CALIFORNIA
ENERGY
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Ethanol Fuel Incentives Applied in the U.S.

Reviewed from California's Perspective

STAFF REPORT

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Introduction

This report describes measures employed by state governments and by the federal government to advance the production and use of ethanol fuel in the United States. The future of ethanol as an alternative transportation fuel poses a number of increasingly-important issues and decisions for California government, as the state becomes a larger consumer, and potentially a larger producer, of ethanol.

Past California initiatives in support of ethanol, including several legislative proposals, demonstrate a need for more complete evaluation of the types of measures available to the state. Many states, along with the federal government, currently employ various incentive programs designed to encourage ethanol fuel development. This report identifies and examines these incentives in order to inform and guide consideration of potential California measures to support ethanol. The report fulfills a recommendation of the California Energy Commission's (Energy Commission) previous report entitled ***Evaluation of Biomass-to-Ethanol Fuel Potential in California,*** December 1999, namely to: *"study and recommend the most appropriate forms of state financial and non-financial assistance and other actions to support market development and commercialization activities"* for ethanol[1].

Background

With the state-mandated phaseout of the gasoline additive Methyl Tertiary Butyl Ether (MTBE) on December 31, 2003, California became the largest U.S. consumer of ethanol as a replacement gasoline oxygenate. Although the state continues to pursue relief from federal Clean Air Act requirements for use of oxygenated gasoline in ozone non-attainment areas, much of the state's gasoline supply currently requires an oxygenate additive to meet federal law. Ethanol is the only state-approved additive. Thus, most of California's gasoline is sold with six percent ethanol. This amounts to an annual demand approaching one billion gallons, or about one-third of the current U.S. ethanol production capacity.

Even if, the federal oxygenated gasoline requirement is eventually waived or rescinded – and potentially replaced with a nationwide (but not state-specific) "renewable fuel standard" – ethanol will likely continue to contribute to California's transportation energy supply. Its value for octane enhancement and carbon monoxide reduction, its increasing supply availability from domestic sources at a favorable after-tax price, and infrastructure investments already made to facilitate its use, all portend an ongoing role for ethanol in the state's gasoline market. If air quality regulatory issues can be overcome, California's gasoline supply and existing motor vehicle population can accommodate up to ten percent ethanol, the ethanol/gasoline blend that is marketed elsewhere in the U.S. often referred to as E10.

In addition to its use as a gasoline blending component, ethanol also has increasing motor fuel supply potential in the form of E85 (85 percent ethanol, 15 percent gasoline). U.S. auto makers are producing large numbers of flexible fuel vehicles (FFVs) that can operate on E85 or gasoline, in any combination. Over 200,000 FFVs are in operation in California[2] and a number of fleet operators of these vehicles are pursuing E85 fueling facilities. Other potential transportation energy markets for ethanol include E-diesel, a blend of ethanol with diesel fuel, as a substitute for leaded aviation gasoline and, in the longer term, as a candidate fuel for fuel cell vehicles.

In a joint agency report dated August 2003, the Energy Commission and the Air Resources Board (ARB) set forth the proposed goal of reducing California's demand for on-road motor fuels by 2020 to a level 15 percent below 2003 demand. A variety of efficiency measures and alternative fuel substitution measures, including expanded use of ethanol, were identified as potential options to contribute to meeting this goal. Strategies to achieve this goal have yet to be formulated, and the extent and types of ethanol applications to be included are still to be determined. Meanwhile, the ARB also must formulate, by January 2005, regulations to implement state legislation (AB 1493, Chapter 200, Statutes of 2002) that calls for the reduction of carbon emissions from motor vehicles. Ethanol fuel use offers potential to contribute to this strategy but, again, how ethanol may be incorporated in this state initiative remains to be decided.

As California continues to evaluate what role ethanol might play in its future transportation energy strategy, there is growing interest in development of an ethanol production industry. A number of business entities in the state are seriously pursuing new ethanol production ventures. The following four different ethanol production approaches are being explored in California:

(1) conventional corn-to-ethanol production similar to that practiced in the U.S Midwest;

(2) sugarcane-to-ethanol production similar to that practiced in Brazil;

(3) expansion of the recycled food and beverage industry waste-to-ethanol practice employed in California's two small existing ethanol plants; and

(4) conversion to ethanol cellulosic material from municipal, agricultural and forestry waste using advanced technologies still in research and development stages.

Proponents of ethanol production facilities in all four of the above categories face challenges to successful development of these path-breaking projects in California. The most often-cited constraints these projects are seeking to overcome include:

- Securing financing – These first-of-their-kind projects in California -- outside the traditional ethanol-producing region where state governments typically are supportive, many successful operating plants already exist, and conventional feedstocks are abundant -- face extra challenges obtaining private funding.

- Assuring long-term markets – California's current status as the largest U.S. ethanol market notwithstanding, prospective ethanol project proponents and lenders remain unsure of future market demand in the state.

- Lack of state policy encouragement – The uneasiness of both project proponents and financiers is exacerbated by continuing controversy surrounding ethanol use in California, which many construe as a general resistance to ethanol on the part of state government.

- Siting and permitting – As with any new industrial facilities, ethanol plants face a more difficult proposition in California than in other regions of the country. Some of the ethanol projects planned in the state have already encountered setbacks involving siting, permitting and zoning issues and "not-in-my-backyard" types of challenges.

- State regulations – Myriad state regulations affect many aspects of ethanol plant development and operation. Several regulations present potential obstacles for proposed ethanol projects, at times even posing problems for the state's small existing ethanol producers. For example, aspects of state regulations affecting recycling and conversion of various waste streams add to the difficulties of using these materials as feedstocks for ethanol fuel production.

- Technology issues – Even conventional ethanol projects face additional challenges in the first California applications of this technology. Projects seeking to employ technologies not yet commercially employed anywhere in the U.S. -- or, for some advanced technologies, anywhere in the world – have additional difficulties to overcome.

California government has, during the past two decades, provided various types of support for ethanol fuel production and use. Table 1 provides a historical summary of California's ethanol-related initiatives, none of which are in place today. The remainder of this report is intended to inform decision-makers about ethanol incentives in place in other states and at the federal level, should new consideration of support for ethanol emerge in California.

Table 1 Past California Ethanol Initiatives	
Year	**Action**
1979-1980	Ethanol/gasoline blends demonstrated in state government fleets
1980-1983	Dedicated ethanol vehicles demonstrated in state government fleets
1980-1983	Seven state-sponsored ethanol production feasibility studies conducted
1981-1983	State-sponsored ethanol production demonstration – Raven Distillery, Fresno
1983	State-sponsored California Alcohol Fuel Plant Design Competition for on-farm ethanol production; winning project, Gildred/Butterfield facility at Paso Robles built and demonstrated
1981-1984	State excise tax incentive applied to ethanol -- 3 cents/gal reduction for 10% ethanol blends (from 7 cents/gal gasoline tax)
1986	State grant helps establish Parallel Products ethanol production facility
1988	State legislation (SB 2637) creates a liquid fuels production incentive grant program for production of ethanol and other biofuels (no funding authorized)
1990-1994	State-sponsored Energy and Chemical Feedstock Crop Demonstration Program; studies of crops suitable for ethanol production
1991-1998	State legislative exemption for ethanol/gasoline blends from gasoline volatility standard
1997	State/federal Sustainable Technology Energy Partnership study of biomass-to-ethanol production in San Joaquin County
1998-2001	State/federal sponsorship of Gridley and Collin Pine biomass-to-ethanol projects
1999	Governor's Executive Order banning MTBE includes directive to evaluate biomass-to-ethanol production potential and identify steps to foster ethanol development
2001-2002	State legislation (SB 87, 2001 & SB 1728, 2002, Costa) introduced to provide $25 million of funding for liquid fuels production incentive program (not enacted)

Federal Government Support for Ethanol Development

The U.S. government has, since 1978, continuously maintained national tax incentives to encourage ethanol fuel production and use. Several revisions, additions and extensions of the federal ethanol tax incentives have been enacted by Congress since the original implementation, and further modifications are proposed in legislation currently being deliberated. These incentives apply to all ethanol produced for fuel except ethanol produced from petroleum, natural gas, coal (including peat), or any

derivative or product of these items, and alcohol that is less than 190 proof. The federal ethanol incentives are provided in the form of a motor fuel excise tax exemption or an alternative income tax credit, along with an additional income tax credit for small ethanol producers. There is also a tariff on imported ethanol that gives domestic ethanol producers a competitive advantage over foreign producers.

