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FISCAL IMPACT REPORT

ORIGINAL DATE 2/7/07
 LAST UPDATED 3/6/07 HB _____

SPONSOR Ortiz y Pino

SHORT TITLE Biodiesel Fuel Production Tax Incentives SB 607/aSCORC

ANALYST Francis

REVENUE (dollars in thousands)

Estimated Revenue			Recurring or Non-Rec	Fund Affected
FY07	FY08	FY09		
	(\$398.0)	(\$705.0)	Recurring	General Fund
	(\$15.0)	(\$30.0)	Recurring	Local Government

(Parenthesis () Indicate Revenue Decreases)

Duplicates HB1145a

SOURCES OF INFORMATION

LFC Files
 Energy Information Agency (www.eia.doe.gov)
 National Biodiesel Board (NBB)

Responses Received From

Energy Minerals and Natural Resource Department (EMNRD)
 Taxation and Revenue Department (TRD)

SUMMARY

Synopsis of SCORC Amendment

The Senate Corporations and Transportation Committee amended Senate Bill 1145 in the following ways:

- Changes the blend of biodiesel from 5 percent to 2 percent
- Makes purchases for government and off-road vehicle special fuel eligible for the credit
- Provides a “clawback” for taxpayers who receive the credit and cease blending the diesel

Synopsis of Original Bill

Senate Bill 607 provides credits for the payment of special fuels taxes for blended biodiesel fuel. Sections 1 and 2 deal with credits for personal and corporate income taxes; section 3 deals with the gross receipts and compensating tax.

Sections 1 and 2. For personal income (PIT) and corporate income (CIT) taxes, the credit is based on the number of gallons purchased that phases out by the end of 2012:

Table 1: Schedule of Credits (PIT/CIT)

Tax Year	Credit per gallon of Blended Biodiesel
2007	\$0.06
2008	0.05
2009	0.04
2010	0.03
2011	0.02
2012	0.01
2013	-

The credit cannot be used against both PIT and CIT and, if the credit exceeds tax liability, can be carried forward up to five years. Biodiesel is defined as a renewable, biodegradable, monoalkyl ester combustible liquid that is derived from plant oils or animal fats. “Blended” refers to a 5 percent biodiesel/95 percent diesel mixture. [note: changed to 2 percent with HBIC amendment]

Section 3. This section allows a credit called the “biodiesel blending facility tax credit” for rack operators for installing blended biodiesel equipment or expanding a facility to produce blended biodiesel fuel. The Energy, Minerals and Natural Resources Department (EMNRD) are responsible for validating the credit and issue a certificate of eligibility that includes the estimated amount of the credit. The credit cannot exceed \$50 thousand for installation of equipment at any one facility. The aggregate amount of all credits validated by EMNRD cannot exceed \$1 million. The credit can be carried over for up to four years. Biodiesel is defined as a renewable, biodegradable, monoalkyl ester combustible liquid that is derived from plant oils or animal fats. The fuel must meet American Society for Testing and Materials standards for B100 blend stock. “Blended” refers to a 5 percent biodiesel/95 percent diesel mixture. [note: changed to 2 percent with HBIC amendment]

FISCAL IMPLICATIONS

Assuming 100,000 gallons is the near-term capacity of biodiesel; a 2 percent blend will yield 5 million gallons of fuel eligible for the tax credit. In FY07, the credit is expected to decrease income tax collections by \$363 thousand, growing to over \$1 million by the time the credit phases out in 2012. TRD expects the volume of blended diesel to grow 50 percent per year.

The gross receipts tax credit is assumed to be small and cost approximately \$100 thousand. Due to the effective date, half of a full year impact will hit FY08. Approximately 30 percent of this is a local government impact through lower gross receipts tax distributions.

