

Fordham Environmental Law Review

Volume 15, Number 1

2004

Article 4

U.S. Energy Policy Since September 2001

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U.S. ENERGY POLICY SINCE SEPTEMBER 2001

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Dedicated to the victims of 9-11 and their families

I. INTRODUCTION

Americans have an appetite for energy far more ravenous than domestic production alone can sustain. The United States currently imports between 10 and 11 million barrels of oil daily, slightly more than half of the oil it consumes.¹ It is expected that by 2025, we will be importing 68 percent of the oil we use.² Fossil fuels, such as

1. Charlie E. Coon & James Phillips, *Strengthening National Energy Security by Reducing Dependence on Imported Oil*, HERITAGE FOUND. BACKGROUNDER, Apr. 24, 2002, available at <http://www.heritage.org/Research/EnergyandEnvironment/loader.cfm?url=/commonspot/security/getfile.cm&PageID=5646>.

2. *See id.* The Department of Energy estimates current imports to be 53 percent of total oil consumption, and projects that figure to rise to 62 percent by 2020. Of 2000 imports, Venezuela provided 14

petroleum, coal and natural gas, are the source of about 86 percent of the total energy consumed in the United States.³ Our reliance on these sources has disastrous ecological consequences because fossil fuel combustion annually produces 76 percent of the carbon monoxide (CO), 85 percent of the sulfur dioxide (SO₂), 95 percent of the nitrogen oxides (NO_x) and 34 percent of the volatile organic compounds that pollute our air.⁴

The association between energy and the environment is so strong that the nation's environmental agenda has become indivisible from its energy policy.⁵ Our society's perceived need to maintain extremely high levels of resource consumption while protecting traditional power industries, not only leads to the distortion of energy prices, but has so far prevented the establishment of an ecologically sustainable energy policy. Such a policy, by reducing American dependence on imported energy resources, could greatly contribute to national security, with less severe environmental consequences than our current policy. Ultimately, the fundamental challenge facing the United States, and all other nations, is the need to turn away from fossil fuels towards cleaner fuel alternatives. The sooner we begin that transition, the faster we will be able to alleviate the disruptive consequences of energy use.

The financial costs of power do not reflect the environmental costs, which have risen exponentially. Until fuel prices capture the true cost of energy production and use, consumer decisions will be flawed and the environmental cost of energy use will be externalized to third parties, including future generations. Thus, the political challenge is to maintain a functioning energy market while sustaining the environment.

Although many speak of the need for "energy independence," a more realistic goal is energy security: the ability to obtain enough oil at a reasonable price. Even though technological advances have helped the United States stabilize domestic output, if we continue on our current course we will inevitably become more dependent on

percent while Iraq furnished about 9 percent. The U.S. is the biggest consumer of Iraqi crude oil, buying more than half of Iraq's oil exports. *Id.*

3. WALTER A. ROSENBAUM, ENVIRONMENTAL POLITICS AND POLICY 271 (5th ed. 2002).

4. *Id.* at 270.

5. *Id.* at 271.

imports.⁶ Energy security is used synonymously with “oil security,” and oil security is threatened by the ability of the oil exporting countries to exploit their market power, raising oil prices and causing macroeconomic disruptions ranging from unemployment and idled fixed capital to unpredictable consumer and producer responses.⁷

The terrorist attacks of September 11 impacted all facets of American life, and rendered irrelevant virtually all national policy issues but national security. But we must remember that national security means more than mere physical security. In the words of Vice President Cheney, “what good is it to fight and win the war on terrorism if the environmental damage done at home or abroad destroys that way of life we value and fight to protect?” As we strive to reduce our dependence on imported oil, we need to ensure that there is no decrease in environmental protection. Diversifying our energy sources is one way to begin to achieve these goals.

This article will first describe changes in energy and air quality policy after September 11 and the environmental impact of these policies, and will then offer some recommendations, including a role for lawyers, in energy policy.

II. ENERGY / AIR QUALITY POLICIES

A. *National Energy Policy*

In May 2001, just four months after taking office, President Bush released his National Energy Policy (“NEP”). The NEP, a 163-page publication with 105 recommendations, was the product of the National Energy Policy Development Group (the “Group”) headed by

6. Michael A. Toman, *International Oil Security: Problems and Policies*, 20 BROOKINGS REV. 20, 20-23 (2002) (suggesting that no expert has made a credible claim that we could enhance North American oil output or improve energy efficiency sufficiently to drastically reduce or eliminate imports, at least in the short to medium term).

7. Almost all studies indicate a significant empirical link between oil price jumps and slumps in macroeconomic activity. Although this link has depreciated over time, as the U.S. economy has become less based on manufacturing, it is still important. *Id.*

Vice President Cheney.⁸ The NEP predicts an energy shortfall over the next 20 years due to increasing demand.⁹ Electricity demand, for example, is predicted to rise by 45 percent.¹⁰ The increase in electricity generation needed to meet this demand will impact air quality, and will translate into more NO_x emissions, as well as SO₂, mercury and carbon dioxide (CO₂) emissions. The NEP proposes that we meet the energy shortfall in part with non-polluting renewable and alternative fuel energy sources.¹¹ It recommends increased federal support for research and development of renewable energy resources.¹² The report also recommends tax credits for landfill methane projects, along with wind, biomass and solar energy projects.¹³

Administration officials have consistently argued that developing new energy supplies and constructing new power plants are the primary solutions to the energy crisis, and in line with that approach the NEP also offers a smorgasbord of incentives for the energy industry. It emphasizes the need to increase domestic fuel supplies and renew dormant commitment to nuclear power.¹⁴ The traditional energy industries—coal, oil, gas, and large electric utilities – praised the report as an overdue recognition of the seriousness of the nation’s energy problems and the need to increase supply.¹⁵ Of course, the plan also has its critics. Backers of alternative energy, energy effi-

8. NAT’L ENERGY POLICY GROUP, NATIONAL ENERGY POLICY (May 2001), *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

9. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

10. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

11. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

12. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

13. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

14. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

15. *See* DEMOCRATIC NATIONAL COMMITTEE, ENRON, OTHER BIG ENERGY COMPANIES WROTE BUSH ENERGY POLICY, *at* <http://www.democrats.org/news/200398270001.html> (Aug. 27, 2003).

ciency, and conservation have criticized the report's focus on traditional energy sources and the supply side, and its corresponding lack of emphasis on demand-side solutions.¹⁶ Environmental groups oppose NEP proposals to increase energy exploration on public lands, particularly in the Alaska National Wildlife Refuge.¹⁷

Environmentalists, claiming that the Group met privately with traditional energy industry representatives, have further criticized the Group and its procedures.¹⁸ The Natural Resource Defense Council ("NRDC") subpoenaed, under the Freedom of Information Act, almost 13,000 pages of proceedings.¹⁹

16. Utility Consumer's Action Network, *UCAN'S analysis of the Bush Energy Policy: An Energy Policy with No Future*, at http://www.ucan.org/law_policy/energydocs/bushed.htm (last viewed Mar. 9, 2004).

17. Statement by Jim Waltman of the Wilderness Society, Response to National Research Council Report on the Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope (Mar. 4, 2003), available at <http://www.wilderness.org/NewsRoom/Statement/20030304.cfm>.

18. Interview with Ralph Nader by NPR Morning Edition (Feb. 28, 2003). Nader claims that 41 top Bush Administration officials are linked to the oil industry. He states that the Bush Administration is "marinated in oil." *Id.*

19. On April 1, 2004, the U.S. District Court for the District of Columbia (Friedman, J.) ruled that the Department of Energy and other federal agencies must turn over certain documents related to the NEPDG to the NRDC and other plaintiffs. See *Judicial Watch v. United States Dep't of Energy*, ___ F.Supp.2d ___ (D.D.C. 2004), available at <http://www.dcd.uscourts.gov/01-981c.pdf> (last visited April 4, 2004). Some of the documents covered by Judge Friedman's ruling are also the subject of another suit that has made its way to the U.S. Supreme Court, see *Judicial Watch v. NEPDG and Sierra Club v. Cheney*, consolidated as 219 F.Supp.2d 20 (D.D.C. 2002), appeal dismissed *sub nom.* In re Cheney, 334 F.3d 1096 (D.C. Cir. 2003), cert. granted *sub nom.* Cheney v. U.S. Dist. Ct. for the Dist. of Columbia, 124 S.Ct. 958 (Dec. 15, 2003). Thus, the Friedman ruling will probably be stayed until the Supreme Court renders a decision.

