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Office of Transportation and Air Quality
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Docket ID No. EPA-HQ-OAR-2008-0380

Notice of Receipt of a Request from the State of Texas for a Waiver of a Portion of the Renewable Fuel Standard.

Via Email to: a-and-r-docket@epa.gov

Via Fax to: 202-566-1741

The National Biodiesel Board appreciates the opportunity to offer comments on the ***Notice of Receipt of a Request from the State of Texas for a Waiver of a Portion of the Renewable Fuel Standard.***

NBB Background: The National Biodiesel Board (NBB) is the national trade association representing the biodiesel industry as the coordinating body for research and development in the United States. It was founded in 1992 by state soybean commodity groups who were funding biodiesel research and development programs. Since that time, the NBB has developed into a comprehensive industry association which coordinates and interacts with a broad range of cooperators, including industry, government and academia. NBB's membership is comprised of state, national and international feedstock and feedstock processor organizations, biodiesel suppliers, fuel marketers and distributors and technology providers.

Our comments will assist the Environmental Protection Agency (EPA) in evaluating the waiver request from the Governor of Texas requesting a waiver of 50 percent of the Renewable Fuels Standard (RFS) "mandate for the production of ethanol derived from grain," and will provide information that will enable EPA to:

- (a) evaluate whether compliance with the RFS is causing severe harm to the economy of the State of Texas;
- (b) evaluate whether the relief requested will remedy the harm;
- (c) determine to what extent, if any, a waiver approval would change demand for ethanol and affect corn or feed prices; and
- (d) determine the date on which a waiver should commence and end if it were granted.

First it is important to note that ***all*** renewable fuels qualify for the current RFS. If the RFS is waived or cut in half in 2008, then the growth of all biofuels, including "advanced biofuels," not just corn ethanol, will be severely hindered. Advanced biofuels are defined in the Energy Independence and Security Act of 2007 (EISA), and include: biodiesel, cellulosic ethanol, renewable diesel, biobutanol, other cellulosic biofuels and possibly imported ethanol.

Biodiesel, together with, ethanol from corn and sugar are the only renewable fuels in today's marketplace that will add any significant volumes to the RFS in 2008. Since biodiesel is not ethanol and its feedstocks are oil based, the increased use of biodiesel may actually reduce the amount of corn ethanol required in 2008. Under the current RFS, we anticipate the industry will produce 500 million gallons in 2008, which in terms of ethanol equivalent gallons would equate to 750 million gallons as tracked by the EPA's *renewable identification numbers (RINs)* program, and would reduce the 9.0 billion gallon RFS program to 8.25 million ethanol equivalent gallons. An RFS program of 9.0 billion gallons allows biodiesel to be part of the RFS program; however, if the RFS program is waived or cut in half, then only a small amount of biodiesel would be used in 2008¹.

A waiver of the RFS must be considered in the context of the addressing America's need for energy security, which could not be more timely or critical than it is now in 2008. Fuels in the United States are a national issue and we encourage the EPA to consider the impact of the RFS as it relates to the nation's energy security. America relies on imports for more than 60 percent of its petroleum needs. Imported petroleum makes up the single largest component of our national trade deficit amounting to approximately one third of the total. As crude oil prices continue to rise, America's trade deficit continues to balloon. *Every gallon of domestic, renewable biodiesel that is used to replace diesel fuel refined from imported crude reduces the need for imported crude and finished fuel, extends the diesel supply, and expands domestic refining capacity.* Even a small reduction in demand has a positive effect on straining price pressures.

Industry Background and Overview: Biodiesel is a diesel fuel replacement that is made from agricultural fats and oils and meets a specific commercial fuel definition and specification. The biodiesel industry is made up of small businesses and has shown steady growth over the last 15 years. In 2007, the industry produced 500 million gallons of biodiesel. Today, there are 171 plants in operation with the capacity to produce more than 2.24 billion gallons of biodiesel and 60 new plants under construction or expansion, which will add an estimated new capacity of nearly 1.13 billion gallons. The industry is on track to create at least 38,000 new jobs and add \$26 billion to the U.S. economy.