Excise Tax Exemption and Parallel Income Tax Credit

The primary mechanism for applying the federal ethanol incentive is a reduction in the federal excise tax collected on sales of gasoline when gasoline is blended with ethanol. When originally enacted as part of the Energy Tax Act of 1978 (Public Law 95-618), gasoline/ethanol blends containing ten percent ethanol were, beginning in 1979, exempted from the entire federal gasoline excise tax, which at that time was four cents per gallon. A series of subsequent revisions to the tax structure and extensions of this incentive (summarized in Table 2) have resulted in today's federal gasoline excise tax rate of 18.4 cents per gallon and a reduction of 5.2 cents per gallon for ten percent ethanol blends (E10). Ethanol blends of 5.7 percent and 7.7 percent have also been given proportionately reduced per-gallon excise tax rates. This incentive results in 52 cents of federal excise tax forgiveness for each gallon of ethanol blended, sometimes referred to as a "net subsidy," since the amount of foregone tax exceeds the amount that would be collected on sales of gasoline only. The amount of this incentive, which is currently authorized through 2007, will become 5.1 cents as of 2005.

The original excise tax provision for gasoline-blended ethanol was augmented in 1980 with a parallel income tax credit, also currently authorized through 2007. This currently allows fuel marketers using ethanol to claim a federal income tax credit in the amount of 52 cents per gallon of ethanol used. Since the amount of income tax credit claimed under this provision must be reduced by any amount of excise tax reduction taken, distributors of ethanol-blended gasoline normally take advantage of the more straightforward and immediate excise tax incentive in lieu of the income tax credit.

The federal ethanol income tax credit can also be applied to ethanol used as E85. This provides a means for E85 suppliers to obtain more of a federal tax benefit than can be obtained for this form of ethanol fuel via the excise tax option, since 5.2 cents per gallon is the maximum amount of the excise tax reduction (for ten percent or higher ethanol blends). However, the greater complexity, longer timetable, and extra requirements for claiming the income tax credit reduce the value and attractiveness of this credit versus the excise tax option. The result is a much stronger overall federal tax incentive for marketing ethanol in gasoline blends of up to ten percent than for marketing of higher ethanol-containing fuels such as E85. Other emerging fuel markets for ethanol, including ethanol/diesel fuel blends and aviation fuel, can also take advantage of the federal ethanol tax incentives.

Table 2 History of Major U.S. Legislation Supporting Ethanol Fuel	
Act	**Effect**
Energy Tax Act of 1978	• Exempted 10% ethanol/gasoline blends from the 4 cents/gal federal gasoline excise tax • Provided 10% energy investment tax credit for biomass-ethanol conversion equipment (in addition to the 10% investment tax credit available)
Energy Security Act of 1980	• Authorized loan guarantee program for ethanol production facilities
Crude Oil Windfall Profit Tax Act of 1980	• Extended ethanol excise tax exemption through 1992 • Established income tax credit (40 cents/gal) for ethanol fuel use
Omnibus Reconciliation Tax Act of 1980	• Placed a tariff on imported ethanol fuel (currently 54 cents per gallon)
Gasohol Competition Act of 1980	• Banned gasoline marketer practices that discouraged use of ethanol/gasoline blends
Surface Transportation Assistance Act of 1982	• Raised gasoline excise tax to 9 cents/gal • Increased excise tax exemption for 10% ethanol/gasoline blends to 5 cents/gal
Tax Reform Act of 1984	• Raised the excise tax exemption for 10% ethanol/gasoline blends to 6 cents/gal and the ethanol income tax credit to 60 cents/gal
Alternative Motor Fuels Act of 1988	• Enacted CAFE credits for alternative fuel vehicle production
Omnibus Budget Reconciliation Act of 1990	• Raised the gasoline excise tax to 14.1 cents/gal • Reduced the excise tax exemption for 10% ethanol/gasoline blends to 5.4 cents/gal and the ethanol income tax credit to 54 cents/gal • Extended the ethanol fuel tax incentives through 2000 • Established the small ethanol producers income tax credit of 10 cents/gal
Energy Policy Act of 1992	• Extended ethanol excise tax exemption to 5.7 and 7.7 ethanol/gasoline blends (at proportionate rates) • Established requirements for alternative fuel vehicle purchases by certain vehicle fleets
Omnibus Budget Reconciliation Act of 1993	• Raised gasoline excise tax to 18.4 cents/gal
Transportation Efficiency Act of the 21st Century (1998)	• Extended ethanol tax incentives through 2007 • Reduced amount of incentives to 5.1/51 cents/gal by 2005

The above federal excise tax and income tax provisions encourage the application of ethanol in the national gasoline marketplace by allowing fuel suppliers to purchase and use up to ten percent ethanol in gasoline at an effective cost closer to that of gasoline and other gasoline components. This transfers indirectly to support of the U.S. ethanol industry by facilitating a market for the industry's product in the motor fuel market at a profitable price that, otherwise, would be prohibitive of this more-expensive-to-produce fuel.

Small Producer Credit

Another federal income tax credit, enacted in 1990, provides a measure of direct support for small ethanol producers. This provision allows ethanol producers with a production capacity of no more than 30 million gallons per year (MGY) an income tax credit of ten cents per gallon for up to 15 MGY. Thus, a qualifying small producer can apply this provision to claim an annual income tax credit of up to $1.5 million.

Import Tariff

Federal legislation, enacted in 1980, imposed an ethanol import tariff. Since all ethanol marketed as fuel is eligible for the excise tax incentive (or optional income tax credit), Congress elected to impose the import tariff to ensure that only domestic U.S. ethanol production receives the benefit of these favorable ethanol tax incentives. The only ethanol imports exempted from this tariff, currently set at 54 cents per gallon, are shipments of foreign ethanol reprocessed in countries covered by the Caribbean Basin Initiative.

Air Quality Regulations

Federal air quality regulations have contributed indirectly to use of ethanol for gasoline blending. These include: (1) phaseout of lead as a gasoline octane-enhancing additive and (2) introduction of oxygenated gasoline requirements. Both of these federal initiatives have served to increase the marketing of ethanol as a gasoline component.

