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Promoting Alcohol Fuels Production: Tax Expenditures - Direct Expenditures - No Expenditures

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PROMOTING ALCOHOL FUELS PRODUCTION: TAX EXPENDITURES? DIRECT EXPENDITURES? NO EXPENDITURES?

by
*Nancy E. Shurtz**

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If you run out of gasoline when the engine is warm, you can nearly always get home on kerosene or alcohol, or even bad whiskey.

Advice by Oldsmobile dealer to owner of 1908 car¹

TO reduce the amount of imported oil and to achieve the goal of energy independence, Congress has passed several statutes that promote conservation and the development of alternative energy resources. Congress has determined that an important part of our overall energy program, at least in the short run, is to encourage the production of alcohol as a fuel for motor vehicles. The encouragement has taken the form of tax and nontax subsidies. In 1978 Congress initiated the incentive program for alcohol fuels with the passage of the Energy Tax Act of 1978.² The Crude Oil Windfall Profit Tax Act of 1980³ broadened and refined the 1978 legislation. The Economic Recovery Tax Act of 1981,⁴ while lacking any specific provision on alcohol fuels, provides several general incentives that serve to promote alcohol fuel development. The Energy Security Act of 1980⁵ provides nontax assistance for alcohol fuels through direct expenditures in the form of loan and price subsidies and federally assisted joint ventures.

1. *Alcohol a Longtime Fuel Alternative*, Automotive News, Apr. 6, 1981, at 50. At the turn of the 20th century, alcohol had as much likelihood of becoming the fuel for the internal combustion engine as did steam, electricity, or petroleum. The Texas oil boom of 1901, however, caused gasoline to emerge as the primary fuel for the automobile. Alcohol has been used throughout the years as a fuel. In the 1930s some midwestern U.S. gas stations used an alcohol mixture that produced a less expensive end product. In World War II, Germany's air force and Panzer tank corps relied almost entirely on alcohol as a fuel. Cars in the Indianapolis 500 Race run on pure alcohol. *Id.*

2. Pub. L. No. 95-618, 92 Stat. 3174 (codified at scattered sections of I.R.C.) [hereinafter cited as the 1978 Act].

3. Pub. L. No. 96-223, 94 Stat. 229 (codified at scattered sections of I.R.C.) [hereinafter cited as the 1980 Act].

4. Pub. L. No. 97-34, 97th Cong., 1st Sess. (1981) [hereinafter cited as ERTA]. ERTA is to be codified in the I.R.C., but no section numbers were available as this Article went to print.

5. Pub. L. No. 96-294, 94 Stat. 611 (to be codified at 42 U.S.C. §§ 8701-8912) [hereinafter cited as the Energy Security Act]. The Energy Security Act will be cited to the proposed sections of 42 U.S.C.

In its attempt to balance the budget, the Reagan Administration has substantially curtailed the funding for these nontax subsidies, and has also talked of phasing out the alcohol tax incentives. This Article addresses the issue of whether or not the market needs these incentives to encourage the production and use of alcohol fuels. It examines, compares, and assesses the various tax expenditure⁶ and direct expenditure⁷ programs that promote the production of alcohol fuels. Part I discusses the use of alcohol as an alternative fuel and explicates the problems and benefits of alcohol fuel production and use. Part II discusses the federal tax incentives provided in the Energy Tax Act of 1978, the Crude Oil Windfall Profit Tax Act of 1980, and the Economic Recovery Tax Act of 1981. This discussion emphasizes the double-dipping rules that were enacted to prevent overlapping benefits from the various tax and direct expenditure programs. Part III examines the programs established under the Energy Security Act of 1980 to promote alcohol fuels and generally discusses the nontax mechanisms available to provide financial assistance for alcohol fuel projects. Part IV addresses the relevant considerations in the comparison of the tax expenditures and the direct expenditures. Part V makes conclusions and recommendations for the use of tax and direct government subsidies to establish a viable program for developing alcohol fuels.

I. ETHANOL AND METHANOL AS MOTOR FUELS

Alcohol as a fuel may take several forms: (1) pure ethanol, (2) pure methanol, or (3) a mixture, in varying amounts, of either methanol or ethanol with gasoline or other fuels. Alcohol is most efficient as a fuel in its pure form or when it is mixed with gasoline in a percentage of ten to twenty. Presently the most commonly available alcohol fuel is gasohol, a mixture of ten percent ethanol and ninety percent unleaded gasoline.⁸ Methanol does not blend with gasoline as readily as does ethanol and in mixed form it is not widely used in this country.⁹ Sweden,¹⁰ Germany,¹¹ and France,¹² however, have developed successful blends with gasoline. Today the alcohol mixed with unleaded gasoline to make gasohol is mostly ethanol derived from corn. Ethanol can also be produced from other

6. "Tax expenditure" is the term used in the Internal Revenue Code to describe the revenue lost from particular deductions, exemptions, credits, etc.

7. "Direct expenditure" is the term used to describe the revenue lost from nontax subsidies such as loan guarantees and price supports.

8. See Nag, *Gasohol Demand Ebbs Due to Ample Gasoline*, Wall St. J., Aug. 25, 1981, at 33.

9. See *infra* note 134 and accompanying text. In general, a third ingredient must be added to gasoline and methanol to keep them from separating. Such substances include acetone, butanol, benzole, heavy alcohol, or various hydrocarbon byproducts.

10. Quinlan, *New Prospects for Alcohol*, PETROLEUM ECONOMIST, Oct. 1980, at 434, 435.

11. Kelderman, *Percy Digs in on Gasohol Budget*, Automotive News, Mar. 30, 1981, at 3, col. 1.

12. Norbye, *France Outlines Gasohol Plans*, Automotive News, Mar. 30, 1981, at 9, col. 1.

grains,¹³ from sugar cane, beets, cheese whey, from almost any starchy plant, and from cellulosic agricultural residues such as corn stover and wheat straw. Methanol is produced from natural gas, coal, and a variety of biomass materials such as sewage, garbage, and wood.

A hydrolysis and fermentation process requiring distillation produces ethanol. The technology for the process of converting sugar and starch into ethanol is well established, but the conversion of less expensive cellulosic feedstock into ethanol is still under development.¹⁴ Studies suggest that ultimately the cost of producing ethanol from cellulose¹⁵ will be lower than the costs from grain conversion.¹⁶ Ethanol produced from cellulose, however, requires extensive pretreatment of the cellulosic feedstock¹⁷ and produces numerous byproducts, many of which cannot be absorbed by the economy.¹⁸ Other problems arise with the production of ethanol, whether from sugar, starch, or cellulose materials. First, the conversion of raw materials into alcohol requires substantial energy.¹⁹ Energy is needed to plant, fertilize, and harvest the raw material feedstock and to convert the raw materials into alcohol.²⁰ Many economists argue that the costs of the total energy input to produce ethanol exceed the energy content of the alcohol extracted.²¹ Second, the largest suppliers of ethanol rely on natural gas or fuel oil rather than on coal or renewable resources as the predominant fuel to generate process heat.²² Consequently, this method of production fails to serve the objective of reducing oil imports. Third, environmental problems plague ethanol production. The conversion process creates wastewaters that are high in biochemical oxygen, chemical oxygen, and suspended solids.²³ Workers are exposed to process and by-product chemicals that may cause serious health problems.²⁴ Similarly, emissions from the process heat sources, especially when supplied by a coal-fired

13. Wheat and milo, for example, can be converted into ethanol.

14. Hertzmark, Flaim, Ray & Parvin, *Economic Feasibility of Agricultural Alcohol Production Within a Biomass System*, AM. J. AGRIC. ECON., Dec. 1980, at 965, 966 [hereinafter cited as Hertzmark].

15. Cellulose is a biomass feedstock (e.g., wood, agricultural residues, newsprint, municipal solid waste) that when hydrolyzed produces glucose, a sugar, which can then be fermented to form alcohol. U.S. NAT'L ALCOHOL FUELS COMM'N, FUEL ALCOHOL: AN ENERGY ALTERNATIVE FOR THE 1980s, FINAL REPORT, APPENDIX 38, 50 (1981) [hereinafter cited as FUEL ALCOHOL].

16. *Id.* at 23.

17. Feedstocks are the materials (solid or liquid, biomass or nonliving) from which alcohol is made.

18. *See* Hertzmark, *supra* note 14, at 969.

19. *See* Quinlan, *supra* note 10, at 434.

20. *See id.*

21. *See* Hertzmark, *supra* note 14, at 966.

22. *Id.* Process heat is the heat required (1) in the preparation of the feedstock, (2) in the fermentation reaction, and (3) in the distillation process necessary to produce alcohol. FUEL ALCOHOL, *supra* note 15, at 40-43.

23. FUEL ALCOHOL, *supra* note 15, at 24. Wastewaters are waters discharged from alcohol fuel plants. (The average wastewater from a distillery is approximately 3.5 million gallons per day for a 50-million-gallon per year plant.) These waters contain solids (25,000 pounds per day for the average size plant), suspended solids (3,000 pounds per day), and biochemical oxygen demand (7,300 pounds per day). *Id.* at 60, 62.

24. *Id.* at 24, 60.

boiler, are a source of air pollution.²⁵ The emissions from cars using ethanol may also have pollutant effects.²⁶ A fourth problem relates to the fact that gasohol uses grain that could be used for food or export. One study indicates that because of the limited use of ethanol in the United States, alcohol fuels have a negligible impact on the production of grain for food or for export.²⁷ The study concludes, however, that if the United States were to meet its 1985 goal of producing 2,000 million gallons of ethanol annually (a goal not likely to be achieved with present incentives), then one-fifth of the present United States exportable surplus of grain would be required.²⁸ This significant reduction in the available grain surplus could give rise to food and balance of payment problems.²⁹

Like the ethanol process, well established technology exists for the methanol conversion process.³⁰ Methanol usually is produced from natural gas, coal, or biomass by a pyrolysis/gasification process or by anaerobic digestion.³¹ These processes produce a "synthesis gas" (methane), which is then treated over catalysts to produce methanol. Methanol production can be more capital intensive than the fermentation process used to produce ethanol.³² In addition, the energy costs of producing methanol may be higher than the production costs of ethanol because of the energy lost during the conversion process. Studies reveal that the conversion of methane to methanol is only sixty percent efficient.³³ Supply problems may also arise when methanol is converted from biomass feedstocks. Sewage sludge and food process wastes represent limited potential resources and the cost of wood inhibits its use.³⁴ While methanol shares some of the same problems

25. *Id.* at 24.

26. OFFICE OF ALCOHOL FUELS, U.S. DEP'T OF ENERGY, FIRST ANNUAL REPORT TO CONGRESS ON THE USE OF ALCOHOL IN MOTOR FUELS 10-11 (1980) [hereinafter cited as FIRST ANNUAL REPORT]. This report states that the addition of alcohol to gasoline reduces hydrocarbon and CO exhaust emissions but increases exhaust emission of aldehydes.

27. Meekhof, Tyner & Holland, *U.S. Agricultural Policy & Gasohol: A Policy Simulation*, AM. J. AGRIC. ECON., Aug. 1980, at 408, 414-15.

28. *Id.* at 414.

29. See Quinlan, *supra* note 10, at 434.

30. Ahn & Fischer, *Coproduction of Electric Power and Methanol From Coal*, POWER ENGINEERING, Dec. 1981, at 80; Detman, *Economics of Six Coal-to-SNG Processes*, HYDRO-CARBON PROCESSING, Mar. 1977, at 115.

31. The gasification/pyrolysis process involves the application of heat to biomass material to produce synthesis gas (hydrogen, H₂, and carbon monoxide, CO), which can be combined catalytically to produce methanol (CH₃OH). FUEL ALCOHOL, *supra* note 15, at 103.

Anaerobic digestion is a two-phase process in which organic materials are broken down, in the absence of air, into a biologically more stable residue. During this process, methane (CH₄) and carbon dioxide (CO₂) are generated. The first phase of the process converts the sugars in the feedstock to acids (acetic, propionic, etc.). The second phase involves the actual conversion of the acids to methane and carbon dioxide in a gaseous mixture of about 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and small fractions of hydrogen sulfide (H₂S).

Id. at 146.

32. Leonard, *Synthetic Gas and Chemicals from Coal: Economic Appraisals*, CHEMICAL ENGINEERING, Mar. 26, 1979, at 183, 184.

33. See FUEL ALCOHOL, *supra* note 15, at 27.

34. *Id.* at 30.

as ethanol, some important differences do exist. First, no distillation or other expensive pretreatment is necessary in the methanol process. Second, methanol conversion produces a much smaller quantity of by-products.³⁵ Third, the price of methanol is competitive with gasoline.³⁶ This parity is due in large part to the price controls restricting the cost of natural gas, a major source for methanol production.³⁷ Fourth, no food problem arises with methanol production. In addition to natural gas, two available feedstocks for methanol are coal and municipal wastes. Methanol can be produced in significant quantities from the abundant supply of coal in this country.³⁸ Municipal solid waste appears to be the most readily available feedstock for methanol conversion. Its established collection system, steady generation rate, and low cost make it a prime feedstock candidate.³⁹ Finally, methanol does not cause as many environmental problems as ethanol. The conversion of biomass such as sewage and sludge through anaerobic digestion eliminates the potential danger of methane gas from sanitary landfills. Methanol production from coal, however, may cause emission problems in addition to land reclamation and water resource problems from western coal use. Despite these overall advantages, the lack of a distribution system seriously hinders the production of methanol fuel. Thus far consumers have no convenient way to buy methanol for their modified cars. Technologies are presently being developed that will convert methanol to gasoline and thus avoid this problem.⁴⁰

Motor vehicles that use ethanol or methanol (either alone or as a blend) often have to be modified. An automobile running on a ten percent ethanol blend of gasohol does not have to be modified. Minor modifications, however, must be made for gasohol mixtures with an ethanol content of ten to twenty percent and for methanol/alcohol mixtures. Fuel tanks may need to be protected against the corrosive properties of alcohol because methanol attacks metals and softens many plastics.⁴¹ Tank capacity may need to be enlarged to compensate for the lower volumetric efficiency of

35. *See id.* at 29.

36. OFFICE OF ALCOHOL FUELS, U.S. DEP'T OF ENERGY, SECOND ANNUAL REPORT ON THE USE OF ALCOHOL FUELS 7 n.4 (1981) [hereinafter cited as SECOND ANNUAL REPORT].

37. Price controls on natural gas may soon be lifted, however. *See Pro and Con, End Price Controls on Natural Gas?*, U.S. NEWS & WORLD REP., Nov. 30, 1981, at 71.

38. Hubbert, *The Energy Resources of the Earth*, SCI. AM., Sept. 1971, at 61, 64. The United States has an estimated 1.5 trillion metric tons of coal—27% of the world's resources of coal. Coal production is not expected to peak until after the year 2000. *Id.*

39. *See FUEL ALCOHOL*, *supra* note 15, at 30. As for pollution problems from using methanol fuel: (1) the hydrocarbon emissions from a 1.6 liter methanol engine are .29 grams per mile (GPM), which is below 1982 federal and California state emission standards; (2) the carbon monoxide level is 63% below the California standard; and (3) nitrous oxide (which is most difficult to control) emission is .70 GPM, equal to the optional goal under California standards. *Ford Using Escorts to Test Methanol as Fuel*, AUTOMOTIVE NEWS, Feb. 23, 1981, at 28, col. 1.

40. Two techniques are being developed to convert biomass to gasoline: (1) the Mobil process, which catalytically converts alcohol to gasoline; and (2) the China Lake process, which accomplishes biomass conversion in a single pyrolytic step. *See FUEL ALCOHOL*, *supra* note 15, at 28.

