Task Force on Renewable Alternative Fuels

Final Report

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Table of Contents

Executive Summary

Maryland's Biofuels Industry Needs More Incentives to Spur In-State Production And Use

The Task Force on Renewable Alternative Fuels (Chapter 540 of 2007), chaired by Secretary of Agriculture Roger Richardson and staffed by the Maryland Department of Agriculture (MDA), consisted of two legislative members, the Secretaries of Agriculture and Environment, the Director of the Maryland Energy Administration, private industry and other entities with an interest in biofuels. The group met five times between July 2007 and November 2007 and also worked in subcommittees. The task force's charge was to:

- Study ways to integrate biodiesel and other renewable fuels into motor fuels used in state and local public fleets;
- Study incentives or mandates to integrate biodiesel and other renewable fuels in the private and public sectors;
- Determine the economic and environmental impact on Maryland, including agriculture, regarding the use of biodiesel and other renewable fuels; and
- Examine Maryland's energy policy in terms of existing sources and quantities of renewable fuels available and sources, types, and quantities of renewable alternative fuels available within three years.

The Maryland General Assembly has legislated several mandates on state government, as well as incentives governing the production and purchase of biofuels, including the creation of a Renewable Fuels Incentive Board to approve the paying of credits to in-state producers of biofuels. Unlike other states (primarily concentrated in the Midwest), Maryland has no ethanol production facilities, although two sites have obtained permits. There are three small biodiesel producers currently operating with a combined production capacity of under 10 million gallons annually, with one additional facility to come on line in

2008. The biofuels industry in Maryland has encountered barriers such as infrastructure challenges, and in the case of biodiesel, high feedstock costs. In turn, this impacts the state's ability to achieve a variety of outcomes, from supporting the local agricultural economy, to reducing the state's dependence on foreign oil to achieving reductions in Greenhouse Gases (GHG) and emissions from fossil fuels.

Currently, approximately 85% of Maryland's gasoline supply contains 10% ethanol (E10), which has been added to federal reformulated gasoline (RFG) to replace Methyl tertiary butyl ether (MTBE). Other sources of biofuels are three stations in the State dispensing E85 (a blend of 85% ethanol and 15% gasoline) to the public and eight retail outlets and 10 distribution facilities offering biodiesel. Widespread availability and lower prices of E85 and biodiesel, however, are unlikely to occur without significant changes to the distribution infrastructure.

Along with the lack of infrastructure, the absence of in-state fuels production facilities is the most obvious shortcoming affecting Maryland's consumption of biofuels. For that reason, the task force focused most of its work in this area, concluding that local production of ethanol and biodiesel, in particular, should be the state's highest priority. Local production would lead to wider availability, not just for the public, but for state and local governments, as well. Previous production credits have been inadequate to spur the building of new ethanol plants or soybean oil crushing facilities. As a result, most ethanol or biodiesel in Maryland is purchased and transported from other states. Biofuels transported from other states also incur transportation costs that are passed on to the consumer in the form of higher prices. To address these problems, the task force recommends a number of new actions, including higher incentives aimed at jump starting both biodiesel and ethanol production programs. It also recommends incentivizing the use of non-traditional feedstocks and alternative processes.

The task force concludes that biodiesel would be more widely distributed and utilized if the state offered sufficient incentives to encourage local production and make biodiesel prices more competitive with conventional diesel fuel. Stimulating local biodiesel production will help the state realize environmental and economic benefits, hopefully leading to more private consumers, school boards and local governments buying more biodiesel, and also, hopefully, to higher, more environmentally beneficial blends.

The Task Force on Renewable Alternative Fuels strongly believes that a higher consumption of biofuels through the creation of an in-state biofuels industry is desirable. Advantages that accrue from such an industry could include economic benefits to the farming and rural communities; enhanced energy security for the state; environmental benefits through the reduction of fossil fuel emissions; and enhanced state revenues through the creation of new jobs and businesses. The recommendations laid out in this report are intended to help Maryland move in the direction of a viable and competitive biofuels industry that will benefit the state.

Note: After the task force concluded its work in early December 2007, President Bush signed the Energy Independence and Security Act of 2007 on December 19, 2007. This legislation increases the supply of alternative fuel production by expanding the renewable fuel standard to use 36 billion gallons of biofuel in 2022. Within the 36 billion gallon mandate, 21 billon gallons need to be met by advance biofuels including cellulosic biofuels and biomass-derived diesel fuels.

Recommendations

1) Recommendation to Generate a Funding Source to Promote Biofuels

a) Establish a funding source up to $4 million annually to fund biofuels promotion programs.
   i) Set up a funding source or a "carve-out" for biodiesel, possibly through the excise tax or road tax

2) Recommendations to Support Biofuels Production

a) Amend the Renewable Fuels Promotion Act of 2005 or create a new statue to create an incentive for in-state production:
   i) Biodiesel
      (1) Increase the cap on the total number of gallons produced to 15 million gallons per year; increase the cap to five million gallons per year each for up to three producers
      (2) Extend the sunset clause to 2018, and
      (3) Incentivize the use of renewable feedstocks, including animal fats, as well as newly crushed soybean oil up to 20¢
   ii) Ethanol
      (a) Increase production incentives for the use of non-corn feedstocks

b) Establish an Investment Tax Credit for New Biofuels Projects
   i) Model legislation after biotechnology tax credit
   ii) Make the credit transferable

3) **Recommendations to Support Biofuels Use**

a) Encourage local governments and school boards to increase purchases of biodiesel, including blends up to B20 and ethanol blends including E85
   i) Reduce diesel tax on local governments and school boards
   ii) Encourage the use of B20
   iii) Encourage the use of E85

b) State income tax credit for use of bioheat
   i) Bioheat is the trademarked term for the use of "up to 5 percent (B5)" in home heating oil. Offer a one-cent ($0.01) tax credit per percent of biodiesel, i.e., B5 (5% biodiesel blend) would be eligible for a five cent per gallon against the state's income tax and corporate franchise tax for purchases of bioheat used for space heating and hot water production for commercial, industrial, nonprofit, and agricultural use
   ii) Offer a yearly tax credit for residential purchases of bioheat with a minimum purchase requirement

iii) The Maryland Energy Administration should create a PR campaign to promote bioheat to residential users and recognize entities that are using the fuel for heating and hot water production

c) Consider increasing state fleet mandates on biodiesel from B5 to B10
   i) Chapter 425 of 2006 required that at least 50% of diesel-fueled vehicles in the State vehicle fleet use a blend of fuel that is at least 5% biodiesel fuel. Chapter 623 of 2007 (HB 745) requires that, beginning in fiscal 2009, at least half of the State's heavy equipment, off-road equipment, and heating equipment that uses diesel fuel must use a blend of fuel that is at least 5% biodiesel, subject to its availability