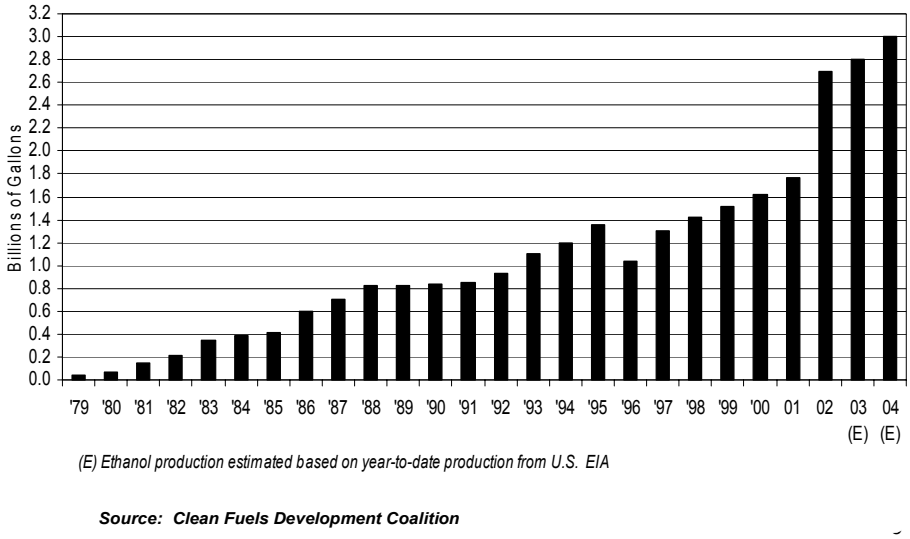
Effect of Federal Incentives

The federal ethanol fuel incentives, primarily the reduced excise tax on ethanol/gasoline blends, are generally acknowledged as the driving force for ethanol production and use in the U.S. As originally intended by Congress, this incentive (or subsidy) has made ethanol competitive with gasoline and other gasoline blending components in the marketplace. Without this long-standing federal energy policy, it is highly unlikely that ethanol production and use in the U.S. would have reached its current level. The small producer credit contributes to an industry trend toward more producers and smaller plant sizes. And the tariff on most imported ethanol protects domestic producers against a large share of the U.S. ethanol fuel market being captured by lower-cost foreign producers.

Figure 1 charts the growth of U.S. ethanol industry production since the first year the federal ethanol tax incentive was in effect, in 1979. Since 1979, U.S. ethanol production capacity has grown from ten MGY to today's three thousand MGY. Virtually all of this ethanol production has been marketed as motor fuel in the form of E10, ten percent ethanol with gasoline. Foreign imports have added a minor amount to the U.S. ethanol supply, remaining below the seven percent market share cap on tariff-free imports from Caribbean Basin countries.

Figure 1

U.S. Fuel Ethanol Production



(E) Ethanol production estimated based on year-to-date production from U.S. EIA

Source: Clean Fuels Development Coalition

Federal Incentives for E85

Other federal incentives for ethanol fuel use are embodied in the Alternative Motor Fuels Act of 1988 (AMFA) and the Energy Policy Act of 1992 (EPACT). AMFA provides an inducement to auto manufacturers for the production of alternative fuel vehicles, including vehicles capable of operating on E85. This inducement is in the form of a credit against an auto manufacturer's Corporate Average Fuel Economy (CAFE) compliance calculation. To date, approximately three million ethanol flexible fuel vehicles, capable of operating on ethanol/gasoline fuel combinations up to E85, have been produced and sold by U.S auto makers in response to this incentive. This credit, currently capped at 1.2 miles per gallon maximum CAFE reduction for production of flexible fuel or dual fuel vehicles, is under consideration for extension beyond the current expiration after the 2004 model year. The National Highway Traffic Safety Administration, the federal agency responsible for rulemaking on this subject, is proposing to extend the credit through model year 2008, with the cap for production of flexible fuel and duel fuel vehicles reduced to 0.9 mpg.[3]

EPACT includes a requirement that certain government and "fuel provider" fleets of motor vehicles acquire alternative fuel vehicles for specified fractions of their new vehicle purchases. This has resulted in federal government fleets and some state government fleets acquiring significant numbers of ethanol flexible fuel vehicles. Some of these fleets have elected to install their own E85 fueling facilities and others to access the growing number of public E85 stations. California's ethanol FFV population now exceeds 200,000 vehicles, and the first E85 fueling facility in the state opened in San Diego in August 2003.

Impending Changes to Federal Ethanol Policy

Proposed federal energy legislation includes several provisions that, if enacted, would affect federal ethanol incentives. The provisions of the latest version (November 2003) of this bill that stand to affect the production and use of ethanol include:

- Elimination of the federal requirement for oxygenated gasoline in ozone non-attainment areas

- Imposition of a national "Renewable Fuels Standard" requiring increasing use of ethanol or other renewable fuels in the U.S. motor fuel supply, beginning with 3.1 billion gallons per year in 2005 and increasing to five billion gallons per year in 2012

- Establishment of federal loan guarantee and grant programs for facilities that convert cellulosic biomass materials to ethanol

- Revisions to the small ethanol producers tax credit, increasing the size of eligible producers to 60 MGY and allowing members of farmer cooperatives to apply the credit

U.S. Department of Agriculture Programs

The U.S. Department of Agriculture (USDA) also supports the country's ethanol production industry through loan, loan guarantee and grant programs. Current USDA programs open to current and prospective ethanol producers were authorized by the Farm Security and Rural Investment Act of 2002 (or the 2002 Farm Bill).[4] The programs pertinent to ethanol (and other biofuels) in the energy section (Title IX) of the 2002 Farm Bill include:

- Loans, loan guarantees and grant programs to assist eligible farmers, ranchers and rural businesses to invest in value-added agricultural enterprises, energy efficiency improvements and renewable energy systems.

- Payment through USDA's Commodity Credit Corporation to eligible biofuel producers for the purpose of expanding production of bioenergy and supporting new production capacity.

- A grant program to support development of biorefineries to convert biomass into multiple products such as fuels, chemicals and electricity.

State Ethanol Incentives

A number of state incentives are currently in place in the states addressing the production and/or use of ethanol fuel. A complete tabulation of these incentives is included as Appendix A. This listing of incentives is intended to be as complete as possible at the date of this publication; however, some newly-enacted or not yet reported incentives may be omitted. Also, there was no attempt to identify or examine past state incentive programs not currently in effect. An active state incentive applicable to the production and/or use of ethanol was identified in 36 of the 50 states. Of these 36 states, 22 states have incentives supporting ethanol production and 32 states have incentives supporting applications of ethanol as fuel. Included are 18 states with both production-side and application-side incentives. The various types of state ethanol incentives that were identified can be categorized as follows:

Production Incentives

- Direct producer payments – direct payments of state funds to qualifying ethanol producers on a per-gallon-of-output basis, usually for specified maximum amounts of annual production and for specified maximum numbers of years

- Income tax credits – credits against ethanol producers' state income tax liability calculated either on a per-gallon-of-output basis or on the amount of facility investment

- Transferable tax credits – credits on a per-gallon-of-output basis saleable by the producer to ethanol fuel marketers for use against state fuel tax liability

- Grant and loan programs – direct grants or low-interest loans (or combinations of the two) to assist financing of ethanol production facilities

- Property or business tax exemptions – partial or full exemptions from property tax, sales tax (e.g., on equipment purchases) or other taxes normally owed to the state by ethanol producers

- Siting/permitting process facilitation or exemption – legislative or regulatory measures to shorten and/or reduce the steps in the approval process for construction of ethanol production facilities

Application Incentives

- Fuel tax exemptions – reduction of state motor fuel tax on ethanol/gasoline blends

- Market mandate – state law requiring marketing of ethanol-blended gasoline

- Public fleet requirements – legislative or administrative policy directives for use of ethanol-blended gasoline and/or use of E85 in FFVs by state government vehicle fleets and, in some cases, other public fleets

- Tax credits for alternative fuel vehicles and infrastructure – credits against business or personal income tax liability for investments in alternative fuel vehicles and fueling facilities (for E85)

- Grant, loan and rebate programs – state grants, low-interest loans or partial rebates for investments in alternative fuel vehicles and fueling facilities (for E85)

A complete discussion or further explanation of all the individual state incentives listed in Appendix A is beyond the scope of this study. Further details on any of these state incentives, including the text of applicable state statutes and/or other information, can be obtained using the website links listed for each state in Appendix A. Also, several other website links that provide updated listings or summaries of state incentives for alternative fuels, including ethanol, are listed at the end of Appendix A. The remainder of this section is an overview of these different types of state ethanol incentives citing specific state incentive programs as examples.