By comparison, the diesel pool in the United States is 60 billion gallons, with 37 billion gallons being used in "on road" markets.

Biodiesel is made by reacting the oil with an alcohol to remove the glycerin in order to meet specifications set forth by the American Society for Testing and Materials (ASTM International). Biodiesel is one of the best-tested alternative fuels in the country and the only alternative fuel to meet all of the testing requirements of the 1990 amendments to the Clean Air Act.

Biodiesel is primarily marketed as a blended product with conventional diesel fuel typically in concentrations up to 20%. It is distributed utilizing the existing fuel distribution infrastructure with blending most commonly occurring "below the rack" by fuel jobbers. Biodiesel is beginning to be distributed through the petroleum terminal system. To date, biodiesel has positions in approximately 35 terminals. The biodiesel industry has already committed funds to study the technical needs required for moving biodiesel through U.S. pipelines. Already, biodiesel is moved through pipelines in Europe and extending that capability in the U.S. would be substantial.

The Biodiesel Fuels Program under EISA: The Energy Independence and Security Act of 2007 (EISA) updates the volume of renewable fuels required in 2008 and creates a new 36 billion gallon program beginning in 2009 through 2022. The program provides a specific renewable requirement for diesel fuel that establishes a 500 million gallon standard for biomass-based diesel, which includes biodiesel, starting in 2009 and increasing to 1 billion gallons in 2012. Beyond 2012, a minimum of 1 billion gallons of biomass-based diesel must be entered into commerce, and the Administrator of the EPA has the discretion to increase the use requirement. Biodiesel can be used today, to begin helping meet that goal, because it is a liquid renewable fuel available now, and ready for blending into our existing diesel fuel supply - without having to modify any existing vehicles.

Biodiesel is and will continue to be a strong player and partner in the growth of the biofuels industry and can be a substantial tool in the nation's overall move toward energy security as it:

- Adds to the volume of diesel fuel in the marketplace;
- Adds to U.S. “refining” capacity;
- Directly replaces imported finished diesel fuel;
- Extends diesel supply:
- Utilizes agricultural products; and
- Creates jobs and stimulates rural and urban economies;
- Decreases greenhouse gas emissions; and
- Contributes to cleaner burning diesel fuel.

Economic Development - Biodiesel Supports Green Jobs in both Texas and the United States: In 2007 alone, the U.S. biodiesel industry contributed over \$4.1 billion to the nation’s Gross Domestic Product (GDP) and supported 21,803 jobs². In addition, economic modeling suggests that a vibrant biodiesel industry will positively impact the U.S. economy in multiple ways. America’s biodiesel industry will add \$26 billion to the U.S. economy between 2007 and 2012, assuming biodiesel growth reaches 1.0 billion gallons of annual production by 2012. Biodiesel production will create a projected 38,856 new jobs in all sectors of the economy and additional tax revenues from biodiesel production will more than pay for the federal tax incentives provided to the industry. Equally as important, it will keep billions of dollars in America that would otherwise be spent on foreign oil.

Benefits to the U.S. Treasury: The additional tax revenues generated by a profitable U.S. biodiesel industry will be significantly larger than the value of the federal tax incentives currently provided to the industry. Assuming the existing volumetric biodiesel tax credit is extended past 2008, this program would cost a total of \$3.5 billion by 2015. The industry will generate \$8.3 billion of new revenue for the Federal Treasury for a positive net balance of \$4.8 billion.

Oil Dollars Stay in America: Expansion of the biodiesel industry as estimated under the biomass-based diesel RFS enacted as part of EISA will displace 118 million barrels of crude oil between 2007 and 2012. Since the U.S. is a net importer of oil, this means that less oil will need to be imported. As a consequence, \$7.26 billion (2007 dollars) will remain in the American economy instead of being sent abroad to finance oil imports.

Permanent Impacts: The ongoing annual operation of biodiesel plants offers the most significant impact from biodiesel production on the U.S. economy. The biodiesel industry will add \$19.6 billion (2007 dollars) to America’s Gross Domestic Product (GDP) as it spends \$9.5 billion (2007 dollars) on goods and services between 2007 and 2012. Biodiesel production will create a projected 38,856 new jobs in all sectors of the economy.

