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Volume 3 | Issue 2

Article 3

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1992

## A View from the Trenches

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### Recommended Citation

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# Note from the Field

## A VIEW FROM THE TRENCHES . . .

SARA R. NICHOLS†

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### I. INTRODUCTION

**M**ORE than a generation ago, when ecology was a rarely discussed concept, Dr. Albert Schweitzer observed that man had lost the capacity to foresee and forestall; that he would ultimately bring about the destruction of the earth.<sup>1</sup> From the trenches of environmental advocacy, Dr. Schweitzer's prediction seems inescapably true.

We live in a society that expends an inordinate amount of social and political capital doing little more than talking about environmental assaults and remedies. Relatively little real money, public or private, is devoted actually to finding solutions consistent with environmental and economic sustainability.

Within my professional discipline, transportation and the environment, public policy and legislation all-too-often converge to obstruct sound approaches to mitigating environmental degradation. One problem considered throughout this article is the ongoing struggle between the necessity for effective legislation

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1. A.A. ROBACH ET AL., *THE ALBERT SCHWEITZER JUBILEE BOOK* 243 (1945).

designed to curb the adverse environmental effects of current transportation practices in the United States and the political, social and economic realities of increased motor vehicle use and oil production in this country.

This article focuses on the most serious environmental problems which attend motor vehicle use: ground-level ozone,<sup>2</sup> acid precipitation,<sup>3</sup> stratospheric ozone-depletion<sup>4</sup> and global warming.<sup>5</sup> By first examining the scientific etiologies and present status of these problems, this article argues that the response time for mitigation is finite. Next, this article considers the efficacy of existing legislation, such as the Clean Air Act Amendments of 1990<sup>6</sup> and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)<sup>7</sup>, in light of present transportation trends and demands in the United States. Finally, this article challenges the present realities of environmental advocacy and questions what the public interest lawyer can do to advance the movement for change.

## II. NATURE OF THE PROBLEM

If one were to evaluate the condition of the ambient air based upon the status of the criteria pollutants addressed by the original Clean Air Act<sup>8</sup> and its 1977 amendments,<sup>9</sup> one would have cause to be optimistic. Airborne lead, carbon monoxide, and sulfur dioxide levels are down. At the same time however, nitrogen ox-

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2. For a general discussion of ground-level ozone, see *infra* notes 10-32 and accompanying text.

3. For a general discussion of acid rain, see *infra* notes 33-40 and accompanying text.

4. For a general discussion of stratospheric ozone-depletion, see *infra* notes 60-63 and accompanying text. See generally *Stratospheric Ozone Depletion: Hearings Before the Subcomm. On Health and the Environment of the House Comm. on Energy and Commerce*, 101st Cong., 2d Sess. (1990) (discussing Clean Air Act Amendments requiring EPA to take steps to protect stratospheric ozone layer from further depletion).

5. For a general discussion of global warming, see *infra* notes 41-59 and accompanying text. See generally *Global Climate Change and Greenhouse Emissions: Hearings Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 102nd Cong, 1st Sess., 1 (1991) (noting that "[g]lobal warming is now a certainty.").

6. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (codified as amended at 42 U.S.C. §§ 7401-7642) (Law. Co-op. 1989 & Supp. 1991) [hereinafter Amendments].

7. Act of Dec. 18, 1991, Pub. L. No. 102-240, 105 Stat. 1914.

8. Clean Air Act §§ 101-403, 42 U.S.C. §§ 7401-7642 (1988).

9. Pub. L. No. 95-95, 91 Stat. 685 (1977) (incorporated as amended at 42 U.S.C. §§ 7401-7642).

ides (NO<sub>x</sub>), particulates and ground-level ozone levels have risen. Moreover, since the original passage of the Clean Air Act, acid precipitation (which was barely a theory in 1970), global warming and stratospheric ozone depletion have come to the fore as serious threats to the environment. These issues have changed the nature of the air pollution debate as well as the stakes.

What follows is a brief discussion of each of these problems *seriatim*. It does not purport to explain the scientific origins and medical implications of these environmental crises in exacting detail. Rather, the proceeding section is offered as a brief background on the general nature of these problems in order to evince both the severity of these problems and how legislative efforts have not responded adequately to them.

#### A. Ground-Level Ozone

In a 1987 report entitled *Unfinished Business*,<sup>10</sup> EPA characterized ground-level ozone as an environmental problem which currently poses one of the greatest risks to human health and the environment.<sup>11</sup>

Ozone is an unstable, highly reactive compound that is formed naturally in the upper atmosphere by a photochemical reaction with solar ultraviolet radiation.<sup>12</sup> By its nature, ozone is a greenhouse gas with a "split personality."<sup>13</sup> Depending upon where it is found, ozone acts either as a beneficial compound, typically referred to as stratospheric ozone, which shields the earth from harmful ultraviolet radiation,<sup>14</sup> or as a harmful compound, typically referred to as ground-level ozone, the primary component of smog.<sup>15</sup>

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10. RICHARD D. MORGENSTERN ET AL., EPA, *UNFINISHED BUSINESS* (1988).

11. *Id.* at 58.

12. Ozone itself, like other photochemical oxidants, is not emitted directly into the air, but is the product of complex chemical reactions between organic compounds (precursors) and nitrogen oxides. *American Petroleum Inst. v. Costle*, 665 F.2d 1176, 1181 (D.C. Cir. 1981), *cert. denied* 455 U.S. 1034 (1982). "Oxidant precursors are organic compounds which can occur naturally but are in large measure man-made. Sources of precursors include automobile emissions of hydrocarbons, chemical plant emissions, and gasoline vapors." *Id.*

13. MICHAEL OPPENHEIMER & ROBERT H. BOYLE, *DEAD HEAT: THE RACE AGAINST THE GREENHOUSE EFFECT* 29 (1990).

14. 3 FRANK P. GRAD, *TREATISE ON ENVIRONMENTAL LAW*, § 13.03(4)(g)(i) (1992). Stratospheric ozone acts as a shield by absorbing ultraviolet radiation and thereby protects life on the planet. *Id.* Because any depletion or modification of this ozone layer would have serious adverse health effects, the topic of preventing such depletion has generated enormous concern. *Id.*

15. HALE & DORR & TRC ENVIRONMENTAL CONSULTANTS, INC., *THE CLEAN AIR ACT AMENDMENTS: STRATEGIES FOR THE 1990'S* 2 (1991).

Ground-level ozone is formed when volatile organic compounds (VOCs) and NO<sub>x</sub> combine in the presence of sunlight and heat.<sup>16</sup> Thirty-five percent of this NO<sub>x</sub> and as much as sixty percent of the VOCs that are the precursors to ground-level ozone are produced by motor vehicle emissions. Indeed, sixty percent of the total urban air pollution in most United States cities results from motor vehicle emissions.<sup>17</sup> In addition, VOC emission levels increase as ambient temperatures increase, thereby raising smog levels.

Because of its reactivity, ozone tends to break down cells and biological tissues. Studies indicate that prolonged residence in high-ozone areas is associated with accelerated deterioration in pulmonary function.<sup>18</sup> Ozone scars the lungs and epithelial cells which line the trachea, thereby increasing the incidence of infection.<sup>19</sup> In addition, because of its high reactivity, there is serious concern about the synergistic effects of ground-level ozone and its interaction with other harmful substances such as respiratory viruses, cigarette smoke and other harmful pollutants.<sup>20</sup>

The federally-established National Ambient Air Quality Standard (NAAQS)<sup>21</sup> for ozone is 0.12 parts per million (ppm) for one hour.<sup>22</sup> At this level or above, the elderly, people with preexisting respiratory impairments and preadolescents are most vulnerable to the effects of ozone. In fact, even healthy adults who

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16. *Id.* at 2.