A New York Times poll, published a month after the NEP was unveiled, showed that a majority of Americans disapproved of President Bush's policies regarding energy issues.²⁰ An overwhelming majority of poll respondents—71 percent—said they thought energy production was more important to the President than environmental protection.²¹ This response was probably in part a reaction to the well-reported ties of several key officials in the Administration to the oil and gas industry.²² The poll respondents favored, by a two-to-one margin, environmental protection over energy production.²³

Sixty-two percent of the nation's overall energy and almost all of its transportation fuels come from oil and natural gas,²⁴ and the NEP reflects and maintains the dominance of these two energy sources in our national economy. It concludes that by 2020 the nation will need about 50 percent more natural gas and one-third more oil to meet its demand.²⁵ The report projects that oil production will continue to decline over the next two decades and that demand for natural gas will likely exceed domestic production as well.²⁶ The shortfall between energy supply and demand in 2020 is projected to be nearly 50 percent.²⁷ A shortfall can be met in three ways—import more energy, improve energy efficiency, and increase and diversify domestic energy supply. All three tracks need to be pursued aggressively, yet the NEP does not give them the same level of attention.

Another criticism of the NEP is that it is supply-side oriented with insufficient consideration of and funding for conservation and efficiency measures that could decrease the amount of energy (oil) im-

20. Bill Burton, *The Bush Administration's "National Energy Policy,"* TRENDS, Sept./Oct. 2001, at 4.

21. *Id.*

22. Nader, *supra* note 18.

23. Burton, *supra* note 20.

24. See NAT'L ENERGY POLICY GROUP, *supra* note 9, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

25. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

26. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

27. Coon & Phillips, *supra* note 1, at 2, available at <http://www.heritage.org/Research/EnergyandEnvironment/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=5646>.

ported.²⁸ The NEP, environmentalists claim, gives inadequate attention to both the need for stronger incentives to promote conservation and renewable sources and to the tremendous economic and environmental benefits that could result from investments in these areas.²⁹ In predicting the number of new power plants that will be needed in the near future, the report ignores the possibility of increasing energy efficiency and energy conservation. Further, it fails to integrate energy production with air quality, and fails to address the impact of fossil fuel use on global warming.

Instead, the NEP focuses on supply-side initiatives. These initiatives include: studying the feasibility of expanding the capacity of existing nuclear plants; investigating the possibility of reprocessing plutonium from spent nuclear fuel; providing \$1.5 billion in tax credits for purchasers of existing nuclear plants; examining federal lands for possible expansion of oil and gas exploration and development; identifying ways to accelerate natural gas pipeline construction; and re-examining the EPA's "new source review" program under the Clean Air Act ("CAA"), with an eye toward easing restrictions on refineries and utilities.³⁰

Some NEP recommendations will require legislation while others will only require a simple executive order or agency action. It is not possible to predict what impact the NEP will have on either energy security or air quality. The individual recommendations need to be examined separately to determine how they will affect energy security and air quality goals. It is also difficult to predict what effect such a broadly sweeping plan would have on energy prices or U.S. dependence on foreign oil.

28. See Utility Consumer's Action Network, *UCAN'S analysis of the Bush Energy Policy: An Energy Policy with No Future*, at http://www.ucan.org/law_policy/energydocs/bushed.htm (last viewed Mar. 9, 2004).

29. *Id.*, at http://www.ucan.org/law_policy/energydocs/bushed.htm.

30. See NAT'L ENERGY POLICY GROUP, *supra* note 8, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

B. *Clear Skies Initiative*

In February 2002, President Bush announced the Clear Skies and Global Climate Change Initiatives.³¹ As promised in the State of the Union address on January 28, 2003, Clear Skies legislation was introduced in both the Senate and the House of Representatives in February 2003.³² The Clear Skies Act of 2003 (“Clear Skies”)³³ extends and reorganizes Title IV of the CAA to establish new cap-and-trade programs that require reductions of SO₂, NO_x and mercury emissions from electric generating facilities.³⁴

Clear Skies seeks to reduce current SO₂ emissions from 11 million to 4.5 million tons per year by 2010 (a 73 percent decrease), and to 3 million tons per year by 2018. Clear Skies would decrease NO_x emissions by 67 percent from current levels, and would reduce mercury emissions from coal-powered plants by 69 percent by 2018.³⁵ Clear Skies would also create a market-based trading program, similar to that currently used in the Acid Rain Program, to encourage the use of new and cleaner pollution control technology.³⁶ Clear Skies retains existing Title IV requirements until the new requirements take effect.³⁷

Clear Skies amends certain provisions (Attainment of Ozone Standards) of Title I of the CAA that currently apply to the combustion units covered by the new Title IV emission caps.³⁸ According to the Bush Administration, Clear Skies will cut power plant emissions

31. President George W. Bush, Speech on Clear Skies and Global Change (Feb. 14, 2002) (transcript available at <http://www.whithouse.gov/newsreleases/2002/02/20020214-5.html>).

32. Press Release, Environmental Protection Agency, Statement of EPA Administrator Christine Todd Whitman on the Introduction of Clear Skies Legislation (Feb. 27, 2003), *available at* www.epa.gov/newsroom/headline_022703.html.

33. U.S. ENVTL. PROT. AGENCY, CLEAR SKIES ACT OF 2003, *at* <http://www.epa.gov/air/clearskies/fact2003.html> (last viewed Mar. 1, 2004) (presenting an analysis of the Clear Skies Act, which was introduced in Congress in February 2003).

34. *Id.*, *at* <http://www.epa.gov/air/clearskies/fact2003.html>.

35. *Id.*, *at* <http://www.epa.gov/air/clearskies/fact2003.html>.

36. *Id.*, *at* <http://www.epa.gov/air/clearskies/fact2003.html>.

37. *Id.*, *at* <http://www.epa.gov/air/clearskies/fact2003.html>.

38. *Id.*, *at* <http://www.epa.gov/air/clearskies/fact2003.html>.

faster than could be achieved under existing law.³⁹ While environmental groups such as NRDC and the Environmental Defense Fund (“EDF”) applaud the use of allowance trading and other economic incentives to lower the costs of compliance, Clear Skies has been widely criticized from its inception.⁴⁰ Many assert that the emissions caps are too high and more reductions could be made cost effectively.⁴¹ The long timeframe for implementation of the total reductions (full implementation would not occur until 2018) has also been criticized.⁴² The most serious criticism is aimed at what is *not* covered by the legislation: CO₂, a major greenhouse gas. The omission of CO₂ distinguishes this legislation from several other multi-pollutant bills introduced in the previous Congress, which targeted NO_x, SO_x and mercury, as well as CO₂.⁴³

C. Climate Change

One of the most vexing environmental issues for the Bush Administration has been global warming and the need to reduce CO₂ emissions.⁴⁴ As mentioned, the President’s Clear Skies Initiative does not call for CO₂ emissions reductions. Despite campaign promises, President Bush has not supported mandatory reduction of CO₂ emissions. The following are a number of separate efforts being advanced on this issue.

39. *Id.*, at <http://www.epa.gov/air/clearskies/fact2003.html>.

40. Green Nature, *Bush Administration Climate Change Policy Proposal*, at <http://greennature.com/article840.html> (last viewed Mar. 1, 2004).

41. Green Nature, *Environmentalists Criticize Bush Climate Change Policy*, at <http://greennature.com/modules.php?op=modload&name=News&file=article&sid=839&mode=thread&order=0&thold=0> (last viewed Mar. 1, 2004).

42. *Id.*, at <http://greennature.com/modules.php?op=modload&name=News&file=article&sid=839&mode=thread&order=0&thold=0>.

43. See Jefford’s Clean Power Act, Sen. 556, 107th Cong. (2001).

44. See Intergovernmental Panel of Climate Change, at <http://www.ipcc-nggip.iges.or.jp> (last viewed Mar. 1, 2004).

1. The United Nations Framework Convention on Climate and the Kyoto Protocol

The principal international treaty dealing with global warming is The United Nations Framework Convention on Climate (“Convention”).⁴⁵ The Convention was adopted in 1992 at the United Nations Conference on the Environment and Development in Rio de Janeiro and has been in force since 1994.⁴⁶ The Convention recognizes that industrialized countries have historically been the main source of pollution and have more resources to address it than the developing countries, which are more vulnerable to the treaty’s adverse effects and have less resources to address the problem.⁴⁷ As a result, the Convention requires industrialized countries to take the lead by providing financial and technological resources to help developing countries stabilize greenhouse emissions.⁴⁸

The Convention divides its member countries into two main groups: Annex I Countries and non-Annex I Countries. Developed countries, currently forty in number, listed in the Convention’s Annex I are Annex I countries.⁴⁹ Other member countries are non-Annex I countries. Under the Convention, both groups have general obligations such as the protection of carbon sinks (such as forests), the assessment of the environmental impact of their social and economic policies, the development of climate-friendly technologies, the promotion of education and public awareness of climate change and the submission of reports on their activities.⁵⁰ Annex I countries have an additional obligation to adopt measures to return their

45. United Nations Framework Convention on Climate Change, May 9, 1992, 39 I.L.M. 966, *available at* <http://www.umfccc.int>.

46. *Id.*, *available at* <http://www.umfccc.int>.

47. *Id.*, *available at* <http://www.umfccc.int>.