Producer Payments

Producer payments, offered in nine states (KS, MN, MS, MO, MT, ND, SD, TX, WI), and production-based tax credits, offered in five other states (HI, IN, NE, OK, WY), are the primary measure used by states to support expansion of ethanol production. Both of these approaches supplement the federal ethanol excise tax's effect of allowing producers to supply ethanol to motor fuel markets at a price close to that of petroleum fuels by underwriting a portion of the higher cost of ethanol production (versus that of petroleum fuels). The difference lies in the mechanism by which a producer captures the value of such incentives. In the case of producer payments, the producer receives a direct payment from the state, ranging from 5 to 30 cents per gallon in the nine applicable states, for each gallon of ethanol produced. Production-based tax credits, ranging from 7.5 to 30 cents per gallon in the five applicable states, either reduce a producer's state income tax liability (HI, IN, OK) or transfer to the ethanol marketer in the form of reduced tax liability on the ultimate sales of motor fuel (NE, WY). The latter mechanism has a more immediate effect of reducing the effective ethanol market price, allowing the marketer to pay a higher price to the producer. The income tax credit mechanism, similar to the previously-described federal ethanol income tax credit, is subject to conditions of a company's eventual income tax liability and has a longer recovery period.

Most state ethanol production incentive programs have legislative and/or administrative regulations defining eligibility, maximum amounts claimable (per facility and/or in total),

effective time periods, and other terms and conditions. In most cases, caps are placed on total state financial liability, annually and/or for the duration of the program. Eligible producers are usually “pre-qualified” or approved in some manner that provides advance assurance to ethanol project proponents and financiers that their projects will receive more-or-less guaranteed amounts of state funding over a defined number of production years. Most programs are designed to provide a strong inducement for plants to actually produce ethanol up to their maximum production capacities by tying payments or credits to actual production on a per-gallon basis. However, some states offer tax credits, tax exemptions, grants or loans that are not contingent on actual ethanol production.

Minnesota’s ethanol producer payment program, enacted in 1986, offers a direct producer payment of 20 cents per gallon for up to 15 MGY of ethanol production per facility for a ten-year operating period. As of 2002, the state was budgeting approximately $34 million per year in producer payments to 14 producers for about 170 million gallons per year of ethanol production. In 2003, in the face of a severe state budget crisis, the Minnesota Legislature reduced the producer payment to 13 cents per gallon, with provisions to reimburse producers the additional amount (seven cents per gallon) in future years. The program is scheduled to end payments to producers in 2010.

Some ethanol industry observers cite the Minnesota experience to illustrate that state producer payment programs are not necessarily guaranteed revenue streams, but are subject to reductions. Others point out that, depending on the prevailing market price of ethanol, a fixed producer payment at times may be unnecessary and at other times be inadequate to assure profitable ethanol production. Some other, more recently implemented (or revised) state ethanol production incentive programs are incorporating features intended to address such issues. July 2003 revisions to North Dakota’s program, for example, provide for calculation of producer payments on a quarterly basis that reflect the prevailing market prices of both ethanol and corn. Texas’ recently-enacted (2003) program is unique in that it establishes a grant fund from which producer payments are authorized, with the state and ethanol producers both contributing to the fund.

Tax Credits and Tax Exemptions

Eight states (AR, IL, IA, KY, MI, OH, OR, WA) encourage an ethanol production industry with either unconditional income tax credits for facility investments (not production-based), state grant or loan programs for facility investments, and/or exemptions from state property, sales or other taxes normally applicable to facilities, equipment purchases, etc.

State tax credit and tax exemption programs represent a different mechanism than producer payments for supporting ethanol production. The standard tax credit approach (in AR, OH, OR) simply accords certain types of ethanol production facility investments credits against state income tax liability, similar to treatment accorded by many states to

certain other types of preferred business investments. Tax exemptions (in MI, MT, OH, OR, WA) have a similar effect, by reducing portions of an ethanol producer's state property tax or other tax liability. The type of tax credit that transfers to the ethanol fuel marketer (in NB, WY) functions differently, however, since it is not contingent on the producer's tax-paying status or amount of tax liability but, instead, enables the producer to receive a higher ethanol selling price, since the purchasers/distributors are allowed to apply the credit against their payments of state motor fuel tax. The budget impact to the state under this approach is also different, since the effect of the transferable tax credit is foregone motor fuel tax revenue.

Grants and Loans

Grants and loans are offered in five states (IL, IA, KY, MI, OR) to assist ethanol project proponents to finance projects. Such state grants or loans usually do not comprise the major source of project funding but can, in some cases, be a key factor in leveraging private financing. In other cases, state grants or loans can be used for critical initial steps such as feasibility studies or other project development costs prior to actual project funding.

Siting and Permitting Assistance

Oregon is the only state with provisions for facilitating the siting and permitting of ethanol projects and there is not yet any reported information or experience with these provisions. A state role in the siting and permitting of new ethanol projects may prove crucially important outside the traditional ethanol-producing states.

Fuel Taxes and Other Market Incentives

Many states employ one or more forms of inducement for the marketing of ethanol-blended gasoline, the purchase of flexible fuel vehicles capable of operating on E85, installation of E85 fueling facilities and/or marketing or purchase of E85 fuel. Reduction in state excise tax and/or sales tax on ethanol/gasoline blends is the oldest type of incentive for ethanol use practiced in the U.S. Such state tax incentives, applied at the point of fuel distribution, add to the effect of the federal ethanol excise tax incentive (albeit at much smaller amounts), which is to increase the price the fuel marketer can pay the ethanol producer by reducing the marketer's tax liability, thus making ethanol more competitive with gasoline in the motor fuel marketplace.

Currently, eight states (AK, CT, HI, ID, IL, IA, MT, SD) offer some form of reduced motor fuel tax on E10 blends. Several other states, including California and Minnesota, offered such reductions in past years but have since ended this practice. Four states (CT, ID, IA, SD) apply a motor fuel excise tax reduction, ranging from 1 to 2.5 cents per gallon, to all E10 sales. Hawaii exempts E10 blends from the four percent state sales tax on motor fuels and Illinois reduces its state sales tax by 20 percent for E10. Alaska reduces its eight cents per gallon motor fuel excise tax by six cents for E10 when and where its use is required under oxygenated fuel regulations. Montana has a provision that will

reduce its state motor fuel tax on E10 to 85 percent of the gasoline rate for four years after an ethanol production plant begins operation in the state.

Minnesota has adopted a state requirement for use of ethanol-blended gasoline. Except for limited special fuel applications, such as marine vessels, motor racing, and collector vehicles, all gasoline sold in the state is legislatively required to contain ten percent ethanol. Thus, a reported 96 percent of the gasoline market in Minnesota is supplied with E10.