17. JEREMY RIFKIN WITH TED HOWARD, *ENTROPY: INTO THE GREENHOUSE WORLD* 163 (rev. ed. 1989).

18. Ozone irritates the respiratory system and causes coughing, wheezing, tightness in the chest and headaches. In addition, ozone aggravates existing asthma, bronchitis and emphysema. See *American Petroleum Inst. v. Costle*, 665 F.2d 1176, 1181 (D.C. Cir. 1981), *cert. denied* 455 U.S. 1034 (1982) (citing to scientific and medical studies outlining adverse health effects of ozone exposure).

19. *Id.* at 1181.

20. Michael Renner, *Rethinking Transportation*, in *STATE OF THE WORLD* 98, 100 (1989) [hereinafter *Rethinking Transportation*].

21. The NAAQS levels, promulgated pursuant to section 109 of the Clean Air Act, set standards for those pollutants for which air quality criteria have been issued. § 109, 42 U.S.C. § 7409 (1988). Under section 109 of the Act, before the Amendments, EPA was required to promulgate NAAQS standards every five years and each state was then mandated to attain those standards through its own State Implementation Plans (SIP's). See 42 U.S.C. §§ 7409-7410.

22. 40 C.F.R. § 50.9(a) (1988). This figure represents the NAAQS for those regions that have been designated as marginal non-attainment areas under the Act. The Amendments impose new attainment dates based on the particular city's non-attainment classification. These classifications impact on industry the most as they determine not only the attainment dates but also the techniques for achieving the required VOC reductions and the spectrum of source to be regulated. See HALE & DORR, *supra* note 15, at 10-11.

regularly exercise outdoors experience negative effects from ozone exposure at the NAAQS level.<sup>23</sup> Moreover, one recent study showed serious health effects in young children who are exposed over extended periods of time to levels actually *below* the NAAQS.<sup>24</sup>

Symptoms of ozone exposure at 0.12 ppm include coughing, shortness of breath, throat dryness, pain on deep inspiration, wheezing, lassitude, headaches and nausea.<sup>25</sup> According to EPA, over one-half of the nation's population lives in unhealthy ozone areas.<sup>26</sup>

The economic implications of ground-level ozone pollution are very serious. The American Lung Association has estimated that, depending upon what valuation is placed upon a human life, exposure to ground-level ozone adds anywhere from \$4.43 billion to \$93 billion each year to the nation's health costs and lost productivity costs.<sup>27</sup> According to EPA Pulmonary Effects Specialist, Don Costa: "[a]s long as you are being exposed to ozone, you're being damaged. Like cigarette smoking, ozone's effects build overtime."<sup>28</sup>

Moreover, ground-level ozone is a burning agent which causes foliage to turn brown. It is responsible each year for billions of dollars of crop and forest damage.<sup>29</sup> Ozone also stunts plant growth, thereby reducing photosynthesis and increasing susceptibility to pest infestation.<sup>30</sup>

Title I of the 1990 Clean Air Act Amendments (Amend-

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23. See *American Petroleum Inst.*, 665 F.2d at 1183. In February of 1979, when EPA's Administrator raised both the primary and secondary standards for ozone to 0.12 ppm., the Administrator determined that "the most probable level for adverse health effects in sensitive persons, as well as in healthier (less sensitive) persons who are exercising vigorously, falls in the range of 0.15 to .25 ppm." 44 Fed. Reg. 8216 (1979). This conclusion was based on medical reports, opinions and risk assessment studies. *American Petroleum Inst.*, 665 F.2d at 1183.

24. NEW JERSEY DEP'T OF HEALTH, DIV. OF OCCUPATIONAL AND ENV'T'L HEALTH, OZONE-HEALTH, OZONE-HEALTH EFFECTS FIELD STUDY OF CHILDREN AND COUNSELORS AT TWO DAY CAMPS IN NEW JERSEY, JULY, 1988 (1990).

25. *American Petroleum Inst.*, 665 F.2d at 1181.

26. EPA POLICY DEVELOPMENT SECTION, OZONE AND CARBON MONOXIDE PROGRAMS BRANCH, AIR QUALITY MANAGEMENT DIVISIONS, OFFICE OF AIR QUALITY PLANNING AND STANDARDS, OZONE AND CARBON MONOXIDE AREAS VIOLATING THE NATIONAL AMBIENT AIR QUALITY STANDARDS, STATUS OF 1988 AND 1989 CALLS FOR SIP REVISIONS (1990).

27. JAMES S. CANNON, AMERICA LUNG ASSOC., THE HEALTH COSTS OF AIR POLLUTION: A SURVEY OF STUDIES PUBLISHED 1984-1989 49 (1990).

28. DON L. COSTA *et al.*, PRESENTATION, EIGHTY-FIRST MEETING OF AIR POLLUTION CONTROL ASSOC. (1988) (statement by Don L. Costa).

29. *Id.*

30. J.P. Dempster, *et al.*, *Environmental Pollution: Response of Crops to Air Pollu-*

ments) focuses on reducing ozone pollution by dividing ozone non-attainment areas into five categories. The different categories are based on the percentage by which these areas exceed the NAAQS.<sup>31</sup> Each region falling into one of these categories then is mandated by the Amendments to implement specific programs designed to reach the NAAQS.<sup>32</sup> While the success of this new framework for dealing with ozone pollution is not yet known, its enactment alone signifies the realization that an improved system is needed for determining and enforcing the NAAQS standards. Also, the passage of ISTEA in 1991 authorized funding for transportation projects that would improve air quality, while withholding funds from transportation projects that would degrade air quality.

## B. Acid Precipitation

Acid precipitation, or acid deposition (commonly known as "acid rain"), is caused when sulfur dioxide (SO<sub>2</sub>), a component of utility and industrial plant emissions, and NO<sub>x</sub>, emitted as a by-product of fossil fuel combustion, combine with precipitation in the air.<sup>33</sup> Three percent of the SO<sub>2</sub> load is emitted by motor vehicles.<sup>34</sup> Slightly over one-third of the NO<sub>x</sub> present in acid precipitation is also produced by motor vehicle emissions, making motor vehicles the largest single source of NO<sub>x</sub>.<sup>35</sup>

Both SO<sub>2</sub> and NO<sub>x</sub> are respiratory irritants. In addition to irritating the lungs and facilitating the onset of bronchitis and pneumonia, NO<sub>x</sub> increases susceptibility to viral infections such as influenza.<sup>36</sup> Of course, air pollutants do not discriminate by geographical boundaries. They travel with the currents and

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*tants*, Vol. 53, no. 1-4 (1988). When plant growth is stunted, plants must redirect their energy to making repairs, rather than engaging in photosynthesis.

31. 136 CONG. REC. S4373 § 107 (daily ed. April 18, 1989). For a general discussion of the National Ambient Air Quality Standards under the Clean Air Act, see *supra* note 21. See also Symposium, *The Clean Air Act Amendments of 1990*, 21 ENVTL. L. 1321 (1991); Leslie F. Chard, Comment, *The 1990 Clean Air Act Amendments: Section 112 Comes of Age*, 59 U. CIN. L. REV. 1253 (1991).

32. 136 CONG. REC. at S4373-75.