48. The Convention adopts the “precautionary principle,” which holds that while there are still many uncertainties surrounding climate change we cannot wait for scientific certainty before taking action because it will be too late to avert the worst impact. *Id.*, *available at* <http://www.umfccc.int>.

49. *Id.*, *available at* <http://www.umfccc.int>.

50. *Id.*, *available at* <http://www.umfccc.int>.

greenhouse gas emissions to 1990 levels.⁵¹ The Convention thus refers to the “common but differential responsibilities” of nations.⁵²

At the Conference of Parties meeting in Kyoto, Japan in 1997, a protocol to the Convention (the “Kyoto Protocol”) was drafted. This Protocol would require Annex I countries to reduce their emissions of greenhouse gases to a level 5.2 percent below 1990 levels by 2012.⁵³ To pass, the Kyoto Protocol must be ratified by (1) 55 percent of all member countries and (2) Annex I countries accounting for 55 percent of that group’s CO₂ emissions in 1990.⁵⁴

The United States is the only Annex I country so far to have declared that it will not ratify the Kyoto Protocol.⁵⁵ The United States Senate voted 95-0 against approval in 1997.⁵⁶ The Bush Administration has stated two main objections to the Protocol: (1) developing nations (specifically India and China) are exempt from the mandatory emissions reductions to which the Annex I countries are bound, and (2) those emission reduction targets are not scientifically based.⁵⁷ Instead, the Bush Administration has emphasized money for technology to “capture” carbon emissions, fuel cell development, and monitoring. Although the United States will not ratify the Kyoto Protocol, there has been some discussion of voluntary emissions reductions.⁵⁸

If Russia ratifies the Kyoto Protocol, as expected this year, it will go into force despite rejection by the United States, committing signatories to reduce their emissions. This creates a problem for many U.S. companies with facilities in signatory countries. They will have to grapple with technological objectives and different compliance strategies in the various countries in which they do business. Major companies such as DuPont have stepped up to the plate with groups such as Partnership for Climate Action⁵⁹ (EDF) and EPA’s Climate

51. *Id.*, available at <http://www.umfcc.int>.

52. *Id.*, available at <http://www.umfcc.int>.

53. *Id.*, available at <http://www.umfcc.int>.

54. *Id.*, available at <http://www.umfcc.int>.

55. John J. Fialka, *Bush Says Global-Warming Pact is Flawed: President Hopes to Persuade Allies at Europe Summit to Take Different Track*, WALL ST. J., June 12, 2001, at A2.

56. Byrd-Hagel Resolution, S. 98, 108th Cong. § 1 (1997).

57. Fialka, *supra* note 55.

58. *Id.*

59. *Id.*

Leaders program⁶⁰ to engage in voluntary emission reduction target and trading programs.

In response to increasing concern and pressure, the Bush Administration announced its Global Climate Change Initiative⁶¹ to cut greenhouse gases by focusing on “greenhouse gas intensity,” which is defined as the ratio of greenhouse gas emissions to economic input. The goal of the initiative is to decrease greenhouse gas intensity by 18 percent by 2012.⁶² A greenhouse gas registry, which would be used to measure and verify greenhouse gas emissions while encouraging voluntary reductions, is an integral part of the initiative⁶³

2. The Climate Leaders Program

The Climate Leaders program is a voluntary industry-government partnership, under the auspices of the EPA, which encourages companies to develop long-term comprehensive climate change strategies.⁶⁴ “Partner” companies set corporate-wide greenhouse gas reduction goals and measure their progress by inventorying their production of the six major greenhouse gases: CO₂, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.⁶⁵ By reporting inventory data to the EPA annually, Partners create a lasting record of their accomplishments and qualify for technical assistance from the government.⁶⁶ Further, Partners benefit from

60. *See infra* notes 64-74 and accompanying text.

61. Press Release, U.S. Env'tl. Prot. Agency, President Bush Announces Clear Skies & Global Climate Change Initiatives (Feb. 14, 2002), *available at* http://www.epa.gov/epahome/headline2_021402.htm.

62. *Id.*, *available at* http://www.epa.gov/epahome/headline2_021402.htm.

63. *Id.*, *available at* http://www.epa.gov/epahome/headline2_021402.htm.

64. U.S. ENVTL. PROT. AGENCY, CLIMATE LEADERS, OVERVIEW, *at* <http://www.epa.gov/climateleaders/overview.html> (last viewed Mar. 1, 2004). The Climate Leaders Greenhouse Gas Emissions Inventory Protocol is based on the Greenhouse Gas Protocol of the World Resource Institute/World Business Council for Sustainable Development. *Id.*

65. *Id.*, *at* <http://www.epa.gov/climateleaders/overview.html>.

66. *Id.*, *at* <http://www.epa.gov/climateleaders/overview.html>.

being identified as environmental leaders and are in an influential position to participate in decision-making as climate policy continues to unfold.⁶⁷

The list of companies that have become Partners is impressive, covering a broad spectrum of industries. Many of the companies are involved in other EPA programs for which Climate Leaders serves as an “umbrella group,” such as the Energy Star and Landfill Methane Outreach programs.⁶⁸

Recognizing that every corporation has a unique mix of greenhouse gas emissions and reduction opportunities, the Climate Leaders program offers Partners some flexibility in meeting their reduction goals. The program’s core requirements mandate that all Partners report their direct and process-related greenhouse gas emissions, their indirect emissions from electricity/energy purchases, emissions associated with refrigeration and air conditioning, leased vehicles and office space, and emissions from onsite fuel consumption and waste disposal.⁶⁹ Partners must report emissions on a company-wide basis, including at a minimum, all domestic facilities.⁷⁰ The EPA provides guidance and estimation tools for these inventories, and outlines some quality assurance and quality control problems associated with particular emission sources.⁷¹ In addition to energy related emissions, there are also sector-specific protocols under development. Sector-specific protocols pertain to process emissions for specific industry sectors (e.g., ammonia production, iron

67. *Id.*, at <http://www.epa.gov/climateleaders/overview.html>.

68. *Id.*, at <http://www.epa.gov/climateleaders/overview.html>.

69. U.S. ENVTL. PROT. AGENCY, CLIMATE LEADERS, INVENTORY GUIDANCE, at <http://www.epa.gov/climateleaders/core.html> (last viewed Mar. 1, 2004).

70. *Id.*, at <http://www.epa.gov/climateleaders/core.html>.

71. The EPA provides technical assistance through what it calls Core Modules. The website makes available core modules dealing with Stationary (non-transport) Combustion of Fossil Fuels; Indirect Emissions from Electricity/Steam Purchases; Fossil Fuel Combustion in Mobile Sources (including road, air, waterborne, rail transport and other mobile sources); Solid Waste Disposal by Landfill; and HFC Emissions from Refrigeration/Air Conditioning Use. *Id.*, at <http://www.epa.gov/climateleaders/core.html>.

and steel production, cement production and pulp and paper production).⁷²

Climate Leader Partners can broaden their management scope to include optional activities, whose emissions are from sources over which the company has some control but which are beyond their core requirements. Emissions reductions related to these activities can also count toward their corporate goals. These might include offset investments (e.g., energy efficiency, sequestration and renewable energy), employee and business travel, and product substitution.⁷³

The Climate Leaders program has developed a list of reporting elements, and will collect feedback from users on the type and level of data to be reported under the program. The draft protocols for inventory, core and optional activities can be commented on and are available from the EPA website.⁷⁴

On the private front, DuPont and other multinational corporations have announced the Chicago Climate Exchange, the first major attempt to reduce greenhouse gas emissions by establishing a market in "excess reductions."⁷⁵ Any company that reduces its emissions below a target goal can sell its excess emission reductions to another member of the exchange, who is otherwise unable to meet the goal.⁷⁶ It is a voluntary pilot program, scheduled to start in 2003, and designed to make up for the absence of any regulatory requirement in the United States to reduce greenhouse gases.⁷⁷ In November 2002, DuPont completed an emissions trade with Entergy Corporation,⁷⁸ demonstrating how companies could benefit financially from selling their surplus reductions. The European Union, along with Japan,

72. *Id.*, at <http://www.epa.gov/climateleaders/core.html>.

73. *Id.*, at <http://www.epa.gov/climateleaders/core.html>.

74. *Id.*, at <http://www.epa.gov/climateleaders/core.html>.

75. Press Release, Chi. Climate Exch., Chicago Climate Exchange Names Founding Members (Jan. 17, 2003), *available at* <http://www.csrwire.com/article.cgi/1532.html>.

76. *See* CHI. CLIMATE EXCH., BACKGROUND ON MARKET-BASED SOLUTIONS TO ENVIRONMENTAL PROBLEMS, *at* <http://www.chicagoclimatex.com/about> (last viewed Mar. 1, 2004).

77. *Id.*, at <http://www.chicagoclimatex.com/about>.