Many states have active incentive programs to encourage the acquisition of alternative fuel vehicles (AFVs) and/or installation and operation of alternative fueling facilities to serve these vehicles. Corporate and/or personal tax credits against state income tax or property tax are the most common form of such incentives. In most cases, E85 and vehicles capable of operating on E85 qualify for these incentives. The advent of flexible fuel vehicle (FFV) production by the “Big Three” U.S. auto makers is prompting many states to implement specific incentives for E85 fueling infrastructure. Purchase of the FFVs themselves may or may not benefit from state AFV incentives, since these incentives typically (but not always) apply only to the incremental cost of such vehicles, over and above the cost of a standard gasoline version.

Since most FFV models marketed to date are standard production models sold at no incremental cost to the purchaser, AFV incentives based on incremental cost typically would not apply. However, some FFV models have been introduced as options to standard gasoline versions and carry a modest incremental cost to the purchaser. Such models would be eligible for state AFV incentives based on incremental cost. Also, some states have incentive programs that encourage AFV purchases through grant, loan or rebate programs, some of which cost share vehicle purchases independent of whether or not an incremental cost applies. Some of these programs apply only to selected vehicle fleet categories, such as local government fleets, while others apply to the overall new motor vehicle market. A number of states maintain incentives for converting standard petroleum fuel vehicles to alternative fuel operation. However, since there are no known commercial conversion operations offering E85 vehicle conversions at this time, these incentives are probably not being applied to ethanol vehicles.

Many states, including California, have made adjustments to their motor fuel tax rates to account for the different energy contents of petroleum and alternative motor fuels. Normally, this practice does not fit the definition of an “incentive”, since the intent is simply to normalize the fuel tax rates so that the amount of tax collected is the same for all fuels on a per-mile-traveled basis. However, each state establishes the tax rates for individual fuels differently, sometimes inadvertently resulting in an advantage for a particular fuel. This is currently the case for ethanol in California, where the state motor fuel excise tax rate established for alcohol fuels (applicable to both ethanol and methanol, including E85) is one-half the gasoline rate, or nine cents per gallon. This results in an excise tax on E85 that is about four cents per gallon lower than gasoline on an energy-equivalent basis.

Comparison of State Ethanol Incentives with Production and Use of Ethanol

Although it is beyond the scope of this study to evaluate the historical experience or results achieved with individual state ethanol incentive programs, a more general attempt was made to correlate current state incentives with recent state-by-state trends in ethanol production and ethanol fuel application. The Energy Commission's U.S. Ethanol Industry Production Capacity Survey process, initiated in 2001 and updated in 2002 and 2003, provides the data to examine ethanol production by state. Federal Highway Administration data on state-by-state ethanol consumption for gasoline blending provides a basis for comparing state ethanol fuel consumption.

Ethanol Production Compared With State Production Incentives

The 2003 Energy Commission survey of U.S. ethanol industry production capacity plans[5] determined that the industry has current expansion plans that call for a doubling of its cumulative production capacity, from today's three billion gallons per year to six billion gallons by the end of 2006. And, the size of today's U.S. ethanol industry reflects over 75 percent growth in production capacity since 1998, when total capacity was about 1.7 billion gallons per year. Table 3 shows the state-by-state distribution of U.S. ethanol industry production capacity in 1998 and 2003, and as projected for 2006; the table also notes which states have current ethanol production incentives.

Table 3
U.S. Ethanol Production Capacity by State
Million Gallons per Year

State (*)	1998 Capacity	2003 Capacity	Planned Capacity
Alabama	--	--	✓
Alaska	--	--	
Arkansas (* t)	--	--	
Arizona	--	--	
California	9	9	
Colorado	1.5	1.5	✓
Connecticut	--	--	
Delaware	--	--	
Florida	--	--	
Georgia	--	--	
Hawaii (* p)	--	--	
Idaho	6	1	✓
Illinois (* g)	618	735	✓
Indiana (*p)	85	109	✓
Iowa (*g)	379	750	✓

Table 3 continued

U.S. Ethanol Production Capacity by State

Million Gallons per Year

State (*)	1998 Capacity	2003 Capacity	Planned Capacity
Kansas (*p)	61	101	✓
Kentucky (*g)	6	6	✓
Louisiana	--	--	
Maine	--	--	
Maryland	--	--	
Massachusetts	--	--	
Michigan (*t, g)	--	40	✓
Minnesota (*p)	154	390	✓
Mississippi (*p)	--	--	✓
Missouri (*p)	--	56	✓
Montana (*p,t)	--	--	✓
Nebraska (*p)	300	381	✓
Nevada	--	--	
New Hampshire	--	--	
New Jersey	--	--	✓
New Mexico	14	26	✓
New York	--	--	✓
North Carolina	--	--	✓
North Dakota (*p)	41	48	✓
Ohio (*t)	--	--	✓
Oklahoma (*p)	--	--	
Oregon (*t,g)	--	--	✓
Pennsylvania	--	--	✓
Rhode Island	--	--	
South Carolina	--	--	
South Dakota (*p)	15	243	✓
Tennessee	42	61	✓
Texas (*p)	--	--	✓
Utah	--	--	
Vermont	--	--	
Virginia	--	--	
Washington (*t)	8	--	✓
West Virginia	--	--	
Wisconsin (*p)	--	78	✓
Wyoming (*p)	--	5	✓
total U.S.	1,740	3,041	6,006

(*) – denotes current ethanol production incentive; (p) = producer payment (or production-based tax credit); (t) = investment tax credit or exemption; (g) = grant or loan;

✓ – indicates states with plans for new or expanded ethanol production capacity as of the Energy Commission's October 2003 survey of the ethanol industry

Some observations that can be drawn from Table 3 include:

- Nineteen of the 22 states with current ethanol production incentives have realized new and/or expanded ethanol production capacity since 1998 or have plans for such capacity by the end of 2006. Nine of these states have (or will) become ethanol producers for the first time.

- Nineteen of the 28 states without any current ethanol production incentive have no current or planned (through 2006) ethanol production. However, there are plans for new ethanol production capacity in five states that do not currently have an ethanol production incentive.

- Eleven of the 14 states with producer payments or production-based tax credits have substantial ethanol production capacity expansions planned within the next three years, accounting for over one-half of the U.S. ethanol industry expansion plans.

- The top four ethanol-producing states in 1998 (1:IL, 2:IA, 3:NB, 4:MN) accounted for 83 percent of U.S. industry capacity in that year. These same top four ethanol-producing states (1:IA, 2:IL, 3:MN, 4:NB) account for 74 percent of 2003 industry-wide capacity. As projected by the end of 2006, the top four ethanol-producing states (1:IA, 2:IL, 3:NB, 4:SD) will account for 54 percent of total industry capacity. All of these states currently have some form of ethanol production incentives in place.

- By the end of 2006, if current industry expansion plans are realized, there will be some ethanol production in 29 states, up from 15 states in 1998. Of the projected top ten ethanol producing states by that time (1:IA, 2:IL, 3:NE, 4:SD, 5:MN, 6:WI, 7:NY, 8:KS, 9:MS, 10:MO), all but one (NY) currently has some form of state ethanol production incentive in place.

Ethanol Consumption Compared With State Application Incentives

Table 4 shows state-by-state consumption of ethanol for gasoline blending for the latest year (2001) that data is available from the Federal Highway Administration. It is important to note that these 2001 figures in the table do not reflect major ongoing changes in certain states' ethanol/gasoline blending markets, in particular California's emergence as the new number one ethanol-using state due to MTBE replacement. The table also indicates which states have a current state fuel tax incentive that encourages this application of ethanol. However, all of these state incentives may not have been in place in 2001 and other states may have had incentives in place in 2001 that are no longer in effect. Thus, caution must be exercised when attempting to correlate current state tax incentives with 2001 ethanol use for gasoline blending.

