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## The U.S. "Clean" Fuels Program: Imperatives and Prospects

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DAVID B. RIVKIN, JR.\*

## INTRODUCTION

Ever since the days of the Model-T Ford, the automobile has been much more than a means of transportation; it has become an integral part of the American dream. Car ownership afforded the type of lifestyle that corresponded to such quintessential American traits as mobility and independence. The spread of interstate highways and the growth in the automobile inventory have transformed the nature of the American economy and society. However, as is the case with most types of human endeavors, our love affair with the automobile along with the positive economic and social results also entailed environmental and energy costs. These concerns have prompted some pundits to propose dramatic changes in the way Americans live, work, and relax—mandating major increases in automobile fuel efficiency, imposing taxes and steep fees designed to discourage car ownership and driving, and investing heavily in mass transit and urban planning measures that would decrease the need to use passenger cars for commuting, shopping, etc. The problem with all of these proposals is that, in addition to being inordinately costly, they would greatly interfere with the lifestyle of millions of Americans and would require heavy-handed government regulation to implement. Fortunately, such draconian measures are also unnecessary. The real challenge we face is determining how to develop the transportation sector in the United States in a way that comports with sound environmental and energy security imperatives, yet avoids undue social and economic dislocation. Since greater use of alternative fuels provides a cost effective remedy to environmental and energy security problems, it is certain to become a key component of the U.S. transportation sector.

### I. MOBILE SOURCES: IMPACT ON AIR QUALITY AND ENERGY SECURITY

In the United States, passenger cars and light trucks generate most of the emissions of carbon monoxide (CO) as well as large amounts of ozone-

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forming hydrocarbons (HC),<sup>1</sup> and nitrogen oxides (NO<sub>x</sub>), and air toxics. Emissions of aromatics<sup>2</sup> from automobiles are believed to increase risks of contracting various types of cancer. To deal with these problems, the United States already imposes emissions controls on motor vehicles that are among the most stringent in the world.<sup>3</sup> In addition to tailpipe emissions controls, federal regulations prescribe standards for numerous additional types of automotive and refueling equipment that impact the overall environmental performance of vehicles.

Driven in part by these regulatory imperatives, as well as by technical innovation, the automobile industry has developed numerous contraptions that have beneficial environmental impacts. These devices include catalytic converters, electronic feed back controls, fuel injection systems, and controls to prevent gases from escaping from the engine's crankcase. Meanwhile, even more stringent environmental regulations are on the way. For example, proposed regulations will require on-board evaporative canisters, designed to reduce evaporative emissions during the vehicle refueling. The regulations also will address the "cold start" problems which occur because cars emit disproportionately large amounts of pollution right after start up and before the catalytic converter and other parts of their pollution control equipment have had a chance to heat-up and become effective.<sup>4</sup> In addition, since old, poorly maintained vehicles emit a disproportionate level of emissions, the new regulations will mandate enhanced inspection and maintenance (I/M) programs.<sup>5</sup>

Despite these impressive efforts, ozone-forming vehicle emissions have continued to grow. This is primarily attributable to two factors: (1) an increase in the number of miles traveled—from one trillion miles in 1970,

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1. Generally, mobile sources emit approximately fifty percent of HCs, over half of all air toxics, and ninety percent of CO.

2. The term "aromatics" generally describes a particular category of hydrocarbons. The aromatics tend to be highly reactive when exposed to sunlight or possess highly toxic qualities, injurious to human health. The three most common aromatics are benzene, toluene, and xylene, referred to collectively as BXT.

3. According to industry data, since 1970, HC and CO emissions have decreased by ninety-six percent and NO<sub>x</sub> emissions by seventy-six percent.

4. For a useful discussion, see generally Wald, *Researchers Act to Cut Auto Pollution Further*, N.Y. Times, Mar. 27, 1991, at D8, col. 1.

5. I/M programs are designed to ensure that the environmental control equipment on cars does not deteriorate over the useful life of the vehicle. This is important because the environmental performance of vehicles is totally dependent upon properly functioning emissions controls. Indeed, even relatively minor malfunctions in emissions control equipment cause tremendous increases in an automobile's emissions. Not surprisingly, according to Environmental Protection Agency (EPA) data, ten to thirty percent of "dirty" cars are generating more than fifty percent of the overall mobile source-related pollution. See also *Roadside Emissions Test Targets Prime Offenders*, CHEMICOLOGY, Nov. 1990, at 10-11. In Southern California alone, older vehicles (pre-1975 cars and pre-1980 trucks) "make up only 15 percent of the cars on the road and 10 percent of the total miles traveled . . . [but] account for 30 percent of the vehicular pollution." L. Cook, 'EC' Fuels Lay Foundation for Cleaner Gasolines, FUEL REFORMULATION, Sept.-Oct. 1991, at 10. Significantly, poorly functioning environmental control equipment also causes an appreciable decrease in fuel economy.

to two trillion miles in 1990; and (2) the continuing expansion of the overall size of the vehicle fleet. A lesser, albeit still important, contributor is the growth in the fuel evaporative emissions, caused by substituting relatively volatile and reactive high octane blending components for lead in gasoline.

Increasing vehicle emissions, coupled with the growing costs of vehicular pollution control equipment which make further marginal environmental improvements ever more costly, have resulted in an increased focus on improving fuels. The goal of enhancing the environmental quality of automotive fuels<sup>6</sup> can be achieved by making gasoline environmentally cleaner and by utilizing alternative fuels. The pursuit of these twin objectives, cleaner gasoline and alternative fuels, helped shape the key provisions of the Clean Air Act Amendments of 1990 (CAAA)<sup>7</sup> and the Administration's National Energy Strategy legislation (NES).<sup>8</sup>

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6. The general impression held by the environmental community is that over the last two decades, with the notable exception of the lead phase-out, the environmental quality of gasoline has not improved nearly as much as the environmental quality of automotive equipment. Indeed, one can argue that, as a result of adding the aromatic compounds to gasoline as the octane enhancing agents in lieu of lead, the gasoline has become environmentally "dirtier." "Aromatics now comprise by volume approximately 35% of all gasoline sold in the United States, up from about 22% in 1971. This trend is the direct result of oil company efforts to market higher-octane gasolines. Many premium grades contain as much as 45% aromatics." Rothschild, *The Knock on High-Octane Gasoline*, Wash. Post, Feb. 18, 1990, at B3. There are, of course, some exceptions to this trend. ARCO, for example, has been the industry's leader in introducing cleaner fuels, first with the EC-1 Regular in 1989, and the EC-Premium in 1990. Cook, *supra* note 5.

7. Pub. L. No. 101-549, 104 Stat. 2399 (1990) (amending various sections of 42 U.S.C.) [hereinafter CAAA].

8. The NES consisted of a detailed report and a number of technical annexes, some of which are still being worked on. NATIONAL ENERGY STRATEGY: POWERFUL IDEAS FOR AMERICA (1991-1992). In addition, to implement those recommendations that required legislation, the Administration sent to Congress the NES legislation. The elements of NES that require legislative action were introduced in the House of Representatives as H.R. 1301, 102d Cong., 1st Sess. (1991), and in the Senate as S.570, 102d Cong., 1st Sess. (1991). Hereinafter, the terms NES and H.R. 1301 will be used interchangeably. The prospects for the legislation are uncertain. To be sure, the Senate Committee on Energy and Natural Resources reported out a bill, S. 1220, that was substantially similar to the NES legislation. As a result of a filibuster on the Senate floor, however, this bill failed to be considered by the full Senate.

