawyers to counsel clients as to the best ways to meet (or avoid) the standards. As Clinton's Kyoto negotiator observed in an address to a lawyers' convention in London:

How will the Kyoto negotiations affect the business and legal community? In other words, do you, the members of the bar, need to understand the Protocol and will you be able to bill your clients? (Because I know the suspense is killing you, let me just say that the answers to these last questions is an emphatic 'yes').

Frank Loy, Under Secretary of State, Remarks to American Bar Association (July 20, 2000), *available at* <http://usinfo.state.gov/topical/global/environ/latest/00072103.htm> (on file with the Harvard Environmental Law Review).

⁸⁰ Scott J. Wallsten, *The R&D Boondoggle*, *REGULATION*, VOL 23, No. 4, 2000, at 12, 12.

⁸¹ *Id.*

⁸² *Id.*

⁸³ THOMAS H. LEE ET AL., *ENERGY AFTERMATH* 167 (1990) (emphasis in original).

coherent national commercial R&D program has never been put in place."

Ironically, government subsidies have created opportunities for rentseeking on both sides of the global warming controversy. Though it may not be well-known, the U.S. government is already subsidizing the very oil companies that are seen as greenhouse villains by environmental activists.¹⁸⁷ One study claims that between 1992 and 1998, two U.S. agencies—the Overseas Private Investment Corporation and the Export-Import Bank of the United States—underwrote some \$23 billion in financing for oil, gas, and coal projects throughout the world.¹⁸⁸ The study claims that these projects will, over their lifetimes, release 29.3 billion tons of carbon dioxide, more than all global emissions in 1996.¹⁸⁹ Another study, conducted by Greenpeace, argued that the U.S. government "provided net subsidies of between \$5.2 and \$11.9 billion to the oil sector during 1995," including maintenance of the Strategic Petroleum Reserve, tax breaks for domestic oil exploration and production, and support for oil exports.¹⁹⁰ Projects funded by the United States included seven power plants in China (six of them using coal) and another coal-burning power plant in Thailand.¹⁹¹ President Bush (who has been accused of anti-environmentalism) proposed reducing the Export-Import Bank's budget by 24%.¹⁹²

But the global warming scenario has also created opportunities for corporate welfare. President Clinton's budget for fiscal year 2001, for example, asked for \$1.4 billion for research on "clean technologies for the buildings, transportation and electricity sectors," \$200 million to "make the latest energy technologies available to the developing world," and \$1.7 billion for research on the role of greenhouse gases in global warming.¹⁹³ This came after the United States had spent \$819 million, \$1.021 billion, and \$1.095 billion in the years 1998 to 2000 respectively.

¹⁸⁴LINDA R. COHEN & ROGER G. NOLL, *THE TECHNOLOGY PORK BARREL* 378 (1991).

¹⁸⁵As is the World Bank, which has reportedly invested nearly \$16 billion since 1992 in oil, gas, coal, and other power projects around the world, particularly in third world countries. Press Release, Institute for Policy Studies, *Oil, Gas and Mining Investments Pose Clear and Present Danger* (Apr. 30, 2001), available at <http://allafrica.com/stories/200104300156.html> (on file with the Harvard Environmental Law Review).

¹⁸⁶Institute for Policy Studies et al., *OPIC, Ex-Im, and Climate Change: Business as Usual?*, at 5 (Apr. 28, 1999), available at <http://www.foe.org/international/eca/> (on file with the Harvard Environmental Law Review).

¹⁸⁷*Id.*

¹⁸⁸DOUGLAS KOPLOW & AARON MARTIN, *INDUSTRIAL ECONOMICS, INC., FUELING GLOBAL WARMING: FEDERAL SUBSIDIES TO OIL IN THE UNITED STATES ES-I* (Greenpeace 1998), available at <http://www.greenpeace.org/-climate/oil/fisub.html>.

¹⁸⁹Danielle Knight, *Bush Praised for Plan to Cut Corporate Subsidies*, INTER PRESS SERVICE, Feb. 26, 2001, at LEXIS, News Library, Wire Services Stories File.

¹⁹⁰*Id.*

¹⁹¹'y' *President Wants \$4 Billion in Tax Breaks to Promote Clean Energy Technologies*, 27 ENERGY REP., Feb. 7, 2000, 2000 WL 8748422.

for research and technology funding. 192 All of this funding was part of Clinton's "Climate Change Technology Initiative," which was to culminate in the achievement of the reductions envisioned by the Kyoto Protocol. 193

There is good reason to be skeptical of such government programs. Part of the Climate Change Technology Initiative consisted of tax breaks for energy-efficient household items such as heaters and appliances. But, as Jerry Taylor points out, a push for "energy-efficient" appliances will not necessarily decrease energy usage. 114 To the extent that appliances are more energy-efficient, the cost of using appliances decreases and usage will likely increase. Robert Samuelson indicates that "[i]f electricity rates are low enough, people may buy efficient air conditioners and run them longer at lower temperatures—offsetting most savings."¹¹⁵ Creating what economists call the rebound effect, energy-efficient items may actually *increase* the usage of energy overall (depending on the elasticity of demand).¹⁹⁶ Taylor also observes that according to data compiled by the Energy Information Administration, energy efficiency increased by 57% between **1949 and 1997**, yet total energy consumption increased by a staggering 323%—due to economic and population growth, as well as the rebound effect.¹¹⁶

However, one thing is certain—tax breaks, subsidies, and regulations requiring energy-efficient products are sure to be supported by the manufacturers of those products. For example, ExxonMobil, a traditional oil corporation, has published op-eds urging the government to fund research on technologies such as fuel cells, which not coincidentally hap

¹⁹² MICHAEL M. SIMPSON, CONGRESSIONAL RESEARCH SERVICE, REPORT RL30452, CLIMATE CHANGE TECHNOLOGY INITIATIVE (CCTI): RESEARCH, TECHNOLOGY, AND RELATED PROGRAMS tbl.1, at 3 (2001), available at <http://cnie.org/NLE/CRSreports/Climate/clim-22.cfm>

¹⁹³*Id.* 1—"or a more specific report, see ENERGY INFO. ADMIN., U.S. DEPT. OF ENERGY, REPORT NO. SR/OIAF/99-01, ANALYSIS OF THE CLIMATE CHANGE TECHNOLOGY INITIATIVE (1999) [hereinafter TECHNOLOGY INITIATIVE], available at <http://www.eia.doe.gov/oiaf/archive/climate99/research.html>.

¹⁹⁴ JERRY TAYLOR, CATO INSTITUTE, POLICY ANALYSIS NO. 356, ENERGY EFFICIENCY: NO SILVER BULLET FOR GLOBAL WARMING 11 (1999), available at <http://www.cato.org/pubs/pas/pa-356es.html>.

¹¹⁵ Robert J. Samuelson, *Energy Junkies*, WASH. POST, May 23, 2001, at A33.

¹⁹⁶ See *id.* Discussions of the rebound effect can be found in Len Brookes, *The Greenhouse Effect: The Fallacies in the Energy Efficiency Solution*, 18 ENERGY POLY 199 (1990); Len Brookes, *Energy Efficiency and Economic Fallacies: A Reply*, 20 ENERGY POLY 390 (1992); Len Brookes, *Energy Efficiency Fallacies—The Debate Concluded*, 21 ENERGY POLY 346 (1993); J. Daniel Khazoom, *Economic Implications of Mandated Efficiency Standards for Household Appliances*, ENERGY J., Oct. 1980, at 21; J. Daniel Khazoom, *Energy Savings Resulting from the Adoption of More Efficient Appliances*, ENERGY J., Mar. 1987, at 85; J. Daniel Khazoom, *Energy Savings from More Efficient Appliances: A Rejoinder*, ENERGY J., Jan. 1989, at 157; and Ronald J. Sutherland, *The Economics of Energy Conservation Policy*, 24 ENERGY POLY 361 (1996).

