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### The Chicken of the Egg Dilemma: Introducing Alternative Fuels Into the California Marketplace

Gail A. McKay

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# The Chicken or the Egg Dilemma: Introducing Alternative Fuels into the California Marketplace

## I. INTRODUCTION

During the first Arab oil embargo in 1974, concern arose over the future availability of oil to supply the United States' energy requirements.<sup>1</sup> Recently, public concern over environmental deterioration has focused on the impact of burning various fuels.<sup>2</sup> In response to these concerns, foreign and domestic legislatures currently regulate the composition of existing fuels and are considering additional methods to introduce alternative fuels.<sup>3</sup> Two such regulatory responses are the California Air Resources Board ("ARB") proposal<sup>4</sup> and the Brazilian National Alcohol Plan ("Proalcool").<sup>5</sup>

This Comment focuses on the legality of the ARB's proposed requirements for gasoline suppliers and automakers. The ARB proposal requires that suppliers produce and distribute clean alternative fuels, and that automakers produce low-emission vehicles that use these fuels beginning with the 1994 model year.<sup>6</sup> In addition, this Comment addresses Brazil's experience over the last ten years with Proalcool, a plan introducing hydrated ethanol as an alternative fuel.<sup>7</sup> Finally, this Comment discusses how the Brazilian experience can provide guidance to California as it embarks on a program mandating the use of alternative fuels.

For purposes of this Comment, an alternative fuel is a fuel, other than gasoline, that cannot be used in an existing automobile without

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1. ENERGY TECHNOLOGY HANDBOOK at xxvi (Douglas M. Considine ed., 1977) ("It is now universally conceded that fossil fuels are finite.").

2. See generally Richard A. Corbett, *Tough Air-Quality Goals Spur Quest for Transportation Fuel Changes*, OIL & GAS J., June 18, 1990, at 33-42. "The resurgence of environmental awareness in the U.S. could present a refining challenge during the 1990s . . ." *Id.* at 33.

3. For two examples of such regulations, see *infra* notes 4-5 and accompanying text. At the federal level, the recently passed Clean Air Act contains many fuel quality provisions. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, § 101, 104 Stat. 2399 (codified at 42 U.S.C.A. § 7407(d) (West Supp. 1991)).

4. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1189-97 (1990).

5. Proalcool was established by presidential decree. F. JOSEPH DEMETRIUS, BRAZIL'S NATIONAL ALCOHOL PROGRAM: TECHNOLOGY AND DEVELOPMENT 10 (1990).

6. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1189-97.

7. See DEMETRIUS, *supra* note 5, at 11.

major changes to the vehicle's fuel system.<sup>8</sup> Alternative fuels include methanol, ethanol, liquid petroleum gas ("LPG"), compressed natural gas ("CNG"), and electricity.<sup>9</sup> Thus, either automakers must produce specifically designed vehicles that use these alternative fuels, or auto repair facilities must undertake massive efforts to retrofit existing vehicles.

Unfortunately, during the initial stages of market development for an alternative fuel, insufficient demand for the alternative fuel will not justify investment in production or marketing facilities by free enterprise businesses.<sup>10</sup> Further, if the alternative fuel is unavailable, consumers will not purchase or retrofit a vehicle demanding its use.<sup>11</sup> Auto manufacturers, in turn, will not produce alternative fuel vehicles if no consumer demand exists for such vehicles. This is the "chicken or the egg" dilemma.<sup>12</sup> Which comes first, vehicle production or alternative fuel production and dispensing facilities?

In the ARB proposal, regulatory authorities purport to address this "chicken or egg" dilemma of alternative fuels and vehicles, by mandating their use without subsidies.<sup>13</sup> By contrast, the Brazilian government has forced "neat"<sup>14</sup> ethanol use over the past ten years as an alternate fuel by giving credit to nearly all proposed ethanol production projects,<sup>15</sup> heavily taxing gasoline at the point of sale,<sup>16</sup> and subsidizing consumer credit on the purchase of alcohol-fueled vehicles.<sup>17</sup>

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8. Changes may include modifying fuel tank and line construction materials because of the corrosive nature of the alternative fuel; changing the catalytic converter catalyst because of different reactive characteristics of alternative fuel exhaust; and modifying computer control of fuel injection because of varied alternative fuel energy content. DAN KNOWLES, *ALTERNATIVE AUTOMOTIVE FUELS* (1984).

9. CALIFORNIA ARB, *INITIAL STATEMENT OF PROPOSED RULEMAKING FOR LOW-EMISSION VEHICLES AND CLEAN FUELS* 41 (1990) [hereinafter *ARB INITIAL STATEMENT*].

10. Elizabeth Corcoran, *One for the Road: Will Alcohol-Fueled Cars Take Off or Backfire?*, *SCI. AM.*, Dec. 1988, at 110.

11. *Id.*

12. *Id.*

13. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1193-97.

14. A "neat fuel" is one that is not mixed with other fuels. Methanol and ethanol may be burned in a vehicle designed for its use in either a pure, neat form such as M100, which is 100% methanol, or mixed with gasoline in small quantities and burned in conventional gasoline-powered vehicles. Corcoran, *supra* note 10, at 110.

15. MICHAEL BARZELAY, *THE POLITICIZED MARKET ECONOMY: ALCOHOL IN BRAZIL'S ENERGY STRATEGY* 203 (1986).

16. DEMETRIUS, *supra* note 5, at 99.

17. BARZELAY, *supra* note 15, at 75.

## II. CALIFORNIA AIR RESOURCES BOARD PROPOSED MANDATE FOR SUPPLY AND SALE OF CLEAN FUEL

The ARB is a state-wide regulatory agency charged by the California Legislature with the duty to "systematically attack the serious problem caused by motor vehicles, which is the major source of air pollution in many areas of the state."<sup>18</sup> In 1990, the ARB proposed new gasoline composition and vehicle emission specifications to address California's air quality problems.<sup>19</sup> The first part of this program calls for increasingly stringent gasoline specifications.<sup>20</sup> The second part of this program mandates market-forcing techniques.<sup>21</sup> At issue is whether the market-forcing techniques called for to introduce clean alternative fuels and low-emission vehicles ("Clean Fuel/Low-Emission Vehicle regulations") are constitutional under the United States and California constitutions.

The second part of the proposed program calls for completely new vehicle designs and clean alternative fuels to power the new vehicles.<sup>22</sup> In addition, this phase establishes exhaust emission standards for vehicles in four progressively demanding vehicle emission categories: (1) Transitional Low-Emission Vehicles ("TLEVs"); (2) Low-Emission Vehicles ("LEVs"); (3) Ultra-Low Emission Vehicles ("ULEVs"); and (4) Zero-Emission Vehicles ("ZEVs").<sup>23</sup> To reduce air pollution levels, vehicle manufacturers must produce and market

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18. CAL. HEALTH & SAFETY CODE § 39003 (Deering 1986). Following this mandate, the ARB sets "emission standards" for vehicles, defined by the California Legislature as "specified limitations on the discharge of air contaminants into the atmosphere." *Id.* § 39027 (Deering 1986).

"[L]ocal and regional [regulatory] authorities [not the ARB] have the primary responsibility for control of air pollutions from all sources, *other than* emissions from motor vehicles." *Id.* § 40000 (Deering 1986) (emphasis added).

19. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1189-97.

20. *Id.* at 1189-93. The first part of the ARB's proposed program sets more stringent controls on gasoline volatility ("Reid Vapor Pressure"), mandates the addition of deposit control additives, and orders the removal of all lead from gasoline. *Id.*

21. *Id.* at 1193-97. A market-forcing technique is a method whereby the regulatory community mandates changes in the way business is conducted in the marketplace that would not occur naturally, given the incrementally higher costs associated with the mandated changes.

22. *Id.*

23. *Id.* at 1193-94. The 50,000 mile standard for passenger cars, expressed in grams per mile, is as follows:

vehicles from one of the above emission category descriptions.<sup>24</sup> The average level of the emissions from all vehicles sold must meet progressively stringent standards, beginning with the 1994 model year and extending through 2003.<sup>25</sup> The pollution standards measure non-methane organic gases ("NMOG"), which are undesirable polluting hydrocarbons.<sup>26</sup> Manufacturers may sell any combination of TLEVs, LEVs, ULEVs, ZEVs, and conventional vehicles to meet the standards, as long as the average NMOG emissions from all vehicles sold does not exceed the mandated average.<sup>27</sup>

To meet the proposed stringent low-emission vehicle standards,

Pollutant:	<u>NMOG</u> (Non-methane organic gases)	<u>CO</u> (Carbon monoxide)	<u>NOX</u> (Nitrogen oxides)	<u>HCHO</u> (Formaldehyde)
1993 Conventional Vehicles	0.25	3.4	0.4	0.15
TLEV	0.125	3.4	0.4	0.15
LEV	0.075	3.4	0.2	0.15
ULEV	0.040	1.7	0.2	0.08
ZEV	0	0	0	0

If a vehicle can operate on either conventional gasoline or an alternative fuel, the non-methane organic gases ("NMOG") standards are as follows:

	<u>Alternative Fuel</u>	<u>Gasoline</u>
TLEV	0.125	0.250
LEV	0.075	0.125
ULEV	0.040	0.075

*Id.* at 1194.