Biodiesel Jobs and Economic Development in Texas: In Texas, 23 biodiesel refineries have the capacity to produce more than 390 million gallons of biodiesel³, which under the RFS have the opportunity to be blended with diesel fuel both in Texas and across the United States. Waiver of the RFS will eliminate any opportunity to further develop biofuels production facilities in Texas.

In Houston, at a June 11, 2008 grand opening of a biodiesel production facility, Texas Governor Rick Perry stated, “Texas plays a vital role in feeding and fueling the nation, and GreenHunter Energy’s biodiesel refinery bolsters this role by providing a necessary alternative to fossil fuels without negatively impacting our food supply. The transformation of an old waste-oil refinery into a renewable fuel campus is symbolic of our state’s commitment to continually moving towards greater energy independence. Investments in Texas, like GreenHunter Energy’s, will bring jobs and economic development to the Lone Star State. Through economic development tools like the Texas Enterprise Fund and the Emerging Technology Fund, the state continues to incentivize and invest in research, development and job creation related to clean-energy technologies, further diversifying not only our energy portfolio but our economic landscape⁴.”

Current investments in Texas and the opportunity for green jobs and the continued economic develop of the biodiesel refineries in Texas must be taken into account by the EPA when evaluating whether to waive the RFS. Unfortunately, the goal of bringing biofuels, jobs and energy independence to Texas and the nation will not be realized if the RFS is waived.

Energy Security - Biodiesel Reduces our Dependence on Foreign Oil: Biodiesel can play a major role in expanding domestic refining capacity and reducing our reliance on foreign oil. Both the President and Congressional leaders are calling for significant reductions in the nation's use of petroleum and development of new energy sources. Increased use of renewables in the transportation sector can play a significant role in helping achieve these objectives. Merrill Lynch commodity strategist Francisco Blanch says that oil and gasoline prices would be about 15% higher if biofuel producers were not increasing their output.

The 500 million gallons of biodiesel produced in the U.S. in 2007 displaced 20 million barrels of petroleum, and increased production and use of biodiesel will further displace foreign oil. In addition, biodiesel is an extremely efficient fuel that creates 3.5 units of energy for every unit of fuel that is required to produce the fuel.

Energy Costs, Global Demand and the Weak Dollar are the cause of Rising Food Prices: The combination of rising energy costs, increased global commodity demand, and the weak dollar are the main causes of rising food prices. It is important to note that U.S. biodiesel production is **not** a significant factor of soybean usage either in the United States or worldwide. In 2007, only 12% of U.S. soybean production and 4% of global soybean production was used by the U.S. biodiesel industry to produce fuel. Furthermore, from the soybeans used to produce biodiesel, 81% of the soybean's yield is protein that enters the market for either human consumption or animal feed.

EPA is concerned about corn production and the impact of the RFS on corn or feed prices in Texas. Biodiesel is not made from corn and the production of biodiesel has no direct impact on corn prices. Corn and soybean acres compete for acres in the United States and weather will play a role in production numbers for both crops; however, global oilseed production is projected to increase to nearly 420 million tons for 2008/09, an increase of 31.6 million tons from 2007/08. Attached is a summary of USDA's most recent *World Agricultural Supply and Demand Estimates* dated June 10, 2008⁵.

Soybeans are the primary oilseed crop grown in the United States, and soybean oil makes up about 60 percent of the raw material available to make biodiesel. The other 40 percent consists of all other vegetable oils and animal fats. Specifically, in 2007, refined soybean oil, made up 62.74%; crude soybean oil, made up 16.64%; animal fats and oils, made up 16.05%; inedible tallow and grease, made up 4.36% and cottonseed oil, made up .021%.