¹¹⁶ TAYLOR, *supra* note 194, at 11-12.

pen to be one of ExxonMobil's corporate projects.¹⁹⁸ As described below, Shell Oil decided to support Kyoto just as it launched Shell Renewables.¹⁹⁹ This is why prominent economists argue that a simple carbon tax would be preferable to subsidies, because subsidies "give too much power to government officials who pick the favored activities."²⁰⁰

After President Bush took office, he proposed relaxing the lastminute standards that the Clinton administration had enacted requiring lower energy consumption by central air conditioners.²⁰¹ The Clinton rule would have required a 30% increase in energy efficiency, but the Bush proposal would lower that figure to a 20% increase in efficiency—still a substantial increase.²⁰² Nevertheless, groups representing manufacturers of such products responded with anger; the American Council for an Energy-Efficient Economy called the decision "stunningly shortsighted," a "triumph of ideology over common sense," and continuing the Bush administration's "assault on consumers and the environment."²⁰³ David Nemtsov of the Alliance to Save Energy, which describes itself as a "coalition of prominent business, government, environmental, and consumer leaders," said that the Bush decision was "an outrage," and that it was "illegal."²⁰⁴

Bush's proposed budget cut energy efficiency and renewable energy research and development programs substantially. These programs comprised Clinton's aforementioned Climate Change Technology Initiative.²⁰⁵ A DOE analysis had already found that the Climate Change Technology Initiative would reduce American energy consumption by a mere 0.03%.²⁰⁶ Bush's proposed cuts, however, elicited howls of protest from

¹⁹⁸ See ExxonMobil, *Moving Past Kyoto . . . to a Sounder Climate Policy* (2001), available at <http://www.exxon.mobil.com/news/opeds/170401.pdf> and <http://www.exxon.mobil.com/news/opeds/170401-1.pdf> (on file with the Harvard Environmental Law Review); ExxonMobil, *The Path Forward on Climate Change* (2000), available at <http://www.exxon.mobil.com/news/opeds/000406.pdf> (on file with the Harvard Environmental Law Review).

¹⁹⁹ See *infra* notes 228-231.

²⁰⁰ James K. Hammitt, *Climate Change Won't Wait for Kyoto*, WASH. POST, Nov. 29, 2000, at A39. Hammitt is associate professor of economics at the Harvard Center for Risk Analysis.

²⁰¹ Peter Behr, *Air Conditioner Energy Standard to be Relaxed*, WASH. POST, Apr. 14, 2001, at A1, available at <http://www.washingtonpost.com/wp/dyn/articles/A168192001Apr13.html>.

²⁰² *Id.*

²⁰³ Press Release, American Council for an Energy-Efficient Economy, Statement of the American Council for an Energy-Efficient Economy on the Bush Administration Decision to Weaken Energy Efficiency Standards for Central Air Conditioners and Heat Pumps (Apr. 13, 2001), available at <http://aceee.org/press/stndbush.htm> (on file with the Harvard Environmental Law Review).

²⁰⁴ Press Release, Alliance to Save Energy, Bush Administration Deals Cruel Blow to Consumers, Nation's Electricity Reliability by Lowering Air Conditioner Standards (Apr. 13,

the recipients of that funding: "[C]uts in these programs just don't make sense," said Michael Marvin, the president of the Business Council for Sustainable Energy.²⁰⁷ Other disappointed industry officials included George Williams of Semptra Energy and Randy Swisher of the American Wind Energy Association.²⁰⁸ Susanna Drayne, coordinator of the Sustainable Energy Coalition (a group representing more than thirty business and environmental organizations), said, "To say we are disappointed by this budget is an understatement [T]he Bush budget is patently irresponsible."²⁰⁹ Jaime Steve of the American Wind Energy Association said, "Cutting wind energy R&D efforts during an energy crisis is penny wise and pound foolish."²¹⁰ "This is an absurd energy policy," said Howard Geller, former Executive Director of the American Council for an Energy-Efficient Economy.²¹¹ Of course, corporate subsidies are always supported by the corporations themselves. It is important to note, however, the prevalence of Baptist rhetoric deployed against any cuts in subsidies.

2. *Enemies of Coal and Oil*

Supporters of Kyoto include not just those companies that are directly subsidized, but those that offer products that compete with coal or oil, and that would therefore benefit from restrictions on carbon emissions. As reported in *U.S. News & World Report*,

Many businesses active on global warming envision not subsidies but a market-based trading system that would allow farmers and others who cut carbon emissions to get credits they could sell to carbon-emitting businesses. Perhaps that's why traditional manufacturers, like diesel-engine maker Cummins Inc.,

²⁰⁷ Press Release, Business Council for Sustainable Energy, Energy Business Leaders Disappointed by Bush Plan to Cut DOE Clean Energy Budget (Apr. 9, 2001), available at <http://www.bcse.org/domestic.html> (on file with the Harvard Environmental Law Review).

²⁰⁸ Id.

²⁰⁹ Press Release, Sustainable Energy Coalition, Bush Budget Plan Turns Its Back on a Sensible Energy Policy (Apr. 9, 2001), available at http://www.sustainableenergy.org/coalition/press/2001/budget_request.htm (on file with the Harvard Environmental Law Review).

²¹⁰ Press Release, American Wind Energy Association, Wind R&D Cuts Are "Penny Wise & Pound Foolish," Says Wind Energy Group (Apr. 9, 2001), available at <http://www.awea.org/news/newsOI0409bud.html> (on file with the Harvard Environmental Law Review).

²¹¹ Press Release, American Council for an Energy-Efficient Economy, Administration Proposes Deep Cuts in Critical Energy Efficiency Programs (Apr. 9, 2001), available at <http://www.aceee.org/press/02bud.htm> (on file with the Harvard Environmental Law Review); see also Press Release, Alliance to Save Energy, Statement of David M. Nemtsov, President, Alliance to Save Energy, on the Proposed Bush Energy Budget Cuts (Apr. 9, 2001), available at <http://ase.org/media/newsrel/budgetstatement.htm> (on file with the Harvard Environmental

which sells natural gas and low-emissions engines, and cement and aluminum companies, which see big potential to cut their energy use, have joined forces with pro-regulatory groups like the Pew Center for Global Climate Change. "These companies recognize the best way to make money is to be there first," says Eileen Claussen, the Pew Center's president, ". . . and help develop the policy you are going to be living with."¹²¹¹

The nuclear power industry, for example, strongly supports Kyoto, just as it supports anything that will make the alternatives to nuclear energy more expensive."¹²¹² Nuclear plants emit no carbon dioxide, and London's Uranium Institute has said that nuclear plants as of 1997 cut carbon emissions by 2.3 billion tons per year worldwide, despite supplying a mere 6% of the world's power."¹²¹³ But nuclear energy is in trouble throughout much of Europe, as many countries (including Belgium, Germany, the Netherlands, and Sweden) have decided to phase out nuclear power.¹²¹⁵ Because Kyoto would put such strong pressure on those countries to limit carbon emissions, it would increase the pressure to continue using nuclear power.

Indeed, without nuclear energy, many countries would likely be unable to meet their Kyoto commitments. EU Energy Commissioner Loyola de Palacio has said that without nuclear energy, "we won't be able to stick by the terms of the Kyoto agreement."¹²¹⁶ In another interview, she said, "I am very dear on this: we can't avoid nuclear power if we want to fulfill the Kyoto commitment. There is no doubt about that."¹²¹⁷ Similarly, Germany's economy minister Werner Mueller has said that because of his country's phaseout of nuclear power, "a CO₂ reduction of 40 percent by 2020 is hardly possible."¹²¹⁸ Tom Hedlund of Sweden's Environmental

¹²¹¹ Marianne Lavelle, *A Shift in the Wind on Global Warming*, U.S. NEWS & WORLD REP., Mar. 19, 2001, at 39, 39.

¹²¹² Frances Cairncross observes that "Britain's nuclear electricity generators have been keen on carbon tax: not surprisingly, as they are the main commercial source of carbon-free energy." CAIRNCROSS, *supra* note 104, at 192.