24. *Id.*

25. *Id.* at 1193. NMOG standards for passenger cars are as follows:

<u>Year</u>	<u>NMOG Standard</u> (grams/mile)
1994	0.250
1995	0.231
1996	0.225
1997	0.202
1998	0.157
2000	0.073
2001	0.070
2002	0.068
2003+	0.062

By requiring progressively lower levels of non-methane organic gases, fewer hydrocarbons will be emitted to react in the atmosphere and deplete the ozone. In addition, since some of these gases are toxic, a reduction in the total amount of emissions can be expected to reduce toxic air components. *Id.*

26. *Id.*

27. *Id.*

vehicle manufacturers could require the design and production of vehicles using clean alternative fuel.<sup>28</sup> The clean fuel requirements of the ARB proposal ensure that low-emission fuels are available for consumers after they purchase such vehicles.<sup>29</sup> The proposed clean fuel supply regulations affect three levels of distribution. First, gasoline suppliers must distribute appropriate quantities of clean fuels to the wholesale market. Second, owners or lessors of retail gasoline outlets must equip an appropriate number of service stations to dispense each clean fuel. Third, station operators must distribute the clean fuels to the public.<sup>30</sup>

A discussion of the second part of the Clean Fuel/Low-Emission Vehicle regulations of the ARB proposal raises four constitutional issues: (1) whether the ARB has the authority to promulgate such a regulation; (2) whether requiring the supply and sale of alternative fuels constitutes a "taking" of the gasoline marketer's business;<sup>31</sup> (3) whether requiring a marketer to enter into a new business violates the due process clauses of the United States and California constitutions;<sup>32</sup> and (4) the constitutional implications of requirements that may, in fact, be impossible, such as the forced sale of particular volumes of clean fuel when consumer demand may not support those mandated volumes.

### A. Regulatory Authority

Section 39000 of the California Health and Safety Code ("Health and Safety Code") states that, in the opinion of the California Legislature, "the people of the State . . . have a primary interest in the quality of the physical environment in which they live."<sup>33</sup> The Legislature took two steps to coordinate state, regional, and local efforts to protect and enhance the air quality of the environment. First, it divided

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28. A "clean alternative fuel" is a non-gasoline fuel that can be used in vehicles giving off lower emissions, such as TLEVs, LEVs, ULEVs, and ZEVs. ARB INITIAL STATEMENT, *supra* note 9, at 41.

29. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1194.

30. *Id.*

31. U.S. CONST. amends. V, XIV; CAL. CONST. art. I, § 19. See *infra* note 53 for the text and a discussion of the "taking" provisions of the United States and California constitutions.

32. U.S. CONST. amend. XIV; CAL. CONST. art. I, § 7(a). The Fourteenth Amendment to the United States Constitution provides, "No State shall make or enforce any law . . . [that will] deprive any person of life, liberty, or property, without due process of law." U.S. CONST. amend. XIV. Similarly, the California Constitution states, "A person may not be deprived of life, liberty, or property without due process of law." CAL. CONST. art. I, § 7(a).

33. CAL. HEALTH & SAFETY CODE § 39000 (Deering 1986).

California into air districts, or basins,<sup>34</sup> to develop regional strategies to control air pollution from all vehicular sources. Second, it mandated the formation of the ARB to control vehicular pollution sources.<sup>35</sup>

The California Supreme Court held, in *Western Oil and Gas Ass'n v. Orange County Air Pollution District*,<sup>36</sup> that the Orange County Air Pollution Control District, as a local district, had no authority to regulate the lead content of gasoline used in automobiles.<sup>37</sup> The court found that the ARB, rather than the local district, possessed the authority to regulate gasoline ingredients.<sup>38</sup> Arguably then, the ARB has authority to regulate clean fuels.

Under section 43013 of the Health and Safety Code, the ARB "may adopt and implement motor vehicle emission standards, in-use performance standards, and motor vehicle fuel specifications for the control of air contaminants and sources of air pollution which the state board has found to be necessary, cost-effective, and technologically feasible."<sup>39</sup> This language, combined with the reasoning in *Western Oil and Gas Ass'n*, suggests that the ARB has the authority to regulate both vehicle emissions and fuel content by way of fuel specifications.<sup>40</sup> As the court stated in *Western Oil and Gas Ass'n*, "The regulation of an emission may be accomplished either by mechanical means . . . or by specifying the ingredients of the gasoline used in the engine."<sup>41</sup> The proposed ARB Clean Fuel/Low-Emission Vehicle regulations discussed in this Comment mandate *both* "mechanical" and "ingredient" solutions to the current air quality problem.<sup>42</sup> Therefore, the Health and Safety Code gives the ARB the authority to set fuel specifications.

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34. *Id.* § 39001 (Deering 1986).

35. *Id.* § 39002 (Deering 1986).

36. 534 P.2d 1329 (Cal. 1975).

37. *Id.* at 1334.

38. *Id.* The court stated, "If we were to hold that the ARB has no power to regulate fuel content, we would be attributing to the Legislature an intention to deprive the agency of the only realistic means at its disposal to achieve the purposes of the act [i.e., vehicular emission control]." *Id.*

39. CAL. HEALTH & SAFETY CODE § 43013 (Deering Supp. 1991).

40. See *Western Oil & Gas Ass'n*, 534 P.2d at 1333-34.

41. *Id.* at 1333.

42. The proposed regulations require a "mechanical" solution to the air quality problem by mandating the production and sale of a mix of TLEVs, LEVs, ULEVs, and ZEVs in order to meet fleet average exhaust standards. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1193. The proposed regulations mandate an "ingredient" solution by requiring the sale of clean alternative fuels. *Id.* at 1194.

The question remains, however, whether fuel specifications encompass entirely different fuels. Does the ARB have the authority to dictate what fuels marketers must supply? It is a well-settled legal principle in California that a regulatory agency's power derives only from its specific statutory mandate.<sup>43</sup> However, it is unclear whether the proposed Clean Fuel/Low-Emission Vehicle regulations fall within the scope of the ARB's statutory mandate.

In 1988, the California Legislature recognized the magnitude of the state's air quality problem by adding section 43018 to the Health and Safety Code. Section 43018(a) requires that the ARB "shall endeavor to achieve the *maximum* degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state standards at the earliest practicable date."<sup>44</sup> Section 43018(b) sets January 1, 1992, as the deadline for establishing these standards, and requires that the ARB "take *whatever actions are necessary*, cost-effective, and technologically feasible in order to achieve, not later than December 31, 2000, a reduction in the actual emissions of reactive organic gases of at least 55 percent, [and] a reduction in emissions of oxides of nitrogen of at least 15 percent."<sup>45</sup>

The present conventional vehicle NMOG standard is 0.25 grams per mile traveled by the vehicle.<sup>46</sup> The proposed standard calls for a steady reduction in NMOG emissions from 0.25 grams per mile in 1994 to 0.062 grams per mile in 2003 and beyond.<sup>47</sup> This drastic reduction will require significant modifications to conventional vehicles, as well as the use of fuels other than conventional gasoline.<sup>48</sup>

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43. In *People v. Firstenberg*, 155 Cal. Rptr. 80 (1979), the Second District California Court of Appeal noted that the power of the regulatory authority (in this case, the Department of Health) must come from the Legislature. *Id.* at 87-88. However, in *First Industrial Loan Co. v. Daugherty*, 159 P.2d 921 (Cal. 1945), the California Supreme Court stated that "the power . . . 'to establish such rules and regulations as may be reasonable or necessary to carry out the purpose and provisions of the act does not include power to alter the statute or enlarge or impair its scope.'" *Id.* at 926 (citations omitted). In *Salmon Trollers Marketing Ass'n v. Fullerton*, 177 Cal. Rptr. 362 (1981), the First District California Court of Appeal stated that "delegation by the Legislature [to regulatory authorities] is viewed as a positive and beneficial way to implement legislation." *Id.* at 366.

44. CAL. HEALTH & SAFETY CODE § 43018(a) (Deering Supp. 1991) (emphasis added).

45. *Id.* § 43018(b) (emphasis added).

46. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1194.

47. *Id.* at 1193. See *supra* note 25 for the specific standards required by each year.

48. ARB INITIAL STATEMENT, *supra* note 9, at 28-32. In 1987, the California Legislature adopted AB 234, which created the California Advisory Board on Air Quality and Fuels. The Advisory Board included representatives of fuel and energy producers, automobile manufacturers, state and local governmental agencies, and the general public. The Advisory Board concluded that the use of cleaner-burning fuels would improve air quality beyond what is



Section 43018(c) of the Health and Safety code *specifically* mandates that the ARB adopt

the most cost-effective combination of control measures . . . including, but not limited to, all of the following:

- (1) Reductions in motor vehicle exhaust and evaporative emissions.
- (2) Reductions in emissions from in-use emissions from motor vehicles through improvements in emission system durability and performance.
- (3) Requiring the purchase of low-emission vehicles by state fleet operators.
- (4) Specification of vehicular fuel composition.<sup>49</sup>

Clearly, the California Legislature recognizes that air quality remains a significant problem. Although the Legislature did not list the introduction of alternative fuels as a mandated alternative in section 43018(c), it stated explicitly that the options listed were not exhaustive. Thus, ARB regulations requiring the introduction of alternative fuels are within the statutory mandate.