The filibuster was attributable to two of the most politically controversial portions of S. 1220: (1) drilling in the Arctic National Wildlife Refuge (ANWR), and (2) failing to mandate increases in Corporate Average Fuel Efficiency (CAFE). For a discussion of CAFE issues, see *infra* note 38. Rather than mandate raising the CAFE standard from 27.5 miles per gallon (mpg), a move advocated by many Congressional Democrats, S. 1220 would have only required the Department of Transportation (DOT) to carry out a study of the "maximum feasible fuel economy achievable" for automobiles and light duty trucks, beginning with model year 1996. S. 1220, 102d Cong., 1st Sess. §§ 3102-3107 (1991). It is conceivable that the proponents of this legislation may attempt to break the filibuster in the future or resubmit a somewhat truncated version of S. 1220. For a discussion of this issue, see, e.g., *Year Begins With Bang Abroad, Ends With Whimper at Home*, CONG. Q. WKLY., Dec. 7, 1991, at 53.

In the House, H.R. 1301, has not seen any substantive legislative action. Instead, Congressman Phillip R. Sharp (D.-Ind) drafted and submitted a bill, H.R. 776, 102d Cong., 1st Sess. (1991), which drew in part on some provisions of H.R. 1301. So far, H.R. 776 has been marked up only by the Subcommittee on Energy and Power of the House Energy and Commerce Committee. It was sent to the full committee on October 31, 1991. In addition, since the House Energy and Commerce Commission does not have jurisdiction over some of the original components of H.R. 1301 such as ANWR, to get a comprehensive energy bill to the House

Furthermore, in addition to the need to ameliorate environmental problems attributable to mobile sources, the Administration's thinking on energy issues has been keenly affected by the fact that the transportation sector is a major user of petroleum products.

[Petroleum products account for 99 percent of] all transport energy consumption. In 1989, oil consumption accounted for 43 percent of the OECD's [Organization for Economic Cooperation and Development] total primary energy requirements, and roughly half of this went to meet demand in the transport sector. Moreover, demand for oil is becoming increasingly concentrated in the transport sector, having risen from 41 percent to 51 percent of total primary oil requirements between 1980 and 1989. Road transport accounted for over 80 percent of this total in 1989. . . . Transport energy demand has grown faster over the last decade than any other end-use sector, with an average growth rate of 2.1 percent p.a. [per annum] compared to virtual stagnation in other final consumption sectors. This rapid expansion was driven by vehicle fleet expansion and rising levels of average distance travelled, which together more than offset the significant gains made in vehicle fuel efficiency.<sup>9</sup>

Given these figures, any effort to decrease U.S. petroleum consumption in general, and oil imports in particular,<sup>10</sup> must include the transportation sector.

The NES pays particular attention to this problem, proposing, among other things, an ambitious alternative fuel program. Since the NES is not the first governmental effort in this area,<sup>11</sup> special care has been taken to ensure that

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floor, action by other committees would be required.

9. J. Brady, *Alcohol Fuels in Transport—the International Perspective* (paper presented at the IX International Symposium on Alcohol Fuels, Nov. 12-15, 1991, Florence, Italy).

10. According to figures from the Energy Information Administration (of the Department of Energy (DOE)), approximately fifty percent of the oil needs of the United States are provided by imported oil. The cost of imported oil and petroleum products in 1990 contributed about \$54 billion to the \$100 billion trade deficit of the United States.

11. Alternative Motor Fuels Act of 1988 (AMFA), 42 U.S.C. § 6374 (1988) required, beginning in September 1990, that the DOE ensure "that the maximum number practicable of the passenger automobiles and light duty trucks acquired annually for use by the Federal Government shall be alcohol powered vehicles, dual energy vehicles, natural gas powered vehicles, or natural gas dual energy vehicles." *Id.* § 6374(a)(1). AMFA stated that the test for what was "practicable" would be an initial cost which did not exceed the cost of a gas powered car by greater than 5%. *Id.* § 6374(a)(2). DOE, in cooperation with EPA and the National Highway Traffic Safety Administration (NHTSA), was directed to conduct a study on the performance, safety and maintenance cost of these vehicles and to report the results to Congress annually. *Id.* § 6374(b)(1)(A) and (B).

AMFA further provides that "upon the request of the head of any agency of the Federal Government, the Secretary shall ensure that such Federal agency be provided with vehicles acquired under subsection (a) of this section to the maximum extent practicable." The funds appropriated under AMFA are to be used to make up the difference between the cost of a gas

consistent regulatory requirements are imposed on the industry. Thus, the alternative fuel provisions of H.R. 1301 were drafted to be fully compatible with the alternative fuel provisions of the CAAA. Stated differently, neither the CAAA nor NES imposes inconsistent requirements on any party. Therefore, complying with one set of statutory mandates would not hinder compliance with the other.

There are, however, certain important differences between the CAAA and H.R. 1301. The NES was driven primarily by the imperatives of energy security. Paramount to energy security is the need to reduce reliance on petroleum in general, and imported oil in particular. Environmental considerations, while important, were clearly secondary to the energy security objectives. By contrast, the CAAA strictures were exclusively

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powered vehicle and one powered by alternative fuels. AMFA provided for the appropriation of \$18 million over three years to be administered by the DOE through the General Services Administration (GSA). AMFA will terminate in 1997. *Id.* § 6374(i). AMFA has led to modest acquisitions of alternative fuel vehicles. Early in 1991, GSA acquired light-duty flexible-fuel vehicles (FFVs) from Ford and GM. See *infra* note 57 for a discussion of differences between FFVs and dedicated alternative fuel vehicles. Recently, GSA purchased 50 compressed natural gas (CNG) vans from Chrysler and 200 additional light-duty FFVs are in the process of being acquired.

On April 7, 1991, in partial fulfillment of both the NES commitment to increased alternative fuel usage and the provisions of AMFA, the President signed Executive Order 12759, 56 Fed. Reg. 16257. The Executive Order directs all Federal agencies to reduce energy consumption and sets a goal of a 10% reduction (from the 1991 baseline) in vehicle fuel consumption by 1995. To meet that goal, the Executive Order, in Section 10, requires the use of alternative/blended fuels and also provides that agencies which use alternative fuels "shall receive credit for such use." Section 11 directs the DOE to "ensure that the maximum number practicable of vehicles acquired annually are alternative fuel vehicles as required by AMFA." And, it specifically requires that, subject to availability of appropriations for this purpose, "the maximum number practicable of alternative fuel vehicles, produced by original equipment vehicle manufacturers, shall be acquired; by the end of the model year 1995." The Executive Order states that these goals are to be met "within approved agency budget totals."