33. Ned Helme & Chris Neme, *Acid Rain: The Problem*, 17 EPA J. Jan.-Feb., 1991, 18, 19-20.

34. NATIONAL AIR POLLUTANT EMISSIONS' ESTIMATES 1940-1988, EPA OFFICE OF AIR QUALITY AND STANDARDS, MARCH 1990.

35. JAMES J. MACKENZIE, BREATHING EASIER: TAKING ACTION ON CLIMATE CHANGE, AIR POLLUTION AND ENERGY SECURITY, WORLD RESOURCES INSTITUTE 13 (1988).

36. *Dead End Street: Automobile Industry and Environmentalism*, Info Access Company, May 10, 1990, available in LEXIS, Nexis Library, OMNI File.

winds, globally affecting animal and human respiratory systems alike.<sup>37</sup>

As water becomes increasingly acidic, fewer aquatic species are able to survive. As a result, a chain-reaction effect takes place, and more and more species that depend on other aquatic species for their survival become threatened with extinction. For example, based on one EPA stream survey performed in 1989, forty-five percent of Pennsylvania's water bodies reportedly have been negatively affected by acid precipitation. Over nine percent of those have been rendered chronically acidic.<sup>38</sup>

Acid precipitation has a corrosive effect on human-made objects and materials as well. The most obvious consequences of acid precipitation are the pitted surfaces of metal and stone monuments and buildings. Less apparent, but far more costly, is its corrosive effect on bridges and other components of the infrastructure.

During the nascent period of environmental law in the late 1970's and early 1980's, legislators turned a blind eye to the increasingly apparent effects of acid precipitation. Until the passage of the 1990 Amendments, acid precipitation was, in fact, officially ignored.<sup>39</sup> While the mid-1980's witnessed some efforts to resolve this political blindspot, it was not until the enactment of the Amendments that Congress finally created an acid precipitation program.<sup>40</sup>

### C. The Greenhouse Effect

Global warming, often referred to as the "greenhouse ef-

37. *Id.*

38. Nine point two percent (9.2%). EPA NATIONAL STREAM SURVEY, DIRECTORY OF ACIDIC AND SENSITIVE STREAMS IN THE MID ATLANTIC AND SOUTHEASTERN UNITED STATES, at v. (PA ed. 1989) (based on information prepared by Deborah A. Sheiman, Resource Specialist, Natural Resources Defense Council, Keith Eshelman, Dr. Com. Sharp, Pa. Fish Commission).

39. Helme & Neme, *supra*, note 33 at 19-20. While acid rain has long been suspected as causing damage to lakes, streams, forests, soil and the infrastructure, designing an effective strategy to prevent further precipitation has proven to be "one of the nation's most intractable environmental policy problems." *Id.* at 19.

40. *Id.* at 19-20.

Title IV of the Amendments calls for the reduction of national SO<sub>2</sub> emissions by ten million tons below levels reached in the 1980's. HALE & DORR, *supra* note 15 at 14; Helme & Neme, *supra* note 33 at 20. This goal is to be accomplished by a plan establishing an allowance system for SO<sub>2</sub> emissions, and a reduction program for NO<sub>x</sub> emissions. HALE & DORR, *supra* note 15, at 14-15. One innovative part of the SO<sub>2</sub> allowance system is the ability to permit emissions trading by industry. *Id.* at 15.



fect,” is a phenomenon that has been debated vigorously by the public since June of 1988 when atmospheric scientist, Dr. James Hansen of NASA’s<sup>41</sup> Goddard Space Institute testified before Congress “with 99% certainty that global warming is upon us.”<sup>42</sup>

What does this mean? Therein lies the debate. What is not disputed is that the earth is subject to a beneficial “natural” greenhouse or warming effect caused when certain gases in the atmosphere allow the sun’s light energy to reach the earth’s surface while trapping the sun’s radiated heat. This “natural” greenhouse effect maintains the average temperature of the earth’s surface at about 57 Fahrenheit<sup>43</sup> making the earth habitable.

Likewise, there is no debate that anthropogenic activities are responsible for the release of gaseous compounds into the atmosphere that potentially could elevate the mean temperature of the earth.<sup>44</sup> The nexus of the dispute concerns the question of how long it will take the temperature of the earth’s surface to rise before uncertain adverse ecological consequences materialize. During the last Ice Age, the earth’s mean global temperature was five degrees Celsius cooler than it is today.<sup>45</sup> According to its 1990 study, the Intergovernmental Panel on Climate Change (IPCC)<sup>46</sup>, using a “business-as-usual emissions scenario,” predicted that there could be as much a 0.3 degree Celsius increase

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41. National Aeronautics and Space Administration

42. *Greenhouse Effect & Global Climate Change: Hearings Before the Senate Comm. on Energy and Natural Resources*, 100th Cong., 1st Sess. 42, 50 (1988) (statement by Dr. James Hansen, Director of NASA Goddard Institute for Space Studies). Hansen’s calculations did not include 1988 weather temperatures, although by the June 23rd hearings, the year was already expected to be the world’s hottest on record. Hansen commented on the predictions, stating that while the current weather did not significantly change his assessment, it did produce sharp change in attention. *Id.* See also EPA REPORT OF GREENHOUSE EFFECT ON AMERICA’S CLIMATE, HISTORIC DOCUMENTS OF 1988 861 (1989); Roberta Dohse, Comment, *Global Air Pollution and the Greenhouse Effect: Can International Legal Structures Meet the Challenge?*, 13 HOUS. J. INT’L L. 179 (1990).

43. CHERYL SIMON SILVER & RUTH S. DEFRIES, NATIONAL ACADEMY OF SCIENCES, ONE EARTH, ONE FUTURE: OUR CHANGING GLOBAL ENVIRONMENT 71 (1990).

44. GRAD, *supra* note 14, at § 13.03(4)(g)(iv).

45. OPPENHEIMER & BOYLE, *supra* note 13, at 26. At this point, carbon dioxide levels were as low as one-half their current amount. *Id.* The parallel movement of carbon dioxide and the Earth’s temperature supports the greenhouse theory, and it is reasonable to expect the two to “march in lockstep in the future, as fossil-fuel emissions drive the level of carbon dioxide upward.” *Id.*

46. The IPCC was first convened in 1988 by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) “to foster international cooperation, improve the science on climate change, assess the potential effects of global climate change and explore options for responding to it.” Terry Davies, *An Introduction*, 16 EPA J., Mar.-April 1990, at 2, 3.

per decade in the global mean temperature during the next century.<sup>47</sup>

While the specific effects of global warming continue to be disputed, the emerging consensus seems to be that these effects definitely will be broadsweeping in scope.<sup>48</sup> Entire ecosystems will have to shift. Some cash crops will perish while pest plants may grow more vigorously. Areas now considered "bread baskets" may become barren deserts. Without the ability to migrate through "urban barriers" or to evolve quickly enough, mass extinctions of species will be likely.<sup>49</sup> Melting ice caps and thermal expansion of the ocean may cause sea levels to rise, resulting in a variety of catastrophes from beach erosion to saltwater inundation of coastal communities where three-quarters of the world's population resides. Certainly coastal groundwater supplies will be contaminated, as will wetlands and estuaries.<sup>50</sup> In addition, the severity and frequency of storms will increase, as will episodes of weather and climate extremes.