Table 4
State-by-State Ethanol Consumption for Gasoline Blending 2001

State	Ethanol Consumption Million Gallons (% gasoline consumption)	State	Ethanol Consumption Million Gallons (% gasoline consumption)
Alabama	14 (0.6)	Montana *	1 (0.2)
Alaska *	5 (1.7)	Nebraska	25 (2.9)
Arizona	22 (0.9)	Nevada	28 (2.9)
Arkansas	--	New Hampshire	--
California	82 (0.5)	New Jersey	11 (0.3)
Colorado	73 (3.4)	New Mexico	8 (0.9)
Connecticut *	1 (0.06)	New York	4 (0.07)
Delaware	--	North Carolina	49 (1.2)
Florida	1 (0.01)	North Dakota	7 (1.9)
Georgia	--	Ohio	185 (3.5)
Hawaii *	--	Oklahoma	--
Idaho *	--	Oregon	16 (1.0)
Illinois *	294 (5.7)	Pennsylvania	15 (0.3)
Indiana	98 (3.0)	Rhode Island	--
Iowa *	87 (5.6)	South Carolina	--
Kansas	2 (0.2)	South Dakota *	19 (4.3)
Kentucky	4 (0.2)	Tennessee	--
Louisiana	--	Texas	59 (0.5)
Maine	--	Utah	14 (1.4)
Maryland	0.3 (0.01)	Vermont	--
Massachusetts	--	Virginia	31 (0.8)
Michigan	52 (1.0)	Washington	22 (0.8)
Minnesota	213 (8.0)	West Virginia	5 (0.6)
Mississippi	--	Wisconsin	74 (2.9)
Missouri	24 (0.8)	Wyoming	--

* denotes current state tax incentive for ethanol/gasoline blends
Data source: Federal Highway Administration
http://www.fhwa.dot.gov/ohim/hs01/pdf/mf33e.pdf

Some observations that can be made from Table 4 are:

- As of 2001, the top five ethanol-consuming states (1:IL, 2:MN, 3:OH, 4:IN, 5:IA) were all in the Midwest, and together accounted for over one-half of U.S ethanol fuel consumption.

- The number three ethanol-consuming states in 2001 (OH) was not an ethanol-producing state and had no tax incentives for ethanol fuel use.

- The number six through ten ethanol-consuming states in 2001 (6:CA, 7:WI, 8:CO, 9:TX, 10:MI) included four states with no (or minimal) ethanol production and no state tax incentives for ethanol fuel use.

- Of the states with the highest proportional use of ethanol in their gasoline supply – i.e., gallons of ethanol used/gallons of gasoline used – in 2001, the top three (MN, IL, SD) were ethanol-producing states with state tax incentives for ethanol use or, in the case of Minnesota, a state mandate for ethanol/gasoline blends.

State incentives that encourage acquisition of alternative fuel vehicles were identified in 18 states. While ethanol FFVs are typically considered alternative fuel vehicles for purposes of such incentive, as noted earlier, only the incremental, or extra costs of such vehicles normally qualify. Thus, this mechanism has probably not provided a significant inducement to date for acquisition of ethanol FFVs, since most FFV models have been marketed with no incremental cost. However, the growing fleet of ethanol FFVs, reported at about 3 million currently in the U.S., is prompting increasing interest in provisions for E85 fueling infrastructure. Some form of current state incentive for installation of alternative fueling facilities and/or use of alternative fuels (including E85 in most cases) was identified for nineteen states. While E85 continues to account for a small percentage of ethanol used as fuel, still estimated at well below one percent of total ethanol used as motor fuel, installation of E85 fueling facilities is progressing in many states. Table 5 shows a recent summary of the number of E85 fueling facilities by state, with an indication of which states have current incentives for alternative fueling infrastructure.

The most striking observation from Table 5 is that Minnesota is home to 80 of the approximately 170 public E85 fueling stations currently operating in the U.S. (an unknown number of private E85 fueling facilities serving fleet operations also exist). A concerted public/private partnership program involving various interested organizations in Minnesota is responsible for the advancement of E85 fueling facility installations there, rather than a state incentive program. Of the 22 states other than Minnesota with one or more E85 stations in operation, nine have some form of state incentive for alternative fueling facilities and the remaining 13 do not. Conversely, of the nineteen states with tax incentives for alternative fueling facilities, nine have one or more E85 stations and ten do not.

Table 5 E85 Fueling Facilities by State			
State	**Number of Public E85 Stations**	**State**	**Number of Public E85 Stations**
Alabama	--	Montana	2
Alaska	--	Nebraska *	2
Arizona	--	Nevada	--
Arkansas	--	New Hampshire	--
California	1	New Jersey *	--
Colorado *	9	New Mexico	2
Connecticut	--	New York *	--
Delaware	--	North Carolina	--
Florida	--	North Dakota	4
Georgia	--	Ohio	1
Hawaii	--	Oklahoma	2
Idaho	--	Oregon *	--
Illinois *	12	Pennsylvania *	--
Indiana *	--	Rhode Island *	--
Iowa *	11	South Carolina	1
Kansas *	2	South Dakota	7
Kentucky *	1	Tennessee	1
Louisiana *	--	Texas *	--
Maine *	--	Utah *	3
Maryland *	3	Vermont	--
Massachusetts	--	Virginia *	1
Michigan	3	Washington *	--
Minnesota	80	West Virginia	--
Mississippi	--	Wisconsin	13
Missouri	8	Wyoming	1

* denotes states with current incentives for alternative fueling infrastructure
Source: National Ethanol Vehicle Coalition [http://www.e85fuel.com], December 2003

Advancement of Biomass-to-Ethanol

The ongoing pursuit of ethanol production from biomass wastes and residues is, for the most part, a topic that is distinct from this report's examination of existing ethanol incentive programs in the U.S. The federal and state ethanol production and market incentives described herein apply equally to almost all sources of ethanol; only ethanol produced from fossil fuel feedstocks is excluded from most incentives. All current U.S. ethanol fuel production, and all identifiable planned production, employs conventional fermentation/distillation ethanol processing technology using starch or sugar crops as feedstocks.

Meanwhile, the U.S. and a number of other countries continue efforts to develop technologies for producing ethanol from agricultural, forestry and municipal wastes and residues. While there are many active process technology developers pursuing several different paths, no commercial production of ethanol using biomass wastes or residues is yet occurring. A substantial remaining research and development effort must be successfully completed before commercial production of ethanol from biomass wastes and residues is assured.

Perhaps a pertinent question to address in the context of this report is: "To what extent do existing incentives for ethanol production and use advance the pursuit of biomass-to-ethanol production?" Simply stated, the answer is that none of the aforementioned incentives appear to provide any significant inducement, financial or otherwise, for commercializing biomass-to-ethanol production technology. As effective as federal and state incentives have proven to be for stimulating expanded conventional production of ethanol, separate and additional forms of government support will be necessary to move biomass-to-ethanol technology toward commercial reality. Pursuit of such technology remains in the research and development arena, where modest progress has been occurring over many years.

Both the federal government and some states have actively engaged in biomass-to-ethanol development efforts, with mixed results. Today, the federal government, through the U.S. Department of Energy and the U.S. Department of Agriculture, sponsors the leading U.S. activities to develop viable biomass-to-ethanol technologies.