However, for a quasi-legislative administrative action to be valid, it must fall within the scope of authority conferred by the enabling statute.<sup>50</sup> California courts consistently recognize that "the construction of a statute by officials charged with its administration, including their interpretation of the authority invested in them to implement and carry out its provisions, is entitled to great weight."<sup>51</sup> Therefore, even though section 43018(c) of the Health and Safety Code does not call specifically for the introduction of alternative fuels, the ARB is not precluded from providing for their sale. Alternative fuel use will occur if the ARB determines that the fuels are cost-effective and necessary to meet the mandated fifty-five percent reactive organic and fifteen percent nitrogen oxide emission reductions.<sup>52</sup>

### B. "Taking" Analysis—Required Alternative Fuel Sales

The United States and California constitutions prohibit the taking of private property for public use without the payment of just compensation.<sup>53</sup> The proposed ARB regulation requires "that gaso-

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achievable by conventionally fueled vehicles equipped with the most advanced emission controls. *Id.* at 15.

49. CAL. HEALTH & SAFETY CODE § 43018(c).

50. CAL. GOV'T CODE §§ 11342.1, 11342.2 (Deering 1982).

51. *Morris v. Williams*, 433 P.2d 697, 707 (Cal. 1967).

52. *See* CAL. HEALTH & SAFETY CODE § 43018(b).

53. *See* U.S. CONST. amends. V, XIV; CAL. CONST. art. I, § 19. The Fifth Amendment, which was originally intended to apply solely to the federal government, provides in part that

line suppliers distribute appropriate quantities of clean fuels; . . . that owners or lessors of retail gasoline outlets equip an appropriate number of [gasoline] stations to dispense each clean fuel; and . . . that the operators of these stations make clean fuels available to the public."<sup>54</sup> Thus, service station owners must allocate a portion of their property to dispensing clean alternative fuels. In addition, owners must invest capital for storage and dispensing equipment.<sup>55</sup> Arguably, these requirements effectively "take" suppliers' and owners' private properties for a public use, thereby entitling suppliers and owners to just compensation. However, before these individuals are entitled to just compensation, a court must find that the government's action constitutes a taking, rather than a mere regulation.<sup>56</sup> If the court finds the action is a mere regulation, the government need not provide just compensation.<sup>57</sup>

### 1. Permanent Physical Occupation

In *Loretto v. Teleprompter Manhattan CATV Corp.*,<sup>58</sup> the United States Supreme Court considered the constitutionality of a statute requiring landlords to permit cable companies to install transmission equipment on their property. The Court found that a taking occurred

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"private property [shall not] be taken for public use, without just compensation." U.S. CONST. amend. V. This concept now applies to the states through the Fourteenth Amendment's Due Process Clause. See U.S. CONST. amend. XIV; *Chicago, Burlington & Quincy R.R. v. Chicago*, 166 U.S. 226 (1897). Thus, the United States Constitution indirectly recognizes the federal power of eminent domain, which supplements any of the other powers granted to the federal government, as an essential power of sovereignty. *Kohl v. United States*, 91 U.S. 367 (1876).

Similarly, the California Constitution states, "Private property may be taken or damaged for public use only when just compensation . . . has first been paid to . . . the owner." CAL. CONST. art. I, § 19.

While the proposed clean fuels mandate does not result in an outright taking of a service station owner's land, it does require him to go into a business he might not otherwise choose. A basic principle for determining the amount due an individual whose property has been taken was stated by Justice Holmes, who noted that the test is "what has the owner lost, not what has the taker gained." *Boston Chamber of Commerce v. Boston*, 217 U.S. 189, 195 (1910).

54. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1194.

55. The ARB estimates the required investment for CNG to be approximately \$250,000 per station. It estimates required investments for other fuels at \$40,000 to \$75,000 per station. *Id.* at 1196.

56. *Radioptics, Inc. v. United States*, 621 F.2d 1113, 1127 (Ct. Cl. 1980). "[W]here the purpose of a regulation which causes interference with property rights is to prevent injury to the public welfare as opposed to merely bestowing upon the public a nonessential benefit, compensation under the fifth amendment is not required." *Id.*

57. *Id.*

58. 458 U.S. 419 (1982).

and that the landlord was due compensation, in an amount to be determined by the state courts on remand.<sup>59</sup> Furthermore, the Court stated that "when the character of the government action is a *permanent physical occupation* of property, our cases have uniformly found a taking to the extent of the occupation, without regard to whether the action achieves an important public benefit or has only minimal economic impact on the owner."<sup>60</sup>

However, the United States Supreme Court has never considered whether mandating installation of equipment for sale of clean fuels constitutes a "permanent physical occupation" of the service station owner's property. Certainly, such equipment would take up space and the owner would have to dedicate some portion of his or her property to housing this equipment. The owner would incur this expense regardless of whether the owner has an interest in entering this market. Furthermore, the owner may not receive an adequate return on his or her investment once the owner has done so. Nonetheless, the owner would retain control of the business, as well as any benefit from its operation. Thus, no taking would occur because there would be no "permanent physical occupation." However, while there may be no physical occupation, a significant impact on the service station owner may occur if he or she receives an inadequate return on this mandated investment and an alternative use had been designated for the space and capital. Moving the facility to a state where no regulations mandate such an investment is not a reasonable alternative given the fixed costs, such as land and building costs, necessary to start a new business in another location.

## 2. Adequate Return on Investment

In *Keystone Bituminous Coal Ass'n v. DeBenedictis*<sup>61</sup> ("Keystone") the United States Supreme Court addressed the question of

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59. *Id.* at 441. The Court stated, "The issue of the amount of compensation that is due, on which we express no opinion, is a matter for the state courts to consider on remand." *Id.*

On remand, the New York Court of Appeals declared that the Commission on Cable Television should determine reasonable compensation for the "taking." The court of appeals retained jurisdiction for purposes of reviewing whether the compensation fixed by the Commission on Cable Television was just. *Loretto v. Teleprompter Manhattan CATV Corp.*, 446 N.E.2d 428 (N.Y. 1983). If the case ultimately went to trial, the adequacy of the compensation would be determined by (1) assessing the permanent damages, and (2) measuring the damages as the difference, if any, between the fair market value of the landlord's property before the taking and the fair market value of the remainder after the taking. *Boomer v. Atlantic Cement Co.*, 257 N.E.2d 870 (N.Y. 1969).

60. *Loretto*, 458 U.S. at 434-35 (emphasis added).

61. 480 U.S. 470 (1987).

what constitutes an adequate return on a mandated investment. The Court, quoting *Agins v. Tiburon*,<sup>62</sup> noted that "land use regulation can effect a taking if it 'does not substantially advance legitimate state interests, . . . or denies an owner economically viable use of his land.'"<sup>63</sup> In *Keystone*, the Supreme Court evaluated the constitutionality of the Pennsylvania Subsidence Act,<sup>64</sup> which required the Pennsylvania Department of Environmental Resources to implement and enforce a comprehensive program to prevent or minimize land subsidence caused by sub-surface mining.<sup>65</sup> The Court held that the Pennsylvania Subsidence Act was not a taking, noting that the land subsidence was "a significant threat to the common welfare,"<sup>66</sup> and that no "undue interference with [the owner's] investment-backed expectations" occurred.<sup>67</sup>

The proposed California clean alternative fuels regulation meets the first prong of the *Keystone* test by advancing the legitimate state interest of attaining clean air.<sup>68</sup> However, the second prong of the *Keystone* test, economic viability, is more difficult to quantify. The ARB estimates that the service station installation investment for fuels other than CNG will cost \$40,000 to \$70,000 per station.<sup>69</sup> It is difficult to predict whether fuel demand and market price will provide

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62. 447 U.S. 255 (1980). This case considered a zoning ordinance that required the owners of a five-acre tract of land to build no more than five single-family residences on their property. Without the ordinance, the owners could have subdivided the land into smaller parcels. The Supreme Court balanced the government's interest in "assuring the careful and orderly development of residential property with provision for open space areas" against the owners' interest in maximizing the value of their property. In finding the ordinance constitutional, and thereby requiring no payment of compensation to the landowners, the Court concluded that "[i]t cannot be said that the impact of general land use regulations has denied appellants the 'justice and fairness' guaranteed by the fifth and fourteenth amendments." *Id.* at 262.

63. *Keystone Bituminous Coal Ass'n*, 480 U.S. at 485 (quoting *Agins*, 447 U.S. at 260).

64. Bituminous Mine Subsidence and Land Conservation Act, PA. STAT. ANN., tit. 52, §§ 1406.1-21 (1966 & Supp. 1991).

65. *Keystone Bituminous Coal Ass'n*, 480 U.S. at 476.

66. *Id.* at 485.

67. *Id.*

68. In *International Paper, Inc. v. Town of Jay*, 928 F.2d 480 (1st Cir. 1991), the First Circuit held that legislation which "protects the health and safety of . . . citizens," such as clean air and water laws, is rationally related to a legitimate state interest. *Id.* at 485. In *Union Oil of California v. EPA*, 821 F.2d 678 (D.C. Cir. 1982), the court found that a state limitation on lead levels in gasoline is "clearly designed to promote the public health," and that the limitation is rationally related to a legitimate state interest. *Id.* at 685.

69. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1196. The ARB did not mandate in this proposal the installation of CNG facilities, which are estimated to cost \$250,000 per station. The capital cost required to equip a station for clean fuels other than CNG is estimated to be \$40,000 to \$70,000 per station. *See also supra* note 55.

an adequate investment return. The United States Constitution, however, has "never been read to require the . . . courts to calculate whether a specific individual has suffered burdens . . . in excess of the benefits received"<sup>70</sup> in determining whether a "taking" occurred. The ARB projected retail prices in the year 2000 on an energy equivalent basis of electricity at \$0.59, CNG at \$0.84, LPG at \$0.98, methanol at \$1.44 to \$1.49, and ethanol at \$2.33, versus gasoline at \$1.35 to \$1.45 per gallon.<sup>71</sup> At least in the case of LPG, the price differential between it and gasoline may make it possible for a service station owner to recoup the capital equipment costs by charging the consumer slightly higher prices.<sup>72</sup> For methanol and ethanol, whose costs are higher than gasoline,<sup>73</sup> this method of recovery may not be feasible.

However, as described in *Keystone*, the United States Supreme Court considers the entire operation of the business unit when determining economic viability.<sup>74</sup> In the beginning stages of the ARB-mandated alternative fuels program, it is likely that alternative fuels will constitute only a small portion of the service station business. The ARB, acknowledging this impact, concluded that "major oil companies and large independent stations should be able to finance this new equipment without experiencing a significant economic impact."<sup>75</sup>

The clean fuel distribution requirements of the proposed regulations assume the availability of clean fuels.<sup>76</sup> Although the proposed regulations do not address the economic aspect of new fuel production, they do estimate potential clean fuel prices for a gasoline-equivalent gallon in the year 2000.<sup>77</sup> These prices, as stated above, range from \$0.59 for electricity, \$0.84 for CNG, \$0.98 for LPG, \$1.44

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70. *Keystone Bituminous Coal Ass'n*, 480 U.S. at 491.

71. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1196.

72. If the two fuels were priced at the same level (i.e., LPG price set at \$1.40 per equivalent gallon, rather than \$0.98 estimated cost), the service station owner would have to sell only 100,000 gallons of LPG to recover the original investment. Putting this into perspective, the average western United States service station in 1989 sold 976,000 gallons of fuel. *Gasoline Shares by Key Categories—1989*, 82 NAT'L PETROLEUM NEWS, July 1990, at 130.

73. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1196. The retail price for conventional gasoline in the year 2000 is estimated to be \$1.35 to \$1.45 per gallon. Methanol is estimated to cost \$1.44 to \$1.49 per gallon. Ethanol is estimated to cost \$2.33 per gallon. *Id.*

74. *Keystone Bituminous Coal Ass'n*, 480 U.S. at 470. In *Keystone*, the Court stated that there was no showing that a mine owner's reasonable investment-backed expectations on the whole mine were materially affected by the duty to protect against subsidence. *Id.* at 499.

75. ARB INITIAL STATEMENT, *supra* note 9, at 66.

76. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1194-95.

77. *See id.* at 1196.

to \$1.49 for methanol, and \$2.33 for ethanol, versus an estimated \$1.35 to \$1.45 per gallon for conventional gasoline.<sup>78</sup> Assuming that these estimates are accurate, that a fair return on investment at the required levels of production can be obtained, and that the fuel can be sold at these prices, there will be no “taking” requiring just compensation.<sup>79</sup>

### 3. “Taking” Analysis of Regulatory Actions

In 1990, the Federal Circuit Court of Appeals heard *Atlas Corp. v. United States*,<sup>80</sup> a case considering a regulatory “taking.” In *Atlas Corp.*, uranium and thorium producers sued the United States to recover the cost of stabilizing a sand-like residue known as “tailings,” a byproduct of uranium ore processing.<sup>81</sup> One of the plaintiff producers in *Atlas Corp.* claimed that an unconstitutional taking under the Fifth Amendment to the United States Constitution resulted when the Uranium Mill Tailings Reduction Control Act required it to spend large sums of money for the reclamation of tailings.<sup>82</sup> The court held that no taking occurred because “[r]equiring money to be spent is not a taking of property.”<sup>83</sup>

Similarly, the distribution of clean fuels called for by the ARB regulations will require money to be spent on the installation and modifications of equipment.<sup>84</sup> This expenditure alone, however, does not constitute a “taking” of property. In fact, the *Atlas Corp.* court cited *Connolly v. Pension Benefit Guaranty Corp.*,<sup>85</sup> in which the United States Supreme Court “eschewed the development of any set formula for identifying a ‘taking’ . . . and . . . relied instead on ad hoc,

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78. *Id.*

79. See *infra* part II.D for a discussion of the impact when the fuels cannot be sold at these prices.

80. 895 F.2d 745 (Fed. Cir.), *cert. denied*, 111 S. Ct. 46 (1990).

81. *Id.* at 748. Tailings continue to emit low-level radiation even after the extraction of nearly all the uranium from the ore. *Id.* Recognizing the potential health hazard associated with these tailings, in 1978 Congress enacted the Uranium Mill Tailings Reduction Control Act, Pub. L. No. 95-604, 92 Stat. 3021 (1978) (codified at 42 U.S.C. §§ 2202, 2113, 2114, 7901-7942 (1982)). This Act authorized the Environmental Protection Agency to develop regulations for the stabilization of tailings. Similarly, in the case of the proposed clean alternative fuel regulations, the California Legislature required the reduction in vehicle emissions and authorized the ARB to regulate in this area.

82. *Atlas Corp.*, 895 F.2d at 756. The Uranium Mill Tailings Reduction Control Act required the owners and operators of uranium mills to stabilize tailings and mill sites to minimize the health hazards resulting from tailings radiation and radon gas emissions. *Id.* at 757.

83. *Id.*

84. See *supra* note 55 and accompanying text.

85. 475 U.S. 211 (1986).

factual inquiries into the circumstances of each particular case.”<sup>86</sup> *Connolly* identified three factors of “particular significance” to determine whether a taking has occurred: (1) the character of the government action; (2) the economic impact of the regulation on the plaintiff; and (3) the extent to which the regulation interfered with distinct investment-backed expectations.<sup>87</sup>

The *Atlas Corp.* court, applying the three *Connolly* factors, held that a taking did not occur when the government required the clean-up of tailings because (1) the cleanup was done “[p]ursuant to Congress’ power to protect the general health, safety, and welfare;”<sup>88</sup> (2) the plaintiff did not present enough evidence to show a prohibitively large impact on its operations;<sup>89</sup> and (3) the uranium industry should have reasonably expected further regulation that would cost additional sums given its highly regulated nature.<sup>90</sup>

In a similar manner, (1) the California Legislature empowered the ARB to clean up the air via the regulation of automobiles and auto fuels;<sup>91</sup> (2) the economic impact of spending capital for dispensing alternative fuels is probably not prohibitive for gasoline marketers;<sup>92</sup> and (3) gasoline marketers can reasonably expect further regulation, given past regulation of fuel quality.<sup>93</sup> As the *Connolly* factors are satisfied, the ARB’s proposed regulations do not constitute a “taking” of the gasoline marketers’ properties.

### C. Due Process Analysis—Clean Fuel Marketing Facility

Courts use the concept of substantive due process to review the legality of government regulation in various noneconomic<sup>94</sup> and economic areas.<sup>95</sup> The Supreme Court applies different standards of re-

86. *Atlas Corp.*, 895 F.2d at 756-57 (citing *Connolly*, 475 U.S. at 224).

87. *Connolly*, 475 U.S. at 225.

88. *Atlas Corp.*, 895 F.2d at 757.

89. *Id.* at 758.

90. *Id.*

91. See *supra* text accompanying notes 33-52.

92. See *supra* text accompanying notes 70-75.

93. As early as 1974, the federal government required service stations to sell unleaded gasoline. Controls Applicable to Gasoline Retailers and Wholesale Purchaser-Consumers, 40 C.F.R. § 80.22 (1990). This regulation was withdrawn, effective June 3, 1991, because of the widespread use of unleaded gasoline. 56 Fed. Reg. 13,767-68 (1991).

94. For example, in *Roe v. Wade*, 410 U.S. 113 (1973), the Supreme Court held that a woman’s interest in deciding to carry a baby was a “fundamental” one that could only be outweighed by a “compelling state interest” in restricting abortion, through a “narrowly drawn” statute that would fulfill only the legitimate state interest. *Id.* at 155.