Back in November of 1987, the United States Senate Committee on Energy and Natural Resources held hearings on the greenhouse effect and global climate change.<sup>51</sup> Each scientist who presented testimony stated with confidence that major greenhouse climate changes are a certainty and that the burning of fossil fuels is the major culprit.<sup>52</sup> Moreover, the consensus among the nine scientists who testified at these hearings was that something must be done as soon as possible to slow down the process if we are going to have a reasonable chance of adapting to the pending changes. Dr. Hansen, one of the participants, stated at these hearings:

The finite response time of the climate system implies

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47. GRAD, *supra* note 14, at § 13.03(5)(b) (citing WMO/UNEP, IPCC, CLIMATE CHANGE - THE IPCC SCIENTIFIC ASSESSMENT xi (1990)).

48. *See* GRAD, *supra* note 14, at § 13.03(5)(b). Grad states that global warming will adversely affect: natural ecosystems, agriculture, water resources, energy, ocean resources, fisheries, transport, human health and habitat, land use and ecology. *Id.*

49. *Id.* at § 13.03(5)(c). According to EPA estimates, global warming would increase productivity in the northern areas of the United States, especially in the Great Lakes States, the northern Great Plains and the Pacific Northwest by as much as five to seventeen percent (5-17%). *Id.* The southern areas of the country would experience a decrease in productivity by as much as five to twenty-five percent (5-25%). *Id.*

50. *Id.*

51. *See generally Greenhouse Effect and Global Climate Change: Hearings Before the Senate Comm. on Energy and Natural Resources, 100th Cong., 1st Sess. (1988).*

52. *Id.*

that there is unrealized greenhouse warming already 'in the bank' or 'in the pipeline.' This yet to be realized warming calls into question a policy of 'wait and see' regarding the issue of how to deal with increasing atmospheric carbon dioxide and other trace gases.<sup>53</sup>

Carbon dioxide (CO<sub>2</sub>) is the principle global warming gas. About one-third of the excess CO<sub>2</sub> in the atmosphere is emitted by motor vehicles, the largest single sources of CO<sub>2</sub>.<sup>54</sup> While carbon monoxide (CO) itself is not a greenhouse gas, it contributes indirectly to the process by slowing the removal of other greenhouse gases, namely methane and ground-level ozone, from the troposphere.<sup>55</sup> Motor vehicle emissions account for at least eighty percent of the carbon monoxide problem in urban areas in the United States.<sup>56</sup> As explained earlier, NO<sub>x</sub> is another greenhouse gas that is generated to a large extent by motor vehicle emissions.<sup>57</sup>

Seventeen percent of the global warming problem is caused by chlorofluorocarbons (CFC), perhaps the most potent, long-lived global warming gas.<sup>58</sup> CFC emissions from motor vehicle air conditioners represent about twenty-five percent of present atmospheric CFC. The increased number of motor vehicles produced with air conditioners today has contributed significantly to increased emissions of CFC's. While in 1970, only forty percent of United States' cars had air conditioners, today ninety percent have them.<sup>59</sup>

One question emerges in the face of the potentially devastating environmental effects of global warming. If the chance of these consequences actually occurring were even as low as twenty-five percent, is it wise to do nothing to counteract the pro-

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53. *Id.* at 64.

54. RIFKIN, *supra* note 17, at 164.

55. See generally GRAD, *supra* note 14, at § 13.03. The increase in emissions of these named gases alter atmospheric chemical composition, thereby affecting the atmosphere's radiative fluxes and increasing tropospheric temperature. *Id.*

56. Telephone Interview with Mark Wolcott, Operations Research Analyst, EPA Office of Mobil Sources, National Vehicle Fuel and Emissions Laboratory, Research Triangle Park, NC (March 24, 1992).

57. See *supra* notes 16-17 and accompanying text.

58. OPPENHEIMER & BOYLE, *supra* note 13, at 29. Man-made CFC's create lasting problems because they survive for approximately a century after their release into the atmosphere. *Id.*

59. Matthew L. Wald, *Big Wheels: How Dreams of Clean Air Get Stuck in Traffic*, N.Y. TIMES, March 11, 1990, at § 4, E1, E4.

cess, particularly when virtually every measure taken to curb global warming will also improve air quality?

#### D. Stratospheric Ozone Depletion

CFC's play an even more insidious role as the leading cause of ozone depletion than as a global warming gas. CFC's are the primary cause of stratospheric ozone depletion.<sup>60</sup> This very thin layer of ozone protects the surface of the earth from the sun's destructive ultraviolet radiation. Organisms essential to the aquatic food chain are extremely susceptible to harm from ultraviolet radiation. So too is the human immune system, the suppression of which can be caused by exposure to ultraviolet radiation.

Dramatically increased incidences of cataracts and skin cancers can be expected due to the continuous thinning of the ozone layer. According to EPA estimates, 162 million excess skin cancer cases and over 18 million additional eye cataract cases will occur in the United States in the population born before 2075 if no controls are put into place to phase out ozone-depleting chemicals.<sup>61</sup>

As recently as early 1992, scientists reported that the risk of ozone depletion is far greater than previously thought.<sup>62</sup> Such reports have given rise to efforts to further limit the emission of CFCs. These efforts include the recent announcement by President Bush that he would unilaterally accelerate the phase-out of many ozone-depleting chemicals.<sup>63</sup>

### III. CURRENT TRENDS

In the late eighties, the severity of these aforementioned environmental problems finally spurred legislative action. The 1990

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60. OPPENHEIMER & BOYLE, *supra* note 13, at 29, 42-50. First produced in 1928 by General Motors, CFC's are used for many industrial purposes including, but not limited to their uses as: coolants in refrigeration and air conditioning, solvents for plastic foam, medical equipment sterilizers and aerosol propellants. *Id.* at 42-50. When introduced into the atmosphere, CFC's react with ultraviolet rays to release stray chlorine atoms which break down ozone materials. *Id.* at 44.

61. John H. Chaffe, *Stratospheric Ozone—The Problem*, 17 EPA J., Jan.-Feb. 1991, at 34, 34.

62. Charles Green & Robert A. Rankin, *Ozone Effort Pushed: U.S. To Step Up CFC Phaseout*, PHILADELPHIA INQ., February 12, 1992, at A1.

63. *Id.* President Bush's announcement also included a request that U.S. producers cut the 1992 output of these chemicals to fifty percent (50%) of the 1986 levels. Under current law, production is required to be cut to eighty percent (80%) of 1986 levels this year. *Id.* Under President Bush's accelerated phase out plan, the production of CFC's will be banned after December 31, 1995. *Id.*

Amendments mark significant legislative efforts to counter some of these threats.

The Amendments require a complete phase out, with limited exceptions, of ozone-depleting chemicals.<sup>64</sup> In fact, when the Amendments were enacted, DuPont, the largest producer of CFCs had already agreed to halt its CFC production by the year 2000.<sup>65</sup> Its decision was based on the results of a 1988 study conducted by the Ozone Trends Panel which was comprised of more than 100 scientists from around the world. This study reported that ozone-layer depletion is presently occurring at a much higher rate than previously projected.<sup>66</sup> Indeed, one study published by EPA in April of 1991 reported that the ozone layer is depleting at twice the rate previously thought.<sup>67</sup>

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)<sup>68</sup> was another important legislative response to the multitude of problems we face as a result of our over-reliance on motor vehicles. Prior transportation legislation traditionally and overwhelmingly favored highway construction. The ISTEA radically alters the federal government's approach to transportation funding. The ISTEA allows non-attainment areas flexibility for the first time with respect to how they spend federal transportation funds.<sup>69</sup> No longer can these funds be used to build highway projects which would result in increased traffic resulting in failure to meet NAAQS levels.<sup>70</sup> Funds that otherwise would have been

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64. See *The New Clean Air Act: What It Means to You*, 17 EPA J., Jan.-Feb. 1991.