Among the state incentives identified in Appendix A are several examples of state intentions to stimulate biomass-to-ethanol production. Alaska offers a full exemption from the state's motor fuel tax of eight cents per gallon for E10 made with ethanol produced from wood or waste seafood, two potential biomass feedstocks of most interest in that state. Missouri offers a special "Wood Energy Tax Credit" of $5 per ton for conversion of forest residues to fuel, potentially including ethanol. Ohio offers an exemption from state property tax, sales and use tax, and franchise taxes for waste-to-energy conversion facilities, potentially including ethanol production. Thus far, however, none of these examples of state biomass-to-energy incentives are known to have stimulated active projects in those states that would qualify for these incentives.

Conclusions

- Incentive programs provided by the federal government and by many states are stimulating increasing production and use of ethanol fuel for gasoline blending. Ethanol now comprises about two percent of the U.S. gasoline supply.

- The federal ethanol fuel excise tax incentive (and the parallel ethanol fuel income tax credit), amounting to $0.52 per gallon, is the most significant single inducement to ethanol production and use in the U.S.

- Ethanol production incentives provided in 22 states, ranging from $.05 to $0.30 per gallon, are having an important bearing on new and planned ethanol production in those states.

- While 32 states have some form of market incentive for ethanol use, only in one state, Minnesota, does there appear to be a strong correlation between a state incentive for application of ethanol and actual ethanol consumption.

- Federal and state incentives applicable to the use of ethanol as E85 in flexible fuel vehicles have not resulted in significant use of ethanol in this form.

- Production of ethanol from biomass wastes and residues remains a goal of federal research and development programs, but is not being fostered by current federal and state ethanol incentives.

Appendix A

Current State Ethanol Incentives

State	Production Incentives	Application Incentives
Alaska http://www.tax.state.ak.us/test_site/programs/motorfuel/statutes/Chap43.40_MotorFuel.htm		• Gasoline tax (8 cents/gal) reduced by 6 cents for E10 where/when required by state or federal law (essentially, in the City of Anchorage during winter months) • No tax on E10 using ethanol produced from certain wood or waste sources for first five years of production
Arkansas http://www.arkleg.state.ar.us/ftproot/acts/1999/htm/act1367.htm http://www.1800arkansas.com/energy/index.cfm?page=transportation-alt_fuel	State income tax credit for investments in production of "advanced biofuels" (other than crop fermentation); enacted 1999	State rebate for additional costs of alternative fuel vehicles
Colorado http://www.revenue.state.co.us/fyi/html/income09.html		State tax credits for alternative fuel vehicles and fueling facilities (incl. E85)
Connecticut http://www.cfnnet.com/private/only_04_01.html		State gasoline tax (25 cents/gal) reduced by 1 cent for E10

State	Production Incentives	Application Incentives
Hawaii http://www.state.hi.us/dbedt/ert/ethanol-incentive.html http://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0237/HRS_0237-0027_0001.htm	State income tax credit for investment in new ethanol plants ($300,000 per million gallons of capacity or 30% of investment, whichever is less); facility must produce at least 75% of capacity; enacted 2000	E10 (or higher ethanol fuels) exempted from 4% state excise tax
Idaho http://www.dsireusa.org/library/docs/incentives/ID04F.htm		Gasoline tax (25 cents/gal) reduced by 2.5 cents for E10
Illinois http://www.dsireusa.org/library/docs/incentives/IL12F.htm http://www.revenue.state.il.us/publications/bulletins/2004/Fy200404.pdf http://www.epa.state.il.us/air/fact-sheets/alternate-fuels-rebate.html	State grant program provides financial assistance for new and expanded renewable fuel (incl. ethanol) production plants; maximum amount of all grants is $15 million/yr; enacted 2003	• E70+ exempt from state sales tax; 20% sales tax reduction for E10-E70; enacted 1989 • Partial state rebate on additional costs of alternative fuels and vehicles (incl. E85) • Tax credits for purchase of ethanol vehicles and installation of ethanol fueling facilities
Indiana http://www.in.gov/legislative/ic/code/title6/ar3.1/ch28.pdf http://www.in.gov/doc/businesses/AFTGPguidelines.html	State income tax credit of 12.5 cents/gal for new and expanded ethanol plants; enacted 2003	State grant program for commercial and local government fleets to support purchase of alternative fuel vehicles, fueling facilities and fuel (incl. E85); revised 2002

State	Production Incentives	Application Incentives
Iowa http://www.energy.iastate.edu/renewable/incentives/ http://www.state.ia.us/dnr/energy/MAIN/renewable/incentives.html	Iowa Renewable Fuel Fund offers combined forgivable/low-interest loans for renewable fuel production projects (including ethanol plants); enacted 1997	• Partial tax exemption on ethanol-blended gasoline (amounts to about 1 cent/gal) • State tax credit for retail fueling stations dispensing ethanol-blended gasoline
Kansas http://www.ksrevenue.org/pdf/forms/mf400.pdf http://www.kcc.state.ks.us/energy/alt_info.htm	Producer incentive payment of 5 -7.5 cents/gal; enacted 2001	State income tax credit for purchase of alternative fuel vehicles and fueling facilities (incl. E85)
Kentucky http://www.kyagpolicy.com/board/documents/030121_release_ethanol_ground_breaking.shtml http://www.energy.ky.gov/programs/grants/Biomass+Grants.htm http://lrc.ky.gov/KAR/302/079/010.htm	State Agricultural Development Fund provides grant funds to various agribusiness projects, including ethanol production plants; enacted 2001	• State rebates for purchase of alternative fuel vehicles • State grants for E85 fueling stations • State fleet vehicle operators directed to use ethanol fuels when available
Louisiana http://www.dsireusa.org/library/docs/incentives/LA03F.htm		State income tax credits for alternative fuel vehicles and fueling facilities (incl. E85)
Maine http://www.gpcog.org/trnsprttn/cln_cts/tx_ncntv.htm		• State loan and loan guarantee program for alternative fuel vehicles and infrastructure • State tax credit for alternative fueling facilities

State	Production Incentives	Application Incentives
Maryland http://www.naseo.org/energy_sectors/stateenergy/alt_fuels.html#Maryland		• State income tax credits for AFV purchases • State tax exemptions for alternative fueling infrastructure • 1 cent/gasoline-gal- equiv. reduction in state fuel tax for E85
Michigan http://www.michiganbioenergy.org/funding/ http://www.dsireusa.org/library/docs/incentives/MI05Fa.htm http://www.dsireusa.org/library/docs/incentives/MI06F.htm	• State grant program provides funding assistance for biofuel projects (a $5 million grant was appropriated for the state's first ethanol plant); enacted 1998 • State property tax exemptions for certain investments in alternative fuel production and use; enacted 2002	
Minnesota http://www.revisor.leg.state.mn.us/stats/41A/09.html http://www.revisor.leg.state.mn.us/stats/239/791.html	Producer incentive payment of 20 cents/gal for up to 15 million gal/yr per facility; enacted 1986	Most gasoline sold in the state required to contain 10% ethanol
Mississippi http://www.mdac.state.ms.us/Library/AlternativeEnergy/Housebill1130.pdf	State producer payment of 20 cents/gal for up to 30 million gal/yr for 10 yrs; enacted 2002	