      Because of the ease with which the state has been able to achieve this mandate, the task force recommends considering increasing the level of biodiesel required, from B5 to B10, which would further reduce exhaust emissions and stimulate greater demand for biofuels

d) Consider a state fleet mandate (modeled after Chapter 425) for E85 use in state-owned Fuel Flex Vehicles (FFV)

e) Infrastructure Grants
   i) The Task Force identified a lack of infrastructure at the wholesale level for biodiesel and at the retail level for the higher blends of biofuels when marketed as alternative fuels (B20 and E85). Options to address this were identified for future consideration:
      (1) Investment tax credits for installing biofuel infrastructure
      (2) Grants to help defray the cost of added infrastructure

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Introduction

Across the United States, achieving greater energy independence has moved into the forefront of public policy debate. With oil prices at record heights and the Organization of Petroleum Exporting Countries (OPEC) controlling more than 65 % of the world's oil supplies, national and statewide policy makers are looking to alternative energy, first and foremost to reduce the country's dependence on its foreign oil supply, while also improving air quality and public health. In 2005, Congress set a goal of producing 7.5 billion gallons of domestic renewable fuel production by 2012, which the U.S. is on target to meet as early as 2008. In his January 2007 State of the Union address, President Bush called for another dramatic increase in U.S. domestic production of renewable fuels to an annual production level of 35 billion gallons by 2017.

The United States currently consumes 140 billion gallons of gasoline and 21 billion gallons of diesel, 61% of which is supplied by foreign sources. There is an additional demand, up to an estimated 9 billion gallons, for the home heating supply chain, where biodiesel could play a significant role. To help meet those goals, the federal government has provided wide ranging incentives to encourage the production of ethanol and biodiesel, and President Bush has proposed spending an additional $200 million for renewable fuels research.

The focus on biofuels comes from a wide variety of sources, inside and beyond the government. They include private businesses; nonprofit organizations; environmentalists; farmers; car and truck manufacturers;, petroleum refiners;, the U.S. Department of Defense; and consumers. In addition to helping reduce the nation's dependence on imported oil, hopes for biodiesel and ethanol include:

- Enhancing the country's energy security
- Boosting agricultural commodity markets and rural economies
- Reducing greenhouse gas (GHG) emissions
- Reducing the U.S. trade deficit
- Promoting more environmentally beneficial fuels and
- Seamless adaptability with existing technologies.

Agriculture continues to be the country's largest industry. In Maryland, despite declining numbers of farmers and acres of farmland, agriculture is also still a leading industry. Much of the interest in creating a biofuels industry in Maryland is driven by the goal of strengthening its rural and agricultural economies, creating additional sources of farm revenue, new jobs, and revenues to the state. Maryland grain farmers have already seen considerable benefit from biofuels even though there is no ethanol and very little biodiesel actually produced in the state. Ethanol production has been the driving force in raising grain prices to a level at which farmers can now realize a profit from the market, rather than federal farm payments. The initial increase in corn prices peaked in February 2007, at a level of $4.25 per bushel, compared to $2.50 per bushel in 2006. This encouraged Maryland grain farmers to plant an additional 10% of corn in 2007.

Status of Biofuels in Maryland

Biofuels Primer

A variety of raw materials are potential feedstock for biofuels, which are defined as liquid or gaseous fuels produced from biomass. Biomass is any organic matter that is available on a renewable basis, and crops including corn, small grains, soybeans, cane sugar, switchgrass, organic waste, and even algae all can be used to create biofuels. Some of these, primarily corn and soybeans, are used widely in the United States, while other countries like Brazil are growing sugar cane to create biofuels. Ethanol from cellulosic plant sources such as corn stover and grasses is not currently available commercially, but is expected to be within a decade.

Biodiesel

Biodiesel is a clean-burning diesel replacement fuel that can be used in compression-ignition (CI) engines and is manufactured by treating the oil with an alcohol to produce biodiesel and glycerin. Biodiesel is primarily sold as a blend with conventional diesel fuel, typically in concentrations from 2-20%, although blends up to 100% can be used (B100) and are sold commercially. Biodiesel can be manufactured from a variety of renewable, non-petroleum based sources, including virgin vegetable oils like soy, canola, and palm oils; animal fats, tallow, and fish oils; and used cooking oils from restaurants. Soybean oil is the primary feedstock used to produce biodiesel in the United States. Soybeans are also the primary oilseed grown in Maryland. At present there is one soybean crushing plant in the state, owned by Perdue, located in Salisbury. The primary product of soybeans is meal, which is used to supplement the diet of livestock and poultry. The oil is generally used for food products and, more recently, for biodiesel. At

present, the cost of soybean oil is high relative to the price of diesel fuel, and biodiesel producers are sourcing less costly feedstocks, such as animal fats. Maryland has a small biodiesel production capacity at this time. In 2006, less than one million gallons of biodiesel were produced, virtually all of it for local consumption. Production is expected to increase with new plants coming on line.

The biodiesel industry in the United States has experienced steady upward growth from the early 1990s and in recent years has expanded exponentially, although the United States lags far behind countries like Germany, where diesel's inventor, Rudolf Diesel, burned peanut oil in his engine. The National Biodiesel Board (NBB) based in Jefferson City, Missouri, estimates that in 2004 biodiesel consumption amounted to approximately 25 million gallons. In 2006, this increased to 250 million gallons, and the NBB estimates that by 2015 biodiesel will be integrated into the nation's fuel delivery system to the extent that it will meet 5% of the country's demand for diesel fuel. There are 65 biodiesel manufacturing plants in the U.S. today, with a combined capacity of 395 million gallons. There are 3 plants in Maryland with an estimated production capacity of under 10 million gallons per year. There are eight retail stations marketing biodiesel and 10 distributors, including two in Baltimore City.

The federal government provides a tax incentive to biodiesel blenders. The credit is worth a penny per percent of "virgin" feedstock-sourced biodiesel in the finished fuel blend. (This includes soybean oil and animal fat.) The credit pays a half-penny per percent for biodiesel produced from recycled fats and oils, such as fryer grease. The credit is taken by the entity that blends the fuel – which may be the biodiesel producer, the fuel distributor, or even the end-user - although the credit is more difficult for the end-user to claim. Typically, the credit is taken by the fuel distributor. The credit is accrued by the blender and applied toward the motor fuels tax liability the blender may owe. After the tax liability has been satisfied, any excess credit is returned to the blender as a refund. This has encouraged the growth

of biodiesel, which is a non-taxed fuel, but is still eligible to accrue to the credit. Currently the tax incentive is set to expire December 31, 2008. There are several bills in Congress that would extend the credit's sunset date.