95. For example, in *United States v. Carolene Products Co.*, 304 U.S. 144 (1938), the

view for these two situations. In the economic area, the Court requires merely a rational relationship between the regulations and a legitimate state objective.<sup>96</sup> If legislation impairs a "fundamental" noneconomic right, the Court requires that the state's objective be compelling, not merely legitimate, and that there be a very close relation between the objective and the means, such that the means are necessary to achieve the ends.<sup>97</sup>

### 1. Reasonableness of Economic Regulatory Action

In reviewing economic regulatory actions, courts evaluate the reasonableness of the regulations. For example, in 1934 the United States Supreme Court, in *Nebbia v. New York*,<sup>98</sup> sustained a state regulatory scheme for milk because the regulations were reasonable in light of the desired end. In so holding, the Court stated, "[A] state is free to adopt whatever economic policy may reasonably be deemed to promote public welfare . . . ."<sup>99</sup> Additionally, in *United States v. Carolene Products Co.*,<sup>100</sup> the Court made it clear that "[t]he existence of facts supporting the legislative judgment is to be *presumed*, for regulating legislation . . . unless . . . it is of such a character as to preclude the assumption that it rests upon some rational basis within the knowledge and experience of the legislators."<sup>101</sup>

Regulations affecting economic interests generally satisfy the constitutional requirements of substantive due process if they are rationally related to a legitimate government interest.<sup>102</sup> If such a regu-

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Supreme Court held that a federal prohibition on the interstate shipment of "filled" milk, which is skimmed milk mixed with non-milk fats, was constitutional. It stated that "[t]he existence of facts supporting the legislative judgment is to be *presumed*, for regulatory legislation affecting ordinary commercial transactions . . . unless . . . it is of such a character as to preclude the assumption that it rests upon some rational basis within the knowledge and experience of the legislators." *Id.* at 152 (emphasis added).

In *Duke Powers Co. v. Carolina Environmental Study Group, Inc.*, 438 U.S. 59 (1978), the Court upheld a \$560,000,000 limit on the aggregate liability from a single nuclear accident since Congress did not act in an arbitrary and irrational manner. *Id.* at 83.

96. *Carolene Products Co.*, 304 U.S. at 152.

97. *Roe*, 410 U.S. at 155.

98. 291 U.S. 502 (1934).

99. *Id.* at 537.

100. 304 U.S. 144 (1938). The Court sustained a federal prohibition on the interstate shipment of "filled" milk against a due process attack. *See id.*; *see also supra* note 95.

101. *Carolene Products Co.*, 304 U.S. at 152 (emphasis added).

102. *See American Bank & Trust Co. v. Community Hosp. of Los Gatos-Saratoga, Inc.*, 683 P.2d 670 (Cal. 1984). In this case, a woman was burned in an accident that occurred in a hospital. The California Supreme Court held that the Medical Injury Compensation Reform Act, which provided for periodic damage payments in excess of \$50,000 by a health care pro-



lation infringes upon a constitutionally protected personal liberty or fundamental right, it must be narrowly drawn and must further a sufficiently substantial government interest.<sup>103</sup>

The proposed clean fuel program furthers the public interest by reducing emissions of air pollutants from motor vehicles. California faces a serious air pollution problem. As noted by Charles Imbrecht, Chairman of the California Energy Commission, in a statement on alternative fuels before the United States Senate Subcommittee on Energy Research and Development,

[e]ven with the nation's most aggressive program to combat air pollution, California's major urban areas still do not meet federal air quality standards. In the Los Angeles area, the nation's highest unhealthy levels of ozone persist for most of each summer. In 1988 in this area, the federal ozone standard was violated 176 days, and on the worst day peak ozone was three times the allowable level. Every other major urban area in California also experiences exceedances [sic] of federal and state ozone standards.<sup>104</sup>

The California Legislature noted specifically that people "have a primary interest in the quality of the physical environment in which they live."<sup>105</sup> Thus, the state has a legitimate interest in protecting clean air.

The proposed regulations do not trigger the more stringent substantive due process requirements of a narrowly drawn regulation furthering a substantial government interest, which results from the infringement of a personal liberty or fundamental right.<sup>106</sup> Because the proposed ARB regulations affect only economic interests, the courts will apply a much less stringent rational relation standard when considering their validity. As in *Griffin Development Co. v. City of Oxnard*,<sup>107</sup> where the city imposed stringent standards on conver-

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vider, did not violate the victim's due process rights by reducing the value of malpractice actions, since the provision was rationally related to the legitimate state interest in reducing insurance costs in the medical malpractice area. *Id.* at 676.

103. See *Schad v. Mount Ephrian*, 452 U.S. 61 (1981). In *Schad*, the appellants operated a bookstore where a coin-operated mechanism allowed the customers to view a live nude dancer. The United States Supreme Court held that the First and Fourteenth Amendments protect such expressions. *Id.* at 68.

104. *Hearing on Alternative Motor Fuels Before the Subcomm. on Energy Research and Development of the Senate Comm. on Energy and Natural Resources*, 101st Cong., 1st Sess. 14-15 (1989) (statement on alternative fuels by Charles R. Imbrecht, Chairman, California Energy Commission).

105. CAL. HEALTH & SAFETY CODE § 39000; see also *supra* text accompanying note 33.

106. See *Roe*, 410 U.S. at 155.

107. 703 P.2d 339, 342-43 (Cal. 1985).

sions of apartment buildings to condominiums, a court in evaluating the proposed clean fuel regulations will require only a rational relation between the means chosen and the ends pursued. The "means" the ARB chose to improve air quality mandate the distribution and sale of clean fuels for vehicles needed to meet continuously decreasing emission requirements.<sup>108</sup> Improved air quality constitutes the "ends" pursued. A rational relation exists, since automakers must certify that their vehicles meet the lower emission standards and vehicle emissions affect air quality.<sup>109</sup> The ARB estimates that the proposed regulations would reduce NMOG by 185 tons per day and nitrogen oxides by 248 tons per day by the year 2010.<sup>110</sup> These reductions represent twenty-eight percent of all on-road vehicular NMOG emissions and eighteen percent of all on-road vehicular nitrogen oxide emissions.<sup>111</sup> Moreover, the percentages will continue to climb as motorists scrap their older vehicles in favor of lower-emission vehicles.

## 2. Regulatory Construction of a Federal Statute

The United States Supreme Court, in *Chevron U.S.A. v. Natural Resources Defense Council, Inc.*,<sup>112</sup> established a two-step analysis to guide judicial review of a regulatory agency's statutory construction:

First . . . is the question whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter . . . . [Second, i]f . . . the court determines Congress has not directly addressed the precise question at issue, the court does not simply impose its own construction on the statute . . . . [Rather, it determines] whether the agency's answer is based on a permissible construction of the statute.<sup>113</sup>

To make the initial determination whether the statute expresses congressional intent unambiguously, and to ascertain its plain meaning, "the court must look to the particular statutory language at issue, as well as the language and design of the statute as a whole."<sup>114</sup>

In *Chevron U.S.A.*, the Supreme Court accepted the Environmental Protection Agency's ("EPA") reasons for reversing its policy of requiring a permit when a polluter attempted to offset emissions

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108. See *supra* text accompanying notes 23-25.

109. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1193.

110. ARB INITIAL STATEMENT, *supra* note 9, at 60.

111. *Id.*

112. 467 U.S. 837 (1984).

113. *Id.* at 842-43.

114. *K Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 291 (1988).

reductions from one piece of process equipment in a plant against increased emissions from a new or modified part of the plant.<sup>115</sup> The EPA reasoned that if it continued to require permits, the polluter might not replace existing pollution control equipment with new, more efficient, and less polluting equipment.<sup>116</sup> To the contrary, the EPA found that requiring permits would result in the undesirable phenomenon of higher emissions. Thus, the Court determined that the agency's change was reasonable.<sup>117</sup>

### 3. Statutory Construction of the ARB Proposal

In considering the proposed California regulations on clean fuels, the overall statute mandating emission controls does not specifically mention clean fuels as a control device, but allows alternatives to be added to the fixed statutory list.<sup>118</sup> The proposed clean fuels regulations represent a "permissible construction of the statute"<sup>119</sup> because of the extent of the required emissions reductions and the probability that such reductions will not be met with conventional gasolines.

The United States Supreme Court, in *Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co.*,<sup>120</sup> stated that an agency rule is arbitrary and capricious if the agency relied upon factors that Congress believed were irrelevant, ignored important arguments or evidence, failed to articulate a reasoned basis for the rule, or produced an explanation that was "so implausible that it could not be ascribed to a difference in view or the product of agency expertise."<sup>121</sup> One commentator noted that according to *Chevron*, whenever legislative statutory directives are not "directly on point . . . , the court must step aside to free the agency (within the modest constraints of making a rational choice) to resolve what its statute shall mean."<sup>122</sup>

If Congress has not spoken to the "precise question at issue," and Congress' intent is unclear, the court must sustain the agency's interpretation if it is reasonable in light of the language, legislative history,

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115. *Chevron U.S.A.*, 467 U.S. at 857-58.

116. *Id.* at 858.

117. *Id.* at 862-63.

118. See *supra* text accompanying notes 49-51.

119. *Chevron U.S.A.*, 467 U.S. at 843.

120. 463 U.S. 29 (1983).

121. *Id.* at 43.

122. Cynthia R. Farina, *Statutory Interpretation and the Balance of Power in the Administrative State*, 89 COLUM. L. REV. 452, 462-63 (1989).

and policies of the statute.<sup>123</sup> The judiciary may not “substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.”<sup>124</sup> Given the above factors, a court should find the ARB clean fuels proposal constitutional.