65. *Walking the DuPont Tightrope*, N.Y. TIMES, October 14, 1990, § 3, at F1, F6. See also *DuPont Will Accelerate CFC Phase-out*, L.A. TIMES, October 23, 1991, at D2.

66. The report, developed by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO), stated that stratospheric ozone depletion was advancing faster than expected. *DuPont Will Accelerate CFC Phase-out*, *supra* note 65, at D4. EPA administrator, William A. Reilly, warned that this report will also cause the federal government to "look very hard at the possibility of advancing the phase-out dates" for CFCs. *Id.*

67. See William K. Stevens, *Summertime Harm to Ozone Detected Over Broader Area*, N.Y. TIMES, October 23, 1991 at A1 (noting accelerated rate of ozone depletion and first hole detected over United States in summertime); *Warning from the Stratosphere*, WASH. POST, October 11, 1991 at A26 (In early October, 1991 examination, NASA reported ozone layer was thinner than ever before in thirteen years of monitoring).

68. Act of Dec. 18, 1991, Pub. L. No. 102-240, 105 Stat. 1914.

69. *Remarks of Secretary of Transportation, Andrew Card, to Young Republican Leadership Conference*, Federal News Service, March 20, 1992, available in LEXIS, Nexis Library, OMNI File.

70. *Id.* States must now look at the environmental ramifications of highway construction projects.

used to expand highway capacity now can be used for public transit projects.

While President Bush's budget appropriates significantly less for transit (\$3 billion in Fiscal Year 1993)<sup>71</sup> than the ISTEA authorizes (\$5.2 billion in Fiscal Year 1993),<sup>72</sup> the pressures of the Clean Air Act mandates may compel a final budget agreement more favorable to public transit.

Overall however, the serious environmental problems that attend motor vehicle use have not met with the degree of legislative attention commensurate with the findings by the scientific community. While the environmental and health costs associated with such use cry out for sound transportation and energy policies, such policies, for the most part, are sorely lacking in the United States. In fact, legislative action often has done more to exacerbate environmental degradation than to mitigate it. For example, some existing local multi-acre zoning ordinances actually encourage car-dependent urban sprawl.<sup>73</sup> In addition, employer-provided parking, worth as much as four hundred dollars per month in some cities, is a non-taxable benefit.<sup>74</sup> Other federal transportation funding measures dramatically *favor* highway spending over mass transit and encourage energy production rather than energy efficiency.<sup>75</sup>

At the heart of the current transportation policy debate is the

71. PRESIDENT BUDGET REPORT, OFFICE OF MANAGEMENT AND BUDGET, BUDGET OF THE UNITED STATES GOVERNMENT FOR FISCAL YEAR 1993 (1992).

72. Title III of the Intermodal Surface Transportation Efficiency Act of 1991, Act of Dec. 18, 1991, Pub. L. No. 102-240, 105 Stat. 1914.

73. In Pennsylvania, for example, state law grants authority to local planning bodies to enact zoning ordinances which set multi-acre minimum lot size requirements. See 71 PS § 751-1 (1990). As individuals move to more rural areas to escape densely populated cities, multi-acre zoning ordinances create far-reaching suburbs that mandate many more miles of highways for daily work commutes. Now situated far from any feasible mass transit system, residents add an increasing number of vehicles to these highways.

74. I.R.C. § 132(h)(4) (West 1990). This section does, however, treat all employer-provided transit compensation as compensation under the Code when the amount exceeds \$15 per month. Where an employer provides free or subsidized parking for its employees and offers them the choice of taking the market value of the subsidy as a cash travel allowance in lieu of the parking subsidy, that subsidy is exempt from Federal income tax. 137 CONG. REC. S1369-01 (1991).

75. Philip Weinberg, *Public Transportation and Clean Air: Natural Allies*, 21 ENVTL. L. 1527, 1540 (1991). "Government funding for mass transit and Amtrak is infinitesimal compared with the billions spent on highways, parking facilities, and airports." *Id.* Congress has not acknowledged the necessity of treating mass transit equally with road and air transportation. *Id.* Moving passengers and freight using a mass transit system is more energy efficient than using road and air transportation. *Id.*

problem of continuously-increasing motor vehicle use and an ever-expanding highway capacity. Between 1970 and 1986, the United States added as many cars to its roads as the entire Third World now possesses.<sup>76</sup> The United States Department of Transportation reports that in that time period, the number of automobiles in the United States increased by twenty-five percent and the number of heavy duty trucks increased by forty percent.<sup>77</sup>

According to one Government Accounting Office report, based on present transportation practices alone, even if road capacity increases by a nearly-impossible twenty percent in the next fifteen years, traffic congestion will triple.<sup>78</sup> In 1970, total vehicle-miles ever traveled equalled approximately two million round trips to the moon. In the United States alone, the number of vehicle-miles traveled annually equals three million round trips to the moon.<sup>79</sup> According to EPA Special Assistant for Transportation Policies, Gary Hawthorn, emissions that have declined since 1970 will start up again after the year 2000.<sup>80</sup> The two billion hours per year Americans spend in traffic congestion costs the nation's economy about \$73 billion in lost productivity<sup>81</sup> and constitutes four percent of United States annual oil consumption.<sup>82</sup>

Much of the increased highway use in this country is attributable to the fact that half of all trips made in the United States and three-quarters of all commutes are made by single occupant automobiles.<sup>83</sup> In 1970, each car carried 2.5 people. By 1988, that figure dropped to 1.7 people per car.<sup>84</sup> If that number were increased to two individuals, energy consumption for passenger road transportation would drop by forty-five percent.<sup>85</sup> In addi-

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76. See *Rethinking Transportation*, *supra* note 20, at 100.

77. UNITED STATES DEP'T OF TRANSPORTATION, FEDERAL HIGHWAY ASSOCIATION, DEPARTMENT OF STATISTICS (1991).

78. U.S. GENERAL ACCOUNTING OFFICE, TRAFFIC CONGESTION: TRENDS MEASURES AND EFFECTS, REPORT TO CHAIRMAN, SUBCOMM. TRANSPORTATION AND RELATED AGENCIES, COMMITTEE ON APPROPRIATIONS, U.S. SENATE (1990).

79. *Big Wheels*, *supra* note 59, at E1.

80. EPA CONFERENCE: ASSOCIATION FOR COMMUTER TRANSPORTATION, September 8, 1989 (statement by Gary Hawthorn, Special Asst. for Transportation Policies, Office of Mobile Sources).

81. *Id.*

82. DEBORAH GORDON, UNION OF CONCERNED SCIENTISTS STEERING A NEW COURSE: TRANSPORTATION ENERGY AND THE ENVIRONMENT 25 (1991).

83. *Id.* at 2.

84. *Big Wheels*, *supra* note 59, at E4. For commuter trips, the average is 1.15 people per car. See also STEERING A NEW COURSE, *supra* note 82, at 20.