Biodiesel is also being used as a blend of up to 5% in home heating oil known as "bioheat." The potential use for bioheat in Maryland is estimated to be 200 million gallons.

Ethanol

Ethanol is the primary biofuel, not just in Maryland, but across the United States. Its use in transportation dates back to the earliest days of automobiles, when Henry Ford designed the Model T to burn ethanol, reasoning that it was a domestically available fuel source that could be grown throughout the country. As petroleum became widely and inexpensively available, however, cars and other forms of transportation turned almost exclusively to gasoline and diesel to fuel them. Ethanol production for transportation purposes diminished, and with it, the prospects for renewable fuels that have associated local economic and environmental benefits. In 1979, the United States experienced an oil crisis created by the Iranian Revolution that disrupted Middle East oil exports. President Jimmy Carter encouraged the development of ethanol, which sold as "gasohol" until the early 1980's, when gas prices declined and the interest in renewable energy again diminished. More recently, Congress has put in place various incentives for the production of ethanol and other renewable fuels, causing dramatic growth in ethanol production in recent years. These include a 51¢ per gallon excise tax credit for ethanol blenders and the renewable fuel standard requiring a minimum amount of renewable fuels use. Ethanol production has also been given a boost by rising petroleum fuel costs and the phasing out of MTBE in reformulated gasoline. Presently, ethanol actually sells for less than gasoline. Today, nationally 46% of gasoline sales are a gasoline/ethanol mix with 10% ethanol. In Maryland, approximately 85% of

gasoline sales are E10. Despite the growth in the market for ethanol, investment in ethanol production has slowed as national production has quickly met the renewable fuel standards and the market price is insufficient to provide attractive returns relative to the cost of the primary feedstock, corn.

Corn-derived ethanol has been the source of the vast majority of U.S. ethanol. Production of ethanol from corn is carried out by one of two processes: 1) wet milling of corn to make food and chemical products, including ethanol; and 2) dry milling, which is the less expensive method and accounts for 82% of today's production. According to the United States Department of Agriculture (USDA), corn used in ethanol was 1.8 billion bushels in the 2006 crop year, accounting for 17% of corn production. In 2006, U.S. ethanol production was 4.9 billion gallons, and by 2009 the U.S. expects to have a production capacity of 13 billion gallons per year. Additionally, over $10 billion has been invested to date to build ethanol production facilities, with an additional $30 billion currently being put into new plant development. By October 2007, 131 ethanol plants had a total production capacity of 7.0 billion gallons per year, with an additional 82 plants either under construction or expansion.

Congress has played an instrumental role in funding programs for research and development of ethanol and other renewable fuels, as well as Corporate Average Fuel Economy (CAFE) credits for car makers to produce Flexible Fuel Vehicles (FFVs) that can run on a combination of gasoline and ethanol from 0-85%, known as E85. In 2004, Congress passed the American Jobs Creation Act which created the Volumetric Ethanol Excise Tax Credit (VETC), so the tax credit for ethanol blended with gasoline no longer came from the Highway Trust Fund and support for roads was no longer reduced in those states that promoted ethanol use. This same legislation provided a $1.00 per gallon tax credit for biodiesel from virgin oils and 50¢ per gallon for non-virgin oils. The current tax credit paid to the blenders of ethanol is 51¢ per gallon. Biofuels received a boost from the Energy

Policy Act of 2005, which created, among other things, tax incentives for E85 fueling infrastructure and mandated the use of biofuels in the U.S. fuel supply by creating a renewable fuel standard (RFS) of 7.5 billion gallons per year by 2012.

Ethanol can have significant environmental and health benefits because blending it with gasoline can substantially reduce carbon dioxide emissions, which are among the largest contributors to global climate change. According to a model developed through the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy, corn-based ethanol reduced GHG emissions by 29% on a per-gallon basis. The Clean Fuels Development Coalition (CFDC) calculates that as an annual per-vehicle reduction of more than four tons of carbon dioxide. If, in other words, the six million FFVs, which are less than 5% of vehicles already on the road today, burned E85, total carbon dioxide emissions would be reduced by 24 million tons per year. Future ethanol production using the newest technology and potentially new cellulosic feedstocks could provide even greater benefits.

Cellulosic Ethanol

Ethanol made from cellulose such as wood, grasses, corn stover, and other biomass has the potential to provide economic and environmental benefits to Maryland; however, as it is not a commercially viable option at this time, the task force chose not to focus on it, except to propose that it be added as one of the renewable fuels eligible for a per gallon production credit through the Renewable Fuels Promotion Act.

Federal Renewable Fuel Policies

A number of Federal policies have a bearing on Maryland. The Energy Policy Act (EPAct) of 1992 was the first bill to establish ambitious goals for substituting petroleum-based fuels with renewable fuel alternatives. EPAct called for 10 percent and 30 percent replacement of such fuels by 2000 and 2010, respectively.

To encourage that demand, the statute requires that fleets owned and operated by the federal and state governments acquire Alternative Fuel Vehicles (AFV) over a phased in period of time. By 1999, EPAct mandated that 75% of fleet acquisitions be AFV. However, the vehicles were not actually required to run on alternative fuels. The Energy Policy Act of 2005 made additional changes to renewable fuels policies, and as we prepare this report Congress is working on the 2007 Farm Bill and a new Energy Bill, both of which will make additional changes.

State Renewable Fuel Policies

Biofuels have been the subject of legislation in the Maryland General Assembly for a number of years, with most legislation seeking to mandate using a certain percentage of biodiesel in the State's vehicle fleet. In addition to the legislation establishing the Task Force on Renewable Alternative Fuels, three pieces of legislation form the foundation of Maryland's renewable fuels efforts.

Chapter 332 of 2005 (SB 740) – The Renewable Fuels Promotion Act of 2005 authorizes the payment of credits to producers of Maryland-originating ethanol and biodiesel that meet certain requirements. The amount of the credits paid to producers would depend on the number of qualifying plants and whether the feedstocks would qualify for a 5 cents or 20 cents per gallon credit. The law also established a Renewable Fuels Incentive Board to review claims and pay credits to producers over a ten year period. Beginning in FY08, once a facility is certified, the Governor must include funds to implement the credit program. To date, no facility in Maryland has been certified.