The executive branch is spending considerable resources on various alternative fuel vehicle demonstration programs. For example, in FY 1991 and FY 1992, \$5.15 million is being spent on light-duty vehicle demonstration program. The costs of the bus demonstration programs for the same period is \$2 million, while the heavy duty vehicle demonstration program is being funded at the level of \$4.4 million. The funds are being used to pay the incremental costs associated with purchase of engines, retrofitting of vehicles, costs of fuels, collection of necessary data and training. The demonstrations are being conducted around the country and utilize the full range of alternative fuels. To disseminate data about alternative fuels to all interested parties, the Alternative Fuels Data Center is being established at the Solar Energy Research Institute, a DOE-sponsored think-tank. In addition, funding is being provided to establish regional research centers, that can focus on specific alternative fuels. These funding programs aside, there is the Interagency Commission on Alternative Fuels assisted by the Alternative Fuels Advisory Council. Both were set up by Senator Jay Rockefeller's bill, which sought to establish a national alternative fuels policy by September 1992.

For a comprehensive description of the government's alternative fuel efforts see generally FIRST INTERIM REPORT OF THE INTERAGENCY COMMISSION ON ALTERNATIVE MOTOR FUELS (1990); SECOND INTERIM REPORT OF THE INTERAGENCY COMMISSION ON ALTERNATIVE MOTOR FUELS (1991). Furthermore, President Bush often has expressed his personal commitment to alternative fuels.

California Western Law Review, Vol. 28 [1991], No. 1, Art. 8 shaped by environmental considerations,<sup>12</sup> albeit distilled through a protracted and contentious political process.<sup>13</sup> The NES also benefitted from the experience accumulated by the Administration in the course of the enactment and implementation of the CAAA.

## II. CLEAN AIR ACT AMENDMENTS OF 1990: AN UNCERTAIN ALTERNATIVE FUELS MANDATE<sup>14</sup>

Contrary to popular misconceptions, the CAAA does not expressly mandate the use of alternative fuels.<sup>15</sup> Rather, the legislation is fuel neutral. Any combination of vehicles and fuels that meets the relevant mandated tailpipe emissions requirement complies with the CAAA. To be sure, the CAAA requires that particularly stringent environmental standards be met by certain classes of vehicles that operate on clean fuels.<sup>16</sup> A "clean fuel vehicle" is defined as "a vehicle in a class or category of vehicles which has been certified to meet" applicable clean fuel emission standards.<sup>17</sup>

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12. This is somewhat of an oversimplification. Some individual provisions of the Clean Air Act incorporate energy considerations. *See, e.g.*, 42 U.S.C. § 7408(f)(2)(c) (which requires the EPA to consider "the environmental, energy, and economic impact of such processes, procedures and methods" when it issues guidance to the states on transportation control measures (TCM), procedures, etc.). It is also the case that the CAAA's clean fuel programs have positive energy security impacts. According to EPA estimates, "a minimum of 310,000 barrels of oil per day will be displaced in 2010 as a result of . . . [CAAA]. If a large number of cities choose to join the reformulated gasoline program and non-petroleum fuels are used in some of the California fleet vehicles, oil displacement could increase to about 700,000 barrels per day." Testimony of Richard D. Wilson, Director, Office of Mobile Sources, Office of Air and Radiation, EPA, before the Subcommittee on Energy and Power, of the Committee on Energy and Commerce, U.S. House of Representatives, April 16, 1991.

13. The fact that it took 13 years to move from the relatively modest 1977 amendments of the 1970 Clean Air Act to the comprehensive and ambitious rewrite in 1990 underscores the extent of political obstacles that had to be overcome. In the end, it was the personal commitment of the President and an all-out effort launched by the Administration that helped break the congressional logjam. To be sure, the passage of the CAAA was eased by the fact that there was strong bi-partisan support for the measure by the leadership in both houses of Congress.

14. It should be kept in mind that the CAAA is much more than alternative fuels and clean vehicle programs; out of seven major Titles of the Act, only Title II deals with cars and fuels. However, this Article deals solely with those CAAA strictures that pertain to clean fuels and vehicles.

15. In general, the EPA is conducting three types of environmental improvement projects for automobile gasoline-based fuels. These are the reformulated gasoline fuel efforts (which initially apply to nine cities that have the worst ozone problem, with the possibility of additional areas—up to 30—opting-in, and are effective starting in 1995); rulemaking to decrease fuel volatility to reduce evaporation of smog causing compounds (effective in 1992); and oxygenated gasoline standards (effective in Nov. 1992), applicable in 41 areas that have a CO non-attainment problem. All gasoline sold during the winter months in these areas must contain at least 2.7% by weight of oxygen.

16. A "clean fuel" is defined by the CAAA as "any fuel (including methanol, ethanol, or other alcohols (including any mixture thereof containing 85 percent or more by volume of such alcohol with other fuels), reformulated gasoline, diesel fuel, natural gas, liquified petroleum and hydrogen) or any power source (including electricity) that is used in a clean fuel vehicle." CAAA, *supra* note 7, § 229(a); 42 U.S.C. § 7581(2).

17. CAAA, *supra* note 7, § 229(a); 42 U.S.C. § 7581(7).

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Section 246 of the CAAA applies the clean fuel vehicle standards to vehicles in covered fleets. A "covered fleet" contains 10 or more vehicles (not including certain types of vehicles, such as off-road vehicles), that are owned by a single person and are located in certain geographic areas.<sup>18</sup> These areas presently include twenty-two serious, severe, or extreme ozone non-attainment areas<sup>19</sup> and CO non-attainment areas with a CO design value exceeding 16.0 parts per million.<sup>20</sup> The CAAA directs that each state containing part or all of such a non-attainment area must submit a State Implementation Plan (SIP) revision which establishes a clean fuel program for covered fleets. Specifically, section 246 prescribes that a SIP revision must require that a specified minimum percentage<sup>21</sup> of all new covered fleet vehicles in model year 1998 and thereafter, purchased by covered fleet operators, must be clean fuel vehicles and must use, when operating in the covered area, clean fuels that result in meeting CAAA mandated emission standards.<sup>22</sup>

To ensure that fleet operators are able to obtain the clean fuels they need, the CAAA provides that a SIP revision "shall require fuel providers to make clean alternative fuel available to covered fleet operators at locations at which covered fleet vehicles are centrally fueled."<sup>23</sup> In lieu of purchasing new vehicles, existing conventional vehicles can be converted to meet clean fuel vehicle standards.<sup>24</sup>

The applicable CAAA clean fuel vehicle emission standards are stricter than those in force for conventionally fueled vehicles.<sup>25</sup> There also are low-polluting fuel requirements for urban buses that feature a stringent particulate standard, effective in 1994. If such a standard can not be met using gasoline, buses would have to rely on alternative fuels.

Finally, section 249 of the CAAA establishes "a pilot program in California to demonstrate the effectiveness of clean fuel vehicles in

18. CAAA, *supra* note 7, § 229(a), 42 U.S.C. § 7581(5).

19. These cities include, for example: Los Angeles, Houston, New York City, Milwaukee, Baltimore, Philadelphia, most of Connecticut, San Diego, and Chicago.