Biodiesel adds to the Global and U.S. and Texas Animal Feed Supply: The RFS program will continue to add biodiesel to the fuels marketplace and will encourage soybeans and other oilseeds crops to continue to be planted in the United States. Soybeans are a primary feedstock for U.S. biodiesel and each soybean is about 80 percent protein-rich meal and 20 percent oil. Since soybean oil is a major feedstock for U.S. biodiesel, increased biodiesel production affects relative soybean meal and oil prices. According to the University of Missouri Food and Agricultural Policy Research Institute's 2008 US Baseline Briefing Book (FAPRI-MU Report #03-08), U.S. soybean meal exports will increase and the price may drop more than \$80 per ton over the course of the baseline⁶. While an increased price for vegetable oil may contribute slightly to price of certain products such as salad dressings, margarines, and cooking oil, the 80% protein meal that is generated lowers feed costs for domestic livestock, dairy, and poultry producers, and makes US protein from soy meal less expensive in the international food and feed market.

Biodiesel is spurring the growth of the U.S. soybean industry, making even more soy product available for food and fuel: In the short term biodiesel will be the primary factor driving developments in the U.S. soybean processing industry and according to a comprehensive study commissioned by the United Soybean Board, soybean processing capacity is expected to increase by 66% between 2005 and 2020, while U.S. soybean crops are expected to increase 21 percent⁷. Additionally, the 2008 FAPRI Baseline (FAPRI-MU Report #03-08)⁸, also projects the volume of U.S. soybeans that are processed to expand steadily over the next ten years.

Technological Advances and Plant Science Research are adding "Virtual Acres" for greater production from existing cropland: In July, 2007 Monsanto announced plans to introduce new technology in 2009 that can increase yields 9 to 11%. In September, 2007 DuPont announced it is commercializing soybean varieties that

increase yields by as much as 12%. If 90% of U.S. soybean acres adopted the new technology, more than 60 million acres could benefit from a 10% increase in yield. This potentially equates to more than 250 million additional bushels of soybeans (the equivalent of 380 million gallons of biodiesel).

Technological advances are certain to increase soybean yields from existing acreage in the future. In addition, other sources of biodiesel feedstock – such as restaurant grease, animal fat, corn oil derived from ethanol production, camelina, and algae – are currently being developed and utilized.

Biodiesel Feedstock Sources:

- ✓ Refined vegetable oil (soybean, canola, sunflower)
- ✓ Corn oil from ethanol production
- ✓ Recycled restaurant oil (yellow grease)
- ✓ Recycled trap grease (brown grease)
- ✓ Animal fats (white grease)

1. Current Agriculture Feedstocks: According to the National Energy Research Laboratory (NREL), in Golden Colorado (March 2006), current feedstocks for biodiesel total nearly 2.0 billion gallons (including greases, animal fats, and vegetable oils). NREL anticipates the natural growth and expansion of existing feedstocks (soy, canola, and sunflowers) will expand feedstocks supplies for an additional 1.8 billion gallons by 2016. It is important to note that U.S. biodiesel production is **not** a significant cause of rising food prices. In fact, in 2007, only 12% of U.S. soybean production and 4% of global soybean production was used by the U.S. biodiesel industry to produce fuel. And from the soybeans used to produce biodiesel, 81% of the soybean's yield is protein that enters the market for either human consumption or animal feed.

In the current USDA baseline, USDA has projected 700 million gallons of biodiesel made from soybean or canola oil by 2012.

2. Animal Fats – White Grease: 300 million gallons (Estimates from the National Renderer's Association)

3. Corn Oil from Ethanol Production: As the ethanol sector continues to grow the corn oil extracted from the processing of ethanol will be added to the oil feedstock marketplace. Generally, at a 75% recovery rate (dry mill facilities), 1 billion gallons of ethanol will provide oil feedstock equivalent to 75 million gallons of biodiesel. So today at 7.5 billion gallons of ethanol, dry mill ethanol facilities could be recovering enough corn oil to produce nearly 375 million gallons of biodiesel. Under the RFS, 15 billion gallons of ethanol, will be produced from 5 billion bushels of corn and yield 750 million gallons of biodiesel. (15 billion gallons of ethanol = 5 billion bushels of corn x .75 = 3.75 billion bushels of corn x 1.5 lbs of corn oil per bushel = 5.625 billion gallons of oil = 750 million gallons of biodiesel)