¹²¹³ Suvendrini Kakuchi, *Nuke, Oil Lobbies Bid for Greener Image at Kyoto*, INTER PRESS SERVICE, Dec. 5, 1997, at LEXIS, News Library, Wire Services Stories File.

¹²¹⁵ See *Climate Change May Brighten Future For Nuclear-IEA*, REUTERS, May 2, 2001, at <http://www.planetark.org/dailynewsstory.cfm?newsid=10679> (on file with the Harvard Environmental Law Review).

¹²¹⁶ *EU's De Palacio says nuclear needed for Kyoto targets*, REUTERS, Oct. 15, 1999, at <http://www.planetark.org/dailynewsstory.cfm?newsid=4180&newsdate=15-Oct-1999>.

¹²¹⁷ *EU Energy Commissioner Backs Finnish Nuclear Plans*, REUTERS, Feb. 21, 2001, at <http://www.planetark.org/dailynewsstory.cfm?newsid=9870&newsdate=21-Feb-2001> (on file with the Harvard Environmental Law Review).

¹²¹⁸ *Minister Doubts Germany Can Meet Pollution Target*, *supra* note 11. The nuclear industry in Germany has used the prospect of Kyoto to lobby against that country's plan to shut down all nuclear plants by 2020. See *Industry Slams "Dogmatic" German Nuclear Shutdown*, REUTERS NEWS SERVICE, June 19, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=7141&newsdate=19-Jun-2000> (on file with the Harvard Environmental Law Review).

Protection Agency has said, "If you phase out nuclear power very fast it will not be possible to expand renewables or energy efficiency in the same time frame.""" The chairman of Japan's Federation of Electric Power Companies has said that a pledge "may be hard to achieve unless Japan proceeds to use more nuclear power."²²⁰

Add all this up, and the Kyoto Protocol means good times ahead for the nuclear industry, which "sees global warming as its trump card."²²¹ As the International Energy Agency said in a recent report, "[a] strong commitment to reduce emissions of carbon dioxide could have a dramatic positive effect on the prospects for nuclear power over the coming decades: "²²²

The nuclear industry's claims to environmental friendliness are challenged, of course, by environmental activists, who have lobbied to keep nuclear energy from being an option for making the Kyoto reductions.²²³ This opposition to nuclear energy was echoed by the head of the United Nations Environment Programme, who said, "I'm utterly convinced that it [nuclear power] should not be included" in any climate control treaty. ²¹⁴

A coalition of major oil producers and other firms had trouble keeping its members opposed to Kyoto. The Global Climate Coalition ²²¹ consisting of major oil firms and thousands of other firms, attempted to speak with one voice in debunking Kyoto's shaky scientific underpinnings and calling attention to the economic effects of the protocol. But in June 1998, Shell Oil announced it was leaving the coalition.

Shell's conversion to environmentalism was inspired by the profit motive: Shell had entered the renewable energy market in 1997 by setting up Shell Renewables "at least as much for potential profits as out of envi

²¹⁹ *Green-aware Scandinavia Hard-pressed on Kyoto Targets, supra* note 11 (reporting that Scandinavian countries will probably not be able to meet Kyoto targets); *see also Renewables vs. Nuclear-UK faces Kyoto Gap*, REUTERS, Aug. 30, 1999, at <http://www.planetark.org/dailynewsstory.cfm?newsid=3399&newsdate=30-Aug-1999> (on file with the Harvard Environmental Law Review).

²²⁰ *Nuclear Power Needed for Japan to Keep Kyoto Pact*, REUTERS NEWS SERVICE, Sept. 15, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=8185&newsdate=15-Sep-2000>.

²²¹ Mark John, *Is Europe Really Going Non-Nuclear?*, REUTERS NEWS SERVICE, July 12, 1999, at <http://www.planetark.org/dailynewsstory.cfm?newsid=2028&newsdate=12Jul-1999> (on file with the Harvard Environmental Law Review).

²²² Sustainable Development International, *Climate Change May Brighten Future for Nuclear-IEA*, at <http://www.sustdev.org/energy/Industry%20News/05.01/02.02.shtml> (last visited Dec. 3, 2001).

²²³ *See, e.g., Greenpeace Urges Climate Talks to Reject Nuclear*, REUTERS NEWS, Sept. 6, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=8059&newsdate=06Sep-2000> (on file with the Harvard Environmental Law Review).

²¹⁴ Matt Daily, *UN Official Blasts Nuclear Option for Global Warming*, REUTERS, Nov. 22, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=9046> (on file with the Harvard Environmental Law Review).

ronmental concerns.²²⁶ In 1999, Shell Renewables set up the world's largest solar-panel plant and established Shell Hydrogen to enter the fuel cell market.²²⁷ Shell has recently experienced record profits, in large part due to the increased demand for natural gas.²²⁸ and, as noted above, the natural gas industry would experience even greater demand under Kyoto. As the *Washington Post* described Shell's motivation:

Aidan Murphy, vice president at Shell International, says the Kyoto treaty has prompted the British-Dutch oil company to shift some of its focus away from petroleum toward alternative fuel sources. While the move has helped the company make early strides toward its goal of surpassing treaty requirements and reducing emissions to 10 percent less than **1990 levels**, he says Shell is being driven largely by the lure of future profits.

"We are now involved in major energy projects involving wind and biomass, but I can assure you this has nothing to do with altruism," Murphy said. "We see this as a whole new field in which to develop a thriving business for many years to come. Capital is not the problem, it's the lack of ideas and imagination."²²⁹

Shell's departure from the Global Climate Coalition was made easier by British Petroleum's ("BP") earlier defection. John Browne, chief executive officer of BP, stated that industry must play a "positive and responsible part in identifying solutions" to the global warming problem.²³⁰ This sounds both concerned and responsible, just the sort of thing that environmental activists praise. But BP also expects to see an increase in demand for oil, its chief product, because oil is a substitute for coal that produces fewer carbon emissions. BP also planned to increase solar sales to \$1 billion over the next decade, a plan that could "help the company steal a march in a 'green' propaganda war among companies for customers and between companies and environmentalists."²³¹

Another defection from the Global Climate Coalition was the American Electric Power Company ("AEP"), which instead chose to join the Business Environment Leadership Council, a pro-Kyoto business

²²⁶ Steve Liesman, *Inside the Race to Profit from Global Warming: Big Business Produces Some Unexpected Converts*, WALL ST. J., Oct. 19, 1999, at 131.

²²⁷ *Id.*

²²⁸ *Earnings*, ORLANDO SENTINEL, May 4, 2001, at 135.

²²⁹ William Drozdiak, U.S. Firms Become 'Green' Advocates: Global Warming Talks Near End, WASH. POST, Nov. 24, 2000, at E1; see also Eric Roston, *Warming Up To Green*, TIME, Mar. 19, 2001, at 139.

²³⁰ Leyla Boulton, *Oil Chief Presses Case for Solar Power*, FIN. TIMES (London), May 20, 1997, at 6.

²³¹ *Id.*

group sponsored by the Pew Center for Climate Change .232 According to a report in the *Washington Post*, AEP reversed its stance on the treaty when the company realized it could make huge profits by earning carbon credits through the sale of its modern coal-fired plants that produce much fewer greenhouse gases than the conventional version. AEP sees a huge market waiting in China, which has soaring energy demands and large coal deposits. But the project would become feasible only if the treaty made it possible to subsidize the price gap between AEP's modern power plant and the cheaper but dirtier old model. William Drozdiak records the following:

"Somebody has got to pay that premium to make these kinds of deals work," said Dale E. Heydlauff, AEP's senior vice president for environmental affairs, in an interview. "It's a small price to pay, but it will make a big difference in China's pollution levels and the impact on global warming. And that's just one example why these negotiations matter so much to American business and the fate of the world .11233

Heydlauff was also quoted as saying, "Once you realize that you can't kill this thing, then it's incumbent upon you to try to be a player in the process of shaping policies .1123' An AEP spokesman echoed this sentiment, saying, "We're not green, but we are realistic1.1231

To be sure, many major industries, or at least major firms, still oppose Kyoto. Not everyone is teaming up with the Baptists. Coal producers and related unions have been among the most vocal in their opposition.236 Coal interests in West Virginia, for example, were successful enough to obtain state legislation prohibiting the state government from "proposing or enacting rules regulating so-called greenhouse gas emissions from industrial sites.."23' Yet even this anti-Kyoto legislation was announced with a flourish of Baptist-like rhetoric. On signing the bill, Governor Cecil Underwood said that while actions like the Kyoto Protocol must be opposed, we "should continue to encourage the development and implementation of technologies that allow the clean burning of coal."238

¹³² See Business Environment Leadership Council, AEP Fact Sheet, at <http://www.pewclimate.org/bele/aep.cfm> (last visited Dec. 3, 2001) (on file with the Harvard Environmental Law Review).