#### D. Due Process Analysis—Mandated Clean Fuel Sales Volumes

The ARB’s proposed regulations mandate the distribution of certain volumes of clean fuels.<sup>125</sup> One cannot sell a product, however, if no demand exists. The ARB plans to mandate sales volumes for alternative fuels based on the number of alternative-fueled vehicles sold.<sup>126</sup> The ARB recognizes, however, that some of these vehicles will be flexible-fueled vehicles (“FFVs”). In an FFV, the consumer can choose between conventional gasoline and the alternative fuel. Owners of these FFVs could choose to use conventional gasoline at higher levels than the ARB projects<sup>127</sup> because of convenience, price, or performance. This would lower actual demand for alternative fuels below the ARB’s mandated sales volumes. Thus, this portion of the regulation as presently written appears arbitrary, capricious, and violative of due process.

##### 1. Governmental Price Incentives—Brazilian Experience

A famous tenet of economics is that “the lower the price, the greater the quantity demanded.”<sup>128</sup> Thus, the level of sales is contingent on price.<sup>129</sup> Setting too low a price will result in a very low return on investment, thereby aggravating the “takings” problem previously discussed.<sup>130</sup>

Brazil’s method of introducing ethanol into its fuel economy offers a solution to the potential alternative fuel demand pricing prob-

123. *Chevron U.S.A.*, 467 U.S. at 842-45.

124. *Id.* at 844.

125. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1194.

126. ARB INITIAL STATEMENT, *supra* note 9, at 48-49.

127. *Id.* The Staff Report contains proposed adjustment factors that range from 25% to 90% for calculating the total mandated volume of alternative fuel sales. These adjustment factors represent the ARB’s estimates of the percentage of alternative versus total fuel purchased by FFV owners. *Id.*

128. JAMES M. HENDERSON & RICHARD E. QUANDT, MICROECONOMIC THEORY: A MATHEMATICAL APPROACH 26 (2d ed. 1971).

129. *Id.*

130. *See supra* text accompanying notes 53-93.

lem.<sup>131</sup> In Brazil, the government did not mandate the sale of specific volumes of neat ethanol, its alternative fuel. Instead, it taxed conventional gasoline at a higher rate and used those funds to subsidize ethanol.<sup>132</sup> Currently in the United States, the federal government and some states provide tax incentives for the use of alternative fuels.<sup>133</sup> The California Legislature could also provide tax incentives for using alternative fuels to spur demand for them.

## 2. Fuel Marketer Lacks Direct Control of Consumer Demand

In *National Tank Truck Carriers, Inc. v. United States EPA*,<sup>134</sup> the District of Columbia Court of Appeals struck down regulations requiring a gasoline carrier to produce "exculpatory" documentation on the gasoline volatility of the load carried.<sup>135</sup> The court found the regulations arbitrary and capricious because they did not require the shipper to provide gasoline volatility documentation to the carrier.<sup>136</sup> The carrier could not directly control the availability of "exculpatory" documentation, just as the gasoline marketers covered by the proposed ARB regulations<sup>137</sup> cannot directly control the sales volumes of alternative fuels purchased by the consumers.

The ARB did not state specific findings in either the proposed regulations<sup>138</sup> or the accompanying Staff Report<sup>139</sup> to support the reasonableness of the mandated sales volume calculation method. It provided no explanation for the reasonableness of its estimates that FFV alternative fuel use, as opposed to conventional gasoline use, will rise steadily from twenty-five percent to ninety percent of the total fuel consumed by FFVs.<sup>140</sup> As stated in *Burlington Truck Lines, Inc. v. United States*,<sup>141</sup> the regulatory agency did not "articulate any rational connection between the facts found and the choice made."<sup>142</sup>

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131. For a full discussion of the Brazilian Alternative Fuel Plan, see *infra* part III.

132. DEMETRIUS, *supra* note 5, at 99.

133. The federal government gives a 5.4 cent per gallon exemption for mixtures of gasoline and at least 10% alcohol. 26 U.S.C.A. § 4081(c)(1) (West. Supp. 1991). Several states, such as Oregon and Illinois, have tax incentives for the use of alternative fuels. *Oregon Governor to Sign E10 Incentive Bill into Law*, OXY-FUEL NEWS, Aug. 5, 1991, at 4.

134. 907 F.2d 177 (D.C. Cir. 1990).

135. *Id.* at 185.

136. *Id.* at 184.

137. Cal. Regulatory Notice Reg. 90, No. 32-Z, at 1189-97.

138. *See id.* at 1194.

139. *See* ARB INITIAL STATEMENT, *supra* note 9, at 48-49.

140. *See id.*

141. 371 U.S. 156 (1962).

142. *Id.* at 168.

In *Burlington Truck Lines, Inc.*, the Interstate Commerce Commission ("ICC") improvidently exercised its discretion by granting certification to an additional carrier.<sup>143</sup> The ICC chose this option rather than issuing a cease and desist order to presently existing carriers who refused to accept and deliver traffic because of the union's secondary boycott.<sup>144</sup> The United States Supreme Court determined that there were no findings and no analysis by the ICC to justify its decision.<sup>145</sup> The ICC's omissions are similar to the ARB's lack of findings on the reasonableness of their mandated alternative fuels sales volumes.<sup>146</sup>

Apparently, the ARB assumes that fuel marketers can somehow force consumers to purchase fuel. The ARB did not discuss the reasonableness of its alternative fuel demand assumptions. Thus, it either did not consider the problem or had no basis for its assumptions. In *Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Insurance Co.*,<sup>147</sup> the United States Supreme Court, finding that the National Highway Traffic Safety Administration acted arbitrarily in revoking mandates for passenger restraints, stated that "an agency rule would be arbitrary and capricious if the agency . . . failed to consider an important aspect of the problem."<sup>148</sup> To comply with the ARB's proposed regulations, gasoline marketers must depend upon consumer purchases of alternative fuels. It appears that the ARB did not consider factors affecting consumer demand when setting the alternative fuel mandated sales volumes. This is a very "important aspect of the problem," and the ARB failed to explain how the percentage of alternative fuels, versus conventional gasoline, used in FFVs will rise steadily from twenty-five to ninety percent of the total fuel purchased.

### 3. Reliance on Market Forces

In *Farmers Union Central Exchange, Inc. v. Federal Energy Regulatory Commission*,<sup>149</sup> the Federal Energy Regulatory Commission<sup>150</sup> ("FERC") set rate ceilings at levels that, in practice, would admit-

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143. *Id.* at 165.

144. *Id.* at 158, 163-65.

145. *Id.* at 167.

146. *See supra* text accompanying notes 143-45.

147. 463 U.S. 29 (1983).

148. *Id.* at 43.

149. 734 F.2d 1486 (D.C. Cir.), *cert. denied sub nom.* Williams Pipe Line Co. v. Farmer's Union Cent. Exch., 469 U.S. 1034 (1984).

150. The Federal Energy Regulatory Commission is charged by Congress to set oil pipeline rates at "just and reasonable" levels. *Id.* at 1493.

tedly be considered "egregiously extortionate."<sup>151</sup> The FERC argued that they could rely on market forces to keep prices at reasonable levels. The court, however, found "undocumented reliance on market forces . . . misplaced,"<sup>152</sup> and remanded the case to the FERC for rate ceiling modifications.<sup>153</sup> Similarly, the mandated clean fuel sales volumes in the proposed ARB regulations rely on consumer market demand that may or may not develop.<sup>154</sup> Thus, the ARB relies on an unsupported factual assumption about future market demand. This portion of the proposed ARB regulations is arbitrary and capricious.

#### 4. Mandated Alternative Fuel Availability

Instead of requiring gasoline marketers to sell specific volumes of alternative fuels, the ARB could mandate the availability of such fuels. In a similar situation, when it became clear that cars using catalytic converters required unleaded fuel, the EPA did not mandate the sale of specific volumes of unleaded fuel.<sup>155</sup> Rather, it required the availability of unleaded fuel at service stations.<sup>156</sup> Thus, mandating the availability of alternative fuels would be a feasible option for the ARB.

#### 5. Unconstitutionality of Mandating Clean Fuel Sales Volumes

Requiring the distribution of certain volumes of clean fuel appears unconstitutional for a number of reasons. First, the gasoline marketer lacks direct control over volumes purchased from him by the consumer.<sup>157</sup> In addition, the ARB lacks a factual basis to support its mandated alternative fuel sales volumes,<sup>158</sup> and relies on market forces to carry forward its specific volume mandate.<sup>159</sup>

However, reasonable alternatives exist. These include tax incentives for alternative fuels to make them more price competitive,

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151. *Id.* at 1510.

152. *Id.* at 1508.

153. *Id.* at 1530.

154. *See supra* text accompanying note 140.

155. *See* 40 C.F.R. § 80.22.

156. *Id.* These regulations required that at least one grade of unleaded gasoline be offered for sale at any retail outlet where 150,000 or more gallons were sold during any calendar quarter after 1971. *Id.* This regulation was withdrawn effective June 3, 1991, because of the widespread use of unleaded gasoline, which now comprises over 90% of the total gasoline sales in the United States. 56 Fed. Reg. 13,767-68.

157. *See supra* text accompanying notes 137-48.

158. *See supra* text accompanying notes 125-27, 137-48.