41. *See Quinlan*, *supra* note 10, at 435.

alcohol blends, and precautions have to be taken to prevent water from coalescing with the fuel, thus causing the gasohol to separate into its gasoline and alcohol components.⁴² Extensive modifications are necessary for cars that use pure methanol, pure ethanol, or gasohol mixtures containing more than twenty percent ethanol. For example, the cylinder heads must be redesigned to increase compression ratios for the higher octane alcohol fuels; preheating systems must be adjusted to avoid cold weather starting problems; alcohol-resistant tin must be substituted for lead in fuel-line components; carburetor jet size must be increased to introduce more fuel into the moving air; and the intake manifold must be altered to ensure that each cylinder receives a correct air-fuel mixture.⁴³ Once a vehicle is equipped to use alcohol fuels, it runs as efficiently as a gasoline-operated vehicle.⁴⁴ Although the Btu content of alcohol is lower than that of gasoline, its octane level is higher.⁴⁵ In general, alcohol-run cars have good performance ratings and have lower operating costs than gasoline-run cars.⁴⁶ Despite the modifications necessary to adapt an automobile to alcohol fuel use and the problems inherent in the conversion process of ethanol and methanol, alcohol fuels provide a practicable alternative for the country's rapidly depleting energy sources.

II. FEDERAL TAX INCENTIVES

For many years the primary goal of our energy tax policy was to encourage the development of petroleum and natural gas, a policy reflected by the depletion allowance⁴⁷ and the deduction for intangible drilling and development expenses.⁴⁸ The federal government began to recognize the importance of developing alternative sources of energy after the Arab oil

42. *Id.*

43. *Brazil: Gearing up to Produce the All-Alcohol Car*, BUS. WEEK, Oct. 1, 1979, at 60-61.

44. FIRST ANNUAL REPORT, *supra* note 26, at 10.

45. Methanol has about one-half the Btu's of gasoline. A gallon of methanol will take a car about half as far as a gallon of gasoline. Methanol has an octane rating of 110 compared with 91 for most unleaded gasoline. Thus, methanol is more thermally efficient and has a higher compression ratio in the combustion process. *Ford Using Escorts to Test Methanol as Fuel*, *supra* note 39, at 28.

46. FIRST ANNUAL REPORT, *supra* note 26, at 10.

47. In the Revenue Act of 1918, ch. 18, §§ 214(a)(10), 234(a)(9), 40 Stat. 1067-68, 1078-79, Congress gave the taxpayer the option of using either discovery cost or fair market value as the basis on which depletion could be calculated. Because of the administrative difficulties of establishing acceptable property market values, the Revenue Act of 1926, ch. 27, § 204(c)(2), 44 Stat. 16, granted the taxpayer the right to take a fixed percentage (originally 27.5%) of gross income from an oil or gas producing property as the deductible allowance. The Tax Reduction Act of 1975, Pub. L. No. 94-12, 89 Stat. 26 (codified at scattered sections of I.R.C.), reduced the percentage to 22%, to 20% in 1981, to 18% in 1982, to 16% in 1983, and to 15% for 1984 and subsequent years. The House bill for the Economic Recovery Tax Act of 1981 provided that the rate would remain at 22%. This provision, however, was not incorporated into the final Act. See H. CONF. REP. No. 215, 97th Cong., 1st Sess. 229, *reprinted in* 1981 U.S. CODE CONG. & AD. NEWS 371, 404.

48. I.R.C. § 263(c) (1981). This section allows a current tax deduction for the intangible drilling costs involved in drilling a successful well—the costs of labor, fuel, repairs, hauling, supplies, and other expenditures that do not ordinarily have a salvage value. The effect of this provision is to lower after-tax costs, thus increasing exploration ventures.

embargo of 1973.⁴⁹ With the passage of the Energy Tax Act of 1978⁵⁰ and the Crude Oil Windfall Profit Tax Act of 1980,⁵¹ Congress actively sought to promote renewable energy sources such as solar, water, wind, geothermal, ocean thermal, wood, hydroelectric, and biomass, as well as nonrenewable energy sources such as petroleum coke, coke gas, pitch, oil, and synthetic fuels. Both the 1978 and 1980 Acts provide tax credits, exemptions, and other measures to promote the use of these alternative resources. The tax incentives for the production of gasohol and alcohol are of particular importance in our overall policy to become energy independent. The Energy Tax Act of 1978 provides exemptions from the four cents per gallon federal fuel excise tax for certain alcohol mixtures.⁵² It also provides an investment credit for property used to produce alcohol.⁵³ The Crude Oil Windfall Profit Tax Act of 1980 continues both the excise tax exemption⁵⁴ and the energy investment credit.⁵⁵ This Act also corrects some of the deficiencies in the 1978 Act by allowing refunds for excise taxes paid on gasoline blended with alcohol,⁵⁶ and by establishing a new income tax credit for blenders of alcohol gasoline mixtures and for users of straight alcohol fuel.⁵⁷ The 1980 Act also creates a fuel production credit.⁵⁸ In addition, the Act gives tax-exempt status for certain industrial development bonds for financing alcohol fuel production facilities and renewable energy property⁵⁹ and grants authority to the Bureau of Alcohol, Tobacco, and Firearms to simplify regulations of alcohol fuel producers.⁶⁰

A. *The Energy Tax Act of 1978*

1. *The Excise Tax Exemption.* The Internal Revenue Code provides for both a manufacturer's excise tax and a retailer's excise tax on certain fuels.⁶¹ Section 4081 of the Code imposes a manufacturer's excise tax of four cents per gallon on gasoline sold by a producer or an importer.⁶² Section 4041 of the Code imposes a retailer's excise tax of four cents a gallon on diesel and other special motor fuels sold for use or actually used in a highway vehicle.⁶³ The manufacturer's tax is imposed on the producer or importer; the retailer's tax is imposed on the consumer. Prior to the Energy Tax Act of 1978 gasoline that was later blended into an alcohol mixture

49. The state governments recognized the problem before the federal government. See FUEL ALCOHOL, *supra* note 15, at 29.

50. Pub. L. No. 95-618, 92 Stat. 3174 (codified at scattered sections of I.R.C.).

51. Pub. L. No. 96-223, 94 Stat. 229 (codified at scattered sections of I.R.C.).

52. I.R.C. § 4081(c) (1981).

53. *Id.* § 46(a)(2)(C).

54. *Id.* § 4081(c), amended by § 232(a)(3) of the 1980 Act.

55. *Id.* § 46(a)(2)(C).

56. *Id.* § 6427(f).

57. *Id.* § 44E(b)(1).

58. *Id.* § 44E(b)(2).

59. *Id.* § 103(g)(1)(B).

60. *Id.* § 5181.

61. *Id.* § 4081(a).

62. *Id.*

63. *Id.* § 4041.

was subject to the manufacturer's excise tax, and motor fuel that was a blend of gasoline and alcohol was subject to the retailer's tax if it was used in a highway vehicle. Under the 1978 Act, the sale of certain alcohol blends and the sale of gasoline used to produce these blends⁶⁴ are exempt from the manufacturer's excise tax,⁶⁵ and the sale or use of any liquid fuel containing the requisite percentage of alcohol is exempt from the retailer's excise tax.⁶⁶ To qualify for the exemption the blend must be at least ten percent alcohol.⁶⁷ The Code defines alcohol as including ethanol and methanol, but it excludes alcohol produced from petroleum, natural gas, or coal.⁶⁸ The Act, however, fails to specify the volume and proof of the alcohol necessary to qualify for the exemption.⁶⁹ The exemption is available when the qualifying mixture is sold by producers⁷⁰ or importers,⁷¹ and therefore, it is available for either domestically produced or imported alcohol. Congress intended this incentive to be temporary, so the exemption was limited to six years, from December 31, 1978, to October 1, 1984. The Act provides that once an exemption from the excise tax is obtained, a subsequent separation of the gasohol into gasoline and alcohol constitutes a sale subject to the retailer's excise tax.⁷² Also, the person separating the blend is deemed to be the producer of the gasoline for purposes of the manufacturer's excise tax.⁷³ Similarly, the person who fails to blend gasoline that was purchased tax free is liable for the manufacturer's excise tax.⁷⁴ The Act, however, does not provide a refund or credit for producers of gasohol from a blend of gasoline that has already been subject to the excise tax.⁷⁵

Before the Energy Tax Act, exemptions from the federal fuel taxes were provided for certain uses such as nonhighway use and for certain users such as state and local governments.⁷⁶ Nonhighway use included, but was not limited to, use in farming, local transit systems, and aviation; in motor boats, power lawn mowers, and stationary engines; and in construction, mining, or timbering projects. Under pre-1978 tax law, if previously taxed fuel was used for a tax-exempt activity or by a tax-exempt user, then the producer of the gasoline or the taxpayer who ultimately purchased the motor fuel was entitled to a refund or credit. The Energy Tax Act denies

64. The sale of gasoline for the purpose of producing gasohol is not exempt unless the sale is in bulk quantities for delivery into a bulk storage tank of a producer. *See* Treas. Reg. § 48.4081-2(b) (1979).

65. I.R.C. § 4081(c) (1981).

66. *Id.* § 4041(k).

67. *Id.* §§ 4041(k)(1), 4081(c)(1)(A)-(B).

68. *Id.* § 4081(c)(3).

69. The proof necessary for exempted alcohol was later clarified by the 1980 Act. *See infra* note 144 and accompanying text.

70. I.R.C. § 6416(b)(2)(A)-(D), (H) (1981).

71. "Importer" includes any person who withdraws gasoline from a customs bonded warehouse for sale or use in the United States." *See* Treas. Reg. § 48.4082-1(d) (1959).

72. I.R.C. § 4041(k)(2) (1981).

73. *Id.* § 4081(c)(2).

74. Treas. Reg. § 48.4081-2(g)(1) (1979).

75. *Id.* § 48.4081-2(f)(1).

76. I.R.C. § 6421 (1981).

credits or refunds to taxpayers for nonhighway uses of gasoline and special motor fuels if the nonhighway use is nonbusiness in nature.⁷⁷ Specifically, the Act disallows a credit or refund for motor boat use.⁷⁸ Congress surmised that "national energy conservation policy" required nonbusiness, nonhighway fuel use to be treated like highway fuel use and to be taxed accordingly.⁷⁹

While the purpose of the nonhighway, nonbusiness provision was to promote conservation, the purpose of the excise tax exemption was to promote alcohol production from renewable energy sources. Specifically the Act favored ethanol production over alcohol produced from oil, natural gas, or coal. The Act's exemption sought to make gasohol more competitive with gasoline prices by providing an incentive equal to forty cents per gallon.⁸⁰ On a gallon of pure ethanol the exemption is worth about four cents, but because all gasohol is exempt from the tax, blending a single gallon of ethanol with nine gallons of unleaded gasoline yields a forty cents tax break per gallon of gasohol. No double-dipping provisions in the federal excise tax exemption deny the benefit to those persons obtaining a state excise tax exemption. Thus, the federal subsidy, coupled with any state tax subsidies, increases the incentive for the production and sale of gasohol.⁸¹

Although the Energy Tax Act provided incentives for gasohol production, it created problems as well. First, the exemption approach did not provide any tax incentives to produce methanol. Arguably, the promotion of alcohol production from coal is a desirable objective because the United States has large supplies of coal and thus a great capacity to produce methanol. This production would also reduce our dependence on foreign oil. Second, the Act provided no incentive to producers and importers to increase the production of alcohol in a mixture above the ten percent limit. Thus, producers and importers had no incentive to use pure alcohol or to use a twenty percent alcohol to eighty percent gasoline mixture that requires only minor modifications to an automobile. Similarly, the Act provided no incentive to blend mixtures with less than ten percent alcohol, although these blends would also help conserve petroleum fuels. Third, the benefits from the excise tax exemption were not limited to domestically produced gasohol or gasohol produced from domestic ingredients; it also created incentives for imported alcohol products. This import incentive

77. The use required by the Act has to be a "qualified business use" defined as "use by a person in a trade or business of such person or in an activity of such person described in section 212." *Id.* § 6421(d)(2)(A).

78. *Id.* § 6421(d)(2)(B). Special rules were promulgated for commercial fishing vessels. *See id.* § 6421(d)(2)(C).

79. S. REP. NO. 529, 95th Cong., 2d Sess. 6, reprinted in 1978 U.S. CODE CONG. & AD. NEWS 7942, 7985.

80. *Id.*

81. The scope of this paper does not extend to a discussion of state laws. One example, however, illustrates the importance of state law in this area. In Louisiana, the state exemption is equivalent to \$1.10 per gallon. When combined with the federal exemption, it "will exceed the estimated cost of production in plants designed to use the latest cost- and energy-saving techniques." FUEL ALCOHOL, *supra* note 15, at 35.

could create problems for the domestic producer if the domestic alcohol market became saturated.⁸² Fourth, because the legislation was directed specifically at producers and consumers subject to the excise tax, the Act provided no incentive for tax-exempt users or uses that were unaffected by the excise tax. Fifth, the Act did not provide a credit or refund of the tax paid if the charged gasoline subsequently was used in an exempt blend. Lastly, the Act failed to define exactly what type of alcohol blend qualified for the exemption; specifically, what proof and volume of alcohol was necessary to meet the exemption.

2. *Energy Investment Credit.* In addition to the excise tax exemptions, the Energy Tax Act of 1978 allows those persons in a trade, business, industry, or agriculture to take a ten percent energy credit for investments in six categories of "energy property."⁸³ One type of "energy property" is "alternative energy property," comprised of nine categories of property.⁸⁴ Included within the definition of "alternative energy property" is equipment that primarily *uses* a fuel or feedstock other than oil or natural gas or their products,⁸⁵ and equipment that *converts* substances other than oil or gas into "a synthetic liquid, gaseous, or solid fuel."⁸⁶ The first category covers alcohol fuel equipment such as boilers,⁸⁷ burners,⁸⁸ related pollution control,⁸⁹ and fuel handling equipment.⁹⁰ The second category includes equipment that converts biomass material and coal into alcohol fuels.⁹¹ Unlike the excise tax exemption, this credit provision promotes alcohol derived from coal.⁹² Like the excise tax exemption, it promotes alcohol derived from wood, agricultural, industrial and municipal waste, and other biomass materials.

Property eligible for the ten percent energy investment credit may also be eligible for the regular ten percent tax credit for investment in certain depreciable property.⁹³ Thus, the taxpayer may be able to take a twenty percent credit on some properties.⁹⁴ In general, to qualify for the regular investment credit, the property must be depreciable with a recovery period

82. See *infra* notes 240-41 and accompanying text.

83. I.R.C. § 46(a)(2) (1981). The Code defines "energy property" in part as "(i) alternative energy property, (ii) solar wind energy property, (iii) specially defined energy property, (iv) recycling equipment, (v) shale oil equipment, [or] (vi) equipment for producing natural gas from geopressured brine . . ." *Id.* § 46(f)(2)(A).

84. *Id.* § 48(f)(3).

85. *Id.* § 48(f)(3)(A)(i)-(ii).

86. *Id.* § 48(f)(3)(A)(iii).

87. *Id.* § 48(f)(3)(A)(i).

88. *Id.* § 48(f)(3)(A)(ii).

89. *Id.* § 48(f)(3)(A)(vi).

90. *Id.* § 48(f)(3)(A)(vii).

91. *Id.* § 48(f)(3)(A)(iii).

92. *Id.* § 48(f)(3)(A)(v).

93. *Id.* § 38.

94. In calculating the amount of the tax credit under § 38, the regular percentage of 10 is added to the 10% energy credit for qualified investment property. *Id.* § 46(a)(2).

of at least three years.⁹⁵ To qualify for the energy investment credit, construction, reconstruction, or erection of the property must be completed after September 30, 1978. New property must first be placed in service after the same date.⁹⁶ For purposes of the regular investment credit, qualifying property includes tangible personal property such as machinery and equipment.⁹⁷ Accordingly, equipment that converts biomass material and coal into alcohol fuels as well as fuel-handling equipment, pollution control equipment, boilers, and burners all qualify for both the regular ten percent investment tax credit and the additional ten percent energy investment credit.⁹⁸

The energy tax credit generally operates like the investment tax credit. Ten percent of the amount of the cost of acquiring or constructing the eligible property is used to offset the taxpayer's income tax liability.⁹⁹ Like the investment tax credit, the energy credit is nonrefundable; the taxpayer can only claim the credit up to his tax liability.¹⁰⁰ The energy credit, however, applies against the taxpayer's entire tax liability,¹⁰¹ whereas the investment tax credit may be used to offset the first \$25,000 of tax liability plus a percentage of tax liability in excess of \$25,000.¹⁰² Under both the investment and energy credits, if the property ceases to be qualified property, then the credit may be recaptured at ordinary income tax rates.¹⁰³ Unlike the investment tax credit, the energy tax credit is only available from October 1, 1978, to December 31, 1982.¹⁰⁴ During this period total tax credits of twenty percent can be taken for eligible investments. Congressional reports estimate the impact of the combined credits to be two cents per gallon of ethanol.¹⁰⁵

Congress attached two double-dipping rules to the energy investment credit. Congress passed these double-dipping rules because of concern that a taxpayer could purchase the property with limited personal expenditures, by compounding the effect of the tax subsidies alone or in addition to nontax subsidies.¹⁰⁶ According to Congress, these situations would en-

95. *Id.* § 46(c)(2); see the discussion of the new investment credit and depreciation rules of the Economic Recovery Tax Act of 1981, *infra* note 279.