78. Timothy Gardner, *Greenhouse trade needs US mandate to grow - Entergy*, PLANET ARK, *at* <http://www.planetalk.com/dailynewsstory.cfm/newsid/18428/story.htm> (Nov. 4, 2002).

will be starting a similar system in 2005.⁷⁹ Many multinational corporations want to participate because ratification of the Kyoto Protocol is imminent and legislation to implement the Protocol will soon follow.

3. Lieberman / McCain Legislation

Senators, John McCain (R-AZ) and Joseph Lieberman (D-CT), have introduced The Climate Stewardship Act of 2003⁸⁰ to cut greenhouse gas emissions in the United States. Under the bill, all major sectors of the United States economy would be required to reduce greenhouse gas emissions back to year 2000 levels by 2010 and to year 1990 levels by 2016. The bill will also prompt increased investment in energy-efficient technologies and renewable resources.

4. State Initiatives

Some states have passed power plant legislation for CO₂⁸¹ and California has passed legislation regulating automobile-produced CO₂ “at the tailpipe.”⁸² On July 22, 2002, former California Governor Gray Davis signed into law Assembly Bill 1493, requiring the California Air Resources Board (“CARB”) to develop standards to facilitate a reduction of vehicle emission of greenhouse gases beginning in the year 2009.⁸³ The standards will be similar to the Corpo-

79. AICPA, EUROPEAN UNION (EU) - GREENHOUSE GAS EMISSIONS TRADING, at http://www.aicpa.org/innovation/baas/environ/country_EU.htm (last viewed Mar. 1, 2004) (showing EU plan); Shihoko Goto, *Japan steps up carbon-trading commitment*, UNITED PRESS INT’L, at <http://www.upi.com/view.cfm?StoryID=20030116-024545-8933r> (last viewed Mar. 1, 2004) (showing Japanese plan).

80. S. 139, 108th Cong. (2003). The bill was sent to the Senate Committee on the Environment and Public Works on October 30, 2003. See Bill Summary & Status for the 108th Congress, at <http://www.congress.gov/cgi-bin/bdquery/z?d108:S.139>: (last visited April 4, 2004) (summarizing the bill).

81. Massachusetts and New Hampshire (29 states have regulated CO₂).

82. Assem. 1493, 2001-2002, Reg. Sess. (Cal. 2002).

83. *Id.*

rate Average Fuel Economy (“CAFE”) standards that apply to an automobile manufacturer’s fleet average, rather than individual vehicles. California has the largest car market in the United States and is the first state in the nation to actually regulate tailpipe emissions of CO₂ as well as methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.⁸⁴ The California legislation is particularly significant because, to date, no federal regulations have specified emission levels for CO₂, which is released in large quantities by the energy generation and transportation industries.

By January 1, 2005, CARB is required to adopt regulations that achieve cost effective reductions of greenhouse gas emissions from motor vehicles. These regulations will take effect no sooner than January 1, 2006, and will apply to model years 2009 or beyond.⁸⁵ California has been regulating tailpipe emissions for years pursuant to a waiver granted under section 209(b) of the CAA,⁸⁶ which allows the state some freedom to promulgate emission standards based on a demonstration of need using air quality data. The Environmental Defense Fund states that cars and light trucks account for 20 percent of all United States CO₂ emissions and approximately 5 percent of the global total,⁸⁷ marking it apparent that the implications of the new California law are far-reaching. As might be expected, both its proponents and its critics are vociferous.

In June 2002, after the auto industry argued that the rule amounted to an illegal state effort to regulate the fuel industry, a federal district court preliminarily enjoined California from enforcing its zero-emissions vehicle mandate.⁸⁸ Many anticipate that the auto industry will similarly challenge Assembly Bill 1493 on federalism grounds.⁸⁹ Further, the automakers argue (as they have in the past regarding changes to CAFE) that California’s new law could require new vehicle or gas taxes as well as lower speed limits or higher mileage goals.⁹⁰ They argue these changes may result in more dan-

84. Christine Y. LeBel, *CAFE Clash: California, Carbon Dioxide, Corporate Average Fuel Economy, and other Conundrums*, NATURAL RES. & ENVT. 138, 138-40 (Fall 2002).

85. Assem. 1493, 2001-2002, Reg. Sess. (Cal. 2002).

86. 42 U.S.C. § 7543(b) (2003).

87. Lebel, *supra* note 84, at 139.

88. *Id.*

89. *Id.*

90. *Id.*

gerous vehicles by requiring manufacturers to produce smaller vehicles made of lighter, less durable materials in order to meet emissions standards.⁹¹ Automakers also argue that the government need not intervene since consumers already have the freedom to choose more fuel-efficient vehicles.⁹²

The genuine, underlying concern of automakers is that if California's CO₂ legislation survives its legal challenges, it is likely to be followed by similar legislation in other states. As happened with California's low emission vehicle program, other states can "piggy-back" on the California standard by using air quality data to demonstrate a need.⁹³

D. Clean Air Act New Source Review

There have been dramatic reductions in the nationwide levels of some pollutants since the inception of the CAA in the 1970s, but there is still a need for improvement. Emissions of NO_x (the precursors to acid rain), ground level ozone (smog) and some greenhouse gases have not decreased.⁹⁴

The NEP's emphasis on increasing production from fossil fuel-powered generating plants threatens air quality. One-third of all U.S. NO_x emissions are produced by older power plants,⁹⁵ most of which use coal. Coal is the dirtiest fuel for electric power generation. Increased coal use means more smog, more acid rain, increased CO₂ pollution and more respiratory problems from particulates.

Much of the discussion of reform or amendment of the CAA centers on the New Source Review program ("NSR"). NSR requires plant owners to obtain permits and perform air quality analyses before making significant modifications or building major new stationary emissions sources—i.e., power plants.⁹⁶ In addition to their original purpose (for instance, expanding generating capacity), any modifications must also include the installation of the "best system

91. *Id.*

92. *Id.*

93. *See* CHRISTOPHER L. BELL ET AL., ENVIRONMENTAL LAW HANDBOOK 249-50 (Thomas F. P. Sullivan ed., 17th ed. 2003).

94. ROSENBAUM, *supra* note 3.

95. *Id.*

96. *Id.*

of emission reduction” taking into account cost considerations.⁹⁷ The plant is also subject to more stringent standards if a modification results in either the emission of any new pollutant or increases in current emissions.⁹⁸ In contrast, unmodified older sources are “grandfathered,” and thus not required either to install newer technology or perform air quality impact analyses.⁹⁹ Many consider this to be a twofold failure of the CAA with ineffective regulation of older power plants on the one hand and, on the other, deficient encouragement to replace older, dirtier facilities with cleaner, more efficient ones.

During the 1980s, industries began to invest resources to keep older plants in operation, rather than retire them and build new ones.¹⁰⁰ These older, “grandfathered,” plants are responsible for a major amount of NO_x emissions and other pollutants.¹⁰¹ Industry officials claim that their investments constitute routine maintenance, but some environmentalists charge that the projects are actually intended to increase the generating capacity of older plants while evading the NSR requirements.¹⁰² The EPA rules regarding what constitutes maintenance (as opposed to modification) are quite generous, allowing producers to use maximum past pollution levels to determine their future limits for making routine maintenance investments.¹⁰³

Experts estimate that more than 17,000 older industrial units such as power plants, refineries, paper plants and steel mills are currently exempt from NSR.¹⁰⁴ The grandfather status of coal-fueled power plants both creates unfair competition within the electricity market and harms human health and the environment. Differential air pollution requirements make fair competition impossible because plants with less pollution control can run less expensively than plants with

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.*

104. Resident’s Comm. to Protect the Adirondacks, *Call to Action: Clean Air Under Attack: New Rules Proposed by the Bush Administration will Severely weaken laws to protect nations air*, at <http://www.adirondackresidents.org> (Mar. 2003).

newer and better emission controls. This discourages investment, both in newer, cleaner and more efficient power generation as well as in renewable resources.¹⁰⁵ Meanwhile, the evasion of pollution requirements creates pollution havens.

In 1999 the EPA issued complaints against 7 utilities, charging that the companies had made modifications at their facilities without meeting NSR requirements.¹⁰⁶ New York State joined the EPA in the legal actions, asserting that the failure of the plants to obtain permits and install the required air pollution control equipment deteriorated New York's natural resources.¹⁰⁷

The Clinton Administration took action against more than 50 older power plants.¹⁰⁸ In January 2002, the Bush Department of Justice announced that it would continue to pursue cases initiated during the Clinton administration, but suggested it was not obligated to bring new suits in the future.¹⁰⁹ NSR regulations, since issued by the EPA, cast doubt on the further pursuit of the issue by the Department of Justice.¹¹⁰

The Department of Energy sponsors a Clean Coal Technology Program, a cooperative effort between government and industry. Its purpose is to foster a secure and reliable energy system that is capable of meeting emerging environmental regulations in a deregulated

105. DAVID HAWKINS, NATURAL RES. DEF. COUNCIL, HARMONIZING THE CLEAN AIR ACT WITH OUR NATION'S ENERGY POLICY, at <http://nrdc.org/air/pollution/tdh0301.asp> (Mar. 21, 2001).