20. There is only one such area—Denver. Those areas in which mobile sources do not contribute significantly to CO exceedances are excluded.

21. That percentage is thirty percent for 1998, fifty percent for 1999, rising to seventy percent by the year 2000 and thereafter.

22. Beginning in 1998, clean fuel vehicles must meet tailpipe emission standards that are approximately one-third of those for regular passenger cars. According to EPA estimates, in 1990, there were approximately 3.5 million vehicles subject to the CAAA fleet provisions.

23. CAAA, *supra* note 7, § 229(a), 42 U.S.C. § 7586(e).

24. CAAA, *supra* note 7, § 229(a), 42 U.S.C. § 7587.

25. It should be noted that improved environmental performance is expected of conventional vehicles as well. By 1996, these would have to emit forty percent less HC and sixty percent less NO<sub>x</sub> as compared to the 1981 baseline. By the year 2003, an even more stringent standard called Tier II—another fifty percent reduction in tailpipe emissions—may become applicable to conventional vehicles. However, the introduction of Tier II tailpipe standards is not automatic. The CAAA mandates an EPA study to ascertain whether tightening the Tier I tailpipe standards is required to ensure attainment for CO and ozone.



controlling air pollution in ozone non-attainment areas.”<sup>26</sup> The program applies only to light-duty trucks and vehicles. It mandates that a certain number of these clean fuel vehicles must be produced, sold, and distributed to ultimate purchasers, including consumers and covered fleet owners, in California. This aspect of the CAAA reflects the recognition by the executive branch and Congress that California was certain to develop a comprehensive program directed at producing clean fuels and cars, and that the federal government should ensure that California was able to accomplish these objectives.<sup>26</sup> A number of other states, including Texas, Illinois, and twelve Northeastern states are likely to adopt the California standards. It should be noted, however, that as compared to California’s own efforts, opt-ins by other states to the California pilot program are likely to be somewhat more difficult to implement. The key problem is that the opt-ins would not increase the CAAA-based mandates to produce and distribute alternative fuels and vehicles that would continue to apply only to California. Thus, the opt-in states would have to develop their own sets of incentives and mandates—a rather difficult proposition.

The seriousness of the Administration’s CAAA efforts is underscored by the fact that all of the Title II requirements are not hortatory. Indeed, underpinning these obligations are strong enforcement provisions. The CAAA, as distinct from the NES legislation, does not have many separate enforcement provisions applicable to clean fuel vehicle requirements. However, these requirements, when incorporated in various SIPs and thereby made applicable to certain covered fleets, would subject those fleet operators to a host of the generic CAAA enforcement provisions set forth in Title VII.

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26. By now, California has the largest alternative fuels program of any state in the U.S. Indeed, it dwarfs the federal fleet program described, *supra* note 11. It is driven by severe air quality problems that afflict California in general, and the Los Angeles Basin in particular. The latter suffers from major ozone non-attainment problems, with ozone levels occasionally rising to levels three times higher than the National Ambient Air Quality (NAAQ) standard for ozone. The Basin also fails to comply with the NAAQs for CO and particulates (PM-10). The program, recently released by the California Air Resources Board (CARB), features separate reformulated gasoline standards, with Phase I requirements becoming effective in 1992 and Phase II in 1996. Since the federal reformulated gasoline standards have no preemptive force, the California reformulated gasoline program will coexist with the federal requirements. The California program also contains various clean car mandates. Specifically, by 1999, two percent of all new cars sold in California (40,000 vehicles) must be totally pollution free—Zero Emission Vehicles (ZEV); by 2003, the ZEV figure rises to ten percent (200,000 vehicles). Recognizing that only electric cars can presently fulfill this requirement, this aspect of the California program amounts to an electric car mandate. Since the Achilles’ heel of electric cars is their battery, the federal government is supporting a \$260 million research project, Advanced Battery Research Consortium, undertaken jointly by the Big Three automakers (General Motors, Chrysler, and Ford), utilities, and battery manufacturers. In addition, beginning in 1996, automobile companies annually must sell in California 150,000 Low Emission Vehicles (LEVs); by 1999, the LEV number must rise to 300,000. California LEVs have performance standards that are stricter than the federal Tier II tailpipe standards.

### III. THE CAAA'S ALTERNATIVE FUELS SCORECARD

The CAAA, including Title II provisions, has been implemented in a manner which involves an unprecedented degree of public participation. Specifically, a large number of advisory committees have been set up to advise the EPA on how to implement the Clean Air Act.<sup>27</sup> In addition, the EPA has been using the "regulation negotiation" (reg-neg) process as a strategy to expedite the lengthy and contentious proceedings associated with the traditional "notice and comment" rulemakings.<sup>28</sup>

Moreover, CAAA-related rulemakings have been developed with a high degree of interagency cooperation. Besides the EPA, GSA, DOE and DOT have played significant roles in the rulemaking process for alternative fuels and vehicles. There also has been an unprecedented degree of high-level Administration involvement, with a number of senior White House and Office of Management and Budget (OMB) officials participating, and with internal deliberations influenced heavily by economic analysis. The CAAA rulemakings themselves often include features that are relatively novel in environmental protection schemes, such as banking and trading systems and emission "bubbles," all designed to ensure that pollution reductions are obtained in the most cost-effective fashion.<sup>29</sup> All of these measures have been designed to reduce the economic costs and overall regulatory burden associated with obtaining the necessary environmental benefits.

The CAAA also prompted a number of indirect benefits. The alternative fuels industry has perceived the Act's passage as the key manifestation of the government's dedication to making clean fuels an important part of the nation's environmental and energy policy. Consequently, investment in clean fuels-related research and infrastructure has increased appreciably.<sup>30</sup>

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27. There are five formally established advisory committees as well as dozens of informal working groups and round tables used by the EPA to assist in the CAAA implementation. For an excellent description of how the EPA sees the CAAA implementation process, see generally *The New Clean Air Act: What It Means to You*, E.P.A. J. (Jan.-Feb. 1991) (entire issue is devoted to CAAA).

28. As described in a recent article on this subject, "[r]eg-neg brings affected parties together to craft regulations on a consensus basis. This approach can theoretically avert litigation once a regulation is issued. The parties involved in the reg-neg process typically include environmentalists, the regulated industry, and state and federal regulators." S. DUBOFF & K. FLANERY, REG-NEG/RULEMAKING BY CONSENSUS: THE EPA EXPERIENCE (Nov. 1991).

29. As one example of this approach, the August 16, 1991 agreement reached by the reformulated gasoline reg-neg provides the refining industry with flexibility by allowing averaging of all reformulated gasoline parameters. If such averaging was not allowed, the refineries' ability to produce high octane gasoline would have been uncertain. Special care also was taken to ensure that anti-dumping and fuel certification requirements were simple and avoided onerous record-keeping procedures.