96. I.R.C. § 48(f)(2)(B)(i)-(ii) (1981).

97. *Id.* § 48(a)(1).

98. H. CONF. REP. NO. 817, reprinted in 1980 U.S. CODE CONG. & AD. NEWS 642, 683. Congress adopted the Conference Committee Report without modification upon passage of the 1980 Act.

99. I.R.C. § 46(a)(2)(C) (1981).

100. S. REP. NO. 529, *supra* note 79, at 80; see I.R.C. § 46(a)(3) (1981).

101. I.R.C. § 46(a)(9)(B) (1981).

102. *Id.* § 46(a)(3).

103. *Id.* § 47(a); see *supra* note 25. Recapture rules have been changed slightly by the Economic Tax Recovery Act of 1981. The investment credit is recomputed on early disposition by allowing a 2% credit for each year the property is held. Thus, no recapture is required for 5-year, 10-year, or 15-year property actually held for at least 5 years, or for eligible 3-year property held for at least 3 years. H. CONF. REP. NO. 215, *supra* note 47, at 214.

104. I.R.C. § 46(a)(2)(C)(i) (1981).

105. FIRST ANNUAL REPORT, *supra* note 26, at 16.

106. The double-dipping rules are designed to prevent the situation in which, for example, a taxpayer may try to obtain a grant for the purchase of equipment, then take an invest-

courage "inefficiency through expenditure for equipment and production" and could require diverting substantial resources from more effective uses.¹⁰⁷ Thus, Congress not only wanted to encourage purchases of alcohol producing equipment, but it also wanted to avoid inefficient alcohol producing operations due to oversubsidization of the purchases. One double-dipping rule that became effective before the 1978 Act requires the basis of property qualifying for the investment credits to be reduced when nontaxable grants finance the property.¹⁰⁸ The 1978 Act extends this rule to the property eligible for the energy credit.¹⁰⁹ The other double-dipping rule established by the 1978 Act reduces the energy credit by fifty percent if the property is financed wholly or in part by tax-exempt industrial development bonds (IDBs).¹¹⁰ The energy property is not considered to be financed in whole or in part by IDBs if it is installed along with other property financed by IDBs.¹¹¹ Thus, the facility producing the energy may be financed by IDBs and the equipment inside may still be eligible for the full ten percent credit. If, however, any part of the equipment is financed by IDBs, then the energy credit is reduced to five percent.

3. *Alcohol Studies.* The Energy Tax Act of 1978 required the Department of Energy to make annual studies of alcohol fuels that would include: (1) a description of the alcohol fuel industry, (2) the quantity of alcohol fuel sold and the gasoline saved by the alcohol fuel sale, (3) the relative cost of production and selling price for alcohol fuels and gasoline, and (4) the revenue loss resulting from the tax incentives.¹¹² Thus far, two annual reports have been completed. The Department of Energy, in its first annual report for calendar year 1979, concluded that the industry consisted of "diverse participants, rather than a few large integrated producers."¹¹³ No single participant, however, was involved in all three aspects of the industry: ethanol production, gasoline production, and blending/distribution/sales. The report described the industry as being "dominated by 5 larger producers, with one firm responsible for over one-half of the total fuel-ethanol production during 1979."¹¹⁴ In addition to the major producers, numerous smaller-scale producers contributed to less than one million gallons of ethanol in 1979.¹¹⁵ In the ethanol fuel production industry the larger firms contributed over eighty percent of the total output dur-

ment credit on the equipment, obtain a production credit on alcohol produced from the equipment, and a tax exemption upon the blending of gasoline with the alcohol produced from the equipment.

107. H. CONF. REP. NO. 817, *supra* note 98, at 136.

108. S. REP. NO. 529, *supra* note 79, at 81.

109. I.R.C. § 46(a)(9) (1981).

110. *Id.* § 48(f)(11).

111. H. CONF. REP. NO. 817, *supra* note 98, at 137.

112. 1978 Act, *supra* note 2, § 221(c) (as amended by 1980 Act, *supra* note 3, § 232(g)). The 1980 Act also required a report of the revenue loss from the income credit (although this was not done in the SECOND ANNUAL REPORT, *supra* note 36).

113. FIRST ANNUAL REPORT, *supra* note 26, at 20.

114. *Id.* at 22. The report does not name these firms.

115. *Id.*

ing 1979, the remainder being produced by many smaller capacity distillers.¹¹⁶ A mixture of independent jobbers and, to a lesser extent, the major refiners were involved in the blending, distribution, and sale of gasohol. At the end of 1979 "8 out of 15 major integrated petroleum refiners . . . were actively engaged in marketing gasohol" with Texaco as the largest marketer.¹¹⁷

In calendar year 1979 fifty million gallons was the estimated maximum ethanol volume available for motor fuel blending.¹¹⁸ When combined with gasoline, this figure translated into a maximum of 495 million gallons of gasohol produced and sold.¹¹⁹ The level of gasohol sales was estimated to be "slightly less than five-tenths of one percent of the 109 billion gallons of gasoline sold during 1979."¹²⁰ Nationally "[t]he gasoline *displaced* by the sale of the 495 million gallons of gasohol . . . was estimated to be 50 million gallons Gasoline *savings* were uncertain due to individual automobile performance with gasohol and also due to the quantity of motor fuel used indirectly in the production of ethanol."¹²¹ The full service pump price for gasohol ranged from 4.5 cents below to 12.9 cents above unleaded gasoline.¹²² Location of the sale and ownership of the retail outlet affected this price differential. Lower relative prices were observed in those states with comparatively strong subsidies in the form of excise and sales tax exemptions for gasohol. The production cost of leaded regular gasoline in 1979 was \$1.05 per gallon,¹²³ the production cost of gasohol was \$1.19 per gallon,¹²⁴ and the production cost of ethanol was approximately \$1.70 per gallon.¹²⁵ The report furnished no cost information for unleaded gas. The 495 million gallons of gasohol sold at the national level during 1979 precipitated the immediate loss of \$19,800,000 to the Federal Highway Trust Fund.¹²⁶ The net loss in revenue to the federal government was estimated to be only about half that amount.¹²⁷

The second annual report on the use of alcohol fuels encompassed calendar year 1980 and examined both ethanol and methanol production. As in the earlier report, the 1980 study described the industry as a diverse group involved in all aspects of the industry. "[T]he production side of the industry continued to be dominated during the year by four compa-

116. *Id.*

117. *Id.* at 24.

118. *Id.* at 25.

119. *Id.*

120. *Id.*

121. *Id.* (emphasis in original).

122. *Id.* at 26, 29.

123. *Id.* at 29.

124. *Id.* at 32.

125. *Id.* at 34.

126. *Id.* at 26. The Highway Trust Fund was set up for the purpose of repairing, rehabilitating, and reconstructing our major federal arteries. Revenues placed in the fund are derived from the gasoline excise taxes. These tax receipts are reduced with the passage of the gasohol exemptions and thus the fund is depleted. H. CONF. REP. NO. 817, *supra* note 98, at 3.

127. FIRST ANNUAL REPORT, *supra* note 26, at 26.

nies¹²⁸ Due to increases in consumer demand for gasohol, the number of firms involved directly or indirectly in the production, distribution, and marketing of ethanol increased. The estimated maximum volume of ethanol available for motor fuel blending in 1980 was sixty-two million gallons, an increase of twelve million gallons from the previous year.¹²⁹ In addition, imports of ethanol constituted fifty-eight million gallons, more than twice the twenty-eight million gallons imported in 1979.¹³⁰ Consequently, as much as 120 million gallons of fuel grade ethanol, sufficient to yield 1.2 billion gallons of gasohol, were distributed into the market. This figure compared favorably to the 495 million gallons of gasohol produced in the prior year. The amount of gasoline saved in 1980 increased to 120 million gallons from the previous year's fifty million gallon estimate.¹³¹ These gasoline savings also generated revenue losses due to increased use of the tax exemption. The revenue lost to the Federal Highway Trust Fund was established at \$48,000,000.¹³² The report did not estimate the net loss in revenue to the federal government. The 1980 study, unlike the earlier study, determined that production costs of alcohol and gasoline were too difficult to calculate. The study did indicate, however, that the retail price for gasohol was 7.8 cents per gallon above the unleaded gasoline price.¹³³

The annual report indicated that in 1980 the "domestic methanol production reached 1.2 billion gallons, derived primarily from natural gas feedstocks and small amounts of heavy residual oil."¹³⁴ The methanol produced was mainly used for industrial purposes in products such as plastics and synthetic fibers. Use of methanol as a motor fuel was limited to laboratory and vehicle fleet use testing. The report discussed the vehicle fleet use in California, specifically the use by the Bank of America and Los Angeles County.¹³⁵ The study indicated that the expanding use of pure methanol vehicles required the establishment of new refueling outlets. The report also indicated that no revenue loss resulted from the excise tax exemption because nonbiomass ethanol did not qualify for the exemption.¹³⁶ The report noted that no commercial nonbiomass methanol facilities were established during 1980.¹³⁷

128. SECOND ANNUAL REPORT, *supra* note 36, at 1. The four ethanol producers specified in the *Second Annual Report* include Archer Daniels Midland, Midwest Solvents, Georgia Pacific, and Milbrew. *See id.* app. at 4. The report does not name a fifth firm. *See supra* note 114.

129. *Id.* app. at 2.

130. *Id.* at 3.

131. *Id.* at 9.

132. *Id.* at 10.

133. *Id.* at 11.

134. *Id.* at 6.

135. *Id.* at 7-8.

136. *Id.* at 7 n.4.

137. *Id.* at 6 n.3.

B. *The Crude Oil Windfall Profit Tax Act of 1980*

Congress apparently considered the 1978 Act to be too narrow in its approach to promoting alcohol used in motor fuels.¹³⁸ Thus, the Crude Oil Windfall Profit Tax Act of 1980 (1) extends several of the earlier 1978 provisions, (2) corrects several of the problems in the 1978 Act, and (3) adds several provisions to encourage the production and use of alcohol fuels.

1. *Excise Tax Exemption.* The 1980 Act modifies the 1978 Act's excise tax exemption provision. First, the Act extends the excise tax exemption through December 31, 1992.¹³⁹ Congress made it clear, however, that it did not intend to apply the exemption for alcohol fuels to any future increases in the taxes on gasoline or other motor fuels "to the extent that such increases result in the taxes being imposed at a rate in excess of four cents per gallon."¹⁴⁰ Second, the 1980 Act corrects a deficiency in the 1978 Act by allowing a credit or refund of excise taxes paid on gasoline that is subsequently used to make a tax-exempt alcohol blend.¹⁴¹ Under section 6427(f) of the Code, the person who purchases the gasoline on which the excise tax has been paid and uses it to make a tax-exempt alcohol blend is the person eligible for the refund or credit. No more than one credit or refund of the same tax is allowed.¹⁴² If, for example, a credit is allowed because of an exempt use or because of an exempt user, then no additional credit is allowed when the gasoline is blended with alcohol. The 1980 Act also clarifies the procedures for determining the proof and volume of qualifying alcohol. Proof is determined before any denaturants¹⁴³ are added.¹⁴⁴ Denaturants, including gasoline, may be counted in determining the volume of the alcohol if they are covered under any formula approved by the Secretary of the Treasury. The denaturants, however, must not exceed five percent of the volume of the alcohol including denaturants.¹⁴⁵

2. *Energy Investment Credit.* The modifications made by the 1980 Act to the energy investment credit provision of the Energy Tax Act of 1978 are complicated and confusing. The 1980 Act adds "biomass property" as a new type of "energy property" eligible for the ten percent credit.¹⁴⁶ Biomass property includes property that primarily uses an organic substance

138. S. REP. NO. 394, 96th Cong., 2d Sess. 91, reprinted in 1980 U.S. CODE CONG. & AD. NEWS 410, 499-500.

139. I.R.C. § 4081(c)(4) (1981).

140. H. CONF. REP. NO. 817, *supra* note 98, at 142.

141. I.R.C. § 6427(f)(1) (1981).

142. *Id.* § 6427(f)(2).

143. Denaturants are additions to the alcohol that make it unfit to drink. Their addition is required by the Treasury Department, Bureau of Alcohol, Tobacco, and Firearms. See 27 C.F.R. § 19.456 (1981); FUEL ALCOHOL, *supra* note 15, at 44.

144. I.R.C. § 6427(f)(2) (1981). The denaturant may, however, be used as a drying agent. *Id.*

145. I.R.C. § 44E(d)(4)(B).

146. *Id.* § 48(f)(15). For other types of energy property, see *supra* note 83 and accompanying text.

other than oil, natural gas, or coal, or a product of oil, natural gas, or coal.¹⁴⁷ Boilers and burners that use biomass, pollution equipment required by law due to boiler and burner use, and equipment used to unload, transfer, store, reclaim from storage, or prepare the biomass material for use in this equipment, are all specifically included in the definition of biomass property.¹⁴⁸ This new type of property qualifying for the credit includes storage equipment for alcohol fuels provided the storage equipment is located at the production site of the alcohol.¹⁴⁹ The Act also specifies that storage equipment used for the storage of fuel derived from garbage qualifies for the credit if the equipment is used "at the site at which such fuel was produced from garbage."¹⁵⁰ Biomass property also includes property that converts substances other than oil, natural gas or coal into a "qualified fuel."¹⁵¹ "Qualified fuel" is defined as "alcohol for fuel purposes if the primary source of energy for the facility producing the alcohol is not oil or natural gas or a product of oil or natural gas."¹⁵² Thus, coal as well as geothermal, solar, and other nonoil or gas energy sources can be used to convert biomass materials into alcohol fuel so long as fifty percent of the fuel energy required for the conversion comes from these sources.¹⁵³ This biomass property provision, however, denies the credit to equipment that converts coal to alcohol fuel.¹⁵⁴ Another provision of the 1980 Act expands the definition of "alternative energy property"¹⁵⁵ to include any equipment used to convert "coal (including lignite), or any substance derived therefrom, into methanol, ammonia, or a hydroprocessed coal liquid or solid."¹⁵⁶ Thus, equipment that converts coal into methanol is also eligible for the energy investment credit. Apparently, the provisions in the 1980 Act cause little real change in the 1978 provisions.¹⁵⁷

The Crude Oil Windfall Profit Tax Act replaces the 1978 double-dipping rule that requires the energy percentage to be reduced by fifty percent when property is financed in whole or in part by industrial development bonds.¹⁵⁸ The new rule provides that the basis of property eligible for the energy investment credit should be reduced in proportion to the financing provided by tax-exempt industrial development bonds or by "subsidized

147. H. CONF. REP. NO. 817, *supra* note 98, at 132.

148. I.R.C. § 48(f)(15)(B)(i) (1981). Biomass includes sewage, sludge, grain, wood, oceanic and terrestrial crops, crop residues, sludge and industrial, agricultural, and municipal waste.

149. *Id.* § 48(f)(3)(A)(vii).

150. *Id.* § 48(f)(3)(A).

151. *Id.* § 48(f)(15)(B)(ii).

152. *Id.* § 48(f)(15)(C)(ii).

153. *Id.* § 48(f)(15)(A).

154. *Id.* § 48(f)(15)(B).

155. *Id.* § 48(f)(3).

156. *Id.* § 48(f)(3)(v)(II). *Id.* § 48(f)(3)(v)(I) allows a credit for equipment that converts coal "into a substitute for a petroleum or natural gas derived feedstock for the manufacture of chemicals or other products."