106. Press release, U.S. Dep't of Justice, U.S. Sues Electric Utilities in Unprecedented Action to Enforce the Clean Air Act (Nov. 3, 1999), available at <http://www.usdoj.gov/opa/pr/1999/524enr.htm>.

107. Eric Durr, *N.Y. Joins Lawsuit against Bush Air Pollution Regulations*, BUS. REV., Dec. 31, 2002, available at <http://www.bizjournals.com/albany/stories/2002/12/30/daily18.html>.

108. Eric Pianin, *EPA Will Reconsider Enforcement Policies: Lawsuit Spurs Retreat on Clean Air Act Provisions*, WASH. POST, July 28, 2003, at A2.

109. *Special Focus: With Every Breath You Take*, 15 WORLD ECOLOGY REP 1 (Spring 2002), available at <http://www.worldinfo.org/wers/2002/spring/2002spring.pdf> (last viewed Mar. 1, 2004).

110. Environmental Protection Agency, 67 Fed. Reg. 251 (Dec. 31, 2003) (to be codified at 40 C.F.R. pt. 51 & 52).

electricity market.¹¹¹ A total of 31 completed projects and 7 ongoing projects in various stages are divided into four categories: environmental control devices, advanced electric power generation, coal processing for fuels, and industrial applications.¹¹²

While extending the life of older coal-powered power plants might marginally increase energy security in the short-term, it has a severe negative impact on air quality in the areas where the generation takes place, as well as downwind of those areas.¹¹³ The challenge in generating electricity is using the resources that are abundant in the United States, such as coal, in a way that minimizes the impact on the atmosphere.

E. *Drilling on Public Lands*

One of the most controversial recommendations of the NEP is that the Arctic National Wildlife Refuge (“ANWR”) be opened for oil and natural gas exploration and extraction.¹¹⁴ Opponents of this proposal cite the great potential for environmental damage compared to the small potential for reducing United States dependence on foreign oil.¹¹⁵

ANWR extends over 19 million acres, making it the second largest wildlife refuge in the United States.¹¹⁶ It has been dubbed “Amer-

111. Press Release, U.S. Dep’t of Energy, Clean Coal Technology Burner Sales Top \$1 Billion (Mar. 14, 2001), *available at* http://www.netl.doe.gov/publications/press/2001/tl_lownox_sales.htm.

112. *Id.*

113. Robert A. Beck, *Notes*, 46 NATL. COAL COUNCIL NEWS (Dec. 2002), *available at* <http://www.nationalcoalcouncil.org/NewsNotes/vol46Dec2002.pdf>.

114. NAT’L ENERGY POLICY GROUP, *supra* note 9, at 5-11, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

115. U.S. FISH & WILDLIFE SERV., POTENTIAL IMPACTS OF PROPOSED OIL AND GAS DEVELOPMENTS ON THE ARCTIC’S REFUGE PLAIN: HISTORICAL OVERVIEW AND ISSUES OF CONCERN, *at* <http://www.unc.edu/~money/geography/anwr2.html> (2001).

116. Michelle Williams, *The Arctic National Wildlife Refuge Heats Up*, Am. Inst. of Prof’l Geologists, *at* http://www.agiweb.org/gap/legis107/tpg_mw.html (Nov. 2001).

ica's Serengeti" for the large concentrations of caribou and other migratory wildlife that gather there to bear their young.¹¹⁷ Public Land Order 2214 set the land aside in December 1960,¹¹⁸ and it is currently managed by the U.S. Fish and Wildlife Service as a designated Wildlife Refuge. The mission of the National Wildlife Refuge System is to "administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."¹¹⁹

In 1980, drilling was banned in ANWR unless specifically authorized by Congress.¹²⁰ The area in which drilling is now proposed is the coastal plain on the Beaufort Sea known as the 1002 Area.¹²¹ This region of approximately 8 million acres, "the largest unexplored, potentially productive onshore basin in the United States,"¹²² is not only the area where oil is most likely to be found but is also home to abundant wildlife (caribou, polar bears, grizzly bears, wolves, numerous migratory birds and other species). Many of these

117. Agreement on the Conservation of Polar Bears, Nov. 15, 1973, 27 U.S.T. 3918, available at <http://pbsg.npolar.no/ConvAgree/agreement.htm>.

118. 25 Fed. Reg. 12,598 (Dec. 9, 1960).

119. National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd, available at http://www4.law.cornell.edu/cgi-bin/htm_hl?DB=uscode16&STEMMER=en&WORDS=668dd+&COLOUR=Red&STYLE=s&URL=/uscode/16/668dd.html#muscat_highlighter_first_match.

120. Alaska National Interest Lands Conservation Act, Pub. L. No. 96-487 § 702 (7), 94 Stat. 2371 (1980).

121. Bonnie Docherty, *Challenging Boundaries: The Arctic National Wildlife Refuge and International Environmental Law Protection*, 10 N.Y.U. ENVTL. L.J. 70, 77 (2001).

122. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, POTENTIAL OIL PRODUCTION FROM THE COASTAL PLAIN OF THE ARCTIC NATIONAL WILDLIFE REFUGE: UPDATED ASSESSMENT vii (2000).

animal populations are protected by international treaties, which also offer some protection to ANWR itself.¹²³

One of these treaties is the Agreement on Conservation of Polar Bears (1973), an agreement among Canada, Norway, Denmark, the U.S.S.R., and the United States.¹²⁴ It requires that each contracting party “protect the ecosystems of which the polar bear is a part, with special attention to habitat components such as denning and feeding sites and migration patterns and shall manage polar bear populations in accordance with sound conservation practices based on the best available scientific data.”¹²⁵

ANWR is the calving area of the Porcupine Caribou Herd, named after the Porcupine River,¹²⁶ and so also comes under the agreement between the government of Canada and the Government of the United States on the Conservation of the Porcupine Caribou Herd.¹²⁷ This agreement states that the Porcupine Caribou, and their habitat, are to be given effective consideration when evaluating proposed activities.¹²⁸

Drilling in ANWR has also been limited by several treaties designed to preserve migratory bird habitat.¹²⁹ These treaties protect more than 88 species of birds that use ANWR lands,¹³⁰ habitat that could be disturbed or even destroyed by oil exploration.¹³¹

123. M. Lynne Corn, Lawrence C. Kumins, & Pamela Baldwin, *The Arctic National Wildlife Refuge*, CRS ISSUE BRIEF FOR CONGRESS, at <http://www.ncseonline.org/NLE/CRSreports/Biodiversity/biodv-14.cfm?&CFID=12557251&CFTOKEN=36655498> (last modified Sept. 5, 1996).

124. Agreement on the Conservation of Polar Bears, Nov. 15, 1973, 27 U.S.T. 3918, available at <http://pbsg.npolar.no/ConvAgree/agreement.htm>.

125. *Id.*

126. Agreement on the Conservation of the Porcupine Caribou Herd, July 17, 1987, U.S.-Can., T.I.A.S. No. 11259.

127. *Id.*

128. *Id.*

129. Docherty, *supra* note 121, at 91-95 (listing Migratory Bird Conventions with Russia (1976), Japan (1972), Mexico (1997) and Canada (1995)).

130. *Id.*

131. *Id.*

The NEP recommends opening a “small fraction” of ANWR to environmentally regulated energy exploration and extraction, using leading-edge technology.¹³² Further, it requires that such activities have no significant adverse impact on the surrounding environment.¹³³ The NEP recommends that some of the revenue that would be realized from leasing these lands (estimated at \$1.2 billion) be earmarked for research into alternative and renewable energy resources.¹³⁴ The NEP also recommends that the billions of dollars that could be earned in royalties from new oil and gas production in ANWR be used to fund land conservation efforts.¹³⁵

There is considerable debate over whether exploration and development activities in ANWR can be conducted without significant adverse impacts. Vegetation in a tundra ecosystem such as ANWR grows very slowly; trees that are only waist high may be hundreds of years old.¹³⁶ Such an ecosystem would take a long time to recover from damage caused by oil and gas exploration. It is true that advanced technologies, in contrast to past technologies and practices allow the oil industry to pinpoint sources more accurately, extract them more efficiently with less surface disturbance, minimize associated wastes, and restore sites to their original or even better condition.¹³⁷ Even though the effects of drilling may be minimized, the ability of this fragile arctic ecosystem to endure the cumulative effects of drilling, roads and possible pipelines is not yet known.