The fiscal note and analysis for the bill estimated that payments could total up to $4 million annually. It also noted that to the extent the legislation resulted in new construction of additional plants in Maryland that state revenues would increase. In passing the Renewable Fuels Promotion Act of 2005, the General Assembly hoped to

provide an incentive of 20¢ per gallon on ethanol made from small grains or biodiesel made from soybean oil from a newly constructed (or expanded) crushing facility. These incentives were narrowly focused to use the biofuels industry as a means to develop new local markets for underutilized crops, especially soybeans and barley.

Existing Maryland incentives and credits have proven insufficient to create a viable biofuels industry in the State and have not stimulated either the building of a new ethanol plant or the construction of new soybean crushing facilities in Maryland. In light of that, the task force considered what was lacking, and what steps the State might take to jump start a viable biofuels industry. Many options were discussed, including whether or not to increase the incentive level to 40¢ per gallon and allow up to 15 million gallons per plant per year through 2017, still keeping the 5¢ incentive for corn and non-Maryland oils. It also considered adding an incentive for cellulosic ethanol of 50¢ per gallon, hoping it would draw an investor to site a cellulosic ethanol plant in Maryland. The incentive for soybean oil from an existing Maryland facility or other state produced feedstock such as waste vegetable oil or animal fat would be raised to 20¢ per gallon up to 10 million gallons per plant per year through 2017. In the end, the task force recommends a mix of increased incentives, including a carve-out from either the motor fuel excise tax or road tax to fund and spur biofuels production in the state.

One idea the task force recommends exploring is imposing a surcharge to the existing International Fuel Tax Agreement (IFTA) road tax. Maryland participates in IFTA, which helps ensure that qualified commercial motor vehicles operating in interstate commerce pay their appropriate share of Maryland's diesel tax rate of 24.25¢ per gallon. Information from quarterly submitted reports is transmitted to a clearinghouse and the monies are electronically transferred to the appropriate member jurisdictions based on the fuel tax collected, versus the miles traveled. The IFTA method of tax collection is not applicable to commercial motor vehicles that operate intrastate only or have a registered gross vehicle weight of 26,000 pounds or

less. Most states' road tax rate is the same as their diesel tax rate at the pump; however, two states, Virginia and Kentucky, charge more. Maryland could do this and use that money to develop the Maryland biodiesel industry. Depending on the rate that is set, a surcharge could generate more than $500,000 annually.

Chapter 425 of 2006 (SB 54) – Requires that at least 50% of diesel-fueled vehicles in the state vehicle fleet (with the exception of vehicles whose manufacturer's warranties would be voided if the use of biodiesel fuel caused mechanical failure) use a blend of fuel that is at least 5% biodiesel fuel (B5), beginning in fiscal 2008. The effects of this legislation are just beginning to be felt, but it appears that the State is successfully meeting the requirements of the bill.

Chapter 623 of 2007 (HB 745) - Requires that, beginning in fiscal 2009, at least 50% of the State's heavy equipment, off-road equipment, and heating equipment that uses diesel fuel must use a blend of fuel that is at least 5% biodiesel, subject to its availability. According to the bill's fiscal and policy note, this resulted in increased state expenditures (all funds) of $117,600 in FY 2009, reflecting a five cent per-gallon price premium for 5% biodiesel blends for heating and heavy equipment. According to the Maryland Department of Budget and Management (DBM), the state purchases 9.5 million gallons of diesel annually. The two largest State consumers of diesel fuel are the Maryland Transit Administration (MTA), which uses 8 million gallons of diesel fuel annually in 800 buses, and the State Highway Administration (SHA), which uses 750,000 gallons. These two agencies consume 92% of diesel fuel purchased by Maryland state agencies. Under the terms of this bill, MTA would use 4 million gallons of B5 fuel annually to run half of its fleet, and SHA would use 375,000 gallons. In total, the state would purchase 4.75 million gallons of B5, nearly all of it with Transportation Trust Fund dollars. This equates to a market for approximately 240,000 gallons of biodiesel. Again, the state anticipates no difficulty meeting the mandates of this legislation.

Access to Biofuels in Maryland

As the task force considered various options to meet its goals, it assessed the current state of public access to biofuels in Maryland and found it limited relative to access to other fuels. Aside from the widespread use of ethanol as E10, there are currently only three retail locations where the public can purchase E85 in Maryland, and eight retail locations where the public can purchase some blend of biodiesel, from B2 to B100.

The Energy Policy Act of 1992 required federal and state governments to purchase alternative fuel vehicles, and in 2001, a Maryland Executive Order was signed stating that state vehicles should use flexible fuel at least 50% of the time. The state of Maryland owns approximately 800 FFVs, few of which use E85. Under current mandates, however, at least 50% of diesel-fueled vehicles in the State's fleet are required to use a blend of fuel that is at least 5% biodiesel. Maryland is in compliance with the legal mandates, but is not fulfilling its requirement under the Executive Order to use E85 half of the time. The state is meeting the biodiesel usage requirements established by state law, and the task force concludes that it would be feasible, assuming warranty issues are not a factor, to consider increasing the blend from B5 to B10, which would further reduce exhaust pipe emissions and stimulate greater demand for biofuels. The task force also recommends a mandate governing the use of E85 in FFVs in the state vehicle fleet. Also, if there were a production/use incentive for local biodiesel, it could reduce the cost of biodiesel, which would lead to more schools and local governments using biodiesel.

The consumption of E85 in Maryland for 2006 was approximately 100,000 gallons, while E10, by contrast, was approximately 150 million gallons and is expected to be 230 million gallons in 2007. According to MEA, the state used

approximately 1.9 million gallons of biodiesel blend as of July, 2007, and 91% of diesel purchases made by the state of Maryland are biodiesel. Maryland school systems also purchase close to 10 million gallons of diesel fuel annually, some of which is biodiesel, and two counties currently receive grants from MEA to purchase biodiesel: Queen Anne's County has purchased 76,667 gallons of B100 and Worcester County has purchased 22,213 gallons of B100 for the past two years. Montgomery County uses B5 in its school buses.

The relatively small number of biofuel retail outlets in Maryland is certainly a factor in the low volume of biofuels purchased, and it presents a significant hurdle to access by much of the public. The reasons for the few purchase sites are varied, ranging from branded petroleum stations not taking risks on non-proprietary blends, contractual restrictions and the significant costs associated with installing new equipment. Although MEA has a program to assist station owners with installation of dedicated biofuels it is under funded. Similarly, a grant that the Maryland Grain Producers Utilization Board (MGPUB) matched and received from the U.S. Department of Energy (DOE) and MEA enabled it to fund the construction of dedicated E85 dispensers, but MGPUB found it difficult to find commercial stations that were willing to install the equipment. As a result some of the DOE funds were used to install infrastructure at government facilities including Montgomery County, the University of Maryland and the state complex on West Preston Street in Baltimore City.