157. *See supra* notes 83-111 and accompanying text.

158. *See supra* note 110 and accompanying text.

energy financing."¹⁵⁹ This new double-dipping rule supplements the already existing rule that the basis of property eligible for the depreciation and investment credits is reduced to the extent that the property is financed by nontaxable government grants.¹⁶⁰ The new provision, however, applies only to the energy investment credit and not to the regular investment credit. The rule defines "subsidized energy financing" as "financing provided under a Federal, State, or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy."¹⁶¹ According to the legislative history, subsidized financing does not include loan guarantees.¹⁶² The legislative history, however, does not clearly address whether insured loans and price subsidies, the major types of financial assistance under the Energy Security Act of 1980, are excluded from this definition.¹⁶³ Arguably, insured loans are like loan guarantees because they are indirect subsidies. Purchase agreements, price supports, and price guarantees should be similarly viewed. Taxable grants are not considered subsidized financing because their taxation effectively prevents double-dipping.¹⁶⁴ Similarly, credits against state and local income taxes are not taken into account because the deductibility of these taxes under the federal income tax implies that the effect of these credits is equivalent to the effect of a taxable grant.¹⁶⁵

The double-dipping rule in the 1980 Act is designed to coincide exactly with the financing provided. Thus, the energy credit does not apply to that part of the purchase price of qualifying property that is financed by tax-exempt industrial development bonds or subsidized financing.¹⁶⁶ If, for example, forty percent of the cost of the property is financed by IDBs or other subsidized financing, then only sixty percent of the cost is eligible for the investment credit. Because this rule is designed to replace the fifty percent reduction provision of the Energy Tax Act, it takes effect only after December 31, 1982. It is retroactive to December 31, 1970, however, and applies to property that is eligible for the energy investment credit for the first time under the Act, for example, equipment that stores fuel derived from garbage.¹⁶⁷ Similarly, financing made after December 31, 1970, is considered in determining eligibility under the investment credit provision for property acquired by subsidized energy financing, other than tax-exempt IDB financing.

159. I.R.C. § 48(f)(11)(A) (1978) (modified by 1980 Act, *supra* note 3, § 223) (current version at I.R.C. § 48(f)(11) (1981)).

160. *See supra* note 108 and accompanying text.

161. I.R.C. § 48(f)(11)(C) (1978) (modified by 1980 Act, *supra* note 3, § 223) (current version at I.R.C. § 48(f)(11) (1981)).

162. H. CONF. REP. NO. 817, *supra* note 98, at 137.

163. *Id.*

164. *Id.*

165. *Id.* at 136. This is true even though their taxation is only partially offset by the benefit of receiving the credit.

166. I.R.C. § 48(f)(11)(B) (1978) (modified by 1980 Act, *supra* note 3, § 223) (current version at I.R.C. § 48(f)(11) (1981)).

167. H. CONF. REP. NO. 817, *supra* note 98, at 133.

3. *Energy Income Credit.* While the excise tax exemption in the 1978 Act tended to promote only ten percent alcohol blends, the 1980 Act establishes an incentive scheme that grants credits based upon varying amounts of alcohol in the blend. The 1980 Act adds section 44E to the Code¹⁶⁸ that provides for an "alcohol mixture credit" for blended fuels and an "alcohol credit" for 100 percent pure alcohol fuels.¹⁶⁹

To qualify for the "alcohol mixture credit," a mixture must either (1) be sold in the course of a trade or business by the taxpayer producing such mixture to any person for use as a fuel or (2) be used as a fuel in a trade or business by the taxpayer producing such mixture.¹⁷⁰ The one who produces the mixture is normally the eligible blender. The legislative history of the bill suggests, however, that a producer can be eligible for the credit when: (1) "[h]e owns all of the ingredients of the alcohol fuel mixture at the time of the blending process . . ."; (2) he "could arrange for the blending to take place at a facility operated by the gasoline supplier, or at some other facility . . ."; or (3) he would "participate with other parties in a partnership or joint venture to blend and distribute alcohol mixture fuels thereby qualifying for its distributive share of the credit in accordance with the partnership agreement and the tax rules relating to partnerships"¹⁷¹

The Act specifically disallows the energy income credit for casual off-farm production of a qualified mixture.¹⁷² Although the Code does not define casual off-farm production, arguably it would include alcohol produced by a farmer for uses such as personal transportation, tractor races, or other uses unrelated to the business of farming. The "qualified mixture" is a mixture of alcohol and gasoline or of alcohol and a special fuel.¹⁷³ Section 44E includes methanol and ethanol in the definition of alcohol, but excludes alcohol produced from petroleum, natural gas, or coal.¹⁷⁴ Thus, the Act favors ethanol production because only methanol from biomass materials qualifies for the energy investment credit. "Special fuel" is defined as any liquid fuel other than gasoline that can be used in an internal combustion engine.¹⁷⁵ The "alcohol credit" for straight alcohol fuels is the same amount as the "alcohol mixture credit," forty cents for alcohol of 190 proof and thirty cents for alcohol of at least 150 proof but less than 190 proof.¹⁷⁶ This credit is available to one who uses straight alcohol fuel as a fuel in his trade or business, or sells straight alcohol fuel at retail to a person and places it in the tank of that person's vehicle.¹⁷⁷ In

168. I.R.C. § 44E (1981).

169. *Id.* § 44E(b)(1), (2).

170. *Id.* § 44E(b)(1)(B), (C).

171. 126 CONG. REC. S3034 (daily ed. Mar. 26, 1980) (statement of Sen. Long).

172. I.R.C. § 44E(b)(1)(D) (1981).

173. *Id.* § 44E(b)(1)(B).

174. *Id.* § 44E(d)(1)(A).

175. *Id.* § 44E(d)(2).

176. *Id.* § 44E(b)(1)-(3).

177. *Id.* § 44E(b)(2)(A)(i), (ii).

compliance with the retailer's excise tax exemption,¹⁷⁸ no credit is allowed to the user when the retail seller is eligible for the credit.¹⁷⁹

The energy income credit is intended to supplement the excise tax exemption. The credit expires on December 31, 1992, the same expiration date as the gasoline exemption.¹⁸⁰ To prevent any double-dipping from the two tax measures, the credit is reduced by the amount of the federal excise tax exemption that applies to the qualifying fuel.¹⁸¹ If, for example, the taxpayer blends 800 gallons of gasoline and 200 gallons of alcohol and sells the mixture to a service station, the amount of the credit allowance would be \$40. This is computed as follows: 200 gallons x \$.40 = \$80 reduced by \$40 (1,000 gallons x \$.04). Because the credit is measured by the amount of alcohol used in these fuels, it corrects a deficiency in the excise tax exemption by providing an additional incentive for those who produce more or less than the ten percent alcohol level. If, for example, 1,000 gallons were sold containing ten percent alcohol, there would be no credit allowance because blends containing less than ten percent alcohol are not exempt from the excise tax. Therefore, the \$40 alcohol mixture credit (100 gallons x \$.40) would be offset by the \$40 excise tax (1,000 gallons x \$.04).¹⁸²

Those taxpayers eligible for the excise tax exemption are not identical to those eligible for the income tax credit. For example, a user exempt under the excise tax can still receive the income tax credit. Thus, the taxpayer who blends the gasoline with the alcohol and sells the mixture to a unit of government can claim the gross tax credit on the gallons of alcohol with no reductions even though the sale of the fuel would be free of excise tax to the government.¹⁸³ Similarly, if the taxpayer sold the alcohol fuel to a farmer for farm use, then the taxpayer could claim the gross tax credit with no reduction even though the alcohol fuel was sold free of the excise tax to

178. *Id.* § 4041(k); *see supra* note 66 and accompanying text.

179. I.R.C. § 44E(b)(2)(B) (1981).

180. *Id.* § 44E(f)(1).

181. *Id.* § 44E(c).

182. The following chart illustrates the application of these rules:

<u>Gasoline Content (in gals)</u>	<u>Alcohol Content (in gals)</u>	<u>Gross Tax Credit</u>	<u>Reduction For Excise Exemption</u>	<u>Net Tax Credit (per 1,000 gals blended)</u>
980	20 (2%)	\$ 8	0	\$ 8
970	30 (3%)	12	0	12
960	40 (4%)	16	0	26
940	60 (6%)	24	0	24
920	80 (8%)	32	0	32
900	100 (10%)	40	\$40	0
850	150 (15%)	60	40	20
800	200 (20%)	80	40	40
600	400 (40%)	160	40	120
400	600 (60%)	240	40	200
200	800 (80%)	320	40	280
0	1,000 (100%)	400	40	360

183. I.R.C. § 4041(g) (1981); *see H. CONF. REP. NO. 817, supra* note 98, at 143 n.2.

the farmer.¹⁸⁴ Analogous to the energy investment credit, the income credit is nonrefundable.¹⁸⁵ If the tax credit exceeds a taxpayer's total income tax liability, then the taxpayer cannot receive a federal tax refund.¹⁸⁶ Like the energy investment credit, the income credit also allows the taxpayer to carry forward the excess value of the credit to the tax liability in the following years.¹⁸⁷ No energy credit, however, may be carried forward to tax years beginning after December 31, 1994.¹⁸⁸

Unlike the energy investment credit, the energy income tax credit is taxable.¹⁸⁹ The taxpayer must add the amount of the tax credit claimed to the gross income on which tax liability is computed.¹⁹⁰ Essentially, the tax credit is added to income, the tax owed is calculated on that income, and the tax credit is then subtracted from the tax owed. The tax credit is included in income because the benefit is intended to be generally the same as the benefit of a four cent per gallon excise tax exemption for a gallon of gasoline that consists of ten percent alcohol and ninety percent taxable motor fuel.¹⁹¹ Because the excise tax can be deducted by the person subject to the tax (the producer in the case of gasoline or the user in the case of diesel fuel or special motor fuel), an amount equivalent to the energy income tax credit (or refund) includable in income is necessary to produce the same net tax effect.¹⁹² Thus, for a taxpayer in the forty percent marginal tax bracket, a forty percent excise tax exemption is worth twenty-four cents after income tax since the loss of the deduction will increase income tax liability by sixteen cents.¹⁹³ Similarly, a forty percent refundable income tax credit plus the inclusion in income of forty cents will result in a benefit of twenty-four cents after income tax.¹⁹⁴

184. I.R.C. § 4041(f) (1981); see H. CONF. REP. NO. 817, *supra* note 98, at 143 n.2.

185. I.R.C. § 44E(e)(1) (1981). If the credit is not expected to exceed the tax liability, then the credit can be refunded on a quarterly basis. The refund is like the refund under the energy investment credit. An advance refund is available once during each three quarters of the taxpayer's taxable year. In both cases, the amount of the credit each quarter must be at least \$1,000. The taxpayer may take any unclaimed credit as a credit against its income tax. An additional refund procedure is provided for an institution that is generally exempt from income tax, for example, a tax-exempt organization. That institution may obtain a refund of overpayment of income tax with respect to its annual accounting period if it files a timely claim. *Id.* § 6427.

186. *Id.*

187. *Id.* § 44E(e)(2).

188. *Id.* § 44E(f)(2).

189. *Id.* § 86.

190. *Id.*

191. S. REP. NO. 394, *supra* note 138, at 94.

192. *Id.*

193. Assuming the tax is 4% of the sales price of the product:

\$10 in product sold results in excise tax of \$.40

\$.40 deduction from the return if taxpayer is in the 40% bracket. Tax savings of \$.16 and a net loss of \$.24.

Therefore, an exemption from the 4% excise tax results in a net savings to the taxpayer of \$.24

All this assumes that the exemption (as opposed to the credit) does not put the taxpayer in a lower marginal tax bracket. *See id.*

194. Caution: do not mix gallons with dollars.

In summary, the 1980 Act did solve some of the problems that were created by the 1978 Act. It established an incentive for alcohol blends of less than ten percent alcohol. It provided a credit or refund for excise taxes paid on gasoline that was later used for an exempt blend. It defined the volume and proof of alcohol qualifying for the tax incentives. The 1980 Act did little to change the investment credit established by the 1978 Act, but it did clarify the types of property qualifying for the credit. The Act did not solve the problem that domestic producers were having with competition from foreign alcohol importation because importers qualified for the income credit as well as the excise tax exemption.¹⁹⁵ The biggest drawback of the 1980 Act was its failure to promote the production of methanol from coal. The effectiveness of both the income credit in the 1980 Act and the excise tax exemption in the 1978 Act depends upon the price of gasoline. Studies have shown that the consumer will not buy gasohol if the price exceeds the price of unleaded gasoline by more than four to five cents.¹⁹⁶ Although the price of unleaded gasoline has varied since 1978, generally it has been priced seven to ten cents less than a gallon of gasohol.¹⁹⁷ Thus, in the absence of state subsidies, the income credit and excise exemption fail to make gasohol competitive with gasoline. Also, the price of gasohol depends upon the price of corn and other feedstock. Expansion of ethanol production escalates grain prices, which in turn causes the price of gasohol to increase.¹⁹⁸ The energy investment credit, unlike the excise tax exemption and income credit, is directed at the purchase of energy property rather than the production or sale of alcohol fuels and is, therefore, less dependent upon the price of gasoline for its effectiveness.

4. *Alternative Fuel Production Credit.* The 1980 Act adds section 44D to the Code.¹⁹⁹ This section creates a new form of credit, the "alternative fuel production" credit. This credit provides three dollars per energy equivalent of a barrel of oil for the production of energy from "alternative fuel sources."²⁰⁰ The alternative fuels include "liquid, gaseous, or solid synthetic fuels produced from coal (including lignite) including such fuels when used as feedstocks."²⁰¹ Methanol is included within this definition. The provision is designed to protect producers of these forms of energy from decreases in the competitive price of domestic oil. The credit goes

Excise tax is \$.04 per gallon.	
10 gallons produced	\$.40
Credit added to income times 40% bracket	<u>\$.16</u>
Net tax benefit	<u>\$.24</u>

The credit can never put you in a lower bracket. *Id.*

195. See *infra* note 240 and accompanying text.

196. SECOND ANNUAL REPORT, *supra* note 36, at 5.

197. Nag, *supra* note 8, at 33, col. 3.

198. *Alcohol and Gasohol Reports Point to Need for Subsidies*, NAT'L PETROLEUM NEWS, Apr. 1981, at 34 (citing remarks of Thomas O'Shea, economist, Chase Manhattan Bank).

199. I.R.C. § 44D (1981).

200. *Id.* § 44D(a).

201. *Id.* § 44D(c)(1)(C). The Senate Report specifically excluded alcohol fuels made from coal. See S. REP. NO. 394, *supra* note 138, at 87.

into effect, however, when the average wellhead price for uncontrolled oil is \$23.50, and it phases out when the price reaches \$29.50.²⁰² Because the price of uncontrolled oil has been above \$29.50 since the effective date of this provision, and because in all likelihood the price will continue to increase, this provision is inoperative and ineffective as an incentive for the production of methanol.

The alternative fuel production credit is subject to complicated effective dates and other special rules. One special rule requires an inflation adjustment to the wellhead price of uncontrolled oil.²⁰³ This inflation adjustment is not required by other tax sections, yet it seems to be an essential provision when the value of the incentive declines as prices rise over time. The adjustment does, however, tend to make the alternative fuel production credit more complicated. Another part of the credit is the double-dipping provision. To the extent that the project is financed with tax-exempt debt, government grants, or subsidized energy loans, section 44D reduces the production credit for any particular project.²⁰⁴ Furthermore, if the energy investment credit is allowable for a facility, the production credit arising later from the sale of the product will be reduced until the entire energy investment credit is recaptured.²⁰⁵ All of these rules, however, are not likely to be applied unless the average wellhead price for uncontrolled oil decreases drastically, or the \$29.50 ceiling price is raised to realistically reflect the price of oil.