Estimates of the oil contained in the ANWR coastal area range from an earlier U.S. Geological Survey figure of 17 billion barrels (along with 34 trillion cubic feet of natural gas) to a more recent estimate of 29.4 million barrels, with recoverable estimates between

132. NAT'L ENERGY POLICY GROUP, *supra* note 9, at 5-11, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

133. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

134. *Id.*, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

135. *Id.*, at 3-8, *available at* <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

136. Janet Pelley, *Will Drilling for Oil Disrupt the Arctic National Wildlife Refuge?*, ENVTL. SCI. & TECH., June 1, 2001, at 240-47A.

137. *Id.*

600 million and 9.2 billion barrels.¹³⁸ Even the most optimistic of these estimates predict ANWR could provide only around six months' supply of oil.¹³⁹ Furthermore, even if ANWR were to be opened tomorrow to oil and gas drilling, it could still take upwards of ten years to bring any oil extracted to market.

Michael A. Toman, an economist with Resources for the Future, argues that even if we could raise our domestic oil output enough to eliminate imports, the resultant shock to the world oil markets would severely affect domestic prices and threaten macroeconomic distress.¹⁴⁰ Toman's prediction relies on the theory that U.S. petroleum suppliers would charge the same price as other suppliers in the world oil market.¹⁴¹ The same would be true if we were only to reduce our imports of more "insecure" oil and rely primarily on "safer" import sources. A major increase in U.S. output would increase the competition OPEC faces in the short to medium term, thereby moderating oil prices somewhat. However, U.S. oil production is simply too high-cost, and our reserves too limited, to be able to counteract OPEC's market power, especially over the long term.¹⁴² Tapping ANWR would not change the long-term outlook.

Toman depicts the problem as one of overall consumption relative to economic activity, not one of import dependence.¹⁴³ He believes that increasing domestic oil production would discourage reductions in the oil-intensity of overall economic activity, helping to maintain an oil-dependent economic system. He also contends that the development of domestic sources and granting of more subsidies to the oil and gas industries would likely have considerable social costs.¹⁴⁴

While much of the debate over ANWR has been about oil, Alaska's natural gas supply also could play an important role in increasing the nation's energy independence. In the last decade, there has been a dramatic surge in the utilization of natural gas in the U.S. market, particularly for electricity generation, home heating, and industrial use.¹⁴⁵ Nearly 90 percent of new electric generation ca-

138. *Id.*

139. *Id.*

140. Toman, *supra* note 6.

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.*

capacity in the United States utilizes natural gas as its principal fuel.¹⁴⁶ This demand far exceeds our internal production.¹⁴⁷

The NEP contains recommendations that federal agencies expedite permits for a gas pipeline from Alaska to the lower forty-eight states.¹⁴⁸ Several energy companies are currently exploring the feasibility and economics of such a pipeline. The ongoing debate over opening areas of ANWR has slowed the development plans for both an Alaskan pipeline and one from western Canada (which has substantial reserves of natural gas), since ANWR reserves could be crucial to the economic viability of these routes.

On March 19, 2003, the Senate narrowly rejected a bill that would have allowed oil drilling in ANWR, rebuffing Bush Administration attempts to secure its passage via a wartime national-security appeal.¹⁴⁹ Nevertheless, the fate of ANWR remains in the hands of a Republican-controlled Congress. Although there has long been industry and local interest in drilling for oil in ANWR, the war on terrorism and the possibility of future military activity in the Middle East (which would likely cause a disruption in oil imports) have bolstered its support. Supporters argue that it is in our national interest to replace oil imported from the Middle East with ANWR production.

The strong opposition to drilling in ANWR has directed attention to drilling in other public lands, particularly in the Rocky Mountain region. President Bush has stated “there’s a mentality that says you can’t explore and protect land, we’re going to change that attitude.

146. Tracey A. LeBeau, *Energy Security and Increasing North American Oil and Gas Production*, NAT. RESOURCES & ENVTL., at 103 (2002).

147. *Id.*

148. NAT’L ENERGY POLICY GROUP, *supra* note 8, at Summary of Recommendations, App. 1, Ch. 5, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

149. H. Josef Hebert, *Arctic-drilling Bill Fails in Senate*, WASH. POST, Mar. 20, 2003, at A03. The drilling provision was attached to a budget resolution. Senator Barbara Boxer (D-CA) offered an amendment to strip away the drilling provision which passed 52-48. *Id.*

You *can* explore and protect land.”¹⁵⁰ Administration officials have consistently argued that developing new energy supplies and constructing new power plants are the preferred solutions to the energy crisis and that modern technologies can ensure that expanded oil and gas production proceed with minimal impact on our wildlife and environment.¹⁵¹ But which areas of Bureau of Land Management, Forest Service, and Fish and Wildlife Service land should be open to coal mining, oil and gas exploration? What methods should be used? How should the public be involved?

The National Energy Plan calls for a review of statutes, regulations and executive orders that pertain to oil and gas leasing on federal lands, with the objective of removing impediments.¹⁵² “Public lands” include the Outer Continental Shelf on the east and west coasts, Alaska’s Bristol Bay and most of the eastern Gulf of Mexico off the coast of Florida.¹⁵³ All of these areas are currently under a drilling moratorium.¹⁵⁴

Energy production and the preservation of wild lands can be jointly pursued by treating them as separate and distinct issues. Development can focus in lands where energy infrastructure already exists and investments can be made to expand output even if extraction costs increase. Regulatory decisions can ensure that energy costs include the real costs of production, transportation, and management of wastes.¹⁵⁵

150. NAT’L ENERGY POLICY GROUP, *supra* note 8, at Summary of Recommendations, App. 1, Ch. 5, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

151. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

152. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

153. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

154. *Id.*, available at <http://www.whitehouse.gov/energy/National-energy-Policy.pdf>.

155. Gary C. Bryner, *The National Energy Policy: Assessing Energy Policy Choices*, 73 U. COLO. L. REV. 341, 410 (2002).

F. Transportation

1. Corporate Average Fuel Economy

The Energy Policy and Conservation Act of 1975 established the CAFÉ standards, which require auto manufacturers to increase the sales-weighted average fuel economy of passenger cars and light-duty trucks sold in the United States. Congress raised the miles per gallon (mpg) standard to 27.5 for model year 1985, and it has remained there to the present.¹⁵⁶ Many argue that the technology is already available to make feasible an increase in the fuel economy standard to 40 mpg, which, it is estimated, would yield a savings of 50 billion barrels of oil over 50 years.¹⁵⁷

2. The FreedomCAR and Fuel Initiative

Because almost all cars and trucks currently run on gasoline, two-thirds of the 20 million barrels of oil that Americans use each day is for transportation.¹⁵⁸ Replacing even some of these gas-powered cars and trucks with fuel cell vehicles could dramatically reduce our dependence on foreign oil. President Bush announced the \$1.2 billion FreedomCAR (Cooperative Automotive Research) and Fuel Initiative to encourage the development of commercially viable hydrogen fuel cells.¹⁵⁹ When burned in an engine, hydrogen produces zero emissions, the only waste from a hydrogen fuel cell is water.¹⁶⁰ Powering vehicles on hydrogen fuel cells would therefore significantly improve air quality and reduce total greenhouse gas emissions, all while reducing our dependence on foreign oil.¹⁶¹

156. Late last year, Congress declined to pursue a change in the CAFE standards. Office of Auto. Affairs, *CAFE*, at <http://www.ita.doc.gov/td/auto/cafe.html> (last modified Feb. 12, 2004).

157. Natural Res. Def. Council, *Congress Rejects Energy Independence*, NATURE'S VOICE, Nov./Dec. 2002.

158. *Id.*

159. U.S. DEP'T OF ENERGY, FREEDOMCAR AND FUEL INITIATIVE, at <http://www.eere.energy.gov/hydrogenfuel> (last viewed Mar. 1, 2004).

160. *Id.*, at <http://www.eere.energy.gov/hydrogenfuel>.

161. *Id.*, at <http://www.eere.energy.gov/hydrogenfuel>.

The initiative will invest \$729 million over the next five years to develop the technologies and infrastructure needed to produce, store, and distribute hydrogen for use in fuel cell vehicles and electricity generation.¹⁶² Building on the FreedomCAR Initiative, which was launched in January 2002, President Bush proposed expenditures of \$1.7 billion over the next five years to develop hydrogen-powered fuel cells, hydrogen infrastructure and advanced automotive technologies.¹⁶³ The goal is to make it practical and economical for large numbers of Americans to choose to use fuel cell vehicles by 2020, and to develop, in parallel, the hydrogen production and distribution infrastructure needed to support fuel cell vehicles and stationary fuel cell power sources.

The FreedomCAR and Fuel Initiative seek to achieve the following key technical and economic objectives to spur rapid commercialization of hydrogen fuel cell technologies:

1. Lowering the cost of hydrogen to make fuel cells cost competitive with conventional gasoline-powered vehicles; currently hydrogen is four times as expensive to produce as gasoline.
2. Advance the methods of producing hydrogen from renewable resources, nuclear energy and even coal.
3. Create effective hydrogen storage; current hydrogen storage systems are inadequate for use in the wide range of vehicles that consumers demand.
4. Create affordable hydrogen fuel cells; currently fuel cells are ten times more expensive than internal combustion engines.¹⁶⁴

The President's 2004 budget requests \$272 million for hydrogen, fuel cell and advanced automotive technology research and development through the FreedomCAR and Fuel Initiative.¹⁶⁵ If fully implemented, this initiative might begin to reduce our dependence on imported oil ten years or more hence.