30. There is, finally, progress being made by the Big Three automobile makers, with Ford leading in the production of alternative fuel vehicles. The Big Three are expected to commence commercial vehicle production by 1992-1993, featuring CNG vehicles and alcohol powered FFVs. As far as the heavy-duty vehicles, trucks, and buses are concerned, such companies as Detroit Diesel, Caterpillar, and Cummins Engines are readying production of commercially

Unfortunately, the CAAA also had some negative effects. In the course of the legislative debates, bitter disagreements broke out among different segments of the transportation sector,<sup>31</sup> and even among providers of various alternative fuels. The legacy of these polarizing discussions still lingers. Some observers, including certain members of Congress, have construed the evolution of the CAAA's clean fuel provision as evidence that more stringent alternative fuel requirements are not politically feasible and that further inroads by alternative fuels would have to come, if at all, only through the operation of free market forces.

Ultimately then, the CAAA appears to have fallen short of the President's originally proposed mandates for alternative fuels.<sup>32</sup> The most significant problem is that the CAAA does not require the clean fuel emission standards to be met by the use of alternative fuels.<sup>33</sup> The CAAA's reformulated gasoline requirements would result in impressive environmental gains. Indeed, by the year 2000, virtually all of the gasoline sold in the United States would be reformulated. However, the reformulated gasoline program neither advances the use of alternative fuels nor helps create a more level playing field for various categories of automotive fuels. The CAAA also does not extend alternative fuel usage mandates to fleets situated outside of the twenty-two non-attainment cities. Finally, the CAAA does not result in the introduction of alternative fuel powered vehicles,<sup>34</sup> even in the twenty-two non-attainment cities, as early as would have been the case under the President's original proposals. The knowledge of both the CAAA's strengths and weaknesses helped shape the Administration's approach in developing the alternative fuels provisions of the NES.

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available ethanol, methanol, and CNG powered vehicles by 1992-1993. Meanwhile, Atlas Energy Corp., a Texas based company, just opened up the first public CNG refueling network in the United States. There are approximately 328 CNG refueling stations, operating in 40 states. Sixteen gas utilities offer incentive rates for gas used in CNG vehicles. I am indebted for this information to the Natural Gas Vehicle Coalition, a Washington D.C.-based umbrella organization of some 129 companies. See also DIRECTORY OF NATURAL GAS VEHICLE REFUELING STATIONS, PRODUCTS AND SERVICES, American Gas Association, Rosslyn, Virginia, Feb. 1991. See also *infra* note 55.

31. See generally Weisskopf, *Industries Dance With the Devil on Cleaner Air*, Wash. Post, Dec. 24, 1990, at A13.

32. The President's original bill contained alternative fuel provisions which, while applicable to only nine cities, would have required annual production of large numbers of alternative fuel vehicles—one million cars by 1997.

33. During the legislative phase of the CAAA, it was widely believed within the executive branch that the clean fuel car standards could only be met by the use of alternative fuels. By now, however, it appears that the use of reformulated gasoline and of a preheated catalyst, or even reformulated gasoline alone, could ensure compliance with these standards. Thus, it is difficult to estimate how many alternative fuel vehicles would be produced as a result of these requirements. Even Tier II tailpipe standards, should they be triggered by 2003, could probably be met without using alternative fuels.

34. The only exception is the California Pilot Program, that is certain to result in production of alternative fuel vehicles and associated infrastructure.

#### IV. THE NATIONAL ENERGY STRATEGY: THE NEXT STEP FOR THE ALTERNATIVE FUELS PROGRAM

The NES was developed by the DOE in cooperation with other executive branch agencies and departments.<sup>35</sup> This effort was launched at the express request of the President, who, on July 26, 1989, asked the Secretary of Energy to spearhead the NES preparation. At the time, the President described the Administration's goals as follows: "We must balance . . . among our increasing need for energy at reasonable prices, our commitment to a safer and healthier environment, our determination to maintain an economy that is second to none, and our goal to reduce dependence by ourselves and our friends and allies on potentially unreliable energy suppliers."<sup>36</sup> To accomplish these objectives, the NES contains a number of initiatives, some of which can be implemented administratively and others which require legislation directed at both the supply and the demand sides of the overall energy equation.

The NES is realistic in accepting the premise that, for the foreseeable future, both the United States and the rest of the world will continue to rely heavily on petroleum and petroleum products. However, the strategy seeks to manage and decrease this reliance by taking a number of steps that would diminish the need for petroleum, diversify imported energy supplies, and use more U.S. domestic energy resources. The NES initiatives, if fully implemented, are projected to reduce, by the year 2010, the U.S. need for petroleum by 3.4 million barrels per day, and increase domestic oil production by 3.8 million barrels per day. Since the transportation sector is a major consumer of oil, it also must be a major target of these projected savings in oil demand.<sup>37</sup>

It has become almost an article of faith among the environmental *cognoscenti* that the only proper way to conserve energy in the transportation sector is by promulgating ever more restrictive CAFE standards.<sup>38</sup> This,

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35. The NES was developed with strong public participation, involving eighteen public meetings, 450 witness presentations, and about one thousand written submissions.

36. NATIONAL ENERGY STRATEGY, *supra* note 8, at 2.

37. According to Energy Information Administration data, in 1971, 41.7 percent of the total U.S. energy consumption was satisfied by oil, with the transportation sector responsible for consuming approximately 53 percent of all oil used in the United States. By 1990, oil was providing only 41 percent of the total U.S. energy needs, with some 17 million barrels of oil consumed per day. However, now 64 percent of the U.S. oil consumption is centered in the transportation sector, which remains totally dependent on petroleum and petroleum-based products.

38. CAFE standards were enacted as part of the Energy Policy and Conservation Act of 1975 (EPCA), Pub. L. No. 94-163, 89 Stat. 871 (1975) (amending various sections of 42 U.S.C.) which amended the Motor Vehicle Information and Cost Savings Act, Pub. L. No. 92-513, 86 Stat. 947 (1972) (codified as amended in scattered sections of 15 U.S.C.). "Fuel economy" is defined in EPCA as the average number of miles travelled per gallon of fuel, as measured by the EPA testing procedures. The "fleet average fuel economy" is the sales-weighted harmonic mean fuel economy, and is defined as a manufacturer's total vehicle sales, divided by a sum of

however, is a short-sighted and costly approach to securing either environmental or energy security objectives. Instead, the Administration opted to follow a more balanced approach to this problem by pursuing, in addition to CAFE measures,<sup>39</sup> efforts in such areas as alternative fuels, improved environmental controls for automobiles, enhanced measures to ensure that environmental controls do not deteriorate during the useful life of the vehicle, and steps to manage the growth in vehicle population and miles traveled. The alternative fuels provisions, because of their highly cost-effective nature,<sup>40</sup> have become a key part of the Administration's strategy.