Table 2: Fiscal Impacts

	Tax Year						
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Assumptions:							
Total Special Fuel Taxable Gallons (mill. Gal	494.9	509.7	535.2	562.0	590.1	619.6	650.6
Growth	1%	3%	5%	5%	5%	5%	5%
Total B100 sales (mill. Gals)	0.15	0.23	0.34	0.51	0.76	1.14	1.71
Total B2 Blend mill. gallons	8	11	17	25	38	57	85
B2/Total on-highway	2%	2%	3%	5%	6%	9%	13%
Total Off-road & Government SF gallons	303	312	328	344	361	379	398
B2 off-highway & govt	5	7	10	15	23	35	52
Total B2 million gallons)	12	18	27	41	61	92	138
	Tax Year						
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Proposed Law: Income tax credit							
B2 blend (million gallons)	12	18	27	41	61	92	138
Credit rate Cents per gallon of B2 blend	-\$0.06	-\$0.05	-\$0.04	-\$0.03	-\$0.02	-\$0.01	\$0.00
Total credits (\$ million)	(\$0.7)	(\$0.9)	(\$1.1)	(\$1.2)	(\$1.2)	(\$0.9)	\$0.0
Credits claimed -- non-refundable; 5-yr cf	(\$0.36)	(\$0.63)	(\$0.86)	(\$1.04)	(\$1.13)	(\$1.01)	(\$0.49)
	Fiscal Year						
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	
Fiscal impacts -- State General Fund (\$millions)	(\$0.363)	(\$0.635)	(\$0.862)	(\$1.043)	(\$1.134)	(\$1.015)	
Gross Receipts Tax & Compensating Tax Impact (\$n	(\$0.050)	(\$0.100)	(\$0.100)	(\$0.100)	(\$0.100)	(\$0.100)	(\$0.100)
State	(0.035)	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)
Local	(0.015)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)

SIGNIFICANT ISSUES

Over the last few years, biodiesel has taken off as a viable alternative fuel to regular, crude oil based diesel fuel. Although the typical story of the use of biodiesel is of someone asking a restaurant for their waste grease to fill up his or her car, most biodiesel is made from soybeans. Biodiesel is different from ethanol which is made primarily from corn. Biodiesel added to diesel fuel can lower the emissions because it lowers the sulfur content, the burning of which contributes to greenhouse gas emissions. According to the National Biodiesel Board (NBB), there are currently two biodiesel retailers in New Mexico, one in Santa Fe and one in Albuquerque. The retailer in Albuquerque is one of two distributors, the other being in Portales.

Two biodiesel “fact sheets” produced by NBB and Diesel Technology Forum are included as an attachment.

EMNRD:

Biodiesel, specifically peanut oil, was the first fuel used by Rudolf Diesel in his demonstration engines one hundred years ago. Biodiesel (B100) is a renewable fuel produced from domestically produced oils such as soybean oil, animal fats or recycled cooking oil and can be blended with diesel in any proportion with good emissions and lubricity performance. When blended with Ultra Low Sulfur Diesel, biodiesel provides lubrication characteristics

lost by reduced sulfur content, benefiting fuel system and engine components. Lower friction because of higher lubricity of biodiesel can improve fuel economy with power output and torque equal to conventional diesel. Biodiesel has a higher cetane rating than conventional diesel as well as higher oxygen content. Oil change interval frequency may be reduced. Biodiesel is non-toxic and biodegradable. All diesel engine emissions are reduced depending on engine design; the biodiesel fraction reduces greenhouse gas emissions. It is safer than conventional diesel because of its higher flash point. Biodiesel reduces our dependence on foreign oil while benefiting domestic agriculture.

ADMINISTRATIVE ISSUES

TRD:

One-half of a full-time equivalent position would be required for manual processes to monitor the credits and track carry-forwards.

Keeping track of how much credit has been approved would be simpler if done at the certification stage by EMNRD than when the credits are claimed with TRD. This is because taxpayers may file tax returns containing credit claims at any time, sometimes adjusting their liability by applying credits to prior periods.

TECHNICAL ISSUES

TRD:

The state may wish to allow the GRT and Compensating Tax credit to persons other than rack operators who wish to blend biodiesel fuel blends. If so, Section 3 could be modified to state “*rack operators or persons who blend biodiesel fuel blends for sale for use on the highway.*”

GRT and Compensating Tax provisions should be made effective either July 1 or January 1 for administrative simplicity and consistency with the semi-annual updating of forms and instructions.

OTHER SUBSTANTIVE ISSUES

The increasing use of renewable fuels lessens the dependence on foreign sources of fuel as well as provides economic development opportunities for the state.

ATTACHMENT

NF/nt



COMMONLY ASKED QUESTIONS

What is biodiesel?

Biodiesel is the name of a clean burning alternative fuel produced from domestic, renewable resources. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend. It can be used in compression-ignition (diesel) engines with no major modifications. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics.

Technical Definition: *Biodiesel, n*—a fuel composed of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM (American Society for Testing & Materials) D 6751.

Is biodiesel used as a pure fuel or is it blended with petroleum diesel?

Biodiesel can be used as a pure fuel or blended with petroleum in any percentage. B20 (a blend of 20 percent biodiesel with 80 percent petroleum diesel) has demonstrated significant environmental benefits with a minimum increase in cost for fleet operations and other consumers.

Is it approved for use in the U.S.?

Biodiesel is registered as a fuel and fuel additive with the Environmental Protection Agency (EPA) and meets clean diesel standards established by the California Air Resources Board (CARB). Neat (100 percent) biodiesel has been designated as an alternative fuel by the Department of Energy (DOE) and the U.S. Department of Transportation (DOT).