162. *Id.*, at <http://www.eere.energy.gov/hydrogenfuel>.

163. *Id.*, at <http://www.eere.energy.gov/hydrogenfuel>.

164. *Id.*, at <http://www.eere.energy.gov/hydrogenfuel>.

165. Memorandum from J. Thomas Cochran, to The Mayor (Feb. 4, 2003), available at http://www.usmayors.org/uscm/news/press_releases/documents/budget_020603.pdf (presenting an analysis done by the U.S. Conference of Mayors of the President's budget request for the 2004 fiscal year).

3. Hybrid Vehicles

Hybrid vehicles are becoming more available and more popular. The hybrid gas-electric car starts and runs in traffic on electricity, but shifts to gasoline on the highway while the battery recharges. Emissions are eliminated at startup (when a gasoline engine is at its dirtiest), and during stop and go traffic (which is also pollution-intense for gasoline engines). Gasoline is used only for high-mileage highway driving, during which the battery is also renewed (most hybrid cars generate their own electricity this way and thus do not rely on utility recharging).

Reducing car emissions will not only improve air quality but will have many other consumer benefits. Recently, the U.S. Department of Energy and the EPA announced the fuel economy leaders of 2003,¹⁶⁶ reported widely by the Automobile Association of America.¹⁶⁷ In a listing of 2003 Gas Misers (those vehicles with the highest mpg fuel efficiency), the top five vehicles are gas-electric hybrids made by Toyota and Honda.¹⁶⁸ The number one vehicle, Honda's Insight—a gas-electric hybrid with a manual transmission—achieved an impressive 61 mpg city / 68 mpg highway rating.¹⁶⁹ The Insight can travel nearly 700 miles before needing to refuel; in fact, most hybrid cars visit the pump only once or twice a month.¹⁷⁰ The “gas guzzlers” at the bottom of AAA's list logged in at 8-11 miles per gallon city and 12-16 mpg highway.¹⁷¹

Hybrid cars, vans and even SUVs will permeate the market in the next few years. Some states, such as Vermont, have proposed legis-

166. Stephen M. Wheeler, *Paying at the Pump*, GOING PLACES, Jan./Feb. 2003, at 8, available at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm>.

167. *Id.*, at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm>.

168. *Id.*, at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm>.

169. *Id.*, at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm>.

170. *Id.*, at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm>.

171. *See id.*, at <http://www.aaagoingplaces.com/pagesjf03/payingpump.htm> (stating that the Land Rover Discovery Series II, an eight-cylinder model, will cost \$1900 a year to fuel).

lation to provide small businesses low cost loans to purchase hybrid vehicles and to exempt such vehicles from purchase and use taxes.¹⁷²

4. Alternative Fuels

Logically, there are two ways to reduce the importance of crude oil in the transportation sector. Either improve the efficiency of gasoline-powered vehicles or develop alternative fuels. The automotive and fuel industries seem unwilling to cooperate to achieve these goals, each charging the other with responsibility for cleaning the air. These industries rely much more on political influence than on economics or public health. More integration of these sectors through market-based incentives is crucial to arriving at efficient and economical approaches to cleaner air.

Natural gas is found in the United States and all over the world in large amounts, even in areas where there is no crude oil. Pursuing these energy sources in combination with the FreedomCAR and Fuel Initiative will contribute to fuel diversification, lessening our dependence on imported oil and increasing our energy security. The development of natural gas as an alternative automotive fuel has been hampered by two problems in particular. The fuel storage problem and the need for dedicated pumps for ethanol, methanol, MTBE, and ETBE. The Clean Fuel Fleets Program under the CAA addresses these difficulties by requiring that fleets of ten vehicles or more be refueled at a central location.¹⁷³

Car and truck manufacturers should be allowed to sell the emissions reductions they would achieve through the introduction of hybrid, electric, alternative and fuel-cell vehicles to the stationary source sector where NO_x reductions command a high price. This would enable the automakers to offset their high research and development costs. This sort of market trading can help diversify fuel use among coal, natural gas, crude oil and alternative fuels.¹⁷⁴ The use of alternative fuels can help lessen crude oil dependence, and the

172. Jefford's Clean Power Act, see *supra* note 43.

173. CAA Clean Fuel Fleets Program, National Alternative Fuels Hotline, at <http://www.afdc.doe.gov/pdfs/caaa.pdf> (last viewed Mar. 1, 2004).

174. C. Boyden Gray, *Energy and Environmental Policy after September 2001*, 16 NAT. RESOURCES & ENVT. 155 (Winter 2003).

EPA should remove obstacles to their use. The United States is a huge market and if we can make significant advances in this sector, other countries and markets will follow.

It would take 12 to 15 years to turn over the national car fleet to newer vehicles.¹⁷⁵ It will take years for hybrid cars and hydrogen-fueled vehicles to achieve sufficient market penetration to attain significant air pollutant reduction.¹⁷⁶ Yet it is essential that we begin to reduce crude oil reliance now. Changing fuels could reduce crude oil dependence far more quickly than developing new car and truck technology. Alternative fuels could penetrate a sizeable part of the existing vehicle fleet immediately. The most obvious targets for change are fleets such as taxis, delivery services, buses and trucks. Incentives are needed to finance the change to natural gas, methanol, or ethanol, for which most existing fleets could easily be retrofitted. Examples of the benefits to be gained already exist: Tokyo's taxicab fleet, for example, is powered by natural gas, which helps explain why that enormous metropolitan area, congested with cars, has less air pollution than most major cities.

G. Nuclear Energy

It remains to be seen whether these endorsements will stimulate growth and, in particular, the building of new plants in the nuclear power industry. Licensing, constructing and operating new plants will be no small task. In addition, the development of secure domestic sources of nuclear fuel production and high-level waste disposal are extremely important issues.

Nuclear power plants require enriched uranium rods to produce electricity. Domestic uranium producers are currently suffering financial hardship due to the glut of uranium from foreign sources and significant quantities of uranium being "dumped" on the market by

175. Al Eisele & Jeff Dofour, *Energy Secretary Abraham on Hydrogen, Hybrids and Energy Independence*, THE HILL, Mar. 19, 2003, available at http://www.hillnews.com/news/031903/ess_abraham.aspx.

176. *Id.*, available at http://www.hillnews.com/news/031903/ess_abraham.aspx.

the U.S. Energy Commission.¹⁷⁷ The House of Representatives version of a comprehensive energy bill, H.R. 4,¹⁷⁸ passed in late 2001, restricts the Department of Energy from releasing portions of its inventory until after 2009.¹⁷⁹ The domestic uranium recovery industry maintains that the United States needs domestic independence, and suggests that an important component of a national nuclear energy program is the restriction of government “dumping” of uranium on the market.¹⁸⁰

The nuclear power industry must develop better disposal methods for high-level waste, i.e., spent nuclear fuel. The United States nuclear power industry has amassed approximately 40,000 tons of high-level waste and creates about 2,000 additional tons each year.¹⁸¹ If the United States is to fully develop its nuclear power industry, a solution must be found that will both allow the disposal of high-level waste and remove the burden of storing and monitoring utilities.

The Nuclear Waste Policy Act of 1982 (“NWPA”)¹⁸² set up a process to find and develop a repository for safe, long-term disposal of the nuclear industry’s high level waste and spent fuel. In February 2002, Energy Secretary Spencer Abraham officially recommended Yucca Mountain in Nevada as a nuclear waste repository.¹⁸³ The federal government selected Yucca Mountain based on, among other factors, its geographic isolation from residential and commercial areas and the presence of a natural subterranean salt dome in which to store the waste. From the start, Yucca Mountain has been embroiled in technical, scientific and political feasibility debates.

177. Christopher S. Pugsley & Anthony J. Thompson, *Nuclear Energy Update: Energy Legislation and Other Political Issues*, 33 TRENDS 8, 8-9 (May/June 2002).

178. H.R. 4, 107th Cong. (2002).

179. *Id.*

180. *See* Pugsley & Thompson, *supra* note 177.

181. *Id.*

182. Nuclear Waste Policy Act of 1982, 42 U.S.C. § 10163 (2000).

183. Press release, United States Department of Energy, Secretary Abraham Recommends Yucca Mountain Site To President Bush Citing “Sound Science” and “Compelling National Interests” (Feb. 14, 2003), available at http://www.energy.gov/engine/content.do?PUBLIC_ID=12962&BT_CODE=PR_PRESSRELEASES&TT_CODE=PRESSRELEASE.