85. See Deborah Bleiviss, *Transportation: The Auto*, 16 EPA J., Mar.-April 1990, at 26, 27.

tion, the United States potentially could save forty million gallons of oil a day if the average automobile commuter ridership increased from just 1.1 to 2.1 people per vehicle.<sup>86</sup>

One evident ramification of the increased motor vehicle use in this country is the soaring demand for oil. The United States now imports more than half the oil it uses.<sup>87</sup> Sixty-three percent of this oil use is consumed in the transportation sector,<sup>88</sup> with fifty-two percent of that figure attributed solely to highway uses.<sup>89</sup> The implications of these numbers are astounding; every drop of oil that the United States imports is used for transportation. In addition, imported oil accounts for fifty-four percent of this nation's trade deficit.<sup>90</sup> The growth of oil imports during the last half of the 1980's, from 4.9 million barrels to 8 million barrels per day, was greater in volume than is Germany's total oil consumption today.<sup>91</sup> However, drilling for more domestic oil is not the answer. Eighty percent of all drills for oil have been in the United States.<sup>92</sup>

Americans in highly car-oriented areas consume on average twice as much gasoline per capita as Australian cities, four times as much as European cities, and ten times as much as Asian cities.<sup>93</sup> In fact, America consumes more gasoline than its Japanese, Italian and British counterparts combined.<sup>94</sup> The United States, home to about five percent of the world's population, consumes at least twenty-five percent of the world's oil supply.<sup>95</sup>

What does all of this say? To a public interest lawyer, it says

86. AMERICAN PUBLIC TRANSIT ASS'N, TRANSIT 2000 TASK, TRANSIT 2000, MANAGING MOBILITY: A NEW GENERATION OF NATIONAL POLICIES FOR THE 21ST CENTURY 15 (1989) [hereinafter MANAGING MOBILITY].

87. Daniel Yergin, *How to Design a New "Energy Strategy,"* NEWSWEEK, February 11, 1991, at 43. The United States at present imports approximately sixty-five percent (65%) of its oil. See Lori M. Rodgers, *NES: A Mixed Bag Receives Mixed Reactions*, 127 FORT., April 1, 1991, at 36, 44, n.7.

88. S.326 § 1(a)(7), 102nd Cong., 1st Sess., 137 CONG. REC. S1369-01 (1991).

89. See MANAGING MOBILITY, *supra* note 86, at 1.

90. 137 CONG. REC. S18118 (daily ed. Nov. 25, 1991) (statement by Sen. Lautenberg).

91. See Yergin, *supra* note 87, at 43.

92. S. 326 § 1(a)(6), 102nd Cong. 1st Sess., 137 CONG. REC. S1369-01.

93. Michael Renner, RETHINKING THE ROLE OF THE AUTOMOBILE, 84 WORLDWATCH INSTITUTE 17 (1988) [hereinafter ROLE OF THE AUTOMOBILE].

94. See Yergin, *supra* note 87, at 43. Yergin notes that the United States' budget feels the major impact of the amount of oil that is imported. Japan and Germany can finance their oil imports with exports, but the United States cannot do so at the present time. *Id.*

95. See MANAGING MOBILITY, *supra* note 86, at 3.



that the public interest is not being served very well. To a public interest lawyer who pays attention to public policy and the legislative process, it also says that very powerful special interests control the national transportation and energy agendas.

In response, public interest organizations focus tremendous amounts of their energy and resources educating the public. Due to the inherent lobbying limitations on 501(c)(3) organizations,<sup>96</sup> it is much more difficult to influence legislators. Indeed, the most daunting task facing these organizations is getting the information to state and federal legislators and convincing them that present environmental laws and political strategies are in serious need of reform. In order to bring about any truly responsive legislation, the public interest lawyer must counter the movement towards increased motor vehicle use by demonstrating to the legislators that this movement is largely a self-destructive one.

#### IV. WHERE ARE WE NOW?

The Energy Organization Act of 1977 (EOA)<sup>97</sup> requires the President to develop a strategic energy policy plan<sup>98</sup> that must be updated every two years.<sup>99</sup> Despite this mandate, the EOA basically was ignored under the Reagan Administration. Environmentalists became encouraged, however, when it seemed clear that

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96. See *infra* notes 133-34 and accompanying text.

97. Energy Organization Act of 1977, 42 U.S.C. §§ 7101-7375 (1988).

98. *Id.* at § 7321(a)(1). The Act provides:

The President shall-

(1) prepare and submit to the Congress a proposed National Energy Policy Plan. . . as provided in subsection (b) of this section;

(2) seek the active participation by regional, State, and local agencies and instrumentalities and the private sector through public hearings in cities and rural communities and other appropriate means to insure that the views and proposals of all segments of the economy are taken into account in the formulation and review of such proposed Plan;

(3) include within the proposed Plan a comprehensive summary of data pertaining to all fuel and energy needs of persons residing in -

(A) areas outside standard metropolitan statistical areas; and

(B) areas within standard metropolitan statistical areas which are unincorporated or are specified by the Bureau of the Census, Department of Commerce, as rural areas.

*Id.*

99. *Id.* at § 7361(c). This section provides:

During the first calendar week beginning in February of 1982, and of every second year thereafter, the President shall transmit to the Congress reports regarding the energy targets transmitted during the preceding year.

the new Bush Administration and Congress intended to produce a plan consistent with the mandates of the EOA.

The onset of the Gulf War in 1991 underscored our national dependence on oil production. Despite constant proclamations by President Bush about the necessity of protecting the sovereignty of an independent nation, the United States was at war in the Persian Gulf largely over the control of three-quarters of the world's oil reserves.<sup>100</sup> According to energy analyst, Amory Lovins of the Rocky Mountain Institute, if one were to factor in the cost of United States military action expended to protect those reserves, the cost of a barrel of oil would triple.<sup>101</sup>

While the moment was ripe in early 1991 for an energy plan that focused on energy conservation, such a plan was not developed. Virtually all of the Department of Energy's conservation measures were deleted from the National Energy Strategy<sup>102</sup> when it was delivered in February of 1991. Also missing from the National Energy Strategy was the EOA's requirement that the Plan contain five and ten-year energy goals. Instead, increased domestic production of fossil fuels and continuation of the "successful" policy of market reliance were the centerpieces of the President's plan.

The President's 1991 Energy Plan, coupled with his National Transportation Policy<sup>103</sup> (which served as the basis for the Presi-

100. 137 CONG. REC. S1369-01 (1991). Senator Specter stated: We know that our very high dependency on Mideast oil has been a triggering factor in the war in the gulf at the present time, although I believe that our real purpose for being there is not the issue of oil and not the issue of jobs, but rather the concern about aggression, the threat to the national security of the United States posed by Iraq and the possibility that it may soon have nuclear weapons, and also our determination to see to it the collective security through the United Nations Resolution 678 is enforced.

*Id.*

101. AMORY B. LOVINS & L. HUNTER LOVINS, ROCKY MOUNTAIN INSTITUTE, MAKE FUEL EFFICIENCY OUR GULF STRATEGY 2 (similar version published in N.Y. TIMES, Dec. 3, 1990, A19.).

102. For a general discussion about the background and historic development of the National Energy Strategy, see Peter Bradford, *In Search of a New Energy Strategy*, 129 FORT. 10 (1992). The President's February, 1991 National Energy Strategy met with mixed reviews and criticism. As to the mention in the Strategy of alternative energy and auto fuels, Senator Bryan, who has previously sponsored legislation to raise the CAFE standards, remarked that they were only "gently nudged when a firm shove is required." Lori M. Rodgers, *Nes: A Mixed Bag Receives Mixed Reactions*, 127 FORT., Apr. 1, 1991, at 36. For a discussion of the CAFE standards, see *infra* notes 114-19 and accompanying text.

103. DEP'T OF TRANSPORTATION, MOVING AMERICA: NEW DIRECTIONS, NEW OPPORTUNITIES (1990) (sets forth "A Statement of National Transportation Policy: Strategies for Action").

dent's proposed "Surface Transportation Assistance Act of 1991"<sup>104</sup>), were completely out-of-step with some fundamental and unavoidable realities. Basic to any approach to energy or transportation planning is the fact that oil is a finite resource. One day, the earth will give up its last drop.