159. *See supra* text accompanying notes 149-54.

thereby increasing demand. Tax incentives, in combination with mandated availability of alternative fuels at service stations, would prompt public use of these alternative fuels, as in Brazil, where consumers were influenced to use neat ethanol as an alternative fuel.<sup>160</sup>

### *E. Summary of the Proposed ARB Plan*

The magnitude of California's air quality problems addressed by the proposed regulations justify state government intervention. Although the proposed regulations require service stations to install new equipment, a "taking" will not occur, given the ability of major gasoline marketers to finance such investments. In light of the critical need for improved air quality, a court would also probably not find a due process violation, even though these regulations restrict service station owners' freedom of action. A constitutional problem exists, however, in the area of mandated sales volumes for alternative fuels. Marketers cannot directly control and satisfy consumer demand for the alternative fuels, given the whims of the marketplace and the unpredictable nature of consumer demand.

Mandated availability of alternative fuels at a specified number of service stations could serve as a reasonable alternative to mandated sales. The ARB could require the availability of alternative fuels at a specific number of locations. As a result, sales of these fuels would occur naturally as cars equipped to use these fuels come onto the streets and consumer demand rises. Following in Brazil's footsteps, the ARB could also help spur the demand for alternative fuels by enticing the California Legislature to provide tax incentives making the price of alternative fuels relatively lower than conventional gasoline.

### III. BRAZILIAN NATIONAL ALCOHOL PLAN—"PROALCOOL"

During the last fifteen years, the Brazilian government introduced ethanol<sup>161</sup> into its fuel economy, first as a conventional gasoline blending component and later as an alternative fuel.<sup>162</sup> California can use this experience as guidance as it contemplates the possible use of alternative fuels. Phase I of Brazil's ethanol program called for etha-

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160. DEMETRIUS, *supra* note 5, at 99. For a discussion of the Brazilian program, see *infra* notes 161-209 and accompanying text.

161. Ethanol is the alcohol commonly consumed by people. It is generally produced by fermenting plant products, such as corn or sugar cane. AMERICAN PETROLEUM INST. PUBLICATION 4261, at 18-21 (2d ed. 1988).

162. See generally DEMETRIUS, *supra* note 5; BARZELAY, *supra* note 15.



nol use as a conventional gasoline blending component<sup>163</sup> that did not require consumers to modify their vehicles. In Phase II, the Brazilian government, wishing to expand the use of ethanol, developed an ambitious program to use ethanol as a neat fuel in cars designed for its use.<sup>164</sup> Thus, ethanol became an alternative fuel in this second phase.<sup>165</sup>

#### A. Phase I—Ethanol as a Gasoline Blending Component

On November 14, 1975, Brazilian President Ernesto Geisel established the Brazilian National Alcohol Plan, Proalcool, by decree.<sup>166</sup> Proalcool specifically focused on protecting the Brazilian sugar sector from collapse following a violent downturn in sugar prices.<sup>167</sup> Originally, the Brazilian government sought to stabilize sugar prices by transforming excess sugar into anhydrous ethanol<sup>168</sup> for blending with gasoline, thereby creating gasohol for use in unmodified automobile engines.<sup>169</sup> In Phase I (1975-78), the sugar cane-to-ethanol program provided financial stability for Brazil's sugar industry.<sup>170</sup>

#### B. Phase II—Neat Ethanol as an Alternative Fuel

In 1979, when international sugar prices failed to rebound, and following the second Organization of Petroleum Exporting Countries crude oil price shock,<sup>171</sup> Proalcool entered its second phase. In Phase II, pure alcohol, alcohol not mixed with gasoline, was used to power the nation's auto fleet.<sup>172</sup> As such, ethanol served as an alternative fuel. Accordingly, automakers in Brazil had to design, produce, and sell cars specifically adapted for its use. The primary justifications for the plan were foreign exchange savings resulting from lower crude oil imports and foreign exchange credits resulting from the export of su-

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163. DEMETRIUS, *supra* note 5, at 10-11.

164. *Id.* at 11.

165. Neat ethanol cannot be used in a conventional vehicle without major modifications. Thus, neat ethanol fits the definition of alternative fuel presented in the Introduction of this Comment.

166. DEMETRIUS, *supra* note 5, at 10.

167. *Id.* at 10-11.

168. Anhydrous ethanol contains no water.

169. DEMETRIUS, *supra* note 5, at 11. One can use this gasoline/alcohol mixture, commonly known as gasohol, in conventional, unmodified gasoline powered automobiles. Thus, gasohol is not an alternative fuel as defined in part I of this Comment.

170. *Id.*

171. *Id.*

172. *Id.*

perfluous products.<sup>173</sup>

In 1985, Brazil used alcohol to replace between 125,000 to 140,000 barrels per day of liquid fuels, mostly gasoline.<sup>174</sup> This resulted in an annual foreign exchange savings of approximately one billion dollars, about four percent of all foreign exchange earnings in 1985.<sup>175</sup> However impressive, assuming an export market existed, these figures did not reflect the opportunity costs associated with exporting alcohol directly, and producing and exporting sugar. These figures also ignored the massive application of capital resources to alcohol's production and marketing, and the incremental effort of automobile manufacturers needed to produce alternative fuel vehicles.<sup>176</sup>

### 1. Ethanol Production

Since privately-owned firms produced all of Brazil's alcohol, market forces determined Proalcool's technology and impacts.<sup>177</sup> However, the market in this military-ruled economy was not completely free.

Private industry produced ethanol in Brazil, but production required substantial and ongoing subsidies to both producers and consumers to remain competitive.<sup>178</sup> Estimates place expenditures on the program at between eight and ten billion dollars in private and public resources during the 1975 to 1985 period.<sup>179</sup> In Phase II of the program, Proalcool obtained open account status.<sup>180</sup> Banks gave credit to ethanol producers and exempted programs related to ethanol from the tighter fiscal policies imposed in Brazil during 1980.<sup>181</sup> In comparison, the proposed ARB regulations provide no subsidies for the production of alternative fuels.<sup>182</sup>

### 2. Vehicle Production

The subsidies to ethanol producers in Brazil would have been

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173. *Id.* at 45.

174. *Id.*

175. *Id.*

176. *Id.*

177. *Id.* at 75.

178. *Id.* at 95.

179. *Id.*

180. BARZELAY, *supra* note 15, at 203.

181. *Id.* Targets for annual increases in credit allocation were no longer binding on the financial agents. Banks were advised that the Central Bank would finance, at subsidized rates, all ethanol projects meeting stated technical and financial specifications. *Id.*

182. *See supra* text accompanying notes 76-79.

useless without the active technical and financial participation of automobile manufacturers. It is impossible to use neat ethanol in a conventional gasoline-powered vehicle.<sup>183</sup> Brazil needed vehicle motors and fuel systems to be specifically adapted for pure ethanol use.<sup>184</sup> The decision by automobile manufacturers to join the pro-Proalcool coalition by producing vehicles that would burn neat ethanol, which was an important factor out of the direct control of the Brazilian government, allowed the sugar-sector subsidy to become a full-fledged energy program.<sup>185</sup>

Furthermore, consumers would not buy vehicles designed to use alternative fuels if the cost of the alternative fuels, such as neat ethanol, was much higher than gasoline. Thus, even though the Brazilian government did not directly force the automobile manufacturers to produce alternative fuel vehicles, automakers relied on the Brazilian state to provide reasonably priced fuel.<sup>186</sup> Proalcool provided the Brazilian fleet with a highly subsidized fuel. The major source of funds for alcohol came from higher taxes on gasoline.<sup>187</sup> In this way, the Brazilian government indirectly influenced the automobile manufacturers' decision to produce ethanol-fueled vehicles by controlling relative ethanol and gasoline fuel pricing.

### 3. Other Market Forcing Techniques

Additional instruments employed by the Brazilian government to encourage alcohol use in vehicles included subsidies and taxes on the purchase of automobiles.<sup>188</sup> In 1981, for example, the government permitted consumers to borrow money for three years if they purchased an alcohol-fueled car. By contrast, consumers of gasoline-powered cars were only given one year to pay back loans.<sup>189</sup> Consumers valued these additional years to pay back the debt because of the lower monthly payments.<sup>190</sup>

In addition, performance increases when vehicles use ethanol as a fuel. Ethanol has a higher octane rating than gasoline, and its use in properly modified engines results in more power from equivalently

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183. BARZELAY, *supra* note 15, at 73. "[T]he multinational automobile industry became the key . . . force behind this risky extension of Brazil's commitment to alcohol fuel." *Id.*

184. *Id.* at 203.

185. *Id.* at 256-57.