5. Industrial Development Bond Interest Exemption. Thus far the discussion has focused upon tax incentives for the purchase of equipment used in an alcohol facility and incentives for the production of alcohol from the facility. The discussion now addresses incentives for the facility itself. The Windfall Profit Tax Act of 1980 provides that interest from IDBs used to finance the construction of certain facilities will be exempt from income tax.²⁰⁶ In general, interest on state and local government obligations is exempt from federal income tax, but no exemption applies to interest on state and local government issues of IDBs.²⁰⁷ IDBs are municipal bonds issued to finance private industrial expansion. A municipality enters into a contract with a private firm to construct a plant or facility, with the funds to be provided by the IDB. The facility is then leased to the private industry and the rent is applied to service and to retire the debt. Because of the tax exemption, the cost of financing the indirect expansion in a particular community is much lower to the business than financing that could otherwise be obtained through private lenders. IDBs are tax-exempt when the proceeds of the bonds are used to finance the building of certain facilities. Before the 1980 Act, such facilities included "solid waste disposal facili-

202. I.R.C. § 44D(b)(2) (1981).

203. *Id.*

204. *Id.* § 44D(b)(3).

205. *Id.* § 44D(b)(4).

206. *Id.* § 103(b)(4)(E), (g)(1)(B).

207. *Id.* § 44D(b)(3).

ties."²⁰⁸ After the Act, the definition of "solid waste disposal facilities" includes a "qualified alcohol-producing facility."²⁰⁹ The Act also exempts interest on IDBs used to finance "renewable energy property."²¹⁰ The provision governing tax-exempt IDBs for financing "alcohol-producing facilities" applies to obligations issued after October 18, 1979,²¹¹ but the provision governing "renewable energy property" applies to obligations issued after the Act's effective date, April 2, 1980.²¹²

a. Qualified Alcohol-Producing Facility. Under the 1980 Act, the definition of a "solid waste disposal facility" includes a "qualified alcohol-producing facility."²¹³ Generally, a qualified alcohol producing facility" converts solid waste into alcohol. Thus, facilities that turn municipal waste into methanol qualify under the definition. Three requirements must be met, however, before the facility qualifies under this section. First, the primary product obtained from the facility must be alcohol.²¹⁴ Apparently the alcohol does not have to be of any minimum proof to meet this requirement. Second, more than half of the feedstock used to produce the alcohol must be solid waste or feedstock derived from solid waste.²¹⁵ "Solid waste" includes biomass materials such as sludge, sewage, municipal, industrial, and agricultural waste, and crop residue.²¹⁶ Third and most significant, substantially all of the solid waste derived from feedstock used at the alcohol producing facility must be produced at a facility located at or adjacent to the site of the alcohol producing facility.²¹⁷ Further, the solid waste derived feedstock production facility must be owned and operated by the same person who owns and operates the alcohol producing facility.²¹⁸ This third requirement for location and ownership need not be met when four conditions are satisfied:²¹⁹ (1) substantially all the solid waste derived feedstock is produced at a facility that went into full production during 1977, is located within the limits of a city, and is located in the same metropolitan area as the alcohol producing facility; (2) a gov-

208. *Id.* § 44D(b)(4). Solid waste disposal facilities are properties for the collection, storage, treatment, utilization, processing, or final disposal of solid waste. Treas. Reg. § 1.103-8(f)(2)(ii) (1973). A facility that disposes of solid waste by reconstituting, converting, or otherwise recycling it into material that is not waste will qualify as a solid waste disposal facility if at least 65% of the material introduced into the recycling process is solid waste. In the case of property that has both a solid waste disposal function and a function other than the disposal of solid waste, only the portion of the cost allocable to the solid waste disposal function will be treated as an expenditure for a solid waste disposal facility. *Id.*

209. I.R.C. § 103(g)(1)(B) (1981).

210. 1980 Act, *supra* note 3, § 243(a); *see also* H. CONF. REP. NO. 817, *supra* note 98, at 151-52.

211. 1980 Act, *supra* note 3, § 243(d).

212. *Id.* § 243(b).

213. I.R.C. § 103(g) (1981).

214. *Id.* § 103(g)(3)(A).

215. *Id.* § 103(g)(3)(B).

216. "Solid waste" is not specifically defined in the 1980 Act. *But see* H. CONF. REP. NO. 817, *supra* note 98, at 147.

217. I.R.C. § 103(g)(3)(C)(i) (1981).

218. *Id.* § 103(g)(3)(C)(ii).

219. 1980 Act, *supra* note 3, § 241.

ernmental body and a nonprofit organization have negotiated before March 1, 1980, for the production of alcohol at the facility; (3) the aggregate amount of obligation issued under this special rule does not exceed \$30 million dollars; and (4) the obligations are issued before January 1, 1986. In general, the ownership and location requirement endeavors to make new alcohol producing facilities cost efficient. The location requirement promotes the development of facilities that avoid the need of transporting solid wastes to the conversion facility. Of course, locating the facility at the same site as the wastes is not always possible in urban areas.²²⁰ The ownership requirement aids in lowering the cost of the end product because only one entity owns and operates the facility. This IDB interest exemption, like most of the provisions in the 1980 Act dealing with alcohol fuels, contains a double-dipping rule. Under this rule IDBs used to provide qualified alcohol producing facilities will not be tax-exempt if the bonds are guaranteed by a federal, state, or local government, or if any payment of the principal or interest is made with funds from a federal, state, or local energy program.²²¹

b. Renewable Energy Property. Under the 1980 Act, IDBs used to finance "renewable energy property" will also be tax-exempt.²²² "Renewable energy property" is property used to produce energy, including substitute fuels, from renewable energy sources, including biomass. This definition is broad enough to include facilities that produce ethanol or methanol. Four conditions must be met, however, before this exemption applies:²²³ (1) the bonds must be general obligations of a state; (2) taxes must be levied in sufficient amount to provide for the payment of principal and interest on the bonds; (3) the amount of all obligations (whether or not industrial development bonds) under the state program for renewable energy property may not exceed \$500 million or one-half of one percent of the value of all property within the state, whichever is smaller; and (4) the state constitution must permit state financing of small scale energy projects. A constitutional amendment to permit such financing must have been approved by the legislature before October 18, 1979.

Analogous to the bonds for alcohol producing facilities, the 1980 Act provides that renewable energy property bonds will not be tax-exempt if the bonds are guaranteed by a federal, state, or local government or if any payment of the principal or interest is made with funds from a federal, state, or local energy program.²²⁴ Unlike the prior provision covering alcohol producing facilities, all four conditions of this section had to be met by the time of the Act or the exemption became ineffective.²²⁵ Unfortu-

220. FUEL ALCOHOL, *supra* note 15, at 36.

221. I.R.C. § 103(h) (1981); *see* H. CONF. REP. NO. 817, *supra* note 98, at 148.

222. 1980 Act, *supra* note 3, § 243.

223. *Id.*

224. H. CONF. REP. NO. 817, *supra* note 98, at 152.

225. 1980 Act, *supra* note 3, § 243(1)(D).

nately, Oregon was the only state to qualify.²²⁶ Given that fact, this provision will not significantly aid the policy of promoting renewable energy resources.

6. *Alcohol Fuel Plants.* The 1980 Act creates a new section in the Code that relaxes the regulatory structure governing distilled spirit plants²²⁷ and thus promotes the production of ethanol. This regulatory scheme of the Department of Treasury, Bureau of Alcohol, Tobacco, and Firearms, applies to the production of alcohol for industrial uses. The scheme requires that a distillery be registered and that the background of the individuals operating the distillery be investigated before the business begins production.²²⁸ This scheme also requires the approval of plant construction details, supervision of production by the Bureau of Alcohol, Tobacco, and Firearms,²²⁹ and acquisition of a bond by a distilled spirits plant operator before any distilled spirits are produced.²³⁰ To encourage commercial production of alcohol, the 1980 Act distinguishes between distilled spirits that will be used as a fuel and those that will be used as a beverage. Distilled spirits plants are considered fuel producing only after the alcohol is rendered unfit for beverage purposes.²³¹ These fuel-producing distilled spirits plants are eligible for simplified and reduced regulation.²³² The Act directs the Bureau of Alcohol, Tobacco, and Firearms to issue regulations that shorten application procedures and forms, reduce recordkeeping and reporting requirements, lower bonding requirements, and lessen production controls.²³³

Under these new regulations, three new categories of operating permits are expected to be established (small, medium, and large), although the Act requires that only a small plant category be established.²³⁴ The current categories of experimental and commercial operating permits may also be continued.²³⁵ For small plants, defined as those plants that produce no more than 10,000 gallons of alcohol per year, the Act requires the Bureau of Alcohol, Tobacco, and Firearms to approve or reject within sixty days a properly submitted operating application.²³⁶ It provides for automatic approval of the application if Treasury action is delayed.²³⁷ The Treasury may, however, revoke or suspend permits for distilled spirits plants.²³⁸ In addition, the Act specifies that small producers are not re-

226. FUEL ALCOHOL, *supra* note 15, at 1000.

227. I.R.C. § 5181 (1981).

228. 27 C.F.R. §§ 19.151-152 (1981).

229. *Id.* §§ 19.111-115.

230. *Id.* § 19.231.

231. *Id.* § 19.934.

232. *Id.* § 19.931.

233. *Id.*

234. *Id.* § 19.937.

235. *Id.*

236. *Id.*

237. *Id.*

238. *Id.* § 19.953.

quired to be bonded.²³⁹

C. *Developments Since the 1980 Act*

1. *The Omnibus Reconciliation Act of 1980.*²⁴⁰ The Omnibus Reconciliation Act was passed in December 1980. This Act increased the three percent import duty on alcohol to ten cents per gallon in 1981, twenty cents per gallon in 1982, and forty cents per gallon in 1983 through 1993, at which time the duty will return to three percent. Congress passed this Act largely because domestic producers of alcohol felt threatened by alcohol imports from abroad (in particular those from South America), and Congress wanted to limit the tax advantage that importers were receiving from the gasohol exemption and income credit provisions. In retrospect, however, the reduced demand for alcohol as a result of the reduced price of gasoline²⁴¹ has made the import fee unnecessary.

2. *The Economic Recovery Tax Act of 1981.* The Economic Recovery Tax Act of 1981 contains no provision that deals specifically with alcohol fuels. It does, however add section 44F to the Code.²⁴² This section provides a nonrefundable twenty-five percent credit for incremental domestic "qualified research expenses."²⁴³ This credit should be helpful in promoting the development of new processes and technologies for the production of alcohol fuels. The new provision will likely aid the following research activities: (1) better utilization of byproducts from the alcohol producing process; (2) innovative design structure for the alcohol producing equipment;²⁴⁴ (3) improvement of the energy efficiency of the distillation and pyrolysis/gasification processes; (4) DNA research that would solve pretreatment problems of cellulosic materials;²⁴⁵ (5) low-pressure techniques to convert biomass into methanol;²⁴⁶ (6) development of diesel and spark-ignited internal-combustion engines that can use methanol for fuel; (7) perfection of cellulose conversion techniques;²⁴⁷ and (8) generally, more effective conversion of biomass to methanol and ethanol.

The new credit provision does not replace section 174 of the Code, which allows taxpayers to deduct or amortize their research and development costs (R&D).²⁴⁸ The 1981 Act does not include a double-dipping provision to prevent a qualified taxpayer from benefiting from both the R&D deduction and the credit provisions. For a profitable company oper-

239. *Id.* § 19.956.

240. Pub. L. No. 96-499, 94 Stat. 2599, 2695 (1980).

241. Nag, *supra* note 8, at 33.

242. ERTA, *supra* note 4, § 44F.

243. *Id.* § 44F(b).

244. OFFICE OF ALCOHOL FUELS, U.S. DEP'T OF ENERGY, QUARTERLY REPORT TO THE PRESIDENT AND THE CONGRESS 2 (Apr.-June 1981) [hereinafter cited as QUARTERLY REPORT].

245. *Id.*

246. FUEL ALCOHOL, *supra* note 15, at 27.

247. *Id.* at 23.

248. I.R.C. § 174 (1981).

ating in a state with an income tax keyed to the federal income tax, the combined effect of the research credit and current deductibility could mean a sizeable subsidy by the federal, state, and local authorities. Thus, like the excise tax exemption, the state tax incentives must be examined to determine the total impact of the R&D incentive. Under section 174 a taxpayer may elect to deduct currently the amount of R&D expenditures incurred in connection with the taxpayer's trade or business, or he may elect to amortize certain R&D costs over a period of sixty months or more.²⁴⁹ The present Treasury Regulations under section 174 define R&D as "research and development costs in the experimental or laboratory sense," including "all such costs incident to the development of an experimental or pilot model, a plant process, a product, a formula, an invention, or similar property, and the improvement of already existing property of the type mentioned."²⁵⁰ R&D does not include "literary" or "historical" research.²⁵¹ In general, it includes the costs of research conducted on behalf of the taxpayer by a research firm, university, or other outside contractor as well as costs of research conducted by the taxpayer.²⁵²

The new credit provision defines qualified research expenses differently than the definition under section 174. In general, these costs include "in-house" and "contract" research expenses.²⁵³ In-house research expenses include (1) wages paid to employees directly engaged in conducting, supervising, or supporting research;²⁵⁴ (2) amounts paid for supplies used in the conduct of research;²⁵⁵ and (3) amounts paid for the right to use personal property in the conduct of research.²⁵⁶ Contract research expenses include sixty-five percent of the amounts paid to third parties for contract research.²⁵⁷ The credit base also includes sixty-five percent of amounts paid by a corporation to educational and scientific organizations for the support of "basic research."²⁵⁸ Specifically excluded from qualified research expenses are costs incurred outside the United States,²⁵⁹ costs of research in the social sciences or humanities,²⁶⁰ and costs of research "funded by any grant, contract, or otherwise by another person (or any governmental entity)."²⁶¹ This latter provision, like most double-dipping rules, is intended to prevent the taxpayer from taking the credit unless the taxpayer bears the burden of the cost of the research.

249. *Id.* § 174(b).

250. Treas. Reg. § 1.174-2(a)(1) (1960).

251. *Id.*

252. *Id.* § 1.174-2(a)(2). The regulations also include the costs of obtaining a patent. *Id.* § 1.174-2(a)(1). Depreciation on buildings and equipment used for research would arguably be part of the costs of the research conducted by the taxpayer.

253. ERTA, *supra* note 4, § 44F(b)(1).

254. *Id.* § 44F(b)(2)(A)(i). For the definition of wages, see *id.* § 44F(b)(D).

255. *Id.* § 44F(b)(2)(A)(ii). For the definition of supplies, see *id.* § 44F(b)(C).

256. *Id.* § 44F(b)(2)(A)(iii)

257. *Id.* § 44F(b)(3)(A).

258. *Id.* § 44F(e).

259. *Id.* § 44F(d)(1).

260. *Id.* § 44F(d)(2).

261. *Id.* § 44F(d)(3).

The new tax credit limits R&D expenditures to twenty-five percent of the amount of current R&D costs that exceed the "base period research expenses," the average R&D costs of the business for the last three taxable years.²⁶² In no case, however, may the base period expenses be less than fifty percent of the qualified research expenses for the determination year.²⁶³ This minimum base expenditure rule hurts new businesses with low or no current R&D costs. For example, if a new company with no past R&D expenditures spends \$500,000 on R&D, it will receive a \$62,500 credit, whereas an established company with an annual R&D budget of \$500,000 can obtain a \$125,000 credit for increasing its spending to \$1 million.²⁶⁴ In no case, however, may a taxpayer have more than a \$250,000 credit. Another provision of section 44F places a limitation on the availability of the credit to new enterprises.²⁶⁵ This limitation on artificial loss rule allows individuals (including partners, subchapter S shareholders, or beneficiaries of estates or trusts to whom credits are allocated) to take the credit only to the extent of that individual's tax attributable to income from the same entity that conducted the research and generated the credit.²⁶⁶

Unlike the requirement in section 174 that the research expenditures be "in connection with" a trade or business,²⁶⁷ the new credit provision requires the expenditures to be "paid or incurred by the taxpayer during the taxable year in carrying on any trade or business of the taxpayer."²⁶⁸ The Conference Committee Report specifically states that this language is intended to apply to the trade or business requirement of section 162.²⁶⁹ In cases under section 162, the courts have held that earning income is a prerequisite to being in a trade or business.²⁷⁰ Thus, a new business may not qualify for the new credit. In addition, existing businesses that develop

262. *Id.* § 44F(c).

263. *Id.* § 44F(c)(3).