State	Production Incentives	Application Incentives
Missouri http://www.dsireusa.org/library/docs/incentives/MO03F.htm http://www.sos.mo.gov/adrules/csr/current/10csr/10c140-4.pdf	• Producer incentive payment of 20 cents/gal for 1st 12.5 MGY, 5 cents/gal for 2nd 12.5 MGY for 5 yrs; enacted 2002 • Wood energy tax credit for conversion of forest residues to fuel ($5/ton); enacted 1998	State vehicles required to use ethanol-blended fuel when available at a competitive price
Montana http://www.deq.state.mt.us/energy/Renewable/TaxIncentRenew.asp#15-70-522	• Producer incentive payment of 30 cents/gal for ethanol produced from Montana agricultural products, wood or wood products; up to $3 million/yr per producer, $6 million/yr total • State property tax exemption for ethanol production facilities during construction and first ten years of operation	• Fuel tax on E10 reduced to 85% of the tax on gasoline for 4 yrs after an ethanol plant begins production in the state (subject to the highway revenue account having an adequate balance) • State government and university vehicle fleets directed to use ethanol-blended fuel if "commercially available and competitively priced" • State income tax credit for costs of converting vehicle to use alternative fuels, including E85
Nebraska http://www.revenue.state.ne.us/fuels/eth_prod.htm	Tax credit of 18 cents/gal for new ethanol plants, up to 15.625 million gal/yr for up to 8 yrs; credit is transferable to motor fuel distributors as credit against state motor fuel tax liability	Low interest loan program for installation of alternative fueling facilities (incl. E85)

State	Production Incentives	Application Incentives
New Jersey http://www.ccities.doe.gov/vbg/fleets/progs/laws2_nm.cgi?NJ|1		State programs to provide rebates to local government fleets for alternative fuel vehicle acquisition and to cost-share alternative fueling facilities for government and university fleets
New York http://www.ccities.doe.gov/vbg/fleets/progs/laws2_nm.cgi?NY|1		Cost sharing, tax credits and exemption from sales tax for costs of alternative fuel vehicles and refueling infrastructure
North Carolina http://www.ncsc.ncsu.edu/information_resources/factsheets/RenewableTaxCredit.pdf	25 % credit against either state income tax or franchise tax on renewable energy (including ethanol) production facilities and equipment	
North Dakota http://www.dsireusa.org/library/docs/incentives/ND06F.htm	Producer incentive payment of up to $1.6 million per year or $10 million cumulatively per facility; payment is a fluctuating per-gallon amount determined by prevailing market prices of corn and ethanol	

State	Production Incentives	Application Incentives
Ohio http://lsc.state.oh.us/analyses/fnla124.nsf/All%20Bills%20and%20Resolutions/51ca http://www.odod.state.oh.us/cdd/oee/c_i_cfe.htm	• Corporate and personal tax credit of 50% (up to $5,000/yr) for investment in a qualified ethanol plant • Exemptions from property tax, sales and use taxes and franchise taxes for waste-to-energy conversion facilities	Alternative fuel vehicles exempt from certain motor vehicle inspection and maintenance programs
Oklahoma http://www2.lsb.state.ok.us/2001-02SB/hb1225_scs.rtf	Producer tax credit of 20 cents/gal for up to 25 million gal/yr per facility for 5 yrs; drops to 7.5 cents/gal & 10 million gallons/yr after 2010	
Oregon http://www.energy.state.or.us/biomass/Incentive.htm	• Business Energy Tax Credit Program for projects that produce energy using a renewable resource • 50% property tax exemption for ethanol plants for 5 yrs • Small ethanol plants eligible for low interest state loans and may be exempted from state siting process	Tax credits for fleets with alternative fuel vehicles and infrastructure
Pennsylvania http://www.dep.state.pa.us/dep/deputate/airwaste/aq/afv/afvafig1.htm		State grant program to cost-share up to 20% of investments in ethanol vehicles and fueling facilities

State	Production Incentives	Application Incentives
Rhode Island http://www.rilin.state.ri.us/BillText/BillText03/HouseText03/H5878.pdf		• State tax credits for alternative fuel vehicles and fueling stations • Corporate tax deduction for sales of alternative fuels • Exemption from gasoline tax for fleets using alternative fuels
South Dakota http://www.state.sd.us/drr2/MotorVehicle/motorfuelmanual.htm	Producer incentive payment of 20 cents/gal up to $1 million/yr per facility for up to 10 yrs	State motor fuel tax (22 cents/gal) reduced by 2 cents for E10 & by 12 cents for E85
Texas http://www.capitol.state.tx.us/tlo/78R/billtext/HB00777H.HTM	State grant fund provides 20 cents/gal for up to 18 million gal/yr for 10 yrs	State grants for alternative fueling infrastructure
Utah http://www.energy.utah.gov/altfuels/incentives.htm#loan		State grant & loan program for alternative fuel vehicles and fueling facilities
Virginia http://www.dsireusa.org/library/docs/incentives/VA04F.htm		State tax credits for purchases of alternative fuel vehicles and fueling facilities

State	Production Incentives	Application Incentives
Washington http://www.leg.wa.gov/pub/billinfo/2003-04/House/1225-1249/1240-s2_pl_04232003.txt http://www.leg.wa.gov/pub/billinfo/2003-04/House/1225-1249/1241-s2_pl_04102003.txt	• Exemptions from state and local property taxes and sales and use taxes for eligible ethanol plant investments • Reduced business and occupation tax for ethanol producers	State sales and use tax exemption for certain investments in E85 fuel distribution
West Virginia http://www.dsireusa.org/library/docs/incentives/WV03F.htm		State income tax credit for purchase of alternative fuel vehicles (incl. E85)
Wisconsin http://www.dsireusa.org/library/docs/incentives/WI05F.htm	Producer incentive payment of 20 cents/gal for up to 15 million gal/yr	State-owned vehicles required to use alternative fuels or E10 when feasible
Wyoming http://www.dsireusa.org/library/docs/incentives/WY03F.htm	Ethanol production tax credit of 40 cents/gal transferable to and redeemable by motor fuel distributors as credit against state fuel tax liability; maximum annual payments (to all producers) of $4 million	State-owned fleet required to use ethanol-blended fuel whenever practical

Websites with information on state incentives for alternative fuels:

Database of State Incentives for Renewable Energy (DSIRE): http://www.dsireusa.org/index.cfm

U.S Department of Energy, Clean Cities program: http://www.ccities.doe.gov/vbg/fleets/progs/search_incentive.cgi

Energy Futures, Inc., (publisher of The Clean Fuels and Electric Vehicles Report and Hybrid Vehicles): http://www.energy-futures.com/legislation/state.htm

Institute for Local Self-Reliance, New Rules Project: http:.www.newrules.org/agri/smalleth.html

General Motors: http://www.gm.com/automotive/innovations/altfuel/incentives/

Endnotes

[1] California Energy Commission's report ***Evaluation of Biomass-to-Ethanol Fuel Potential in California*** was prepared as directed by Governor's Executive Order D-5-99, March 1999. This Executive Order directed the phaseout of MTBE and included various studies and other tasks in support of this phaseout. The above study can be found at http://www.energy.ca.gov/reports/1999-12-22_500-99-022.html

[2] California's Department of Motor Vehicle's October 2003 Vehicle Registration Database, as processed by the California Energy Commission's Joint Agency DMV Data Project.

[3] National Highway Traffic Safety Administration Issues Report on Dual-Fuel Vehicle Economy, Proposes Extension Of Program to Model Year 2008 http://www.dot.gov/affairs/nhtsa01402.htm

[4] Additional information on USDA programs applicable to ethanol is available on the USDA's website at http://www.usda.gov/farmbill/energy_fb.html

[5] California Energy Commission, ***Energy Supply Outlook for California,*** October 2003, http://www.energy.ca.gov/reports/2003-10-21_600-03-017F.PDF