²³¹ Drozdiak, *supra* note 229.

²³⁴ Liesman, *supra* note 226.

²⁵ Dan Morgan & Peter Behr, *Developing Energy Bill Ignites Power Scramble*, WASH. POST, May 20, 2001, at A1.

²³⁶ See *supra* note 4.

²³⁷ *To Counter Kyoto, West Va. Prohibits Regulation of Greenhouse Gas Emissions*, UTIL. ENV'T REP., Apr. 10, 1998, 1998 WL 10034794.

²³⁸ *Id.*

Kyoto's impact on the agricultural market would have been uncertain. Corn producers, for example, had mixed feelings on Kyoto. On one hand, corn is the raw material for ethanol, a fuel that burns cleaner than oil and would presumably have an increased market share under Kyoto.²³⁹ On the other hand, Kyoto would raise energy costs—including the costs of producing ethanol and other products in the first place.²⁴⁰ Thus, farmers generally opposed Kyoto. Dean Kleckner, president of the 4.8-million-member American Farm Bureau Federation, opposed the protocol "because of its potential harm to U.S. farmers."²⁴¹ One study indicated that the Kyoto Protocol could increase U.S. farm expenses by \$10 to \$20 billion per year and cause farm income to decrease by 24 to 48%.²⁴² Another study indicated that Kyoto would "cause higher fuel oil, motor oil, fertilizer, and other farm operating costs," leading to "higher consumer food prices," as well as causing U.S. "food exports to decline and imports to rise."²⁴³

The Kyoto Protocol brought new visions of profits to natural gas suppliers, whose product would be more in demand with limits effectively placed on oil and coal.²⁴⁴ Some analysts think that the Kyoto Protocol could have caused a 21% increase in U.S. natural gas consumption by 2005.²⁴⁵ In the words of *The Economist*, "[g]as should be the biggest

¹³⁹ Ethanol is known for being one of the most heavily subsidized industries—half of the federal government's \$600 million annual ethanol subsidy goes to one ethanol producer, Archer Daniels Midland. See JAMES BOVARD, CATO INSTITUTE, POLICY ANALYSIS No. 241, ARCHER DANIELS MIDLAND: A CASE STUDY IN CORPORATE WELFARE (1995), available at <http://www.cato.org/pubs/pas/pa-241.html>. The industry has used the threat of global warming to keep its subsidies flowing. Vice President Al Gore indicated his strong support for extending the ethanol subsidy by noting that "ethanol can reduce greenhouse gas emissions." Who Supports Extending the Ethanol Tax Incentive Through 2007, ETHANOL REP. (Renewable Fuels Ass'n, Washington, D.C.), May 7, 1998, at <http://www.ethanolrfa.org/EReports/er050798.html> (on file with the Harvard Environmental Law Review).

²⁴⁰ "Corn is one of the most costly crops to produce when you take into consideration the costs of inputs such as fertilizer, fuel and irrigation. With [the added costs of Kyoto], it is likely that corn growers will find other, less expensive crops to grow" Shaun Schafer, *Corn Group Wary of Climate Treaty*, TULSA WORLD, Dec. 7, 1997, at E3.

²⁴¹ *The Impact of the Kyoto Protocol on the U.S. Economy, Trade Competitiveness and Jobs: Hearing Before the Subcomm. on Nat'l. Econ. Growth, Natural Res. & Regulatory Affairs, House Comm. on Gov't Reform & Oversight*, 105th Cong. (1998) (statement of Dean Kleckner, American Farm Bureau Federation), 1998 WL 18088438.

²⁴² Terry Francl et al., *Impact of the Kyoto Protocol on Agriculture 3-4* (ACCF Center for Policy Research, Oct. 1998) available at <http://www.accf.org/Franclnadlerbast1098.htm> (on file with the Harvard Environmental Law Review).

²⁴³ Margo Thorning, *Climate Change Policy: Contrasting the U.S. and the European Union Approaches 3-4* (ACCF Center for Policy Research, Jul 6, 2000), available at <http://www.accf.org/ThorningEU.pdf> (on file with the Harvard Environmental Law Review).

²⁴⁴ Natural gas is already projected to be "the fastest-growing primary energy source from 1996 to 2020," according to a Department of Energy analysis. INTERNATIONAL ENERGY OUTLOOK, *supra* note 46.

²⁴⁵ Robert E. Borgstrom & David A. Foti, U.S. *Gas Pipelines: The Challenge of Global Warming*, PUB. UTIL. FORT., June 15, 1999, at 66.

beneficiary of the Kyoto accord . . . :²⁴⁶ The only shadow cast on rosy predictions came from a study prepared by Resource Data International, which argued that the demand for natural gas under Kyoto would grow so quickly that the natural gas industry would face a "unique shock" from the struggle to meet demand .²⁴¹

Enron is an example of a natural gas company that envisioned higher profits from supporting the conservation movement. In January 1997, Enron Corporation announced the formation of Enron Renewable Energy Corporation.²⁴⁸ Chief executive officer Kenneth Lay said that "[r]enewable energy will capture a significant share of the world energy market over the next 20 years, and Enron intends to be a world leader in this very important market."⁹ More recently, Marianne Lavelle reported:

Kenneth Lay, a close Bush friend and major campaign contributor, has been in the vanguard of businesses active on global warming. The chairman of Enron Corp., Lay stands to gain substantially from carbon control, not only as the largest North American trader of natural gas . . . but because of the company's burgeoning energy-efficiency business."^o

As might be expected, Enron's Lay articulated disappointment at the Bush decision to reject Kyoto .²¹¹

E. Countries as Bootleggers and Baptists

Kyoto-like any global environmental treaty-offered many ways for countries to compete for advantages over each other. In the words of *The Economist*, the treaty "always had more to do with the jockeying for individual trading advantage than preserving the global environment for future generations .¹¹²¹¹

1. Kyoto's Starting Date

The first thing that appears to be a bootlegging measure is Kyoto's choice of 1990 as the baseline year for measuring any emissions reduc

²⁴⁶ *Energy, the New Convergence*, ECONOMIST, May 29, 1999, at 59.

²⁴⁷ This study, titled *U.S. Gas and Power Supply Under the Kyoto Protocol*, is described in *Compliance with Kyoto Protocol Poses Severe Challenges for Natural Gas Industry, EEI-Sponsored Study Concludes*, 182 FOSTER ELECTRIC REP. 14 (2000).

¹⁴¹ *Enron Acquires Wind Developer Zond, Creates Renewables Business Unit*, UTIL. ENV'T REP., Jan. 17, 1997, 1997 WL 8883492.

²⁴⁹ *Id.*

²⁵⁰ Lavelle, *supra* note 212, at 38.