264.

Current R & D	\$500,000	
Base expenditures	0	(but "minimum rule" requires at least 50% of current R & D costs).
	<u>\$250,000</u>	
	\$250,000 × 25% R & D credit or <u>\$62,500</u>	

Current R & D	\$1,000,000	
Base expenditures	500,000	(average of last three years and equal to 50% of current R & D costs).
	<u>\$ 500,000</u>	
	\$ 500,000 × 25% R & D credit or <u>\$125,000</u>	

See id. § 44F(c).

265. *Id.* § 44F(g).

266. *Id.*

267. *See supra* note 249 and accompanying text.

268. ERTA, *supra* note 4, § 44F(b)(1); *see also* H. CONF. REP. No. 215, *supra* note 47, at 223-24.

269. H. CONF. REP. No. 215, *supra* note 47, at 223-24.

270. "Pre-operating expenses" were not deductible in *Richmond Television Corp. v. United States*, 345 F.2d 901 (4th Cir. 1965), and *Madison Gas & Elec. Co. v. Commissioner*, 72 T.C. 521 (1979), *aff'd*, 633 F.2d 512 (7th Cir. 1980). *But see* *Blitzer v. United States*, 47 A.F.T.R.2d (P-H) 81-1005 (Cl. Cl. 1981).

new products may not be in a "particular trade or business." Costs of developing new products, however, qualify under section 174.²⁷¹ Finally, the issue arises whether or not inventors and others engaged in research may constitute a trade or business. Inventors clearly qualify under section 174.²⁷² In *Snow v. Commissioner*²⁷³ the Supreme Court held that a participant in a joint venture with an inventor could deduct his research costs even though he was not then in a trade or business of inventing and had not and did not ever embark upon the manufacture or sale of his invention.²⁷⁴ The Court found the purpose behind section 174 was to encourage new businesses to engage in research activities.²⁷⁵ The language of the new credit provision, however, leaves in doubt the eligibility of a similar joint venture.²⁷⁶

Another puzzling aspect of the new provision is the Senate Committee's suggestion that the receipt of royalties does not constitute a trade or business.²⁷⁷ Thus, a taxpayer that exploits a new technology through licensing arrangements will not ordinarily qualify to apply the credit against the costs of developing the technology even if it created the technology using its own employees and facilities or if it contracted for the research and development with an outside contractor. These problematic aspects of section 44F impair the potential effectiveness of the enactment and should be clarified by Treasury regulations to insure its efficacy.

In addition to the R&D credit, the Economic Recovery Tax Act of 1981 contains liberal depreciation and investment credit provisions.²⁷⁸ The legislative history of the Act specifically mentions that boilers, burners, and alcohol producing equipment will fall within the new three-year class.²⁷⁹ The new investment credit provision allows a six percent credit for property with a recovery period of three years, and purchasers of this equipment will be able to depreciate the cost of the equipment over a three-year period even though the useful life of the equipment may be much longer.²⁸⁰

271. *Best Universal Lock Co. v. Commissioner*, 45 T.C. 1 (1965), *acq.* 1966-1 C.B. 1; Rev. Rul. 71-162, 1971-1 C.B. 97.

272. *Johan A. Louw*, 30 T.C.M. (P-H) 1492 (1971).

273. 416 U.S. 500 (1974).

274. *Id.* at 502-03.

275. *Id.* at 504.

276. H. CONF. REP. NO. 215, *supra* note 47, at 224, states that regulations will be issued dealing with the eligibility of joint ventures.

277. S. REP. NO. 144, 97th Cong., 1st Sess., *reprinted in* 1981 U.S. CODE CONG. & AD. NEWS 191.

278. ERTA, *supra* note 4, § 168.

279. H. CONF. REP. NO. 215, *supra* note 47, at 214. Under ERTA the useful life of the property is no longer important; rather, the arbitrary periods of 3, 5, 10, and 15 years are used as the recovery periods, depending on the type of property involved. The new investment credit provision allows a 10% credit for property with a recovery period of 5, 10, and 15 years. Under the new Act the credit is recaptured on early disposition by allowing a 2% credit for each year the property is held. Thus, no recapture is required for eligible 5-year, 10-year, and 15-year property actually held for at least 5 years or for eligible 3-year property held for at least 3 years.

280. ERTA, *supra* note 4, § 46(c)(7).

3. *Proposals for Amendments to the Internal Revenue Code.* A number of bills have been introduced into Congress that attempt to amend the Internal Revenue Code and provide additional incentives for the production of alcohol. One bill proposes rapid amortization for equipment and facilities producing methanol from coal, wood waste, or natural gas when the methanol is used as an alternative fuel for motor vehicles.²⁸¹ Passage of this provision would allow a taxpayer investing in any methanol producing tangible property, otherwise subject to depreciation allowance, to amortize the cost of that property over a sixty-month period. The bill would add another amortization provision to the already existing classes of property eligible for special treatment.²⁸² This provision would counterbalance the bias of existing tax provisions against methanol production from coal. Another proposed amendment to the tax code provides a refundable credit of up to \$2,000 against income taxes for amounts paid or incurred to convert farm equipment to alcohol fuel use.²⁸³ This provision would provide a needed incentive for taxpayers engaged in the trade or business of farming. Another bill²⁸⁴ seeks to repeal section 5101 of the Code. Section 5101 provides a special tax of fifty-five dollars per year and twenty-two dollars for each still or condenser for distilling made by every manufacturer of stills.²⁸⁵ Those persons advocating the repeal of this section claim that the production of alcohol for fuel purposes would be promoted by eliminating this tax.²⁸⁶ Because of the narrow focus of these last two proposals, they will probably not have a significant impact on the development of alcohol fuels. The proposal for rapid amortization of methanol producing property, however, would serve to enhance the development of alternative fuels by giving needed impetus to the methanol conversion of coal sources.

III. DIRECT EXPENDITURES

The Energy Security Act of 1980²⁸⁷ was the first major legislation aimed at promoting the development of alternative energy resources through direct governmental expenditures. The Act contains eight separate titles that establish programs promoting conservation and the development of solar, biomass, and geothermal energy, as well as synfuels. The first two titles contain the alcohol incentives. Title I of the Act provides financial assistance for producers of fuels from nonbiomass feedstocks, specifically meth-

281. H.R. 1460, 97th Cong., 1st Sess. (1981).

282. The special amortization provisions include rehabilitation expenditures for low-income rental housing, I.R.C. § 167(k) (1981); pollution control facilities, *id.* § 169; railroad rolling stock, *id.* § 184; coal mine safety equipment, *id.* § 187 (1976) (repealed 1976); on-the-job facilities and child care facilities, *id.* § 188 (1981); certain rehabilitation expenditures for certified historic structures, *id.* § 191; and expenditures to aid handicapped persons on transportation facilities, *id.* § 190.

283. H.R. 918, 97th Cong., 1st Sess. (1981).

284. H.R. 1507, 97th Cong., 1st Sess. (1981).

285. I.R.C. § 5101 (1981).

286. U.S. NAT'L ALCOHOL FUELS COMM'N, FUEL ALCOHOL: AN ENERGY ALTERNATIVE FOR THE 1980's, FINAL REPORT 17 (1981).

287. Energy Security Act, *supra* note 5, 42 U.S.C. §§ 8701-8912.

ane produced from coal.²⁸⁸ Congress designed these special incentives for methanol production to counterbalance the preference given to ethanol under the tax provisions. Title I creates a new United States Synthetic Fuels Corporation designed to solicit and negotiate contracts and award financial assistance for synthetic fuel projects.²⁸⁹ Title II, the Biomass Energy and Alcohol Fuels Act of 1980,²⁹⁰ contains a variety of alcohol subsidies. Subtitle A of that title is designed to promote general biomass energy development projects.²⁹¹ Subtitle B establishes subsidies for facilities that produce fuels from municipal waste.²⁹² Subtitle C establishes programs for research and development, educational and technical assistance, and the production of biomass feedstocks on set-aside acreage.²⁹³ Subtitle D provides for various studies of alcohol fuels for use in motor vehicles and use by the federal government.²⁹⁴ This section of the Article concentrates on subsidies established in title I and subtitles A and B of title II. The financial assistance available under titles I and II of the Energy Security Act includes loan subsidies and price subsidies. The loan subsidies consist of direct loans, loan guarantees, insured loans, and price support loans. The price supports include purchase agreements and price guarantees. Under title I joint venture projects between private sector firms and the Synfuels Corporation are also provided.

A. Loan Subsidies

1. *Direct Loans.* Under a direct loan subsidy the government itself loans money at an interest rate below the rate available to the debtor in the private capital market. The government changes the market price of interest in favor of the debtor and bears the risk of loss on the total amount of the direct loan. The risk to the government will depend upon the financial condition of the debtor and the success of the alcohol producing project. The municipal waste biomass provisions of title II²⁹⁵ and the synfuel provisions of title I provide for direct loans to the borrowers.²⁹⁶ The rate charged cannot be less than the interest rate charged to the federal government to borrow money, and the borrower must show that the funds are not obtainable elsewhere.²⁹⁷ The loans are limited by a fixed percentage of the

288. *Id.* §§ 8701-8795.

289. *Id.* § 8722. The Synfuels Corporation is to be governed by a seven-member Board. *Id.* § 8712. All of the board members are appointed by the President and confirmed by the Senate for seven-year terms. *Id.* As stated in the statute, the purpose of the corporation is to achieve production of at least 50,000 barrels of crude oil equivalent per day of nonbiomass synthetic fuels by 1987, and of at least 2,000,000 barrels of crude oil equivalent per day of nonbiomass synthetic fuels from domestic resources by 1992. *Id.* § 8721.

290. *Id.* §§ 8801-8871.

291. *Id.* § 8811.

292. *Id.* § 8831.

293. *Id.* § 8851.

294. *Id.* § 8871.

295. *Id.* §§ 8831-8840.

296. *Id.* §§ 8731-8740.

297. *Id.* § 8732(b).

estimated costs of the project.²⁹⁸ Additional loans are available if the borrower demonstrates further assistance is necessary to insure the financial viability of the project.²⁹⁹

2. *Loan Guarantees.* Under a loan guarantee program the government guarantees the loan of the debtor to insure the private sector lender that, upon default in interest or principal payments, the government will repay the loan. As a result of this guarantee, the debtor can borrow funds for the project at an interest rate lower than the prevailing market rate. In addition, the investors in the project are protected against liability on the loan to the extent of the guarantee provision. Under the Energy Security Act the federal agency involved in administering the subsidy (the Synfuels Corporation in the case of title I; the Department of Energy (DOE) and the Department of Agriculture (DOA) in the case of title II, subtitle A; and the DOE in the case of title II, subtitle B) may guarantee loans against loss not in excess of a set percentage of the estimated cost of the construction of the alcohol project.³⁰⁰ If the estimated construction costs are exceeded, then application can be made for an additional guarantee within certain limits.³⁰¹ Before any loan guarantee is given, however, the debtor must establish that absent the guarantee a lender will not extend credit at reasonable rates and terms for the construction of the project.³⁰² The loan guarantee must have a maturity date of the lesser of the useful life of the project or thirty years.³⁰³

Under the loan guarantee program, no cost inures to the government unless a default occurs. The prospects for default may vary widely, however, depending upon the risks of the project. The government certainly assumes a large potential liability. To protect the government's interest the Act provides that the lender must bear a reasonable degree of risk in the financing of the project.³⁰⁴ This assumption of risk insures that the lender fully participates in the financing, fully evaluates and scrutinizes the loan for viability, and fully services the loan during the life of the loan. To

298. Under title I, the Synfuels Corporation is authorized to provide interest bearing loans to a synthetic fuel project up to 49% of the estimated costs of the project. If the borrower can demonstrate that additional loan assistance is necessary to insure the financial viability of the project, then the government may loan additional funds for as much as 75% of the estimated project costs. *Id.* § 8732.

Under title II, subtitle B, up to 90% of the total estimated construction costs of the project can constitute the loan. In the event of overruns, an additional loan of up to 10% of the original estimated construction costs may be given. *Id.* § 8833.

299. *Id.* § 8733(a).

300. Under title I, the Synfuels Corporation can make loan guarantees up to 75% of the total estimated cost of the project with 50% more for any overrun. *Id.* § 8733. Under title II, subtitle A, the DOE and DOA may guarantee against loss loans not in excess of 90% of the estimated cost of the construction of the alcohol project. If the estimated construction costs are exceeded, application can be made for an additional guarantee of an amount equal to 60% of the difference between the currently estimated costs and the total costs originally estimated. *Id.* § 8814.

301. *Id.* §§ 8733, 8814.

302. *Id.* §§ 8733(a)(4), 8814(g)(1).

303. *Id.* §§ 8833(c).

304. *Id.* § 8814.

insure that the interest rate on the loan guarantee is not excessive, the government is expected to participate in the negotiation for the financing of the loans. In the event the government determines that the debtor is unable to meet payments, but is not in default, the government may elect to pay the lender the amount of principal and interest the debtor is obligated to pay.³⁰⁵ The debtor must first guarantee to reimburse the government on terms and conditions the government deems necessary in order to protect the financial interest of the United States. If, however, the debtor defaults, then the government has access only to those assets of the defaulting firm that are directly involved in the project.³⁰⁶

3. *Insured Loans.* Insured loans under the Energy Security Act are available only from the DOA and only for small-scale biomass energy projects.³⁰⁷ These projects have an anticipated annual production capacity of not more than 1,000,000 gallons per year or the energy equivalent of other forms of biomass energy.³⁰⁸ Like the guaranteed loan subsidy, the Act establishes a set percentage of the total estimated cost of the project as an upper limit on the amount of the subsidy.³⁰⁹ In addition, the insured loan may not exceed \$1,000,000 per project. If, however, the total estimated cost of construction exceeds the total estimated cost initially determined, a further insured loan not to exceed ten percent of the original costs of the project may be available.³¹⁰ The insured loan is not available unless the applicant for such loan has established to the satisfaction of the DOA that the applicant is unable without such a loan to obtain sufficient credit elsewhere at reasonable rates and terms.³¹¹ This determination can be made by taking into consideration prevailing private corporate rates and terms for loans for similar purposes in comparable periods of time.

Under an insured loan program³¹² the government insures the lender against default by means of an insurance fund. The premium for the fund depends upon the risk of the project. If the premium is set so low that earnings from the project do not cover settled claims, then the government subsidizes the loan by the difference.³¹³ If premiums are adequate in relation to the project's earnings but lower than those of private insurance companies, then no subsidy arises in the form of cash outflow. A subsidy exists, however, in the sense that the government alters the market price or the interest rate to the advantage of the private borrower. Insured loans, unlike loan guarantees, do not necessarily enable a firm to obtain lower

305. *Id.* §§ 8733(b), 8814(f).

306. *Id.* § 8814; see STAFF OF JOINT ECON. COMM., 92D CONG., 1ST SESS., THE ECONOMICS OF FEDERAL SUBSIDY PROGRAMS 32 (Comm. Print 1972) [hereinafter cited as FEDERAL SUBSIDY PROGRAMS].

307. Energy Security Act, *supra* note 5, 42 U.S.C. § 8813.

308. *Id.* § 8802(19).

309. The subsidy is set at 90% of the total estimated cost of the project. *Id.* § 8813(b).

310. *Id.*

311. *Id.* § 8813(d).