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terms, each of which is the sales of a particular type of vehicle, divided by its fuel economy. "Model year" is defined in EPCA as "the manufacturer's annual production period (as determined by the Administrator of the Environmental Protection Agency (EPA)) which includes January 1 of such calendar year." If a manufacturer has no annual production period, the term "model year" means the calendar year." 15 U.S.C. § 2001. Small manufacturers (producing less than 10,000 passenger automobiles, worldwide) may be exempted from complying with the statute. EPCA specified mandatory fuel economy standards for manufacturers of light duty vehicles (automobile and light trucks with less than 6000 pounds gross vehicle weight). Failure to comply with these standards subjected the manufacturers to substantial civil penalties. The objective of the endeavor was to reduce gasoline consumption in the transportation sector. The standard for passenger cars was originally established at 18 miles per gallon, but has since risen to 27.5 miles per gallon. The Motor Vehicle Fuel Efficiency Act., S. 279, 102d Cong., 1st Sess. (1991) offered by Senator Richard Bryan (D.-Nev.) would mandate raising the standard to 33 miles per gallon by 1996 and approximately 40 miles per gallon by 2010. While a number of promising technologies for improving fuel efficiency are being developed, e.g., various "in cylinder components" designed to enhance combustion efficiency, gas turbine powered automobiles, these are unlikely to reach commercial application stage in time to satisfy Bryan's mandates. To be sure, the Administration assumes that, even in the absence of any new requirements, the fuel efficiency of light-duty vehicles would increase to 33 miles by 2001. Moreover, the Administration has been arguing that the Bryan bill, if adopted, would dramatically increase the number of highway fatalities, 1,100 additional deaths per year according to NHTSA (because manufacturers would produce lighter cars to comply with the heightened fuel efficiency requirements), and would also cause a significant loss of jobs (as U.S. automakers moved production overseas). For a useful description of CAFE-related issues, see generally W. LAFFER, III, *AUTO CAFE: UNSAFE AND UNWISE AT ANY LEVEL* (The Heritage Foundation, The Backgrounder No. 825, 1991). DiFiglio, et. al, *Cost Effectiveness of Future Fuel Economy Improvements*, 11 *THE ENERGY JOURNAL* 65 (1990); Brooks, *Will CAFE Be More Lethal?*, Wash. Times, Mar. 6, 1991, at G1; Curry, *Mendacious Melody of CAFE Chorus*, Wash. Times, Apr. 5, 1991; but cf. Mathews, *High Mileage and the "Safety Excuse,"* Wash. Post, Mar. 9, 1991, at A21.

39. Alternative fuel vehicles are credited additional miles for CAFE purposes, as compared with their conventional counterparts. For example, a conventional gasoline vehicle with a fuel efficiency of 25 mpg will be credited with a 83.3 mpg if it were to operate on methanol, and a 202.5 mpg if it were CNG powered. The mpg figures for FFVs are modest—e.g., 38.5 for a dual-fuel methanol-gasoline vehicles. See *infra* note 57, for a discussion of the differences between FFVs and dedicated alternative fuel vehicles. Moreover, the current law provides unlimited CAFE credits for dedicated alternative fuel vehicles, but not for FFVs. Stated differently, regardless of how many FFVs are produced the extra mpgs attributable to them cannot increase the manufacturer's CAFE credits for its entire fleet by more than 1.2 mpg. NES legislation proposed eliminating the 1.2 mile per gallon cap on CAFE credits for FFVs in order to remove the existing disincentive to providing more than a limited number of such vehicles.

40. A July 1987 report by then Vice-president Bush's Task Force on Regulatory Relief concluded that alternative fuels were a highly cost-effective way to secure air quality improvements and decrease gasoline consumption in the transportation sector. See VICE-PRESIDENT'S TASK FORCE, REPORT OF THE ALTERNATIVE FUELS WORKING GROUP, July 1987. For an excellent discussion of the cost-effectiveness of the alternative fuels, see, e.g., A. Fraas

Not surprisingly, the alternative fuel provisions of the NES operate in a manner different than the CAAA's approach.<sup>41</sup> The key difference is that H.R. 1301 does not set any emission standards for vehicles. Instead, it directly mandates the use of alternative fuels. In that regard, section 711 of H.R. 1301 defines the relevant key terms and sets forth the scope of the alternative fuel program, described in subtitle B of title VIII of the NES legislation. Thus, the subtitle would apply only to a "covered fleet," defined as a fleet, or part of a fleet of motor vehicles<sup>42</sup> with at least 10 motor vehicles, which is located in a metropolitan area with a population of more than 250,000 people that has been designated by the EPA as a serious, severe, or extreme non-attainment area for ozone. Fleets that contain at least 20 motor vehicles also are covered if they are located in a metropolitan area with a population of more than 250,000, regardless of the attainment status of such areas.<sup>43</sup> Unlike the CAAA's definition of "clean fuel" (which includes reformulated gasoline), the subtitle defines "alternative fuels" as fuels that are composed of 15 percent or less of petroleum-based products.<sup>44</sup> In all cases, the covered fleets must be capable of being centrally fueled.<sup>45</sup> Similar to the CAAA provisions, certain types of vehicles, such as emergency vehicles, are excluded.

Section 712(a) of H.R. 1301 establishes a schedule which must be followed in acquiring vehicles for fleets. The schedule sets forth for each year,

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& A. McGartland, *Alternative Fuels for Pollution Control: An Empirical Evaluation of Benefits and Costs*, CONTEMP. POL'Y ISSUES, Jan. 1990, at 62-74.

41. These provisions, set forth as subtitle B of Title VII of H.R. 1301, contain somewhat different definitions and substantive requirements; but, as noted *supra* note 10 and accompanying text, they are nonetheless compatible with the requirements contained in the CAAA.

42. Motor vehicles are further defined by this section in terms of type and gross vehicle weight (GVW). It should be noted that the legislation, as introduced, would apply only to private fleets. This is because the government fleets are expected to buy alternative fuel vehicles at a much faster rate. This process can be accomplished by an Executive order and does not require additional legislative action. See *infra* note 51 for a discussion of this issue.

43. The CAAA fleet program covers twenty-two metropolitan areas, containing approximately thirty percent of the U.S. population. By comparison, the NES program would apply to 125 metropolitan areas, containing approximately sixty-six percent of the U.S. population. According to industry data, approximately 14 million vehicles are subject to the NES fleet program as compared to 3.5 million vehicles for the CAAA fleet program. These fleets acquire 4 million new vehicles per year.

44. This is significant, since a key objective of the NES is to lessen dependence on imported oil and petroleum-based products.

45. Significantly, the legislation does not require the creation of either the refueling infrastructure or the production of alternative fuels. Nor is there a requirement that the covered fleet vehicles actually use alternative fuels. This omission has been criticized by a number of alternative fuel enthusiasts as a major flaw of the legislation. Indeed, it is entirely conceivable that numerous fleet operators would fulfill their NES obligations by acquiring FFVs which may not operate using solely, or even primarily, alternative fuels. It is believed that the extent of actual alternative fuel usage would depend on not only the availability of alternative fuel dispensing infrastructure, but also on the evolution of the price trends of oil and petroleum products. This issue became a focus of numerous questions directed at Administration witnesses during the mark-up of the alternative fuels portions of the NES legislation in the Senate Committee on Energy and Natural Resources and Subcommittee on Energy and Power of the House Energy and Commerce Committee.

beginning in 1995,<sup>46</sup> the percentage of the year's acquisitions that must be alternative fuel vehicles. Subsection (b) applies to a person who controls a fleet of fewer than 10 trucks and buses over 10,000 pounds gross vehicle weight, and who otherwise would not fall under this subtitle. It requires that person to ensure that 90 percent of the vehicles purchased for the fleet in the year 2000 and thereafter are alternative fuel vehicles. Given the special problems faced by operators of urban buses (such as special warranty needs or the requirement to comply with National Environmental Policy Act of 1969 (NEPA),<sup>47</sup> these operators do not need to start purchasing alternative fuel vehicles until the year 2000. However, at that time, purchases would have to commence according to an accelerated schedule.