186. DEMETRIUS, *supra* note 5, at 99.

187. *Id.*

188. BARZELAY, *supra* note 15, at 75.

189. *Id.*

190. *Id.*

sized engines.<sup>191</sup>

The alcohol program's initial opponents became avid proponents in the early 1980s when the availability of credit for alcohol distilleries aided the ethanol program.<sup>192</sup> In 1981, the Central Bank and the Banco do Brasil, after spending years denying credit to ethanol distilleries, began lending nearly all of the funds requested by distillery investors.<sup>193</sup> In addition, Petrobras, the Brazilian government-owned oil company, which had an obvious self-interest in maintaining a legal monopoly over liquid fuel production, restrained its previously intense criticism of the program.<sup>194</sup> Furthermore, the National Petroleum Council stepped in to assure that the alcohol marketing chain would link production to consumption.<sup>195</sup> One scholar on the subject concluded, "Since the substantive missions of these agencies did not change . . . , we may presume that central decision makers . . . became more effective in their attempts to control the policy actions of *Proalcool's* opponents."<sup>196</sup>

#### 4. Changing from Pro-Alcohol Policy to the Cruzado Plan

After the zenith of the Proalcool program, the Brazilian military conducted a phased withdrawal from direct control of the political system.<sup>197</sup> Fearing hyper-inflation, President Jose Sarney introduced the Cruzado Plan in early 1986.<sup>198</sup> By establishing the primacy of markets and prices in allocating resources, the Cruzado Plan moved the economy away from its steered path toward a market-oriented one.<sup>199</sup> Under the prior military regime, Proalcool stood as a prime example of governmental over-involvement.<sup>200</sup> Production rested on continued subsidies and demand was based on unrealistic pump

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191. KNOWLES, *supra* note 8, at 196.

192. See *supra* notes 180-81 and accompanying text.

193. BARZELAY, *supra* note 15, at 88. During Phase I of the program, the Brazilian Central Bank and the state-owned Banco do Brasil both openly defied President Geisel's explicit demands to speed up disbursements of subsidized credit for distilleries. *Id.*

194. *Id.*

195. *Id.*

196. *Id.* at 88-89.

197. DEMETRIUS, *supra* note 5, at 123.

198. *Id.* at 125.

199. *Id.* The most outstanding feature of this plan was the overnight de-indexation of the Brazilian economy. Indexation is a system in which prices, wages, and interest rates on most private and public debt instruments are adjusted periodically to account for inflation. The Cruzado Plan also established a new currency, the cruzado, reset the foreign exchange rate, and imposed a wage and price freeze. *Id.* at 125, 139.

200. *Id.* at 126.

prices, while a multiplicity of state institutions regulated virtually every aspect of production.<sup>201</sup> A commentator estimated that the real cost of Brazilian ethanol production was fifty-five dollars per barrel.<sup>202</sup> One may compare this figure to the unstable, but always lower, wholesale price of unleaded regular gasoline: \$25.13 per barrel on July 13, 1990,<sup>203</sup> \$37.18 per barrel on October 26, 1990,<sup>204</sup> and \$26.90 per barrel on November 15, 1991.<sup>205</sup> Thus, the economic viability of ethanol use is questionable in a truly free market Brazilian economy, since ethanol costs so much more than the conventional gasoline it replaces.

Early in 1990, Brazilian President Fernando Collor de Mello, as part of a larger economic reform strategy, moved to dismantle the Proalcool program because of its enormous cost.<sup>206</sup> Shortages in alcohol supply for neat vehicles occurred early in 1990 when the Brazilian government abandoned its policy to encourage an alcohol fuel economy.<sup>207</sup> In July 1990, prior to the Iraqi invasion of Kuwait, the sales percentage of new alcohol-fueled vehicles fell to an eight year low of four and one-half percent, compared to ninety to ninety-five percent in 1987 to 1988, when Proalcool reached its height.<sup>208</sup> On August 29, 1990, however, with the Persian Gulf crisis and the resulting rise in oil prices, President Collor de Mello announced measures to resurrect the alcohol fuels program.<sup>209</sup>

## 5. Future Uncertainty

The future of Proalcool in Brazil is uncertain. However, it is

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201. *Id.*

202. *Id.* at 128.

203. *Price Report*, OCTANE WK., July 16, 1990, at 12 (reporting the wholesale price of unleaded regular gasoline in Houston, Texas on July 13, 1990). This was prior to the Iraqi invasion of Kuwait on August 2, 1990. Scott J. Paltrow, *Markets React to Kuwait Crisis*, L.A. TIMES, Aug. 3, 1990, at D4.

204. *Price Report*, OCTANE WK., Oct. 29, 1990, at 14 (reporting the wholesale price of unleaded regular gasoline in Houston, Texas on October 26, 1990).

205. *Price Report*, OCTANE WK., Nov. 18, 1991, at 14 (reporting the wholesale price of unleaded regular gasoline in Houston, Texas on November 15, 1991).

206. Alkman Granitsas, *Persian Gulf Crisis Spurs Brazil to Resurrect Its Enormous Alcohol Program*, NEW FUELS REP., Sept. 3, 1990, at 1.

207. *Brazil Seen Hiking Use of Gasoline, Methanol in Fuel to Avert Ethanol Shortage*, NEW FUELS REP., Sept. 17, 1990, at 5.

208. *Id.*

209. *Id.* Brazil currently imports about 50% of its oil, approximately 500,000 barrels per day. *Id.* It is interesting to note that the United States imports 8,000,000 barrels per day of crude oil and petroleum products, approximately 50% of its needs. Robert J. Beck, *Politics Shaping U.S. Oil, Gas Outlook in 1991*, OIL & GAS J., Jan. 28, 1991, at 49-50.

certain that there are currently two types of Brazilian automobiles, those fueled by gasoline and those by ethanol. A vehicle owner cannot interchange the two fuels without making major fuel system modifications. Thus, Brazil's fuel industry currently suffers from the inefficiencies of providing two fuels. One is the more costly ethanol, made from domestic agricultural products.<sup>210</sup> The other is gasoline, produced from over fifty percent imported crude oil. Gasoline is less costly in the traditional sense, but requires large import expenditures.<sup>211</sup>

#### IV. CONCLUSION

Brazil's recent seesaw experience illustrates the dangers inherent in a move to non-cost-competitive alternative fuels. Changes in government policy can occur when an alternative fuel moves into an inferior position to conventional gasoline. Yet, vehicles designed to use alternative fuels will remain in operation after the change in government policy.

The Staff Report on the ARB's proposed clean fuel regulations estimates the added annual cost benefit to consumers who own and operate a light-duty LEV relative to a conventional vehicle operating on gasoline as follows: \$95 per year benefit for an electric vehicle; \$40 per year benefit for an LPG-powered vehicle; \$15 per year for a CNG-powered vehicle; \$30 per year added cost for a vehicle using reformulated gasoline; \$90 per year added cost for a methanol-powered vehicle; and \$445 per year added cost for an ethanol-powered vehicle.<sup>212</sup> Thus, depending on the accuracy of these estimates, there may be an economic incentive to alternative fuels for new vehicles in some cases. For existing vehicles, however, these incremental costs and benefits do not appear substantial enough to entice a consumer to buy a new vehicle if a gasoline-powered vehicle still operates satisfactorily.

In September 1990, the ARB adopted the majority of the Clean Fuel/Low-Emission Vehicle regulations discussed in this Comment.<sup>213</sup> The ARB, however, deleted the section mandating the distribution of specific volumes of clean fuels, and directed the ARB staff to develop regulations requiring many more clean fuel retail outlets to

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210. See *supra* text accompanying notes 202-04.

211. See *supra* note 209.

212. ARB INITIAL STATEMENT, *supra* note 9, at 68. The cost comparison presented assumes that gasoline will cost \$1.35 per gallon. *Id.*

213. See *CARB to Mull Proposed Clean Fuel Regulations*, OXY-FUEL NEWS, Nov. 19, 1990, at 5, 6.

ensure widespread availability of the clean fuels.<sup>214</sup> Mandated distribution was the only area of the proposed regulations this Comment found unconstitutional.<sup>215</sup> A modified text incorporating these changes was adopted by the ARB and approved by the Office of Administrative Law on August 30, 1991.<sup>216</sup> The new regulations formally became effective September 29, 1991.<sup>217</sup>

The California fuel economy, similar to that in Brazil, will probably be burdened by the production and supply of at least two fuel types. In fact, the ARB regulations do not specify the alternative fuel. Thus, automakers could design vehicles requiring several alternative fuel types.<sup>218</sup>

In addition, one cannot expect air quality benefits overnight. They will occur slowly as conventional vehicles age and consumers replace them with alternative fuel vehicles. Thus, the commitment to a program of this magnitude must be complete and long-lasting, whether it is motivated by a balance of payments, as in the Brazilian Proalcool program, or by environmental concerns, as in the proposed ARB regulations.

*Gail A. McKay\**

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214. *Id.*

215. *See supra* text accompanying notes 126-60.

216. CALIFORNIA AIR RESOURCES BOARD, MAIL-OUT NO. 91-43, NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO REGULATIONS REGARDING THE CALCULATIONS AND USE OF REACTIVITY ADJUSTMENT FACTORS FOR LOW-EMISSION VEHICLES AND THE ADOPTION OF INITIAL REACTIVITY ADJUSTMENT FACTORS FOR PASSENGER CARS AND LIGHT-DUTY TRUCKS CERTIFYING TO TRANSITIONAL LOW-EMISSION VEHICLE EXHAUST EMISSION STANDARDS (1991).

217. *Id.*

218. The ARB will hold hearings in December 1991 to decide on fuel specifications for a variety of alternate fuels that will probably be marketed as a result of the Clean Fuel/Low Emission Vehicle regulations discussed in this Comment. *See CARB Prepares to Decide on Alternate Fuels Specifications*, OXY-FUELS NEWS, Nov. 11, 1991, at 7.

\* For John—thank you for your encouragement, tolerance, and humor during my law school years.