How do biodiesel emissions compare to petroleum diesel?

Biodiesel is the only alternative fuel to have fully completed the health effects testing requirements of the Clean Air Act. The use of biodiesel in a conventional diesel engine results in a substantial reduction of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel. In addition, the exhaust emissions of sulfur oxides and sulfates (major components of acid rain) from biodiesel are essentially eliminated compared to diesel.

Of the major exhaust pollutants, both unburned hydrocarbons and nitrogen oxides are ozone or smog forming precursors. The use of biodiesel results in a substantial reduction of unburned hydrocarbons. Emissions of nitrogen oxides are either slightly reduced or slightly increased depending on the duty cycle of the engine and testing methods used. Based on engine testing, using the most stringent emissions testing protocols required by EPA for certification of fuels or fuel additives in the U.S., the overall ozone (smog) forming potential of the hydrocarbon exhaust emissions from biodiesel is nearly 50 percent less than that measured for diesel fuel.

Can I use biodiesel in my existing diesel engine?

Biodiesel works in any diesel engine with few or no modifications to the engine or the fuel system. Biodiesel has a solvent effect that may release deposits accumulated on

tank walls and pipes from previous diesel fuel usage. The release of deposits may end up in fuel filters initially, so fuel filters should be checked more frequently at first. Ensure that only fuel meeting the biodiesel specification (D 6751) is used.

Can biodiesel help mitigate “global warming”?

Biodiesel is the best greenhouse gas mitigation strategy for today’s medium and heavy duty vehicles. A 1998 biodiesel lifecycle study, jointly sponsored by the U.S. Department of Energy and the U.S. Department of Agriculture, concluded biodiesel reduces net carbon dioxide emissions by 78 percent compared to petroleum diesel. This is due to biodiesel’s closed carbon cycle. The CO₂ released into the atmosphere when biodiesel is burned is recycled by growing plants, which are later processed into fuel.

Does biodiesel take more energy to make than it gives back?

No. Biodiesel actually has the highest “energy balance” of any transportation fuel. The DOE/USDA lifecycle analysis shows for every unit of fossil energy it takes to make biodiesel, 3.2 units of energy are gained. This takes into account the planting, harvesting, fuel production and fuel transportation to the end user.

Is biodiesel better for human health than petroleum diesel?

Scientific research confirms that biodiesel exhaust has a less harmful impact on human health than petroleum diesel fuel. Pure biodiesel emissions have decreased levels of polycyclic aromatic hydrocarbons (PAH) and nitrated PAH compounds that have been identified as potential cancer causing compounds. Also, particulate matter, an emission linked to asthma and other diseases, is reduced by about 47 percent, and carbon monoxide, a poisonous gas, is reduced by about 48 percent.

Does biodiesel cost more than other alternative fuels?

A federal tax incentive is expected to help lower the cost of biodiesel blends in both taxable and tax exempt markets. Additionally, when reviewing the high costs associated with other alternative fuel systems, many fleet managers determine biodiesel is their least-cost-strategy to comply with state and federal regulations. Use of biodiesel does not require major engine modifications. That means operators keep their same fleets, spare parts inventories, refueling stations and skilled mechanics.

Do I need special storage facilities?

In general, the standard storage and handling procedures used for petroleum diesel can be used for biodiesel. The fuel should be stored in a clean, dry, dark environment. Acceptable storage tank materials include aluminum, steel, fluorinated polyethylene, fluorinated polypropylene and teflon. Copper, brass, lead, tin, and zinc should be avoided. The DOE Biodiesel Handling/Use Guidelines can be found at www.biodiesel.org.

Where can I purchase biodiesel?

Biodiesel is available anywhere in the U.S. The National Biodiesel Board (NBB) maintains a list of registered fuel suppliers as well as petroleum distributors and retail fueling sites. A current list is available on the biodiesel web site at www.biodiesel.org.



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Over the last several years, interest in biodiesel has been driven by a variety of concerns including environmental quality, reducing reliance on imported oil and using renewable “home-grown” energy sources. Most efforts to date by the biodiesel industry have focused on financial incentives, supply, and production aspects, with less attention to the vehicle use and performance characteristics. While biodiesel does offer some advantages, there are many factors to be considered in making an overall assessment of the value of using biodiesel.

What is biodiesel?

Biodiesel fuels are derived from a variety of biomass sources through a chemical process called transesterification, where glycerin is separated from methyl esters derived from fat or oil. The methyl ester product is what is known as biodiesel and must meet the standards set forth by the American Society of Testing and Materials (ASTM D6751).