Blends of biodiesel and E85 can present various challenges for retailers and distributors of motor fuels. Often, storing the biofuels will require a separate tank, the installation of which can be expensive. Space considerations may also be a factor. In years past, retailers may have had concerns about offering biofuels for sale at their stations due to liability and stability issues with the fuel. Much progress has been made on that front, however, and those are no longer primary concerns. Retailers may still be concerned with the consequences of a consumer

filling a standard vehicle – not a flex-fuel vehicle (FFV) – with E85, and they may also be concerned that the product will not sell.

Retailers may also be hesitant to invest in the equipment necessary for biofuels as a result of the relatively high price of biofuels. Although retailers are able to sell fuels with low concentration blends of biofuels with relative ease, higher blends may present problems. For E85, these include price per gallon, the decrease in miles per gallon of 15-20%, and the limited availability of FFVs, currently less than 5% of vehicles on the road. For biodiesel these include price per gallon and lingering low temperature operability and equipment warranty support concerns.

Key Impacts of Biofuels in Maryland

Agriculture

Maryland grain farmers have already seen considerable benefit from biofuels even though there is no ethanol and very little biodiesel actually produced in the state. Ethanol production has been the driving force in raising grain prices to a level at which farmers can now realize a profit from market driven forces, rather than from federal farm payments. The initial increase in corn prices peaked in February 2007 at a level of $4.25 per bushel. This encouraged Maryland grain farmers to plant an additional 10% of corn in 2007. Since then, wheat and soybean prices have risen to comparable per acre profit levels, so a typical Maryland three crop, two year rotation of corn, wheat and soybeans is expected to be retained. Based on 2006 yields, the increased price of grains has the potential to generate an additional $100 million in farm income (based on 60 million bushels of corn increased by $1 per bushel; 16 million bushels of soybeans increased by $2 per bushel; and 10.6 million bushels of small grains increased by 75¢). Even with the severe drought in Maryland in 2007, which reduced yields substantially, grain farmers' losses will be significantly reduced because of the biofuels-driven increased prices.

Grain and soybean producers both locally and nationally have promoted the production and use of biofuels for more than a decade as a means to utilize surplus production that caused chronically depressed market prices. The success of the biofuels industry has been, for the most part, a result of investment and promotion by farmers. In 2002, the collapse of the Archer Daniels Midland Company pier at the Port of Baltimore closed an important soybean market for Maryland growers, and as a result, soybean prices declined. The potential to utilize soybean oil for biodiesel was seen as a possible means to mitigate the loss of export markets by attracting additional soybean processing capacity in the state. Being a corn deficit state because of the consumption by the poultry industry, corn prices have generally remained above the national average. Because of the desire to maintain an

adequate supply of corn for the poultry industry and to develop a market for an underutilized crop, Maryland farmers have examined the option of using barley for ethanol, rather than corn, and consider it to be a sound option to provide both water quality benefits and an alternative feedstock. Small grains are planted in the autumn and utilize nutrients that remain from the previous crop. Hence, the task force recommends offering incentives to farmers to diversify into growing non-traditional ethanol crops.

Today, production of 15 billion gallons per year (bgy) of corn-based ethanol can be achieved while maintaining food and feed uses also and reducing the impact on the environment. Between 1980 and 2005, U.S. corn yields increased by 74 percent, using 41% less nitrogen and 53% less phosphate per bushel of corn produced. The latest advances in agriculture technology enable farmers to apply fertilizers with pinpoint accuracy, minimizing their impact to soil, water and air. Close on the horizon are new corn varieties with significantly improved nitrogen-use efficiency and greater drought tolerance.

Cellulosic ethanol production has the potential to provide new cropping options and a new source of renewable energy. Maryland could position itself to take advantage of this opportunity by supporting research, market development and use and production incentives.

The Energy Policy Act of 2005 was a turning point for biofuels development because it required the use of 7.5 billion gallons of biofuels by 2012 and did not grant the petroleum industry a waiver from liability from contamination caused by MTBE. This created an immediate demand for 3.5 billion gallons per year of ethanol to replace MTBE. Demand outpaced supply and the price of ethanol and profit margins grew. The response was a significant increase in investment and plant construction with a belief in a bright long-term market based on high oil prices and an overwhelming demand to reduce the country's dependence on foreign oil.

Today, 131 ethanol plants have the capacity to supply 7 billion gallons per year and supply exceeds the mandated demand. The price of ethanol is close to $1 less per gallon than the price of gasoline. To further exacerbate this supply situation, there are 72 plants under construction or expansion that will bring the total production to 13 billion gallons per year. It would appear that even though biofuels have strong bipartisan support with 25-35 billion gallons per year touted as future usage goals, there are barriers to the expanded use of the fuel. For this reason, Congress is currently considering legislation that would increase the renewable fuel standard (RSF) to 15 billion gallons for corn-derived ethanol.

Maryland grain farmers are concerned that without government involvement to increase the use of biofuels, they will relive the demise of the alternative fuel market. This occurred in the early 1980s when biofuel development had just started; it was abruptly halted because of a lack of commitment to the development of this new American industry. At the local level, one action that would increase the volume of ethanol blended with gasoline is for Maryland to increase the percentage of fuel that is currently blended with ethanol, from approximately 85% to 100%. This would mean that E10 would be blended into virtually all motor fuel sold in Maryland. The Maryland Comptroller's office is currently looking at the feasibility of doing that, depending on availability and if the refiners want to do this. A ruling is expected as early as January of 2008.

By supporting greater use of E85 through infrastructure development and usage incentives, Maryland can position its petroleum retail outlets and distributors for the future. Several Midwest states have passed legislation supporting ethanol blends above E10 for general use and are expecting vehicle manufacturers to produce all their vehicles capable of using E20 and above by 2014. The incremental cost of producing vehicles capable of utilizing E85 is less than $200 when designed for and incorporated at the time of manufacture.

Expanding the production and use of ethanol and biodiesel in the state offers Maryland grain and oil seed farmers the potential to realize greater profits and encourage agricultural land preservation. This can be accomplished to meet both economic and environmental goals of the state. While Maryland can play a major role in supporting a biofuels industry, there is a need to address many issues at the federal level. The state should support federal initiatives that encourage the production and use of biofuels and provide grants for research and market development.

Environment

The task force considered the potential impact on the environment from an increased use of biofuels in the State. Motor vehicle fuels can be an effective measure in addressing Maryland's air pollution problems. Over the past several years there has been significant interest in the use of ethanol and biodiesel, as a control strategy to improve air quality. Biofuels are generally cleaner burning than petroleum based fuels.