²⁵ Dan Morgan, *Coal Scores With Wager on Bush; Belief That Mineral Is Part of 'Balanced' Energy Policy Lifts Industry Outlook*, WASH. POST, Mar. 25, 2001, at A5.

tions.²⁵³ Environmental sciences professor S. Fred Singer points out that several important countries had already fortuitously reduced their carbon dioxide emissions considerably between 1990 and 1997--which meant that they would get "credit" for reductions they had already made for other reasons. During that period, the United Kingdom had switched from coal to gas, thereby reducing its carbon emissions.²⁵⁴ "The unification of East and West Germany led to closing down extremely inefficient and uneconomic power plants and industries; as a result, between 1990 and '95 Germany actually reduced its emissions of CO₂ by 25 percent !11255 France, Sweden, and Denmark had also begun reducing emissions.²⁵⁶

On the other hand, countries such as Canada, the Netherlands, Australia, and the United States had increased carbon emissions between 1990 and 1997²⁵⁷--which meant that their burden under Kyoto would be comparatively much larger. As reported in the *Oil and Gas Journal*:

Against 1990 baseline levels, European Union members seemed to have shouldered the greater load, agreeing to an aggregate 8% reduction in greenhouse-gas emissions against 7% for the US. But several European countries displaced coal significantly with natural gas between 1990 and the 1997 meeting in Kyoto. With this convenient head-start, the EU as a whole needed to lower emissions from levels projected for 2012 by only 15-20% to satisfy Kyoto, compared with 30-35% for the US.²⁵⁸

Thus, even in something as seemingly innocuous and objective as the choice of a baseline year, various countries attempted to set Kyoto's terms so as to maximize their own competitive advantage.²¹¹

²⁵³ For a chart showing the difference between Kyoto commitments and actual 1995 emissions levels for various countries, see GRUBB ET AL., *supra* note 22, at 87.

²⁵⁴ S. Fred Singer, *The Kyoto Protocol: The Costly Politics of Global Environmentalism*, 14 *WORLD & I* 331, 337 (1999). The United Kingdom reduced its greenhouse emissions by 9% between 1990 and 1997. *UK Says Greenhouse Gas Emissions Down Nine Percent*, REUTERS, May 14, 1999, at <http://www.planetark.org/dailynewsstory.cfm?newsid=620&newsdate=14-May-1999> (on file with the Harvard Environmental Law Review)

²⁵⁵ Singer, *supra* note 254.

²⁵⁶ *Canada's Greenhouse Gas Emissions Prove Tough to Control*, ENV'T NEWS SERVICE, Sept. 6, 2000, at LEXIS, News Library, Wire Services Stories File. France, for example, currently gets 80% of its power from nuclear plants, which produce no carbon dioxide. *Greenpeace Urges Climate Talks to Reject Nuclear*, *supra* note 223. Not coincidentally, France was one of the strongest proponents of using nuclear energy for clean development projects. *Id.*

²⁵⁷ *Canada's Greenhouse Gas Emissions Prove Tough to Control*, *supra* note 256.

²⁵⁸ *The Collapse of Kyoto*, 49 *OIL & GAS J.* 25, Dec. 4, 2000, at 25.

²¹⁹ See also *Global Warming: Rubbing Sleep from Their Eyes*, *supra* note 252, at 38.

2. Redistributive Effects

In the international context, the Baptists are the tropical countries that urge the ratification of Kyoto on the grounds that their lands would be flooded and their agriculture destroyed if the predicted climate change happens. As reported in the *New York Times*, a study by the Intergovernmental Panel on Climate Change argued that global warming would further widen "the gap between rich, industrialized countries and poor developing nations." 260 Klaus Toepfer, executive director of the United Nations Environment Programme, said that "[t]he poorest countries, especially in Africa, will be the real victims." 261 Agus Purnomo, executive director of Worldwide Fund for Nature, has said that the United States' failure to ratify Kyoto would cause the submersion of millions of Indonesian homes. 161

It is not as if such Baptist appeals have gone unchallenged. Mick Kelly of the Climatic Research Unit at the University of East Anglia in Britain has condemned the "self-serving ideology" inherent in such claims, saying that the "persistent belief in southern vulnerability to global warming conforms with the widespread view of the South as victim," but merely serves to "divert attention and resources away from present hazards towards the ill-defined and speculative threat of future impacts." 262

While poorer nations brought forward the moralistic, Baptist arguments, one suspects that a more important motivation was their desire to create an incentive for job and wealth redistribution from richer countries to poorer countries. Due to the exclusion of developing countries from Kyoto's restrictions, one predicted effect of Kyoto is that industrial production and jobs might shift from the industrialized world (where energy prices would of course be higher) to the developing world. 263 One economist noted that "[p]roducers of emission intensive goods, such as iron and steel and agricultural products, in non-Annex B countries stand to gain competitiveness in world markets as production becomes more

212 Andrew C. Revkin, *Warming's Likely Victims*, N.Y. TIMES, Feb. 19, 2001, at A4.

260 Climate Summit Must Look at Africa's Plight, REUTERS, Nov. 10, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=8887> (on file with the Harvard Environmental Law Review).

261 *asa* Activists protest U.S. refusal of Kyoto Protocol, JAKARTA POST, Apr. 12, 2001.

263 Climate treaty 'robs the poor,' BBC NEWS ONLINE, Nov. 6, 2000, at <http://news.bbc.co.uk/1/hi/english/sci/tech/newsid-1009000/1009452.stm> (on file with the Harvard Environmental Law Review).

264 See, e.g., McKibbin et al., *supra* note 135, at 287. Environmental activists, of course, disagree. See, e.g., Robert Repetto & Crescencia Maurer, *U.S. Competitiveness Is Not at Risk in the Climate Negotiations*, CLIMATE NOTES (World Res. Inst., Washington, D.C.), Oct. 1997, at 1, available at <http://www.wri.org/wri/cpi/notes/us-comp.html> (on file with the Harvard Environmental Law Review).

expensive in Annex B countries as a result of emission penalties .¹¹²⁶¹ In the words of another economist:

[I]mplementation of the agreement will likely result in a massive transfer of wealth from people in wealthier nations to people, or more likely governments, in less developed countries (LDCs). This is because the agreement would raise the relative cost of production in the developed world, particularly for manufacturing and energy intensive industries, encouraging a reallocation of investment to less developed countries .²⁶¹

Thus, what was promoted as a environmental treaty could have functioned as a redistribution policy from rich countries to poor countries, even as those very same poor countries played to the Baptist moral sensibilities by presenting themselves as most vulnerable to a global warming crisis. As one economist noted, greenhouse gas abatement is a "foreign aid program" in which the "benefits will almost exclusively accrue to the developing countries and the costs, at least for the first 50 years, will be borne by the rich countries .¹¹²⁶⁷

Some environmental leaders openly acknowledged this aspect of Kyoto; Canada's environment minister, for example, was quoted in 1998 as having said that climate change provides "the greatest chance to bring about justice and equality in the world .¹¹²⁶¹ Margot Wallstrom, European commissioner for the environment, said in reaction to Bush's rejection of Kyoto:

This is not a simple environmental issue where you can say it is an issue where the scientists are not unanimous. This is about international relations, this is about economy about trying to create a level playing field for big businesses throughout the

²⁶⁵ Cain Polidano et al., *The Kyoto Protocol: The State of Negotiations and Implications for the Australian Economy*, in ABARE, *supra* note 33, at 47, 54-55.

^{zee} Cordato, *supra* note 116, at 17.

²⁶ Thomas C. Schelling, Costs and Benefits of Greenhouse Gas Reduction (ACCF Center for Policy Research, Oct. 1995) available at <http://www.accf.org/costbene.htm> (on file with the Harvard Environmental Law Review).

²⁶⁸ Terence Corcoran, *Global Warming: The Real Agenda*, NATL POST, Dec. 26, 1998, at D5. The same official also said, "No matter if the science is all phony, there are collateral environmental benefits." *Id.* Even more ominously, French President Jacques Chirac said in his address at COP6 that with Kyoto, "humanity is instituting a genuine instrument of global governance." Jacques Chirac, President of France, Speech to COP6 (Nov. 20, 2000), at <http://www.sovereignty.net/center/chirac.html> (on file with the Harvard Environmental Law Review). The desirability of "global governance," of course, is a highly contested matter, and is quite different from the goal of merely protecting the environment from anthropogenic damage.

world. You have to understand what is at stake and that is why it is serious .161

In this praiseworthy moment of honesty, the European environment commissioner laid bare the real motivations behind the EU's outrage over the United States' actions: "international relations" and creating a "level playing field for big businesses throughout the world." In other words, such actions reflect bootlegging on a global scale. The merits of such a policy are at best debatable, and should be discussed openly rather than hidden behind moralistic rhetoric.