Signaling Nevada's continuing determination to fight the Yucca Mountain Depository, Governor Kenny Guinn, the City of Las Vegas and Clark County filed a lawsuit in the U.S. District Court alleging that the President and the Department of Energy violated NWPAs by not allowing Nevada to review the Yucca Mountain Environmental Impact Study before the Executive Branch did so.¹⁸⁴

Nuclear power may play a strong role in increasing domestic capacity if safety, environmental and operational concerns can be addressed. However, even without accounting for the risks of nuclear accidents and waste disposal problems, nuclear power remains one of the most expensive means of generating electricity. In an attempt to deal with this problem, Congress has passed the Price-Anderson Amendments Act of 2002.¹⁸⁵ This act limits producers' liability for nuclear accidents for an additional ten years.¹⁸⁶

H. Renewable Energy

By 2020, global energy consumption is expected to rise 60 percent from 1990s levels due to population growth, urbanization, and economic and industrial expansion.¹⁸⁷ Consumption of electricity will increase nearly 70 percent.¹⁸⁸ The largest share of this growth is expected to occur in the developing world, where some 2 billion people currently have no access to modern forms of energy such as electricity and piped gas.¹⁸⁹ Using conventional fuels to meet these increasing energy demands will further threaten the natural environment, public health and international stability.¹⁹⁰

184. In November, 2002, the Court of Appeals for the D.C. Cir. consolidated several lawsuits regarding Yucca Mountain, to be heard sometime in 2004. See Nevada Yucca Mountain Lawsuits, Eureka Nuclear Waste Page, YuccaMountain.org, at <http://www.yucca.mountain.org/court/lawsuits.htm> (last visited Mar. 1, 2004).

185. H.R. 4, 107th Cong. at § 502 (2002), available at <http://thomas.loc.gov/cgi-bin/query/D?c107:5:./temp/~c107biWr5r>.

186. *Id.*

187. Janet Sawin, *Charting a New Energy Future*, in STATE OF THE WORLD 85 (2003).

188. *Id.*

189. *Id.*

190. *Id.*

Renewable energy technologies with the potential to meet world energy demand are now ready for large-scale use. A Department of Energy report, in November 2000, found that increased energy efficiency and greater use of renewable resources could obviate 60 percent of the nation's need for new power plants.¹⁹¹ Wind and solar power are the fastest growing renewable energy resource sectors. The world now uses ten times more wind energy and seven times more solar power than it did a decade ago.¹⁹² Global wind-power capacity has grown at an average annual rate of 30 percent during the last 10 years.¹⁹³ Global clean energy markets exceeded \$10 billion in 2001 and are expected to surpass \$82 billion by 2010.¹⁹⁴ In many instances wind is now the cheapest option on a per kilowatt-hour basis.

Worldwide political support for renewables is on the rise. Germany, Denmark, and Spain all recently passed strong legislation to open energy markets by supporting renewables.¹⁹⁵ In addition to their environmental benefits, renewable energy alternatives provide more jobs per unit of output and per dollar spent than do conventional energy options.¹⁹⁶

The use of wind and solar energy has grown most where regulatory policies provide easier access to the power grid. The key to the success of alternative energy is ambitious, forward-looking government policies that drive demand for renewable energy and create a self-reinforcing market. One of these tools is the Renewable Energy Portfolio Standard ("REPS"). About one-third of the states have REPS. The New York Public Service Commission, at the request of Governor Pataki, has stated as a goal that within 10 years at least 25 percent of the electricity purchased in New York State be generated from renewable resources. After considering the costs of fossil fuels

191. INTERLABORATORY WORKING GROUP, U.S. DEP'T OF ENERGY, SCENARIOS FOR A CLEAN ENERGY FUTURE (2000), *available at* <http://www.ornl.gov/sci/eere/cef/>.

192. *Id.*, *available at* <http://www.ornl.gov/sci/eere/cef/>.

193. *Id.*, *available at* <http://www.ornl.gov/sci/eere/cef/>.

194. *Id.*, *available at* <http://www.ornl.gov/sci/eere/cef/>.

195. Preben Maegaard, *Sensational German Renewable Energy Law and its Innovative Tariff Principles*, at <http://www.folkecenter.dk/en/articles/EUROSUN2000-speech-PM.htm> (last viewed Mar. 1, 2004).

196. Sawin, *supra* note 187, at 90.

and nuclear energy, renewable energy is clearly a bargain. Renewables contribute to energy security and improved air quality.¹⁹⁷ If wind and solar power generators were allowed to capture their emissions reductions as tradable allowances, it would legitimize the use of those technologies in ways no rhetoric could hope to do.

III. CONCLUSIONS AND RECOMMENDATIONS

Our energy supply is vulnerable not only because of its reliance on foreign sources but also because of the types of energy we choose as a nation to use. The ecological consequences of our energy appetite are cause for national, indeed worldwide, concern. Reducing dependence on imported oil need not lead to less-effective domestic environmental protection. Fortunately, improving the energy efficiency of appliances and vehicles, utilizing renewable power sources, and conserving energy can guide the United States on a path toward reducing our imported oil needs. Those simple steps would provide the quickest, cheapest, cleanest way to meet our energy needs while protecting public health and the environment.

The mere fact that we import much of our oil is not itself the problem. The United States is vulnerable because it concentrates its oil purchases from one source, subjecting the nation to price increases and supply stoppages. We can limit the influence of countries that export oil by diversifying oil sources, decreasing consumption, and increasing energy efficiency.

In October 2001, Energy Secretary Spencer Abraham described energy efficiency and conservation as the “linchpins in our plan for long-term energy security.”¹⁹⁸ Energy conservation is the safest way to lessen the severity of an energy shortfall. While Americans consume about a quarter of the world’s energy, we make up only 4 percent of the world’s population.¹⁹⁹ Even after one accounts for the size of our economy and the benefits derived from it, these consumption statistics are striking. Using more efficient appliances and vehicles and implementing simple conservation measures (such as reduc-

197. See Elizabeth L. Chalecki, *Renewables Are Safer—And Pollution Free*, 19 ENVTL. FORUM 81 (Jan./Feb. 2002).

198. Margaret Kriz, *Bush Energy Policy Ignores Sept. 11*, 18 ENVTL. FORUM 6 (Nov./Dec.2001).

199. Burton, *supra* note 20.

ing air infiltration into residences) can reduce energy demand and consumer costs while improving air quality and increasing energy supply.²⁰⁰

Energy policy decisions have enormous impacts and must incorporate a wide range of values, from simply seeking to secure supplies at the lowest cost to improving both consumer benefits and air quality. Shifting from expanding development of fossil fuels to a greater reliance on renewable energy sources, efficiency and conservation, increases the possibility of balancing energy needs with other important environmental and cultural values.

A more comprehensive air quality management strategy is needed, one that reduces emissions from power plants and other stationary sources and from mobile sources as well. In its National Air Quality and Emissions Trends Report (1999), the EPA estimated that utility and other stationary sources produce just under 40 percent of all NO_x emissions. Much more NO_x is produced by the transportation sector (including on-road and non-road engines and vehicles—cars, trucks, motorcycles, buses, snowmobiles, all-terrain vehicles, construction and lawn and garden engines, etc.). Thus, targeting the transportation sector might most effectively reduce overall emissions. Establishing emissions standards for currently unregulated sources, and raising the fuel economy standards for all cars, sport utility vehicles and light-duty trucks, should significantly reduce emissions. This reduction can be achieved utilizing available technologies. Further, if the government can encourage clean fuels and clean technologies, determine the best alternatives, and make realistic predictions about when they can be implemented for widespread use, the public will be more likely to utilize these alternatives. The government could also provide tax incentives for both hybrid-electric and fuel-cell passenger vehicles and investment in wind and solar energy.

Future regulations should focus on market incentives, such as those found in the Acid Rain program.²⁰¹ This approach will yield substantially more reductions than command and control programs. Reduction-credit trading between the stationary and mobile sectors should be encouraged.

200. See Douglas W. MacCleery, *Aldo Leopold's Land Ethic: Is it Only Half a Loaf?*, at <http://www.lib.duke.edu/forest/Publications/leopold.pdf> (last viewed Mar. 1, 2004) (discussing the heavy "ecological footprint" and moral burden of consumers).

201. See *supra* note 36 and accompanying text.

While the Bush Administration has focused on supply-side solutions and long-term research, demand-side approaches might also produce results. The growth in the renewable energy industry is promising for both air quality and energy security. Issues related to energy security such as the Kyoto Protocol,²⁰² emerging carbon-emissions trading markets, and voluntary private initiatives such as Climate Leaders,²⁰³ will continue to gain importance. Environmental lawyers have a responsibility to look over the horizon and participate fully in the development of energy policy. As individuals, consumers, advisors, and members of the Bar, we all have a stake in our energy future, which is very much linked to national security.

202. *See supra* notes 45-63 and accompanying text.

203. *See supra* notes 64-74 and accompanying text.