312. See FEDERAL SUBSIDY PROGRAMS, *supra* note 306, at 33.

313. *Id.*

interest rates than otherwise available on the open market. The Energy Security Act provides that insured loans must earn interest at rates comparable to the current interest rate charged to the federal government to borrow money.³¹⁴

4. *Price Support Loans.* The municipal biomass program under title II of the Energy Security Act provides for price support loans. The program establishes a complicated formula to determine the amount of the support loan. The amount of the loan correlates to the biomass energy produced during the first year of the project's operation as calculated in units of dollars per million Btu's.³¹⁵ The amount of the loan equals the amount of biomass energy sold in millions of Btu's times the lesser of (1) \$2.00, or (2) the "price of imported #6 fuel oil at the date of enactment" decreased by the "cost of the fuel displaced by the biomass energy sold."³¹⁶ The amount of the loan is granted for a five-year period, but is reduced by twenty percent each year thereafter until the amount of the loan is reduced to zero in year five.³¹⁷ No interest is charged during this five-year period, but it is assessed over the repayment period (the lesser of ten years or the economic life of the project) at a rate approximately equal to the cost to the federal government to borrow money.³¹⁸ Again, like other loan subsidies, the government bears the risk that the loan will not be repaid. The repayment period under the price supports, however, is considerably less than the period under the other loan subsidies.³¹⁹

B. Price Subsidies

1. *Price Guarantees.* Price guarantees are designed to stimulate production of alcohol fuels by providing the owner or operator of any biomass energy project with a basis for profitability sufficient to enable it to compete with existing energy resources. Under the Energy Security Act, the owner or operator of a synthetic fuel project receives for all or part of the production a price not less than a specified figure determined as of the date of execution of the price guarantee or the commitment to guarantee.³²⁰ The price of the guaranteed product must not be determined on the basis of the cost of production plus a profit, or on any other similar arrangement that guarantees a profit to the owner or operator.³²¹ The use of a cost-of-service pricing mechanism, however, is not considered a cost-plus arrangement.³²² Because no guidelines exist for price determination, some question arises regarding the extent of the benefit to the firm from this type of

314. Energy Security Act, *supra* note 5, 42 U.S.C. § 8813(b)(1)(13).

315. *Id.* § 8834.

316. *Id.*

317. *Id.*

318. *Id.*

319. *See supra* note 303 and accompanying text.

320. Energy Security Act, *supra* note 5, 42 U.S.C. §§ 8734 (title I), 8815 (title II, subtitle A), 8834 (title II, subtitle B).

321. *Id.* §§ 8734, 8815(b)(2), 8834(c)(2)(A).

322. *Id.* §§ 8734, 8815(b)(2), 8834(c)(2)(B).

subsidy. These price guarantees fail to secure the owner's obvious desire to be assured of a profit above the risks of the project.³²³

2. *Purchase Agreements.* Under a purchase agreement the government purchases a product of a certain quality at a predetermined price. To the extent the price exceeds the price at which the fuel could be sold on the market, the government absorbs the loss.³²⁴ Firms and investors bear considerable financial risk under purchase agreements while at the same time the government gains program efficiency. The Act specifically requires that the purchased alcohol fuels or biomass energy meet quality standards,³²⁵ and they must be delivered on a timely basis.³²⁶ Therefore, if the firm fails to produce the quality product or make timely deliveries, then the government is not obligated to make any purchases. The Act also requires that the alcohol fuels and biomass energy accepted by the federal agencies should "not exceed the likely needs" of those agencies.³²⁷ The DOE and DOA may take delivery of the product only if arrangements have been made for the product's distribution to the federal agencies.³²⁸ Finally, the government has the right to refuse delivery of the alcohol fuels or biomass energy based upon the terms and conditions in the purchase agreement.³²⁹ The Energy Security Act provides that the price specified in the purchase agreement cannot exceed the estimated prevailing market price as of the date of delivery,³³⁰ and like the price guarantee provisions, the purchase agreement provisions limit the liability of the federal government for each agreement.³³¹ The purchase price and the maximum dollar amount of government liability specified in the purchase agreement may be renegotiated.³³² The estimated prevailing market price may be difficult to determine, however, since the market may not be "competitive" in the classical economic sense.

C. Joint Ventures

Title I of the Energy Security Act authorizes the Synfuels Corporation³³³ to undertake joint ventures for synthetic fuel project modules with private sector partners.³³⁴ Under the Act the corporation, acting as a lim-

323. The Energy Security Act places a limit on the maximum liability of the federal government. This amount, however, may be modified if the project's continuation is necessary to achieve the purposes of the program. *Id.* § 8813.

324. See FEDERAL SUBSIDY PROGRAMS, *supra* note 306, at 40.

325. Energy Security Act, *supra* note 5, 42 U.S.C. §§ 8735(b)(1), 8816(a)(1).

326. *Id.* §§ 8735(b)(2), 8816(c)(2).

327. *Id.* § 8816(b)(3). Title I just states that purchase agreements may contain "such other assurances as may be required." *Id.* § 8735.

328. *Id.* § 8816(d). Title I does not have the requirement.

329. *Id.* §§ 8735(c), 8816(f).

330. *Id.* § 8816(d).

331. *Id.* § 8816(g).

332. *Id.* §§ 8735(d), 8816(b).

333. See *supra* note 289 and accompanying text.

334. Energy Security Act, *supra* note 5, 42 U.S.C. § 8736. A synthetic fuel project module is a facility that is smaller than a synthetic fuel project, but capable of being expanded to the size of a project. The definition also includes related equipment and materials.

ited partner, can finance up to sixty percent of the total cost of a synthetic fuel project module.³³⁵ The private sector partner, however, acts as general partner and always has full management control of the project.³³⁶ If the technology used in a joint venture project proves successful, then the private sector participant can buy out the corporation's equity ownership on terms specified in the initial joint venture contract. If it is unsuccessful, then the corporation incurs the costs in proportion to its equity ownership.³³⁷

IV. COMPARISON OF TAX EXPENDITURES AND DIRECT EXPENDITURES

The alcohol tax incentives promote particular aspects of alcohol production, such as the conversion of biomass to alcohol or the blending of gasoline with alcohol. Except for the tax-exempt IDB provisions, the tax incentives do not promote the whole alcohol producing project. In contrast, the nontax subsidies, such as loan guarantees for construction costs of the project, tend to promote the total biomass project. As a result, the tax provisions rather than the direct subsidies tend to benefit a greater number and variety of participants in the alcohol producing industry (farmers, small businesses, large corporations, individuals).³³⁸ Tax expenditures and direct expenditures can be specifically compared by examining (1) the overall equity of each type of expenditure, (2) the time required to initiate and implement the alcohol incentive, (3) the likelihood that the subsidy will accomplish its purpose, (4) the revenue loss from the subsidy, and (5) the political considerations involved in the decision to choose one type of expenditure over the other.

A. Equity Considerations

Perhaps the biggest criticism of tax incentives is that they are inequitable. They tend to benefit persons with tax liability and those in the higher income tax brackets. As a general rule, deductions are more inequitable than credits. Income tax deductions reduce taxable income rather than reduce the amount of tax due. Deductions, therefore, grant less tax relief per dollar invested than the relief given by credits. Deductions also favor taxpayers in higher brackets; for example, a taxpayer in the fifty percent tax bracket saves more from a deduction than a taxpayer in the twenty percent bracket saves from the same deduction. Furthermore, because many deductions must be itemized, the tax incentive is more attractive to

335. *Id.* § 8736(a).

336. *Id.* § 8736(e).

337. *Id.* § 8736(f)(2).

338. If one were to compare the number of persons receiving some kind of benefit from the various exemptions and credits in the tax code with the number of persons receiving benefits from the loan and price subsidies in the Energy Security Act, one would conclude that a greater number and variety of persons tend to derive *some* benefit from the tax provisions than from the subsidy programs. The benefit from the nontax subsidies tends to be larger, however, due to the fact that the "total biomass project," not just one aspect of the alcohol production, is being subsidized.

high income taxpayers, the group that usually itemizes its deductions. In contrast to deductions, tax credits directly reduce tax liability. This feature of credits results in a more equitable form of tax relief because taxpayers making identical investments receive the same amount of tax savings regardless of any difference in their income levels. This does not mean, however, that credits are always equitable. Before an individual or business can take advantage of the credit, it must have some income tax liability to offset the credit. Carryforward provisions, although liberal, defer until the future the benefit of the tax reduction, and in an inflationary economy the credits may lose much of their value. Making the tax credit refundable may solve the inequity when taxpayers do not have sufficient income, but the taxpayer may still not be able to afford the out-of-pocket costs needed for the initial investment. The new leasing provisions³³⁹ may allow loss corporations to trade their investment credits and ACRS³⁴⁰ deductions for funds to purchase equipment and machinery.

In general, the alcohol incentive tax provisions take the form of credits (income credit, investment credit, energy credit, production credit, R&D credit).³⁴¹ Thus, they are not as discriminatory as deduction provisions (such as the accelerated cost recovery depreciation deduction). They tend, however, to benefit the established company with profits. The R&D credit, for instance, is based on the "incremental" R&D expenses with a limitation on artificial loss rule and a trade or business requirement.³⁴² The energy and investment credits are particularly helpful in reducing the overwhelming investment in the initial purchase price, a primary economic impediment to investment in alcohol producing facilities. Their effectiveness is undercut, however, because these credits do not benefit the new company unable to afford the initial outlay for the equipment. Because alcohol related credits are not refundable, profitable companies with offsetting income benefit more substantially than less profitable enterprises. Direct governmental subsidies, compared to tax subsidies, can provide benefits to new businesses and nonprofitable businesses, and thus effectuate a more equitable distribution of benefits. Deductions and credits are generally of no use to entities outside the tax system such as municipalities and nonprofit organizations. Consequently, stimulating these groups to use, produce, or otherwise to develop alcohol fuels may be difficult. For municipalities and other governmental subdivisions, however, the tax code exempts interest on IDBs for the financing of alcohol producing facilities.³⁴³ Thus, for example, incentives exist for municipalities to convert sewage sludge into methanol. These exemption provisions, unlike the deduction and credit provisions, make it possible for those outside the taxing

339. See ERTA, *supra* note 4, § 168(f).

340. ACRS, Accelerated Cost Recovery System, is the new depreciation section enacted under ERTA. See *id.* § 168.

341. See *supra* notes 83-111, 146-93, 199-205, 242-77 and accompanying text.

342. See *supra* note 250 and accompanying text.

343. I.R.C. § 103 (1981).

structure to benefit from alcohol production.³⁴⁴

B. Administrative Costs

In both tax and nontax subsidies the government incurs administrative costs to establish and to monitor those who qualify for the subsidy. The tax system is perhaps more cost efficient because (1) the taxpayer rather than the government determines eligibility and the amount of the subsidy, and (2) the basic system for filing and auditing tax returns is already in place. No need exists to create a new administrative agency. To the extent that new provisions and new forms are needed, however, administrative costs will necessarily increase. Also, because the IRS lacks expertise in energy matters, the implementation of the alcohol provisions may prove more difficult and costly for the IRS than for the DOE. The alcohol tax provisions, although specific, require no new tax forms. The income credit, investment credit, production credit, and tax-exempt interest provisions are incorporated into the normal return structure.³⁴⁵ Although the IRS may have difficulty determining details such as proof and volume of alcohol, the IRS is familiar with most elements of the credit calculations, for example, basis, adjustments to basis, recapture, and carryforwards.

From an administrative cost point of view, the nontax subsidy programs for alcohol fuels do not compare favorably with the tax subsidies. Title I of the Energy Security Act creates the Synfuels Corporation, a new entity with new composition, responsibility, structure, restraints, and the costs inherent in establishing a new administrative agency.³⁴⁶ Title II of the Energy Security Act gives jurisdiction over the biomass program to two agencies, the DOE and DOA.³⁴⁷ Although both agencies are established and reasonably familiar with alcohol subsidies, the implementation of the program by two agencies rather than one creates inefficiency. For example, under the Energy Security Act approval of some projects requires the consent of both agencies and thus gives rise to administrative details and delays.³⁴⁸ Furthermore, all projects that are selected by either the DOE or the DOA are subject to review by the other department.³⁴⁹ When disagreements arise, procedures and time limits are established for appeals.³⁵⁰ Although these procedures may help to accomplish the purposes behind the subsidies, they are not effective from an administrative cost viewpoint.

344. For nonprofit organizations to benefit under the tax code (besides receiving tax-exempt status) is difficult. In general, however, these institutions are not the principals involved in alcohol production.

345. The excise tax exemption, however, requires the filing of a separate form.

346. See *supra* note 289 and accompanying text.

347. Energy Security Act, *supra* note 5, 42 U.S.C. § 8811.

348. *Id.* § 8812.

349. *Id.*

350. *Id.* The DOE reviews projects for the purpose of considering the project's impact on national energy policy and its technical feasibility. The DOA reviews projects for the purpose of considering the national, regional, and local agricultural policy impact of the project on agricultural supply, production, and use. *Id.* § 8812.

C. Time Considerations

Tax incentives are more effective than nontax subsidies if efficiency is judged in terms of the implementation time of a subsidy program. Tax incentives can take effect immediately. The taxpayer need only file the tax return in a slightly different way to obtain the tax benefit. Conversely, the nontax subsidies take considerable time to implement. First, the government often requires feasibility studies to make sure technology is available and the firm is capable of handling the project. These studies have been required in the alcohol fuels program.³⁵¹ Second, once the decision is made to give the subsidy, a time consuming and detailed procedure begins. For example, before a purchase agreement subsidy becomes operative under the Energy Security Act, the government must (1) negotiate the purchase contract, (2) determine the "prevailing competitive price" and adjust this price upwards if necessary to insure production of alcohol, (3) establish product quality standards, and (4) arrange for the distribution and use of the product by the federal agencies.³⁵² Other direct expenditure subsidies for alcohol, such as price and loan subsidies, can be similarly time-consuming and complex.³⁵³ Although the Energy Security Act of 1980 was passed only a few months after the Windfall Profit Tax Act, it was enacted under the Carter Administration. The change in administrations (with the Reagan desire to balance the budget) combined with the time needed to implement the program has cast doubt upon the actual consummation of the nontax subsidy programs. In contrast, the Windfall Profit Tax provisions became effective immediately upon passage, and they have been revised by the Economic Recovery Tax Act of 1981.³⁵⁴

D. Accomplishment of Objectives

Subsidy programs must also be judged in terms of the likelihood of accomplishing their intended purpose. In general, the government is uncertain whether or not tax incentives will achieve program efficiency and generate the desired increase in productivity. First, the possibility exists that some taxpayers would have acted in the desired way without the incentive. Second, tax incentives must be written to provide definite rules. Flexibility cannot easily be provided in the tax code. As a result, there is less control over the desired result and more uncertainty that the tax incentive will accomplish the intended goals. Under direct expenditure pro-

351. Forty-four feasibility studies and two cooperative agreements have been done. *See* SECOND ANNUAL REPORT, *supra* note 36, at 3.

352. *See supra* note 324 and accompanying text.

353. *See supra* notes 307, 315 and accompanying text.

354. For example, the following changes were made to the windfall profits tax: (1) for 1985 and thereafter, qualified royalty owners will be exempt from the tax on three barrels of oil per day; (2) for 1983 and thereafter, stripper oil production of independent producers is exempt; (3) for 1986 and thereafter, the tax on newly discovered oil is reduced from the present 30% to 15%; and (4) an exemption from the tax is extended to charities organized to operate primarily as to the residential placement, care or treatment of delinquent, dependent, orphaned, neglected, or handicapped children. ERTA, *supra* note 4, tit. VI, subtit. A.

grams, however, the government ensures that recipients of the subsidy are deserving and that they will use the appropriation for the specified purposes. The recipient may be required to make progress reports and funds may be available only in installments. Thus, a better monitoring procedure accomplishes the energy policy goals. Under the Energy Security Act, before financial assistance is granted the agency administering the program must consider the following:

(1) Will the project use a primary fuel other than petroleum or natural gas in the production of the fuel?

(2) Will the project use an improved or new technology that expands possible biomass feedstocks, produces new forms of biomass energy, or produces biomass fuel?

(3) Is the Btu content of motor fuels used in the project greater than the Btu content of the biomass fuel produced from the project?

(4) Is the protein content of the feedstocks extracted for uses as a food or feed (when markets are readily available and when technically and economically practical)?

(5) Are the necessary feedstocks for the project available and does a reasonable expectation exist that supplies will be available in the future?