H.R. 1301 also creates an exemption to the alternative fuel vehicle requirements. Specifically, section 713 provides an exemption if the Secretary of Energy determines that no alternative fuel vehicles are available for acquisition at the time the requirement to purchase such vehicles applies. Section 713 also provides an exemption to bus operators, who are subject to section 712(b), if the Secretary determines that no alternative fuel-powered urban bus complies with the warranty standards for urban buses. The existence of these "loopholes" does not mean that the Administration has no interest in securing rapid progress in the introduction of alternative fuel vehicles into the covered fleets. Rather, the reason for these exemptions is entirely sound—it makes no sense to subject people to regulatory requirements that cannot be met because of circumstances beyond their control.

If a covered person fails to comply with the subtitle's requirements and does not petition the Secretary for an exemption, he or she is subject to civil or administrative penalties pursuant to sections 716(a) and 716(c)(1).<sup>48</sup> That person may, of course, still raise an inability to obtain alternative fuel vehicles for purchase, lease, or acquisition as a defense to the civil or administrative actions. This is made clear in section 716(a) which provides that a person may establish inability to acquire the vehicle necessary to comply as defense to a charge of violation.

To facilitate regulatory flexibility, section 714 of H.R. 1301 provides credits which could be banked and traded freely. The credits would be provided to an owner or operator of a covered fleet who either purchases more alternative fuel vehicles than is prescribed by this subtitle or does so at an earlier time than is required. Each additional or early purchase would result in a credit that could either be saved and used on a one to one basis

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46. It should be recalled that the CAAA's fleet program does not commence until 1993. Thus, the NES legislation accelerates the target date by three years.

47. 42 U.S.C. § 4321 et seq. (1969). With some exceptions, NEPA requires government agencies, prior to commencing most actions, to assess formerly their environmental consequences or lack thereof. Since the federal government provides funding for urban buses, its actions in this area are subject to NEPA.

48. To underscore the importance of complying with the alternative fuel requirements, the NES features separate enforcement provisions. H.R. 1301 §§ 715-717.

Rivkin, The U.S. "Clean" Fuels Program: Imperatives and Prospects in lieu of a required future purchase or traded for use by another owner or operator. Finally, H.R. 1301 authorizes the Secretary to require reports from owners and operators of covered fleets, provides for civil and criminal penalties to enforce the subtitle, and delegates to the Secretary of Energy the rulemaking authority to implement the legislation.<sup>49</sup>

NES' alternative fuel provisions, if enacted by Congress,<sup>50</sup> would result in substantial oil savings. According to DOE estimates, the oil savings for non-federal fleets would reach 350,000 barrels per day in 2010, while alternative fuels used by the federal fleets would save an additional 7000 barrels per day in 2010.<sup>51</sup> By comparison, the Bryan bill, should it be enacted into law is projected to save by 2001, at a much higher cost,<sup>52</sup> approximately 500,000 barrels per day of oil.<sup>53</sup>

## V. LESSONS LEARNED AND IMPLICATIONS FOR THE FUTURE

Any programs to improve the environmental performance of the transportation sector and obtain energy savings are likely to require substantial expenditures. For example, gasoline reformulation requirements impose

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49. H.R. 1301 § 715.

50. The prospects for early congressional action in this area are uncertain. As described *supra*, alternative fuel issues have proved to be controversial during the CAAA debates, and the alternative fuel related provisions were substantially watered down legislation in the final bill. For a comparison between a "tougher" Senate bill and a "weaker" House legislation, see *Special Report: House-Senate Conference Preview, Clean Air Acts Amendment of 1990*, INSIDE EPA'S CLEAN AIR REPORT, June 7, 1990, at 9-13. This also appears to be the case with NES. Both the Sharp bill and S.1220 contain substantially less stringent alternative fuel provisions than the Administration's NES legislation. Compare S. 1220, §§ 1401-4111 and H.R. 776, §§ 201-209 with H.R. 1301 §§ 711-717.

51. These are calculated taking into account a variety of relevant factors, including the number of vehicles in fleets of 10 or more, projected growth rates for the fleet vehicle population, the percentage of vehicles capable of being centrally-refueled, annual miles traveled per vehicle, fuel economy of vehicles, annual alternative fuel vehicles purchase requirements, percentage of travel on alternative fuel, etc. The reason for making distinctions between federal and non-federal fleets is that the NES legislation, as originally submitted to Congress, applied only to the latter; the former were to be covered by a separate executive order, which does not require new legislation. This approach of excluding federal fleets was subsequently strongly criticized by Congress.

52. According to the data developed by the Motor Vehicles Manufacturers Association the cost of a barrel of oil saved by the Bryan bill is \$45, while in the case of alternative fuels, the cost is between \$10-17 per barrel saved from using alternative fuels depending on the type of fuel involved. If Phase Two of the Bryan bill were to be cost separately—going from 33 miles per gallon to 40 miles per gallon—the cost per barrel of oil saved goes up to \$90.

53. Senator Bryan's own projections are 2.8 million barrels per day saved by the year 2001. These numbers, however, are flawed because they ignore such key considerations as the increased automobile fuel efficiency which is projected to take place anyway, the fact that manufacturers would respond to heightened California requirements by producing more alternative fuel vehicles, and last, but not least, that more fuel efficient vehicles tend to be driven more.



California Western Law Review, Vol. 28 [1991], No. 1, Art. 8  
additional production costs on the refineries.<sup>54</sup> These costs, however, have to be compared with the costs of alternative approaches to obtaining the same environmental and energy benefits. Indeed, given the relatively heavy veneer of regulation that affects nearly all aspects of economic activities in the United States and existing statutory requirements, additional regulation is frequently needed to reduce the overall regulatory burdens on the economy and obtain more cost-effective environmental benefits. The new regulatory scheme often would be used to replace the existing, more costly traditional command-and-control regulatory strictures. Thus, paradoxically, sound regulatory policy may require a judicious mix of deregulation in some areas and the introduction of more cost-effective flexible regulations in other areas. Alternative fuels fit the latter model well.

Ideally, the combination of regulatory strategies chosen should produce the "least cost" environmental and energy security benefits. Moreover, enough flexibility should be built into the regulatory scheme through trading and market incentive features so that additional reductions in environmental compliance costs can be secured.<sup>55</sup> To ensure compliance, the regulatory obligations involved should be backed up by appropriate enforcement provisions. However, the enforcement needs should not be used as justification to promote a cumbersome regulatory system.