Biodiesel

When biodiesel is blended with petroleum diesel, it produces a fuel that is compatible with diesel engines, can displace petroleum diesel, and reduces most emissions. The use of blends like B2 and B5 are becoming more common for several reasons. In 2006, the amount of sulfur in most highway diesel fuel in the country was limited to 15-ppm, down from 500ppm. Biodiesel offers excellent lubricity, and can provide ultra-low sulfur diesel (ULSD) producers an alternative to traditional additives. Using B2 or B5 with this fuel can increase the lubricating properties of this fuel, reducing the need for other lubricating additives. The use of biodiesel reduces the emissions of several of the criteria pollutants that contribute to our ozone and PMfine air quality problems. The use of biodiesel reduces emissions of carbon monoxide, particulate matter, and sulfates as well as hydrocarbon and air toxics emissions. These reductions occur in the existing fleet (no modifications are

necessary) and increase as the amount of biodiesel blended into the fuel increases. B100 has the best emission reductions, but lower-level blends also provide benefits.[1]

A 2002 EPA summary analysis of existing data suggests vehicles using biodiesel may have slightly higher emissions of nitrogen oxides (about 2% for B20 and 10% for B100). Subsequent studies have yielded mixed results, with some showing small increases and others showing small decreases. The EPA intends to conduct additional investigations to fully assess this issue, including the emissions impact of using biodiesel in vehicles equipped with advanced after treatment devices designed to meet strict new emission standards.[2]

Using biodiesel also reduces greenhouse gas emissions because carbon dioxide released from biodiesel combustion is offset by the carbon dioxide sequestered while growing the feedstock. According to DOE, B100 use reduces carbon dioxide emissions by more than 75% compared with petroleum diesel. Using B20 reduces carbon dioxide emission by 15%.[3]

Ethanol

Renewed interest in ethanol as a vehicle fuel began in the early 1990s when the wintertime oxygenated fuels programs were implemented to reduce carbon monoxide emissions. Its use increased recently with the phase out of MTBE. E10 fuels can reduce exposure to toxic air pollutants and reduce carbon monoxide emissions. They do not increase nitrogen oxide emissions because the 3-way catalytic converter ensures that tailpipe emissions comply with applicable standards.

E10 has a higher vapor pressure than does gasoline, which gives the fuel a higher volatility. This increased volatility can cause higher emissions of the volatile organic compounds (VOCs) contained in the gasoline fuel. This increased volatility is required to be offset by federal regulations that control the volatility of the

blended fuel (most commonly through lowering the volatility of the gasoline comprising the ethanol blend). Higher vapor pressure can also cause permeation through the vehicle's fuel system components. This effect may be expected to decrease as fuel systems continue to change to meet new evaporative emission standards.

The use of E85 in FFV's also provides benefits. E85 can further reduce emissions of certain pollutants as compared to conventional gasoline or lower volume ethanol blends. Recent, limited tests indicate that E85 use results in reduced carbon dioxide emissions, evaporative emissions, and specific harmful toxics such as benzene and 1,3-butadiene. However, E85 may increase aldehyde emissions, which are toxic pollutants. The EPA, National Renewable Energy Laboratory, and Coordinating Research Council are analyzing E85 emissions to expand the understanding of their impacts.[4]

The use of ethanol blends can also reduce the emission of greenhouse gases. E85 can provide reductions in life-cycle greenhouse gas emissions because of its renewable source component. According to EPA, when made from corn, E85 reduces lifecycle greenhouse gas emissions by 15-20% as compared to gasoline. E85 made from cellulose can reduce emissions by around 70% as compared to gasoline.[5]

Since one of the primary goals in championing a biofuels industry in Maryland is to strengthen the agricultural community, the task force considered whether an increase in biofuels production would have a positive or negative effect on the agricultural community. It also considered, by extension, the anticipated increase in the number of acres planted in corn and its effect on the environment, taking into consideration not just the potential of increased nutrient runoff into the Chesapeake Bay watershed and its effect on water quality, but also the expansion of best management practices like buffer zones to mitigate the effect of increased corn

acres. The task force also weighed the overall benefits of being able to save farmland from being sold for development, due to favorable economic conditions for farmers.

As noted earlier, Maryland farmers planted an additional 10% of corn in 2007 due to the potential for increased profitability; soybean and wheat prices have risen to comparable profitability, meaning it is likely that Maryland farmers will continue to rotate their acreage of row crops. However, increasing best management practices and providing greater incentives to grow small grains, which are planted in the fall and utilize any nutrients remaining from previous crops, can help to mitigate any negative effects on water quality. Promoting harvestable cover crops will encourage small grains followed by short season soybeans to further crop rotation. A 2007 report from the Chesapeake Bay Commission states that it is far from clear that the boom in biofuels would have a negative environmental impact at all:

> …Of immediate concern is that as demand for corn-based ethanol drives up the price of corn nationwide, there will be continued pressure to plant more acres of corn.
>
> This conversion to corn, at least in the short term, could decrease soybean and other crop production, reduce soil quality, increase sediment and nutrient loading in the Bay and potentially cause the loss of buffers and other conservation practices on farmland. However…it is still unclear how much new corn acreage will be planted. Furthermore, if accepted nutrient conservation management practices are placed on the new and expanded corn acreage, this impact could be substantially reduced. Expanding the "best management practices" to all corn and other row crop acres could actually lead to large-scale pollution reduction in line with Chesapeake Bay goals…

The potential for farmers to generate an additional $100 million in farm income is a substantial benefit to the state, not just in additional revenues and taxes, but also in jobs retained and in the amount of acres that are potentially spared from development, which has the greatest negative impact on the Chesapeake Bay watershed.

Conclusion

While Maryland has not been as proactive in encouraging the consumption of biofuels as other states, opportunities exist to quickly catch up, and Maryland can learn and benefit from incentives and credits provided by other states.

There are certainly financial costs to the state associated with carrying out the task force's recommendations to build a biofuels infrastructure and encourage consumption of higher blend biofuels. However, there are also significant benefits that counterbalance those costs. Some of these are economic, including the creation of new jobs and revenue sources from the hoped-for new processing facilities, and creating even more demand for Maryland farmers' crops, thus helping to keep grain prices high.

Other benefits are environmental, including that utilizing more biofuels may lead to reduced tailpipe emissions, thus in turn improving the health of citizens in the state, as well as the health of the Chesapeake Bay. A locally produced and subsidized supply of biodiesel will also make it easier for the state of Maryland to mandate consumption of B10 in the state's fleet and in school systems' buses, as well as in heating oil used in commercial, industrial, and agricultural operations.