(6) Will financing of the project enhance and promote competition?³⁵⁵

All of these considerations are important in determining what is the best feedstock, the best primary fuel, the best and most efficient method of producing the alcohol, and what firm should be given the assistance. These standards give tremendous latitude to the administrative agency and thus serve to accomplish the objectives of the programs. No such inquiries, however, are made under the tax code.³⁵⁶

E. Revenue Loss Compared

From the standpoint of revenue loss, tax expenditures cannot readily be compared to direct expenditures because the tax system places no limit on the benefit from a tax provision, other than to designate its year of termination. As a result, predicting how much revenue will be lost by the government because of a particular tax incentive is difficult. Although the Congressional Budget and Impoundment Control Act of 1974³⁵⁷ requires the disclosure of estimated revenue losses associated with each tax expenditure as part of the annual budgetary process, these estimates do not adequately inform Congress and the public of the revenue loss from a particular tax provision. First, several tax provisions are combined into one category, which makes it difficult to determine the revenue loss from a

355. Energy Security Act, *supra* note 5, 42 U.S.C. § 8817.

356. Although inquiries are not made in the Code, this does not mean that no controls exist in the tax system. It simply means that those controls must be specified either in the Code or by regulation. Placing the details in the Code tends to make the Code inflexible and complicated. Establishing specific rules by regulation is time-consuming and fails to give timely notice to the taxpayer as to the meaning of the law.

357. Pub. L. No. 93-344, 88 Stat. 297 (1974) (codified at 31 U.S.C. §§ 665, 1400-07).

particular proposal. For example, the energy investment credit for biomass property is placed under the general category "alternative, conservation and technology credits."³⁵⁸ This category also includes the credit for solar, wind, geothermal, oceanthermal, hydroelectric, and cogeneration equipment. Combining specifically related tax provisions into one category can be informative, however, in determining the impact of the double-dipping rules. The expenditure budget does not examine exemptions and credits together. For example, the revenue loss for the alcohol fuel credit and the alternative fuel production credit are listed separately; therefore, the revenue effect shown for each item is probably greater than if the two credits were combined to reflect the disallowance of certain incentives under the double-dipping rules.

Another major problem with the tax expenditure budget is that it omits certain specific tax provisions. For example, the budget provides no indication of how much revenue is lost from the excise tax exemption. This omission may be explained by the fact that the 1978 and 1980 tax acts required follow-up studies to determine the extent of revenue loss from the excise tax exemption. These studies, however, were also required for other tax provisions. The most important problem with the tax budget is the inability to determine if the estimates are an accurate reflection of the true revenue loss from a particular provision. To take an extreme case involving the alternative fuel production credit, the revenue loss for 1982 is estimated at \$55 million, a figure entirely too high considering that the credit provision never became effective because the ceiling price (\$29.50) was too low.³⁵⁹ As a general rule, estimates on the amount of revenue loss for particular nontax subsidy programs are more reliable than the estimates in the tax expenditure budget.³⁶⁰ Unlike tax subsidies, nontax subsidies are subject to stringent budgetary controls. The budget specifically sets forth the amount that can be expended and it is subject to annual or biennial review. The budget cutting process under the Reagan Administration, although somewhat unusual, illustrates the ongoing nature of the budgetary

358. STAFF OF JOINT COMM. ON TAXATION, 96TH CONG., 2D SESS., ESTIMATES OF FEDERAL TAX EXPENDITURES FOR FISCAL YEARS 1981-86 (Comm. Print 1980) [hereinafter cited as FEDERAL TAX EXPENDITURES].

359. See *supra* note 202 and accompanying text.

360. The following table summarizes the estimated tax expenditure of corporations and individuals from certain alcohol provisions for selected years in 1982 through 1986:

	Corporations			Individuals		
	1982	1984	1986	1982	1984	1986
Alternative fuel production credit	\$ 55 mil.	20	10	0	0	0
Alcohol fuel credit	\$ 5 mil.	10	10	10	30	65
Exclusion of interest on state and local government in IDBs for energy producing facilities	\$ 5 mil.	15	20	2	5	10
Alternative, conservation and new technology credit (supply incentives)	\$295 mil.	905	735	20	75	85

See FEDERAL TAX EXPENDITURES, *supra* note 348, at 9.

process.³⁶¹

Apparently, under the Reagan budget little funding remains for the alcohol fuel projects established under the Energy Security Act. The initial funding available under the Act, \$525 million each for the DOA and DOE under title I, subtitle A, \$220 million for the DOE under title II, subtitle B, and \$17.5 billion for the Synthetic Fuels Corporation under title I, has been almost entirely rescinded. Congress has abolished the biomass energy programs and the alternative fuel production programs under title II, and substantially curtailed the synthetic fuel program.³⁶² The Reagan Administration has proposed the termination of the Office of Alcohol Fuels' program of loan guarantees, feasibility studies, and cooperative agreements for alcohol fuels, biomass, and municipal waste energy development.³⁶³

F. Political Considerations

Political considerations underlie the choice between tax expenditures and direct expenditures. The choice between these two types of expenditures may reflect the broad overall policy of the particular party in power. Perhaps the main reason that the budget cuts under the Reagan Administration were so severe for alcohol projects was the fact that these programs conflict with the Administration's "anti-big government" image. Tax incentives are more consistent with that image, although Reagan's free market philosophy may in time require that all alcohol tax incentives be eliminated. At present, the Reagan Administration apparently believes that taxes can stimulate the economy through incentives to invest and that these incentives are adequate to stimulate the production of alcohol. The choice between tax and direct expenditures may also be the result of narrow strategic concerns. Because the complexion of the tax, energy, and budget committees of Congress may differ, the likelihood of the passage of the authorization in question may vary depending on which committee considers the proposal. It is generally considered easier to get a measure approved by the tax committees than by the energy committees.

V. CONCLUSIONS AND RECOMMENDATIONS

The importance of energy to our national interest coupled with our heavy dependence upon foreign oil refutes an otherwise good argument for the elimination of all special tax preferences for alcohol fuel production. First, the present system heavily favors gasohol. The \$2 billion in loan and price subsidies that the Reagan Administration eliminated were designed to offset this gasohol advantage eventually by dropping the price of pure alcohol so that it could compete with gasoline. The continuation of this lopsided incentive program is of questionable merit. Second, the

361. In October 1981 the Reagan Administration announced an across-the-board 12% budget cut. This left some agencies perplexed as to what programs to cut.

362. See QUARTERLY REPORT, *supra* note 244, at 2.

363. *Id.*

tax system is generally inequitable because it favors established companies with large profits. Surely this was not the intent of Congress. With the elimination of the nontax subsidies, little hope remains for new entrants into the alcohol fuels market. Third, the present subsidies are not effective incentives. Despite the credits and exemptions, Texaco, the largest distributor of gasohol, has closed down most of its retail outlets that sell gasohol. When the price of oil decreases and the demand for fuel is low, the tax incentives are not large enough to make gasohol competitive with gasoline. Fourth, the revenues saved by eliminating the alcohol incentives could contribute to the balancing of the budget. Considering the pressure to limit government spending in areas like health, environment, and education, tax subsidies arguably are not in the public interest. Finally, the present tax incentives are administratively burdensome. The requirements for eligibility, the calculations for the tax provisions, and the double-dipping rules are complex and confusing. Furthermore, the fact that the IRS is not an energy expert adds to the enforcement difficulties.

Those persons espousing the classic free market system claim that government should not interfere in the development of alternative sources of energy. They predict that businesses will develop these alternatives without any incentive from the government. They say that the private sector, not the government, should produce these sources of energy and that it will probably do so when conventional energy supplies become scarce and drive prices upward. Gasohol and alcohol will then become commercially viable and may even replace conventional oil as a motor fuel. The Reaganites modify this laissez-faire approach. They advocate that special alcohol incentives should be eliminated, but that the general tax incentives, such as those for accelerated depreciation, investment credit, and research and development should continue.³⁶⁴ These incentives are more general in nature and benefit most capital-intensive industries (including the alcohol fuels industry).

Perhaps our energy independence can eventually be achieved with no governmental interference in the marketplace. This will take time, however, and meanwhile the United States is decreasing its domestic production of petroleum from conventional sources and increasing its dependence on imported oil.³⁶⁵ This dependence makes us vulnerable to production cuts from OPEC nations. In the event of another oil embargo or a war in the Middle East, it could be too late to develop private sector alternative energy sources sufficient to meet the country's needs. Because of the large capital costs and considerable risks involved in ethanol and methanol projects, private industry is not likely to undertake these projects without governmental assistance.³⁶⁶ Any advances in technological knowledge re-

364. *Id.* at 3.

365. Quinlan, *supra* note 10, at 434.

366. One alcohol producing project by private industry that involved no governmental assistance was the *Bank of America* case discussed in the SECOND ANNUAL REPORT, *supra* note 36, at 7-8.

sulting from greater R&D efforts will probably not change the fact that alcohol projects have large capital requirements.

Because of the present political climate, the government will probably not provide funds for nontax subsidies. This climate should not preclude, however, a revised tax approach that may require additional tax revenues. This type of an approach must resolve five problems presently existing in the alcohol fuel provisions of the code. First, many of the tax provisions duplicate one another. This duplication causes multiple and complex tax computations in order to prevent double-dipping. The most obvious examples of two tax provisions that provide overlapping benefits are the excise tax exemption³⁶⁷ and the energy income credit.³⁶⁸ The forty cents per gallon income tax credit was passed to eliminate many of the flaws in the excise tax exemption and was intended to accomplish the same result as the forty-cent exemption. The credit is calculated by subtracting the excise tax exemption from the tax credit³⁶⁹ and, consequently, little need exists for both tax provisions. The income tax credit is more comprehensive. It falls within the normal income tax calculations, and it avoids unnecessary complications in administration. The income tax credit therefore should be retained, and the excise tax exemption should be eliminated. Overlapping benefits are also provided by the energy investment credit³⁷⁰ and the production fuel credit.³⁷¹ The first allows a ten percent credit toward the purchase of equipment used to produce methanol from coal; the second allows a three dollar per barrel credit for methanol that can be produced from the same equipment. Eliminating one of these provisions may be advisable since they provide overlapping benefits and such a change would simplify the code. The production fuel credit is the most likely provision to be eliminated since that provision as it exists is of little effect.³⁷²

Second, the present tax structure favors the production of gasohol over pure alcohol. This imbalance could be partially remedied if the excise tax exemption were eliminated. Under that provision the benefit for gasohol is effectively ten times greater than for pure alcohol.³⁷³ Because the energy income credit is measured by the amount of alcohol used in the fuels,³⁷⁴ it more equitably promotes the production of both gasohol and pure alcohol. Furthermore, the taxpayer is not denied any benefits because the excise tax exemption is rendered ineffective by the double-dipping rules under the income credit.³⁷⁵

Third, the present tax structure discriminates against the production of alcohol from coal, specifically methanol production. Because the direct

367. See *supra* notes 61, 139 and accompanying text.

368. See *supra* note 168 and accompanying text.

369. See *supra* note 181 and accompanying text.

370. See *supra* notes 83, 146 and accompanying text.

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

372. See *supra* text accompanying notes 199-205.

373. See *supra* note 80 and accompanying text.

374. See *supra* note 181 and accompanying text.

375. See *supra* note 369 and accompanying text.

expenditure programs promoting methanol production from coal have been curtailed, the present energy policy is perhaps inadequate to make this country energy independent. Before the tax code is modified to promote the production of methanol from coal, however, some serious questions must be addressed. Should methanol production from coal be promoted given the problems it causes in air pollution, water pollution, and land reclamation? Will the tax incentives to promote methanol production from coal cause substantial revenue loss to the government in a time when the federal deficit is rising? Are tax incentives necessary to counterbalance the abolition of nontax subsidies for methanol production from coal under the Energy Security Act?

Because of the environmental and revenue problems, leaving the tax code unchanged may be advisable. If, on the other hand, energy independence is considered a paramount objective, then the tax provisions should be modified to promote the production of methanol from coal. First, the income tax credit should be extended to methanol produced from coal. Second, the alternative fuel production credit should be modified.³⁷⁶ The provision is completely inoperative because of the low ceiling price of \$29.50.³⁷⁷ The provision could be changed to provide a fluctuating ceiling price: one determined by posted oil prices reflecting the market price of oil. Tying the production credit to the market price of oil provides assurance that these tax incentives will accomplish their objectives. A fluctuating ceiling requirement would eliminate the necessity of the inflation adjustment in the production income credit³⁷⁸ and would thus simplify the production credit calculation. The fluctuating market price may cause some administrative feasibility problems, but given the fact that "removal price" and "base price" are part of the tax structure already (in other provisions of the code relating to oil), the task does not seem too difficult.³⁷⁹ A fluctuating price would eliminate Congress's having to change the law to make the provision effective every time the price of oil fluctuates. Although the constantly changing price might increase the difficulty of determining revenue loss from the new provision, the accuracy of the tax expenditure budget in assessing the revenue loss from a particular provision is at best dubious.³⁸⁰

Fourth, several of the present alcohol tax provisions are ineffective. These provisions should be changed so that more effective incentives are

376. See *supra* notes 199-205 and accompanying text.

377. See *supra* note 202 and accompanying text.

378. See *supra* note 203 and accompanying text.

379. I.R.C. §§ 4988(c), 4989(c), (d) (1981), respectively. The windfall profit tax imposed under § 4988(a) of the Internal Revenue Code is a tax on the excess of the "removal price" of the barrel of crude oil over the sum of the "adjusted base price of that barrel." The removal price is usually the price at which the oil is sold to a third-party purchaser (§ 4988(c)(1)), but when the oil is removed before sales, transferred to a related party, or refined by an integrated company, it is the constructive sales price, as determined under § 613. The base price is usually the price at which the particular type of oil was sold under 1979 energy price controls.

380. See *supra* notes 357-59 and accompanying text.

provided to promote the production, sale, and use of alcohol fuels. For instance, the exemption of interest provision for IDBs on renewable energy property should be modified. The rules for qualifying under this provision are so strict that only one state has qualified for the tax incentive.³⁸¹ Specifically, there should be no requirement that the state constitution permit state financing of small-scale energy projects and that such a constitutional amendment had to have been approved by the state legislature before October 18, 1979. Strict requirements also undercut the effectiveness of the IDB provision for alcohol producing facilities.³⁸² Other tax provisions are inadequate or ineffective as incentives because the tax rates are not high enough to encourage the production or use of alcohol fuels. This is due largely to the fact that these provisions depend on the price of oil for their effectiveness. When the price of oil is high, then exemptions and income credits promote alcohol fuels. When, on the other hand, the price of oil is depressed and the cost of production is less than that of alcohol, little incentive exists for the production and use of alcohol fuels. Therefore, the most effective way to implement the alcohol fuel tax provisions is to tie them to the price of gasoline (or imported oil). For example, any excise tax exemption should be equivalent to the difference between the selling price of unleaded retail gasoline and the price of gasohol (or the price of pure alcohol). This exemption would compensate alcohol producers for the historically higher cost of gasohol and thus promote a more competitive retail price for gasohol dealers. Similarly, the income tax credit could be tied to the price of gasoline.

More time is needed to tell whether the changes brought about by the Economic Recovery Tax Act of 1981 will encourage the production of alcohol fuels. The new tax provisions may provide relief from burdensome costs of capital investments required to produce alcohol. The accelerated cost recovery rules and investment credit combined with the existing energy credit may be adequate incentives. If this proves not to be the case, then a sixty-month amortization provision could be adopted.³⁸³

Finally, once the credits are made effective for the production and sale of alcohol fuels, new provisions should be introduced into the tax code to promote the development, distribution, and use of alcohol fuels. One such provision would allow motorists to take a credit against their taxes for the costs of converting their motor vehicles to alcohol use. Specifically, each taxpayer should be entitled to a credit of fifty to one hundred percent of the full costs of modifying the vehicle.³⁸⁴ Another provision would give a credit to automobile manufacturers if they manufacture cars that can run

381. *See supra* note 226 and accompanying text.

382. *See supra* note 217 and accompanying text.

383. *See supra* note 281 and accompanying text.

384. A limit probably should be placed on the expenditures to prevent taxpayers from taking credits for costs unrelated to modifications relating to alcohol conversion. The limit could also depend on whether the car is to run on pure methanol or a mixture of alcohol and gasoline.

on pure methanol or mixtures of gasoline and ethanol requiring modifications to vehicles.

The present system must be changed. Either the tax provisions should be repealed altogether and the free market should be allowed to develop alcohol as an alternative fuel, or the tax structure should be modified to encourage the effective promotion of alcohol fuels. The choice between the two approaches will ultimately depend on environmental, economic, and political considerations.