3. The Battle over Sinks and Tradable Permits

Frank Laird points out that Kyoto's emissions limits veritably invited the "wrangling and stalemates" seen in the November 2000 negotiations at COPE, where the United States and the EU battled over how to count reforestation and other methods of creating carbon sinks.²⁷⁰ Some of the Kyoto negotiations seem to have been inspired by pure envy about the United States' success. At the COP6 conference in November 2000, the United States and the EU battled over how much trading in emissions rights and how much credit for forestation would be allowed.²¹ The United States, for example, wanted to get "sink" credit for a mere 20% of the estimated 288 million tons of carbon absorbed each year by U.S. forests.²² This is not surprising—one recent article in *Science* estimated that all the carbon emitted by the United States and Canada was balanced by absorption in forests and vegetation.²⁷³

But the EU tried hard to limit any credit for carbon sinks,"⁴ at least in part because their own countries have less land available for reforestation efforts.²⁷⁵ As the *New York Times* reported:

²⁶⁹ Stephen Castle, *EU Sends Strong Warning to Bush Over Greenhouse Gas Emissions*, INDEPENDENT (London), Mar. 19, 2001, at 14.

²⁷⁰ See Frank N. Laird, *Just Say No to Greenhouse Gas Emissions Targets*, ISSUES IN Sci. & TECH., Winter 2000, <http://www.nap.edu/issues/17.2/1aird.htm>

²⁷¹ See, e.g., William Drozdiak, *Global Warming Treaty Dispute Heats Up; U.S. to Press for Pollution Trading Credits at Hague Meeting, Over European Objections*, WASH. POST, Nov. 12, 2000, at A26.

²⁷² Christopher C. Horner, *EU Taking Aggressive Stance Toward U.S.*, Nov. 17, 2000, at <http://www.globalwarming.org/bague/cop6horner2.htm> (on file with the Harvard Environmental Law Review); see also *Floods a Warning*-Prescott, BBC NEWS ONLINE, Nov. 21, 2000, available at <http://news.bbc.co.uk/hi/english/sci/tech/newsid-1033000/1033239.stm> (on file with the Harvard Environmental Law Review).

²⁷³ S. Fan, et al., *A Large Terrestrial Carbon Sink in North America Implied by Atmospheric and Oceanic Carbon Dioxide Data and Models*, 282 .SCIENCE 442 (1998).

²⁷⁴ See, e.g., GRUBB E2 AL., *supra* note 22, at 79-80; Horner, *supra* note 272; see also *Floods a Warning*-Prescott, *supra* note 272.

²⁷⁵ See Jason Topping Cone, *EU and US on Opposite Sides of Key Issue of Kyoto Protocol*, EARTH TIMES NEWS SERVICE, Nov. 1, 2000, available at <http://groups.yahoo.com/group/graffis-1/message/14323> (writing that "[t]he EU, with significant limits on land

Europe, too crowded to take advantage of forests, and many private environmental groups say crediting forest growth would allow the United States and other large, forested countries to meet their targets without undertaking the much harder, and potentially costlier, task of reducing greenhouse gases at the source: mainly tailpipe and smokestacks.²⁷⁶

The European Union called the United States' use of forests a "free gift."²⁷⁷ Similar pressure came from European environmental activists. Kalee Kreider of the National Environmental Trust remarked: "While the Europeans are trying to cut pollution through energy efficiency, better transportation and cars, it is ridiculous that the US wants to meet half its reductions from forests and crops."²⁷⁸

But the EU was not motivated just by jealousy over the United States' territory available for forestation. It was also inspired by a desire to punish the United States for not having enough market-stifling command-and-control regulation. To quote a report in *The Economist*, "[s]ome European ministers made it clear that they wanted Americans to feel some economic pain more than they wanted a workable agreement."²⁷⁹ The Clinton administration's chief Kyoto negotiator agreed, saying

The EU is concerned that implementing the Protocol, particularly in the United States, will be too easy. Some in Europe think that we have a moral obligation to change our lifestyle as quickly and radically as possible. In this sense, many in the EU believe that producing significant short-term pain and suffering is actually desirable, rather than something to be avoided. The EU is also concerned that enterprises in the United States and other countries relying on efficient market-oriented approaches will enjoy a competitive advantage over European businesses that have been subjected to carbon taxes and extensive regulation.²⁸⁰

available for reforestation by its member countries, is lobbying for these credits to have a lower value in an emissions trading system . . .") (on file with the Harvard Environmental Law Review).

²⁶ Andrew C. Revkin, U.S. Move Improves Chance for Global Warming, N.Y. TIMES, Nov. 20, 2000, at A1.

²⁷ Id.

²⁸ Charles Clover, US Blamed for Climate Treaty Talks Deadlock, DAILY TELEGRAPH (London), Nov. 20, 2000, available at <http://www.telegraph.co.uk/e>

000135872017160&rtmo=1vbnFIQt&atmo=99999999&pg=/et/00/11/20/wgren20.html.

²⁹ Oh No, Kyoto, ECONOMIST, Apr. 7, 2001, at 23.

³⁰ Loy, supra note 180.

Along the same line, James Glassman, who attended the COP6 negotiations, observed:

What doomed the meeting from the start was that the Europeans never intended to let other countries utilize sinks and emissions trading to a useful degree. The Europeans were after something more: an economic edge over the U.S. Without sinks and trading, the U.S. could meet the Kyoto targets only by sharply increasing the price of fossil fuels. Gasoline would rise by 50 cents or more a gallon; the cost of running industrial plants and energy-hungry computers would soar. According to a consensus of projections, the growth of gross domestic product in the U.S. would be cut by more than half as businesses moved offshore to escape the high tax.

The Europeans, meanwhile, rigged the Kyoto game. They have an easier time meeting their targets-without trading or sinks-since they are considered one country. Huge emissions reductions have already been achieved in Europe, especially in eastern Germany and Britain, which, until recently, have been heavily reliant on uneconomic and inefficient power plants and heating."²⁸

Another example of bootlegging was, of course, the aforementioned battle over the extent of permit trading to be allowed. Outside of continental Europe, several countries stand to gain enormous amounts of money from a permit-trading system if Kyoto is implemented. The Soviet-bloc countries experienced an economic and industrial collapse in the 1990s, which reduced their carbon emissions by some 40% from their 1990 levels. This means that those countries would have to do nothing to meet **their Kyoto** targets, and because the Kyoto Protocol will raise the price of carbon, those countries could make a handsome sum of money by selling carbon permits that they would not need to use domestically anyway. Kazakhstan could earn some \$800 million per year, and Russia some \$3 billion per year, if Kyoto is ratified."²⁹ But these figures assume current carbon prices. If, as most analysts expect, the price for carbon rose under Kyoto to around \$20 per ton, Kazakhstan could earn \$3 billion and Russia \$12 billion per year. ¹¹³ Not surprisingly, those Eastern bloc countries strongly support Kyoto.

²⁸ James K. Glassman, Editorial, *Forget Kyoto*, WALL ST. J. Nov. 28, 2000, at A26.

¹² Steve LeVine, *Ex-Soviet States Sit on a Gold Mine of Greenhouse Gases*, WALL ST. J., Nov. 21, 2000, at A23.

²⁸ *Id.* On the other hand, Russia could conceivably gain from climate change itself; some scientists have suggested that global warming would make more of Russia's land habitable and suitable for agriculture. See, e.g., Marina Martynova, *Climate Change: Russian Potential, Problems and Action in Response to Global Climate Change*, in ABARE, *supra* note 33, at 37, 37-38.