Finally, if Maryland increases its consumption of biofuels, which the task force was charged with helping to bring about, then it could reduce incrementally the amount of foreign oil that the state and the country rely upon, thus enhancing energy security and increasing the readily available supply of alternative fuels that can be drawn upon in the event of reduced or disrupted supplies from abroad. Taken together, these benefits certainly warrant not just the investment the state will be making now, but an ongoing review of new technologies like those that make cellulosic ethanol an economically competitive alternative to corn-based ethanol, to see where other opportunities exist.

References

(1) A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions, US Environmental Protection Agency, EPA420-P-02-001, October 2001.

(2) US Environmental Protection Agency, Fact Sheet EPA420-F-06-044, Alternative Fuels: Biodiesel, October 2006.

(3) US Dept. of Energy-Energy Efficiency and Renewable Energy, Alternative Fuels and Advanced Vehicles Data Center, Biodiesel Benefits, content last updated: 09/18/07.

(4) US Dept. of Energy-Energy Efficiency and Renewable Energy, Clean Cities Fact Sheet, Flexible Fuel Vehicles: Providing a Renewable Fuel Choice, May 2007.E

(5) US Environmental Protection Agency, Fact Sheet EPA420-F-06-047, Alternative Fuels: E85 and Flex Fuel Vehicles, October 2006.

Appendix I

Unsuccessful State Legislation from 2002-2007

Earlier legislation that failed included bills that reduced or eliminated state motor fuel taxes on certain transactions involving renewable fuels:

HB 47 of 2007 – This bill would have reduced the motor fuel tax for B20 (or above) bought for use in county or municipal government vehicles, including school buses (county-owned or contracted) and passenger buses over a period of three years by specified percentages (in fiscal 2008, the applicable tax would have been 50% of the motor fuel tax; in fiscal 2009, 40% of the motor fuel tax; in fiscal 2010, 30% of the motor fuel tax). (*Disposition: passed in the House, unfavorable report by the Senate Budget and Taxation Committee*). A similar bill, **HB 1344 of 2006**, also passed in the House but received an unfavorable report from the Senate Budget and Taxation Committee

SB 140 of 2007 – This would have eliminated the motor fuel tax on biodiesel fuel bought for use in Queen Anne's County government vehicles and school buses for a period of three years. (*Disposition: unfavorable report by the Senate Budget and Taxation Committee*). Identical bills, **SB 50/HB 223 of 2006**, **HB 878 of 2005**, and **SB 21/HB 395 of 2004** received unfavorable reports from the Senate Budget and Taxation and House Ways and Means committees, respectively. **SB 448 of 2005**, also identical, was not reported from the Senate Budget and Taxation Committee.

The fiscal note for **HB 47 of 2007** estimated that a 50% reduction in the motor fuel tax (reduced from 24.25 cents to 12.125 cents) for biodiesel blends of 20% or above bought for use in local government vehicles (including school and passenger buses) could result in a decrease in Transportation Trust Fund revenues of $105,900 in fiscal 2008, $353,000 in fiscal 2009, and $738,000 in fiscal 2010. The larger decreases in revenue in fiscal 2009 and 2010 reflected an increasing reduction of the tax under the bill and a projected increase in biodiesel consumption by local governments.

While local governments would have realized savings under **HB 47** from a decrease in motor fuel tax payments, those savings would have been offset to an extent by a decrease in local highway user revenues distributed to local governments, a portion of which come from motor fuel tax revenues. The fiscal note for **HB 47** estimated a combined net savings for local governments of $61,200 in fiscal 2008, $187,900 in fiscal 2009, and $340,000 in fiscal 2010. The net benefit would have been higher in counties that consumed biodiesel and lower (slightly negative) in those that did not consume biodiesel, due to the minimal loss in local highway user revenues. The fiscal note for **HB 47** also mentioned that any net benefit to a local government would likely have been offset, at least in the near term, due to a premium for biodiesel of typically 8 to 12¢ per gallon.

HB 1045 of 2007 – Biodiesel and Ethanol Production Credit – The bill amended the Renewable Fuels Promotion Act to increase the credit for ethanol produced from small grains and biomass or biodiesel produced from soybean oil from a crushing facility which expanded or began operation since December 31, 2004 to 30¢ per gallon; raised the credit for biodiesel made from other feedstocks (including soybean oil form an existing crushing facility) to 20¢ per gallon. The bill defined biomass to include agricultural waste such as corn stalks, straw, seed hulls, sugarcane leavings, and nutshells; manure from cattle poultry and hogs; wood material such as wood, bark, sawdust timber slash, and mill scrap; municipal waste such as waste paper and yard clippings; and energy crops such as poplar, willow switchgrass, alfalfa and prairie bluestem; and the non-starch portion or the corn kernel after fractionation. *(Disposition: This bill passed the House but died in the Senate EHEA Committee.)*

Appendix II

Definitions

Term	Definition	Source
Biomass	Any organic matter that is available on a renewable basis, including agricultural crops, agricultural wastes and residues, wood and wood wastes and residues, animal wastes, municipal wastes, and aquatic plants.	A
Biodiesel	Biodiesel is a renewable, biodegradable fuel derived from agricultural plant oils or animal fats which meets the specifications of ASTM D 6751. Biodiesel can be used in any concentration with petroleum based diesel fuel in existing diesel engines with little or no modification. Biodiesel is not the same thing as raw vegetable oil. It is produced by a chemical process which removes the glycerin from the oil. Pure Biodiesel is a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, which meets the requirements of ASTM D 6751. Biodiesel blends are identified by the percentage of biodiesel in the blend. B2, B5, B10 and B20 and B99 are the principal biodiesel blends sold in the U.S. today.	A
Bioheat	A term denoting up to a 5% blend of biofuel and heating oil (or No. 2 Fuel Oil) for off-road, non-taxable heating applications.	A
Blenders Credit	A 51 cents per gallon tax credit that goes to the petroleum industry as an incentive to blend ethanol into their gasoline. The 51 cents equates to a 5.1 cent credit on a gallon of E10 fuel. For biodiesel, blenders may receive up to either a one-dollar or 50-cent per gallon credit, depending on the type and volume of biodiesel blended into the finished fuel.	B

Ethanol	A colorless volatile flammable liquid, C2H5OH, widely used in industrial processes, as a solvent, as a fuel, and in alcoholic beverages. In the United States, ethanol is used as a gasoline octane enhancer in maximum 10 percent concentration, and in higher concentrations in vehicles designed for its use. In the U.S., terms for ethanol usually reflect the percentage of ethanol blended with petroleum-derived gasoline. For example, E10 is 10% ethanol blended with 90% gasoline, and E85 is 85% ethanol blended with 15% gasoline. Ethanol can be produced chemically from ethylene, or biologically from fermentation of agricultural crops and cellulosic residues from crops or wood.	A
Renewable Diesel	Fuel derived from biomass using a thermal depolymerization process which meets the registration requirements for fuels and fuel additives established by the Environmental Protection Agency (EPA) under section 211 of the Clean Air Act (42 U.S.C. 7545), and the requirements of the American Society of Testing and Materials (ASTM) D975 or D396	C

SOURCES

A. BioenergyWiki - glossary
B. National Biodiesel Board
C. Energy Policy Act of 2005

Appendix III

Other State Biofuel Incentives

The task force researched the following biofuels incentives among neighboring states and the I-95 corridor.