The President's Energy Plan calls for "environmentally sensitive production" of oil in certain areas of the Outer Continental Shelf and the Arctic National Wildlife Refuge.<sup>105</sup> The flaw in this plan is that environmentally sensitive oil production simply is not possible. Daily hydrocarbon and toxic emissions from one exploratory drilling rig can equal the emissions of 7,000 automobiles driving fifty miles.<sup>106</sup> Drilling a single well produces between 1,500 to 2,000 tons of largely-contaminated drilling mud and cuttings.<sup>107</sup> Waste water produced by drilling contains oil, cadmium, benzene, lead and other toxic substances - including radioactivity at levels above those which can be legally discharged from a nuclear power plant.<sup>108</sup> The degradation that attends Alaska's North Slope oil production includes: emission levels of NO<sub>x</sub> approximately equal to those found in Washington, D.C., annual emissions of 100,000 metric tons of methane (a potent greenhouse gas), permanent destruction of wildlife, 70,000 cubic yards of drilling waste daily, 450 open pits of toxic chemicals, billions of gallons of waste injected into the ground in a process known as deep-well injection and routine spills of oil and other

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104. H.R. 2950, 102nd Cong., 1st Sess. (1991). The purpose of the bill is to develop a national intermodal surface transportation system, to authorize funds for highway construction and to develop highway safety programs and mass transit systems. *Id.*

105. The question regarding whether the United States should attempt to avoid further dependency on the Middle East for oil by drilling in the ANWR has engendered huge debates. Senator J. Bennett Johnston attempted to push through energy legislation that included drilling in this area, but after much controversy, the legislation was defeated. Leonard S. Greenberger, *Rating the 102nd Congress*, 128 *FORT.*, Dec. 15, 1991, at 23. The predominant view in opposition to drilling in this area was espoused by Senator Albert Gore when he stated that we can not become more energy independent by drilling for and using more oil. 137 *CONG. REC.* S15733-04 (1991). Senator Gore further stated:

We are on a futile search for an energy source that we cannot seem to give up. This Nation needs an energy policy and not a drilling policy. We need a plan for more efficiency, not for more consumption. . . . Drilling in the Arctic National Wildlife Refuge, which is one of our Nation's most beautiful, most pristine wilderness areas, will not change that fact or make us less dependent on that oil.

*Id.*

106. Dwight Holing, *America's Energy Plan: Missing in Action*, 13 *AMICUS J.* (NAT. RESOURCES DEF. COUNCIL) 16 (1991).

107. *Id.* at 15.

108. *Id.*

contaminants.<sup>109</sup>

Present oil drilling and pipeline production represents just the cradle stage of oil as an energy source. Along the way, oil spills abound, not only in the transportation process, as demonstrated by the Exxon Valdez spill of 1989, but also each year as Americans improperly dispose of 400 million gallons of used motor oil into the environment.<sup>110</sup> This amount alone represents more than thirty-five Exxon Valdez oil spills.<sup>111</sup>

Despite all of the government's plans for developing domestic oil production, there is, in fact, only a nineteen percent chance that a commercially-viable oil field *even exists* in the Alaska National Wildlife Refuge.<sup>112</sup> The most optimistic projections are that the amount available could satisfy only about two to three percent of our current consumption.<sup>113</sup> There is an even smaller chance that Outer Continental Shelf regions contain commercially-viable amounts of oil.

The Bush administration is opposed to raising the Corporate Average Fuel Efficiency (CAFE) standard.<sup>114</sup> Use of the CAFE

109. *Id.* at 17.

110. 135 CONG. REC. H3684-04 (1989).

111. *Id.*

112. W.T. Goerold, Competition, Profitability, & Policy in Energy Industries, Paper presented at International Ass'n Energy Economics 10th Annual Conference (Oct. 31 - Nov. 2, 1988), available in DIALOG, Energyline File. See also 137 CONG. REC. S15733-04 (1991) (Experts at Dept. of Energy estimate that possibilities of extracting additional oil from ANWR and Outer Continental Shelf were "very small."). *Id.* at S15734 (statement of Sen. Gore). The debate about drilling in the ANWR in the face of such dubious projections was summed up by Senator Gore who stated that we cannot keep drilling empty holes looking for oil believing that sooner or later we will be secure. *Id.*

113. *Press Conference With Members of Congress*, Federal News Service, October 29, 1991, available in LEXIS, Nexis Library, OMNI File (statement of Sen. Lieberman). If oil is found in the ANWR it may give the U.S. three hundred and thirty thousand (330,000) barrels of oil per day for 15 or 20 years. *Id.* This is less than 2.5 percent of our daily oil consumption. *Id.* See also 137 CONG. REC. S15681 (1991) (statement by Sen. Durenberger). If ANWR contains 3.2 billion barrels of oil, the Department of Interior contends this would reduce our dependence on foreign oil to sixty five percent (65%). *Id.* at 15691. However, projected U.S. use in the year 2000, when ANWR would produce oil, would require us to import seventy percent (70%) from foreign markets. *Id.* Therefore, the maximum ANWR could reduce our dependency on foreign oil is five percent (5%). *Id.*

According to energy analyst Amory Lovins, if fuel efficiency standards were tightened by 3 MPG it would eliminate the need of the U.S. to import oil from the Persian Gulf. TED FLANIGAN & ELEANOR ALWYN, TRANSPORTATION: THE GRAND REDESIGN 36 (1990).

114. The CAFE standards were originally enacted in 1975 to foster fuel economy and conservation. 135 CONG. REC. S7251-02 (1989) (statement by Sen. Bryan). The controversial issue involved in maintaining high corporate average fuel economy for domestic and international automobile manufacturers has

standards from 1979 to 1985 greatly improved the fuel efficiency of United States automobiles.<sup>115</sup> However, in 1986, the Reagan administration rolled back the CAFE standards by 1.5 miles per gallon.<sup>116</sup> According to Lovins, this rollback wasted more oil than the total amount of oil the Bush administration estimates the Arctic National Wildlife Refuge will yield over the next thirty years.<sup>117</sup> A CAFE standard of forty miles per gallon would save almost three million barrels of oil per day,<sup>118</sup> more than ten times the total amount of oil potentially available in the ANWR.<sup>119</sup>

What all of this statistical information most clearly points out is that increased domestic production should be the option of last resort. Conservation is valuable, if only measured by each barrel of oil *not* burned as a result of efficiency improvements which actually cost less than burning oil. The popular concept of continued reliance on the free market is a myopic one. Total motor vehicle user fees (e.g., gas tax, tolls) do not begin to cover the infrastructure costs of our highway system.<sup>120</sup> Internalizing the external costs of motor vehicle use, including: health costs and agricultural and forest losses, gives "reliance on the free market" a whole new dimension.<sup>121</sup> The consequences of our love affair with the automobile suggest that the time has come for a new approach to energy and transportation planning, one that reflects the true "costs" of mobility.

## V. A PROPOSAL

Motor vehicle use has reached the saturation point in all

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slowed the passage of several bills through Congress. See, e.g., *Rating the 102nd Congress*, *supra* note 103, at 23. J. Bennett Johnston's energy legislation was defeated, and fellow Democrat Phil Sharp's comprehensive energy bills were passed out of his committee in the early part of last year primarily because of the "twin sticking points" of drilling in the ANWR and modifying the CAFE standards. *Id.*

115. See FLANIGAN & ALWYN, *supra* note 113, at 36.

116. *Id.* The 1986 rollback cut the CAFE improvement rate by eighty one percent (81%), placing it at a ten year low. *Id.*

117. *Id.*

118. Two point eight percent (2.8%) *Id.* at 24.

119. HR1029, 102nd Cong., 1st Sess., 137 CONG. REC. E3565-01 (1991) (statement by Rep. Skaggs).

120. R. Voith, Federal Reserve Bank, *Unequal Subsidies in Highway Investment: What are the Consequences?*, BUS. REV., Nov.-Dec. 1989, at 10.