Indeed, soon after the first Kyoto conference in 1997, Japan and Russia engaged in the world's first joint-implementation greenhouse gas emissions swap.²⁸⁴ Under the swap agreement, Japan planned to send technicians to twenty Russian power plants and factories to help them cut carbon emissions. In return, Japan could obtain credits to offset its required cutbacks.²⁸⁵ This arrangement was facilitated by the fact that Russia has no difficulty in meeting its Kyoto goal, a zero increase in carbon emissions above the 1990 baseline. With the Russian economy in shambles, production has fallen 40% below 1990 levels—which means that it is not really selling emissions "reductions" at all.²⁸⁶ Japan, on the other hand, had agreed to cut baseline emissions by 60%,²⁸⁷ much more of a challenge.

Throughout the Kyoto negotiations, some governments took steps to capitalize on the possibility of trading emissions rights. Costa Rica, for example, found it possible to gain additional wealth for actions it was going to take anyway. In April 1998, Costa Rica announced a program to save 1.25 million acres of rainforest by creating environmental bonds called Certified Tradable Offsets ("CTOs"), which would then be sold to industrial firms.²⁸⁸ Each CTO corresponds to one ton of carbon that will be absorbed by trees.²⁸⁹ By paying Costa Rica to protect its rainforest, polluters elsewhere can release more carbon emissions. The planned offsets will accommodate one million metric tons of carbon annually.²⁹⁰ The program will cost Costa Rica nothing, since it is something that the government was doing anyway, but it is expected to generate \$300 million over the life of the project.²⁹¹ As one might expect, no sooner had the program started than environmental activists started to criticize it as a "mechanism for allowing continued growth in pollution in [industrialized] countries."²⁹²

But as discussed above, other countries were not as eager to enter the world of trading in emissions.²⁹³ The EU in particular was suspicious of allowing too much trading in permits, instead pushing for the supplementarity requirements that could only reduce the available gains of trade for all parties.²⁹⁴ If the Europeans had lobbied for limits on emissions

²⁸⁴ *Japan-Russia Agree on CO₂ Emissions Trade*, ENERGY DAILY, Apr. 22, 1998, at LEXIS, News Library, Energy Daily File.

²⁸⁵ *Id.*

²⁸⁶ See Victor, *supra* note 11, at A19.

²⁸⁷ *Japan-Russia Agree on CO₂ Emissions Trade*, *supra* note 284. ²⁸⁸ *Costa Rica Will Sell Credits for Gas Emissions to Help Save Tract of Rain Forest*, ST. LOUIS POST-DISPATCH, Apr. 26, 1998, at A7.

²⁸⁹ *Id.*

²⁹⁰ *Id.*

²⁹¹ *Id.*

²⁹² Jon Mitchell, *Costa Rica Plans to Turn Rain Forests Into Greenbacks*, CHRISTIAN SCI. MONITOR, May 27, 1998, at 10 (quoting Bill Hare of Greenpeace International).

²⁹³ See *supra* notes 113-118 and accompanying text. ²⁹⁴ See *supra* notes 118-120 and accompanying text.

trading for everyone, their motivations might have been more believably noble. Constraints on emissions trading might, after all, hurt Europe just as much or more than it would hurt the United States. Janet Yellen, chair of the Council of Economic Advisers, testified before a House committee that if two-thirds of emissions reductions were required to be done through domestic actions (rather than through trading), the permit price for carbon would be almost four times higher in the United States, five times higher in the EU, and thirteen times higher in Japan.²⁹⁵ But even as the EU tried to limit gains from trade for the United States, it came up with a way by which its member states hoped to minimize their own emissions reduction costs. The EU would employ a "bubble" concept to achieve overall emissions reductions for the member states. ²⁹⁶A bubble is a way of measuring the success of a group of emitters by focusing on their overall collective action—what is emitted from the bubble, not the action taken by any one particular emitter. Under this plan, some European countries will be able to emit more and others less because only the collective total matters.

The bubble allows the EU to minimize the overall cost of emissions reductions by allocating emissions cutbacks differently to different countries. It is generally cheaper to reduce emissions when concentrations are higher, so it is logical and technically efficient to require countries that produce more CO₂ per unit of output to make larger cutbacks. The bubble system would likely save the EU vast sums of money. As Frances Cairncross notes, "rough calculations for the EU by Scott Barrett of the London Business School suggest that the most cost-effective distribution of reductions might be fifty times less expensive for the EU than achieving the same goal by stabilizing emissions from each member country individually."²⁹⁷

The system obviously provides a framework for trading. Those that face high costs in cutting back their emissions can buy permits or credits from other European countries that face lower control costs. By encouraging bubble trading within the EU while managing Europe's external trades so that its competitors' costs go up, Europe's new central government takes on the traditional protectionist position of many nation-states, controlling exports and imports. The difference is that the items traded are permits (emissions reductions), not commodities.

Not surprisingly, the United States' negotiators opposed the European bubble when it came up during Kyoto negotiations.²⁹⁸ But in its own way, the United States was playing the "increase the rivals' cost game." American negotiators complained that the EU "bubble doesn't level the

²⁹⁵ Janet Yellen, *supra* note 149.

²⁹⁶ See *Kyoto Protocol*, *supra* note 23, art. 4, § 1. =y'

CAIRNCROSS, *supra* note 105, at 121.

²⁹⁸ Willis Witter, *U.S. Irks EU on Pollution Controls; Suggests Cut Based on Level of Abuse*, WASH. TIMES, Dec. 2, 1997, at A9.

playing field,"²⁹⁹ and argued that each European state should have specific reduction goals that must be met internally, rather than being allowed to trade within Europe under the bubble.³⁰⁰ This would mean, of course, that each European country, whatever its size, would effectively be treated as the equal of the United States, and each small country such as Portugal and Greece would have to meet its own Kyoto-specified target. But internal trading within Portugal is a far cry from the internal trading that could go on in the much more vast United States. From the United States' perspective, this arrangement would have been doubly beneficial: the United States could trade with the less-developed countries of Europe and at the same time impose higher costs on its competitors.

The EU bubble aroused fierce resentment elsewhere as well. As reported by Michael Grubb, the EU put forward the "untenable negotiating position of insisting on its right to have such a huge internal differentiation of commitments among its members, while calling for equal reductions by all other countries. Urging Japan, Norway, and New Zealand to agree to a 15% reduction while allowing France, a fully developed country, to stay at 1990 levels and others to rise was inflammatory, and earned the EU bitter condemnation."³⁰¹

While jockeying for a competitive advantage between Europe and the United States is evident, countries within Europe are strategically positioning themselves against each other. The bubble policy gives more leeway to southern European countries, such as Spain, Portugal, and Greece, lower-income countries that are rapidly industrializing and emitting large quantities of carbon.³⁰² Countries such as Germany, the United Kingdom, the Netherlands, and France were already relatively low on carbon emissions, having transformed their coal-based energy economies to cleaner fuels.³⁰³ Through trading, these countries can purchase the emissions credits of the high-carbon emitters at relatively low cost.

To gain a better understanding of the EU allocation scheme, one of the authors of this Article developed a multivariable statistical model that attempted to determine factors explaining the allocation scheme.³⁰⁴ These modeling efforts showed that newer EU members received more allowances, all else being equal.³⁰⁵ In addition, less populous countries were to be allowed to emit more tons of CO₂ per person, which means relative

¹⁹⁹*Id.* (quoting Melinda Kimble, acting U.S. Assistant Secretary of State for the Environment).

³⁰⁰*Id.*; see also *Climate Treaty Negotiators Facing Tough Task in Crafting Amendments*, UTIL. ENV'T REP., Mar. 14, 1997, at 9.

¹⁰¹ GRUBB ET al., *supra* note 22, at 86.

³⁰¹ See *id.* at 85.

³⁰³ See Singer, *supra* note 254, at 337.

³⁰⁴ Bruce Yandle, *After Kyoto: A Global Scramble for Advantage*, 4 INDEP. REV. 19, 34 (1999).