The entire debate about the need to eschew mandates and rely solely on the market forces, although intellectually sterile and unproductive, has plagued

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54. As described in a lead editorial in the first issue of a new magazine dedicated to the analysis of clean fuel-related issues, various CAAA requirements are "a challenge that will alter the face of the entire U.S. refining and marketing industry as it invests in and installs new and improved process technology that will be needed to produce the reformulated gasoline, low-sulfur diesel fuel, and blend stocks required for the rest of this decade and beyond." FUEL REFORMULATION, Sept.-Oct. 1991, at 7 (editorial). They may also lead to a decrease in the production of gasoline from a given amount of oil since heavy fractions of the crude oil may prove unsuitable for reformulation. Another concern that has been expressed is that, since a barrel of crude oil yields a certain percentage of gasoline, and nongasoline products, e.g., jet fuel, heavy fuel oil, etc., if reformulation requirements result in refineries processing reduced amounts of crude, a shortage of non-gasoline products may well develop. *But cf.* Wald, *Study Says Clean Air Goals Can Be Met by Oil Concerns*, N.Y. Times, Dec. 25, 1991, at 47, col. 1.

55. Amending the CAAA to allow trading between mobile and stationary sources located in non-attainment areas would go a long way towards driving down the costs of pollution reductions. Ironically, one can argue that a number of states, by opting-in to a California clean fuel program, would engage in a de facto trading between mobile and stationary sources.

In addition to pressing for a legislative fix in this area, the federal government, in cooperation with the states, is pursuing a number of possible incentives to stimulate the development of alternative fuels and related infrastructure. For example, public utility commissions in several states already allow utilities to include in their rate base, construction costs incurred in building alternative fuel facilities. Meanwhile, EPA is considering providing important exemptions for alternative fuel vehicles from TCM ordinances and other regulations that apply to conventional vehicles. A number of additional incentives are being considered, including exemptions from state sales taxes, federal tax credits and the like. For example, both Representative Andrews (D.-Tx.) and Senator Rockefeller (D.-W.Va.) proposed modest tax credits/rebates for purchasers of alternative fuel vehicles. Some legislative proposals, such as the Surface Transportation Act, envision making available "billions of dollars for public transit and alternative fuels projects around the nation." *House and Senate Conferees Seen Freeing Up Funding For Alternative Fuels*, NEW FUELS REPORT, Nov. 18, 1991, at 5.

both the CAAA and NES. The key problem is that we are operating in a market that is both heavily regulated and features tremendous marketing advantages for traditional fuels.<sup>56</sup> Given this context, what is needed is an "affirmative action" effort that will enable all types of fuels to compete in the marketplace based upon their costs, availability, and environmental benefits.

It is also essential to ensure that alternative fuel-related requirements, whatever they turn out to be, are imposed on the *entire* transportation sector. This includes automobile companies, oil refineries, distributors of petroleum products, gas station operators, and fleet operators. In addition to promoting an equitable distribution of regulatory burdens associated with the attainment of energy security and environmental goals, this approach will also end the vociferous "chicken-and-the-egg" bickering between automobile manufacturers and fuel providers. In this debate, the car manufacturers claim that, because nobody will buy cars that cannot be refueled, they do not want to produce automobiles without being assured of fuel availability. In turn, fuel providers argue that, because nobody would buy alternative fuels if cars only ran on gasoline, they do not wish to supply fuels without being assured that there are cars available to use them.

It is also important to move beyond two other fruitless debates: determining the best alternative fuel and choosing between dedicated or flexi-fuel vehicles.<sup>57</sup> It is unlikely that there ever would be a single alternative fuel ideally suited for use on a nationwide basis. Rather, one can envision different alternative fuels serving a variety of specialized and niche markets with the exact fuel mix varying from area to area, depending upon the availability of fuels, associated infrastructure for fuel distribution, and the severity of local environmental requirements.<sup>58</sup> Regarding alternative fuel

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56. For example, gasoline is dispensed by some 210,000 refueling stations that serve 180,000,000 gasoline-powered cars, trucks, and buses, while there is a grand total of 350 CNG dispensing stations. It is, therefore, difficult to argue that gasoline and CNG enjoy a level playing field. See Kriz, *Clean Machines*, NAT. J., Nov. 16, 1991, at 2789-94.

57. Dedicated vehicles can operate only on alternative fuels; FFVs can run on either gasoline or alternative fuels. As a practical matter, CNG powered vehicles are usually dedicated. To have a flexi-fuel capability, a CNG vehicle would need two different tanks—one for CNG and another for gasoline. Alcohol-powered cars are the best candidates for flexi-fuel vehicles. They can be easily equipped to run on gasoline, neat alcohol, or any mixture of the two. Generally, dedicated vehicles are considered to offer superior environmental benefits compared with the flexi-fuel vehicles. Moreover, short of imposing an actual obligation to use alternative fuels, it is often difficult to estimate how often flexi-fuel vehicles would use alternative fuels. However, dedicated vehicles will be difficult to sell to the general public, at least until there is a widespread availability of alternative fuel dispensing stations. Commercial fleet operators, who own centrally-fueled vehicles, tend to worry less about the lack of alternative fuel infrastructure. Indeed, most of them do not wish to use public refueling stations, preferring to rely on their own facilities. Yet, even some fleet operators are ambivalent about buying dedicated vehicles because of their uncertain resale potential. Fleets have a rapid turnover for their cars which are often resold to the general public.

58. It is important to realize that various alternative fuels have different environmental advantages and disadvantages. For a discussion of this issue, see ASSESSMENT OF COSTS AND BENEFITS OF FLEXIBLE AND ALTERNATIVE FUEL USE IN THE U.S. TRANSPORTATION SECTOR, ENVIRONMENTAL HEALTH AND SAFETY CONCERNS (Office of Policy Planning and Analysis, U.S. Department of Energy, 1991).

vehicles, there is room for both dedicated and flexi-fuel vehicles. The latter can make major inroads in the passenger car market, while the former would be extremely effective for all centrally-fueled commercial and government fleets. In time, as the alternative fuel infrastructure expands, dedicated vehicles can find their way into the passenger car sector as well.

#### CONCLUSION

To summarize, much remains to be done to promote a viable and self-sustaining alternative fuel program in the U.S. transportation sector. Nevertheless, the actions by the federal government to date, the regulatory decisions by California and other state governments,<sup>59</sup> and the activities by a number of private companies interested in converting major portions of their fleets to alternative fuels, such as United Parcel Service (UPS),<sup>60</sup> give reason to be optimistic. And, even more fundamentally, the combination of environmental and energy security imperatives makes alternative fuels a cost-effective and politically viable option for the American economy for the rest of this century and beyond.

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59. In addition to California, Texas, Colorado, Oklahoma, Louisiana and New York City are all engaged in separate alternative fuel efforts. The number of vehicles involved is substantial. New York City, for example, once it completes its adoption of the California Pilot Program, is projected to have at least one million alternative fuel vehicles by the year 2000; by the same year, California is estimated to have 1.5 million alternative fuel vehicles.

60. For a discussion of UPS' efforts in this area, see, e.g., *United Parcel to Alter Its Trucks in Los Angeles to Use Natural Gas*, N.Y. Times, July 11, 1990, at 1, col. 5.