Funding for infrastructure or production improvements

Delaware

- Cash grants for biodiesel manufacturing facilities of up to 25% of the project value with the award to be no greater than $300,000. This program could also possibly be used to fund biodiesel infrastructure improvements but it would be up to the discretion of the state energy office.

Maryland

- Funding available from MEA to assist with the cost of building renewable fuel dispensing stations up to $30,000 per project and $50,000 for biodiesel terminal infrastructure

New Jersey

- Funding available to reimburse eligible governments and schools for 50% up to $50,000 of the cost of purchasing and installing refueling infrastructure for alternative fuels.

New York

- New York state clean cities challenge provides up to 75% cost share of refueling infrastructure projects. Awards given on a competitive basis.
- The clean-fueled bus program provides up to 100% funding for the purchase of alternative fuel busses and fueling infrastructure
- Feasibility study was initiated (due December 31, 2006) to study installing alternative fuel stations along the New York throughway.

North Carolina

- Renewable fuel dispensing equipment tax credit of 15% of the cost of the project.
- Renewable fuel production equipment tax credit of 25% of the cost of the project.
- Renewable energy property tax credit of 35% of the purchase price of property dedicated to the production of alternative energy.

Ohio

- Alternative Fuel Transportation Grant Program authorizes up to $900,000 for the purchase and installation of alternative fuel blending and dispensing facilities.

West Virginia

- All counties eligible for 95% cost reimbursement for the additional cost associated with using alternative fuel in school busses

Tax and Production Incentives

Delaware

- Fuel taxes imposed on alternative fuel are waived for any governmental or fire and rescue agencies using the fuel

Maryland

- The Renewable Fuels Promotion Act of 2005 provides for biodiesel production credits of.20¢ for soy based biodiesel and ethanol made from new crush capacity located in the state or 5¢ for biodiesel produced from other feedstock, 20¢ for small grains. Production credits capped at 5 million gallons per year with at least 2 million being soy based. This statute also includes ethanol, 20¢ per gallon produced from small grains and 5¢ per gallon produced by other feedstocks.

New Jersey

- Funding available through the Local Government Biodiesel Rebate Program to reimburse governments and schools for the incremental costs associated with using biodiesel. Starting in 2006 this program also provides cost reimbursement for NJ farmers as well.

New York

- Alternative fuel (follow-up to determine if biodiesel is covered) used to power a motor vehicle is exempted from state sales and use tax.

North Carolina

- Biodiesel production tax credit equal to the per gallon excise tax the producer paid. The credit may not exceed $500,000 for any one producer

Virginia

- A bio-fuels producer producing in excess of 10MM gallons annually is eligible for 10¢ per gallon grant on neat bio-fuel sold into the commonwealth.

Mandates

Maryland

- At least 50% of state owned vehicles must use a minimum B-5 biodiesel blend by 2008. At least 50% of state owned off road and heavy equipment must use a B-5 blend by 2009.

New York

- All state agencies with central fueling stations must use E-85 in flex fueled vehicles whenever it is feasible to do so.

North Carolina

- By January 2010, State owned fleets must achieve a 20% reduction or displacement of current petroleum products used.

Ohio

- The Ohio Department of Transportation is required to use 1 MM gallons of biodiesel per year.

Pennsylvania

- The proposed Penn Fuels Security Initiative requires that a certain percentage (not specified) of retail transportation fuel contain biodiesel and ethanol.

Virginia

- All state agencies must "Maximize" biodiesel and ethanol use in the state fleet except where the use of the fuel will void warranties or incur unreasonable additional costs to the agencies. The department of General Services must make biodiesel and E-85 available to the agencies.

West Virginia

- The Secretary of Administration has the authority to require (but does not have to) that up to 75% of the agency's fleet be made up of alternative fueled vehicles.

Other State Incentives for local government and\or school buses

Delaware

- Fuel taxes imposed on alternative fuel are waived for any governmental or fire and rescue agencies using biodiesel.

Illinois

- Beginning July 1, 2006, the following entities are required to use a biodiesel blend that contains at least 2% biodiesel (B2) when refueling at a bulk central fueling facility: any diesel powered vehicle owned or operated by the state, county or local government, school district, community college or public college or university, or mass transit agency. These entities are required to use B2 where available, unless the vehicle engine is designed or retrofitted to operate on a higher percentage of biodiesel or on ultra low sulfur fuel. Biodiesel is defined as a renewable fuel conforming to the

American Society of Testing and Materials (ASTM) standard D6751 and registered with the U.S. Environmental Protection Agency.

- In Chicago, the nation's largest independently owned and operated school bus company has expanded its use of biodiesel. The Chicago-area Cook-Illinois Corporation originally began using a biodiesel blend in about 1,400 buses. Now the company has announced that it will refuel an additional 400 buses with B11. Company officials estimate that they have reduced toxic emissions in Chicago's air by nearly 1,000 tons over a one year period.

New Jersey

- Funding available through the Local Government Biodiesel Rebate Program to reimburse governments and schools for the incremental costs associated with using biodiesel. Starting in 2006 this program also provides cost reimbursement for NJ farmers using biodiesel fuel in their vehicles or for using a 5% blend of biodiesel in lieu of 100% petroleum heating oil.

Virginia

- The Virginia Board of Education may use funding from the state Literary Fund to grant loans to school boards that convert school buses to operate on alternative fuels or construct alternative fuel refueling stations.

West Virginia

- Any county that uses an acceptable alternative fuel for the operation of all or any portion of its school bus system is eligible for a reimbursement from the West Virginia Department of Education of up to 95% of the county's transportation cost for maintenance, operation, and related costs incurred by the use of the alternatively fueled school buses. A county qualifying for this allowance for alternative fuel use must submit a plan regarding the intended future use of alternatively fueled school buses to the Department of Education. The program has been in existence for the past year and half and all of West Virginia school buses (200) are using B5. The fuel is produced locally and the producers must meet the ASTM specifications.