The most common feedstock in the U.S. for biodiesel production is soybean oil, while rapeseed oil is used more frequently in Europe. Biodiesel may be blended with petroleum-based diesel fuel at which point it is designated as BXX, where XX represents the percentage of pure biodiesel contained in the blend (e.g. B5 or B20).

What are the performance implications of using biodiesel?

Biodiesel use can reduce emissions of sulfur oxides and sulfates as well as unburned hydrocarbons, carbon monoxide, and particulate matter. While biodiesel has been shown to increase NOx emissions, recent studies indicate that emission levels may vary depending on the duty cycle of the engine, testing methods used and the particular blend. Since NOx is a precursor to ozone, use of high percentage blends of biodiesel in areas with ozone problems should be considered in relation to local air quality conditions.

Other concerns include potential oxidation, microbial growth and changes in performance characteristics in vehicles and when stored in underground tanks over an extended period of time without use. Some biodiesel blends can negatively affect cold starts, fuel flow properties and result in an initial need for greater fuel filter maintenance. Depending on the blend, fuel economy may be reduced due to biodiesel's slightly lower energy content.

What relationship is there between biodiesel, the new Ultra-low Sulfur Diesel (ULSD) fuel and 2007 and 2010 diesel engine emissions standards?

None. ULSD is 100% petroleum based, however the sulfur content has been drastically reduced from 500 to 15 parts per million (ppm). ULSD will be available at most diesel fueling stations by October 15, 2006. Use of ULSD alone will provide an approximate 10% reduction in PM emissions. Biodiesel blends for on-road use are not required to be mixed with ULSD, however light and heavy-duty vehicles manufactured after 2007 that require the use of ULSD can only use biodiesel blends if they are made with ULSD. Manufacturers are working to identify the feasibility and potential impacts of using various biodiesel blends on these next generation engines and new emissions control technology like particulate traps and catalytic converters.

MeetCleanDiesel

www.dieselforum.org

Are there biodiesel quality and performance standards in place?

There is a standard for B100 to be used as a blendstock (ASTM D6751) and for conventional diesel fuel which must be more than 99% petroleum based (ASTM D975). No standards currently exist for blended biodiesel, however the Engine Manufacturers Association has released a test specification for blended fuel with 20% biodiesel content to facilitate further testing and evaluation of B20 blends in their equipment (www.enginemanufacturers.org). The absence of ASTM standards for biodiesel blends prevents the proper testing and evaluation of their impact on engine performance, emissions and the operation of aftertreatment systems.

What is the problem with using higher biodiesel blends?

The primary concern is one of quality assurance. While many people can produce biodiesel, the production of biodiesel that meets the ASTM standard is more difficult. And even once ASTM standard biodiesel fuel is produced, it can be contaminated as it moves downstream to marketers and distributors.

As the percentage of biodiesel in the blend increases, sensitivity to the quality of the biodiesel increases proportionately. Also, storage stability and cold flow performance issues associated with biodiesel become more critical.

What about used vegetable oils from fast-food restaurants or straight vegetable oils – can those be used in diesel cars or trucks?

Use of recycled cooking oil or other animal fats that have not undergone the transesterification process are not biodiesel and are not recommended for many reasons including unknown performance and engine impacts, uncertain fuel quality, and variability in oil types and purity. While they may work in a diesel engine, the vehicle is unlikely to perform to manufacturers' specifications and may cause problems such as fuel injector plugging, cold weather freezing, and fuel pump, tank and pipeline clogging.

Can biodiesel help the United States reduce its dependence on foreign oil?

In theory the answer is yes. According to the National Biodiesel Board (NBB), current annual biodiesel production capacity is at 395 million gallons, or approximately 1% of annual on-road petroleum diesel use in the United States. At this level of production, there is not enough biodiesel to support a national B2 standard, but biodiesel production is growing exponentially and every bit helps reduce dependence on foreign oil.

What is the diesel industry doing to support greater use of biodiesel?

Most engine and vehicle manufacturers have issued statements about warranty coverage on varying blends of biodiesel, with many approving of blends up to B5. Higher percentage blends or off spec fuel could cause a variety of engine performance problems which would not be covered under manufacturers' warranties. Individual manufacturer warranty information is available at www.dieselforum.org.

Despite these potential problems, the diesel industry is proactively working to better understand the impact of biodiesel use in their products to address broader energy and air quality concerns. Many diesel engine, fuel injection, and vehicle companies are working with the NBB as part of a B20 Fleet Evaluation Team to develop a position on the use of up to a 20% biodiesel blend in diesel engine applications in the United States.

MeetCleanDiesel

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