³⁰⁵ *Id.* at 35.

costs would be lower where the population was smaller.³⁰⁶ Countries that currently produce higher levels of carbon emissions per unit of GDP received fewer allowances, while higher per capita income was associated with fewer allowances.³⁰⁷

This analysis of the bubble scheme suggests that the allocations are designed to keep the bootlegger community intact. The bubble minimizes overall costs, as we have seen, and other concessions (what economists sometimes call side payments) are being made to keep reluctant community members (the newer members) from trading outside the community. The study suggests that populous nations with tighter emissions allowances will probably buy permits from the countries with higher carbon streams and larger allowances for emissions growth. Wealth will flow generally from northern to southern European countries for trades within the European bubble.

4. Countries and Industries

One obvious potential effect of Kyoto would have been to chill oil usage. Thus, it is wholly unsurprising that some of the most vocal opponents of Kyoto were those countries that depend heavily on the sale of oil. Saudi Arabia's energy minister, for example, said, "We cannot accept that the industrialized countries transfer the cost of reducing their greenhouse gas emissions to our countries by embracing policies and measures that would lead to reducing their imports of our fossil fuel exports on which revenues we depend to a great extent."³⁰⁸ He also said that if Kyoto were ratified, the OPEC countries would lose \$60 billion of income annually by 2010, more than one third of their current revenue.³⁰⁹ Naturally, he opposed just as strongly the suggestion that some countries might replace oil with nuclear energy:

We are also totally amazed by the current calls in some countries to expand the use of nuclear energy at the expense of oil and natural gas on the pretext that they do not emit greenhouse gases, while turning a blind eye to their greater and more hazardous damages to the environment.³¹⁰

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Id. ^{3m}

Id.

³⁰⁸ *Saudi Hits Out at Economic Consequences of Climate Pact*, REUTERS, Nov. 22, 2000, at <http://www.planetark.org/dailynewsstory.cfm?newsid=9042> (on file with the Harvard Environmental Law Review).

5. Further Possibilities for Bootlegging

A serious problem is that Kyoto would have been very difficult to enforce. Had Kyoto been enacted, bootlegging would have continued in the attempts to enforce the treaty. While some reports indicate that the EU favors a system of fines for excess carbon emissions,³² it would be extraordinarily difficult to enforce such fines as long as individual countries are responsible for measuring and estimating their own emissions.³³ Contributing to the bootlegging problem is the fact that, as one scientist observed, we "have no direct measures of [greenhouse] emissions, instead having to estimate them from a variety of sources."³⁴ Thus, Kyoto's limits would "require very complicated calculations, and government agencies, industries, and environmental groups will expend large amounts of time, talent, and political capital trying to influence how experts calculate those estimates."³⁵ Perhaps an international environmental police force would be required, although the political likelihood of that happening is virtually nil.

Even if Kyoto's terms were able to be enforced with ease, another problem would remain: as Harvard's Richard Cooper points out, "only about half of greenhouse gas emissions have come from burning fossil fuels."³⁶ The other half of human emissions tend to come from pipeline leakage, the burning of tropical forests, wood-burning for fuel, and other sources that are impossible to monitor.³⁷ And because these impossible-to-monitor emissions are more likely to occur in developing countries, omitting them from Kyoto coverage would "probably favor" those countries.³⁸ Thus, the difficulties in enforcement create further opportunities for bootlegging on an international scale.

IV. CONCLUSION

A world industrial policy is in the making. In the past, socialist and communist governments (and even, to a lesser extent, the United States) engaged in industrial planning within their countries. The publicly stated goal was to improve economic well-being by selecting certain industries and firms to be the engines of the economy and allow the others to phase out gradually. Such centralized planning was never effective over the

³² See, e.g., Paul Brown, *Climate Talks Fail to Close Rift with US*, GUARDIAN (London), Nov. 20, 2000, <http://www.guardianunlimited.co.uk/international/story/0,3604,400163,00.html>.

³³ For a good description of this difficulty, see Mitchell & Chayes, *supra* note 91. ³⁴ Laird, *supra* note 270.

³⁵ *Id.*

³⁶ COOPER, *supra* note 87, at 66. ³⁷ *Id.* ³⁸ *Id.*

long run, but it created opportunities for favor-seeking that gave some industries and firms advantages over the others.

Day after day, the media continue to report the alarmist pleas of the Baptists urging world leaders to do something about global warming, but, by and large, the machinations of the bootleggers go unnoticed. Yet there is ample evidence that Kyoto (or any similar agreement) would be used as a crutch to secure political favors for conventional special interest groups. As we have seen, some nations and at least one community of nations dictated Kyoto's terms in strategic ways so as to enhance their positions relative to other nations. In the final analysis, we should hope that the fear of global warming will subside, along with efforts to control the world's energy economies. Yet even if this happens, the regulatory concrete delivered by Kyoto would endure. History teaches us that once a major concern becomes transformed into a set of institutional rules, interest groups that invested in those rules will work to maintain them. The Kyoto Protocol would have set up a system of industrial policy as well, although its purpose would not be to achieve economic growth. The officials in charge of the system would have had the power to specify which nations and industries would bear the greater pain of cutting back on carbon emissions. In this international system, while the Baptists presented the moral front for adopting the treaty, the bootleggers would have converted environmental policy to an industrial policy that favored them.

In its present form, the Kyoto Protocol would have been an extraordinarily costly treaty for the U.S. economy, and the United States was wise to reject it. If global warming is an illusion, U.S. commitment to the treaty would have been a waste of time and a misuse of resources. If global warming turns out to be genuine, those economies that maintain market flexibility will be best equipped to adapt to it.

BOOTLEGGERS, BAPTISTS, AND THE GLOBAL WARMING BATTLE

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I. INTRODUCTION

Since the 1997 International Conference on Climate Change in Kyoto, Japan, the world's industrialized nations have been grappling with negotiations over the Kyoto Protocol. Passionate expressions of concern about global warming have given way to tough political bargaining, most recently seen in the heated negotiations at the Sixth Session of the Conference of the Parties to the Protocol ("COP6") in November 2000.¹ The most stunning blow to prospects for ratification of the Kyoto Protocol came in March 2001, when the Bush administration rejected it.² Although some members of Congress have publicly groused about the decision, there should be little doubt that most of Congress supported the administration's action.³

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¹ COP6 proceedings can be found at the Conference Web site. *See* Sixth Session of the UNFCCC Conference of the Parties, COP6, at <http://cop6.unfccc.int> (last visited Dec. 3, 2001).

² The rejection originated in a letter from President George W. Bush to several senators. *See* Letter from President George W. Bush to Sen. Chuck Hagel, et al., (Mar. 13, 2001), *available at* <http://www.whitehouse.gov/news/releases/2001/03/20010314.html> (on file with the Harvard Environmental Law Review). Other Bush administration officials confirmed the rejection: Condoleezza Rice reportedly told EU ambassadors, "Kyoto is dead." Jeffrey Kluger, *A Climate of Despair*, TIME, Apr. 9, 2001, at 30.

³ The U.S. Senate passed a resolution on July 25, 1997, by a margin of 95-0, requesting the executive branch not to sign the Kyoto Protocol unless developing countries made a commitment to reduce emissions and the Protocol was shown not to cause serious harm to the U.S. economy. *See* S. Res. 98, 105th Cong. (1997). A subsequent appropriations bill prohibited federal funds from being used to implement Kyoto unless the Senate ratified that treaty. *See* Departments of Veteran Affairs and Housing and Urban Development, Independent Agencies Appropriations Act, Pub. L. No. 106-74, 113 Stat. 1047 (1999) (codified in scattered sections of U.S.C.). Another congressional bill with thirty cosponsors also required Senate ratification before any expenditures to implement Kyoto. *See* Small Business, Family Farms, and Constitutional Protection Act, H.R. 2221, 106th Cong. (1999). For an indication of senatorial opposition to Kyoto, see the following article by the former chairman of the Senate Energy and Natural Resources Committee: Frank H. Murkowski, *The Kyoto*