121. These costs include police protection and lost lives. Rifkin, *supra* note 18, at 161 (48,000 deaths per year on United States highways). Other costs include lost productivity and additional health costs as a result of highway accidents. FLANIGAN & ALWYN, *supra* note 113, at 18 (1990) (health and property loss resulting from accidents is ten times the total from crimes of violence).

realms of the environment: air pollution, solid waste, land use, congestion and natural resource extraction for both building and running motor vehicles. What are the answers? One partial, but significant solution to most of these problems is mass transit, the step-child of the President's National Transportation Strategy, an afterthought in the Clean Air Act Amendments<sup>122</sup>, and a victim in the President's 1992 budget despite its relatively favorable treatment in the Intermodal Surface Transportation Efficiency Act.

If the focus were on moving people instead of moving vehicles, a reduction in air pollution, traffic fatalities and congestion immediately would follow. Mobility would not be curtailed. On average, one person commuting on mass transit for one year would save the environment 9.1 pounds of hydrocarbons, 62.5 pounds of carbon monoxide, 4.9 pounds of nitrogen oxides<sup>123</sup> and 200 gallons of fuel.<sup>124</sup> A mere ten percent increase in United States transit ridership would save 135 million gallons of gasoline.<sup>125</sup> In terms of CO<sub>2</sub>, that ten percent translates into 675 million pounds of the primary global warming gas not released into the atmosphere.

The shift to greater use of mass transit actually would enhance the United States economy. A major highway costs about \$120 million per mile to build, a bus lane can be built for \$4-\$12 million per mile and light rail can be built for \$10-\$20 million per mile while simultaneously providing permanent employment.<sup>126</sup> A surface rail line can carry the same number of passengers as a ten-lane highway.<sup>127</sup> In addition, a fully-occupied rail car is fifteen times more efficient than a commuter vehicle.<sup>128</sup>

A change in emphasis from highway construction to mass

122. The Clean Air Act mandates the state to adopt SIPs approved by EPA. 42 U.S.C. § 7410. These SIP's should include a transportation control plan which EPA hoped would be a mechanism to improve air quality through public transportation. See Weinberg, *supra* note 75, at 1532. However, this has proved to be an ineffective method of promoting public transportation use. *Id.* at 1533.

123. AMERICAN PUBLIC TRANSIT ASSOCIATION, MASS TRANSIT: THE CLEAN AIR ALTERNATIVE 2 (1989) [hereinafter THE CLEAN AIR ALTERNATIVE]. One person riding transit instead of driving saves ninety percent (90%) of the hydro emissions that produce smog and seventy percent (70%) of the emitted carbon monoxide. *Id.*

124. THE CLEAN AIR ALTERNATIVE, *supra* note 123, at 5.

125. *Id.* See generally Weinberg, *supra* note 75.

126. Chicago Tribune, *Budget Keeps Public Transit at Back of Bus*, CHI. TRIB. February 10, 1991, p.4.

127. See FLANIGAN & ALWYN, *supra* note 113, at 39.

128. AMERICAN PUBLIC TRANSIT ASS'N, PUBLIC TRANSIT: THE VEHICLE FOR CONSERVING ENERGY 5 (1991).

transit promotion, while adapting land-use policies that encourage high-density development patterns, would lower significantly per capita vehicle miles travelled as compared to current projections for the middle of the next century.<sup>129</sup> Mass transit, as a means of reducing gasoline consumption, not only can save energy, it provides a long-term option that complements the energy savings potential of more efficient vehicles.<sup>130</sup> Yet, despite the environmental and economic benefits of enhanced mass transit, United States transportation strategy has consistently and dramatically favored highway spending. Federal matching fund ratios for highways have been between seventy-five percent and ninety percent and for transit between fifty percent and sixty percent, thus making transit a less attractive spending option for local municipalities.<sup>131</sup> The newly reauthorized Transportation Act provides greater flexibility for states to use funds for transportation purposes that are consistent with their own needs.<sup>132</sup>

## VI. CONCLUSION

In the wake of present policies and trends, there now exists a golden opportunity for public interest groups to implement energy and transportation strategies that would inure to the long-term economic and environmental benefits of the United States. The efforts of these public interest organizations, however, have been constrained in recent years by provisions of the Federal Tax Code.<sup>133</sup> The Code provides that a charitable, educational or other tax-exempt organization jeopardizes its exempt status if a substantial part of its activities involves propagandizing or otherwise attempting to influence legislation.<sup>134</sup> Faced with this threat

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129. David B. Goldstein & John W. Holtzclaw, *Transportation: Mass Transit*, 16 EPA J., Mar.-Apr. 1990, at 28.

130. *Id.* Mass transit, in the long-run, saves more than just energy because public transit systems are less expensive than highway development and other facilities for personal vehicle travel. *Id.* For a discussion of the costs associated with highway construction and the comparison between these costs and those related to developing a mass transit system, see *supra* notes 125-27 and accompanying text.

131. *See, e.g.*, 138 CONG. REC. S2529-01 (1992); 137 CONG. REC. S10287-02 (1991); 137 CONG. REC. S7679-02 (1991).

132. 137 CONG. REC. S6226 (daily ed. May 21, 1991) (statement of Sen. Warner). The Reauthorized Surface Transportation Act should "encourage and assist State and local governments to exercise initiative and innovation in responding to intra-regional transportation needs." *Id.* at S6234.

133. I.R.C. § 503(c) (West 1990).

134. *Id.* at § 504(a)(2). This section provides generally that an organization which is not considered a § 501(c)(3) charitable organization by reason of "carrying on propaganda, or otherwise attempting, to influence legislation, or by

to their continuing viability public interest organizations now have two basic options: to litigate after-the-fact in an attempt to overturn new strategies and policies, or to disseminate information about these environmental issues in ways that may influence public policy and legislators.

Litigation is not a realistic answer in many cases. Litigation costs often are prohibitive and the results obviously are never guaranteed. Even when public interest organizations can succeed on the merits, the price-tag for victory may be prohibitively high.

The latter option of influencing public policy is more consistent with the purposes and goals of most public interest environmental organizations. Perhaps the core belief of such organizations was summed up best by Senegalese conservationist Baba Dioum: “[i]n the end we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught.”<sup>135</sup> For this very reason, real change can only occur from the bottom up, from the grassroots.

Public interest organizations have very limited financial resources to fuel their efforts. They are not obligated to answer to corporate interests. Their actions are taken in the public interest. Environmental advocates pursue actions consistent with the goals of enacting legislation designed to halt the mounting effects of environmental degradation.

Where public health and environmental protection are at stake, public interest organizations must be there to generate both public concern and legislative awareness. The specific tasks for the environmental advocate span the spectrum from challenging legislation in the courts, to educating public officials in order to foster true environmental stewardship. The task is always daunting, but without such efforts, our nation’s public health and environmental quality will be compromised severely.

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reason of participating in, or intervening in, any political campaign on behalf of (or in opposition to) any candidate for public office,” shall not be entitled to tax-exempt status.

135. Douglas Martin, *A Child’s-Eye View*, N.Y. TIMES, July 19, 1991 at C1.