4. Potential for Restaurant Grease^{9*}:

Yellow Grease = 9.4 lb/cap = 2.847 bil lbs = 380 mil gal biodiesel

Brown Grease = 13 lb/cap = 3.938 bil lbs = 525 mil gal biodiesel

Total Restaurant Grease = 6.7 billion pounds = 905 million gallons of biodiesel

Domestic Feedstock Summary:

Current Feedstocks	1.7 billion gallons
Natural Expansion of Feedstocks by 2016	1.8 billion gallons
Corn Oil from Dry Mill Ethanol Production 2015	750 million gallons
Biodiesel from Restaurant Grease	905 million gallons
<u>Animal Fats – White Grease</u>	<u>300 million gallons</u>

Total Feedstocks for Biodiesel Production by 2016

5.455 billion gallons

Environmental and Health Benefits - Biodiesel Contributes to Cleaner Air and Lifecycle Reductions of Greenhouse Gases: Biodiesel is an environmentally safe fuel, and is the most viable transportation fuel when measuring its carbon footprint, life cycle and energy balance. The USDA lifecycle study shows a 78% reduction in lifecycle CO₂ for B100. 1 billion gallons of biodiesel will reduce current life cycle greenhouse gas emissions by 16.12 billion pounds, the equivalent of removing 1.4 million passenger vehicles from U.S. roads. In 2007 alone, its contribution to reducing greenhouse gas emissions was equal to removing 700,000 passenger vehicles from America's roadways.

Emissions: Biodiesel is the only alternative fuel to voluntarily perform EPA Tier I and Tier II testing to quantify emission characteristics and health effects. That study found that B20 (20% biodiesel blended with 80% conventional diesel fuel) provided significant reductions in the total hydrocarbons; carbon monoxide; and total particulate matter. Typically, emissions of nitrogen oxides are either slightly reduced or slightly increased depending on the duty cycle of the engine and testing methods used. Research also documents the fact that the ozone forming potential of the hydrocarbon emissions of pure biodiesel is nearly 50% less than that of petroleum fuel. Pure biodiesel does not contain sulfur and therefore reduces sulfur dioxide exhaust from diesel engines to virtually zero.

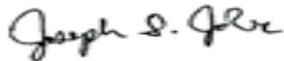
Biodiesel can also help meet national goals for the net reduction of atmospheric carbon: As a renewable fuel derived from organic materials, biodiesel and blends of biodiesel reduce the net amount of carbon dioxide in the biosphere. A study by the U.S. Department of Energy has found that biodiesel production and use, in comparison to petroleum diesel, produces 78% less CO₂ emissions. Carbon dioxide is "taken up" by the annual production of crops such as soybeans and then released when vegetable oil based biodiesel is combusted. This makes biodiesel the best technology currently available for heavy-duty diesel applications to reduce atmospheric carbon.

Health Effects: Biodiesel's emissions significantly outperform petroleum based diesel. Research conducted in the U.S. shows biodiesel emissions have decreased levels of all target polycyclic aromatic hydrocarbons (PAH) and nitrated PAH compounds, as compared to petroleum diesel exhaust. These compounds have been identified as potential cancer causing compounds.

Energy Balance: Biodiesel helps preserve and protect natural resources. For every one unit of energy needed to produce biodiesel, 3.5 units of energy are gained. This is the highest energy balance of any fuel. Because of this high energy balance and since it is domestically produced, biodiesel use can greatly contribute to domestic energy security.

Conclusion: The National Biodiesel Board appreciates the opportunity to comment on these issues and encourages the EPA not to waive the RFS in whole or in part because waiving the RFS for purposes of ethanol from corn will have detrimental effects on biodiesel and other renewable fuels eligible for the RFS program. Additionally, waiver of the program will hinder the development of economic development and new green jobs in both Texas and across the United States, which should be considered when evaluating whether the RFS is causing severe harm to the economy of the State of Texas. Finally, the relief requested by Texas will not remedy the harm, because the combination of rising energy costs, increased global commodity demand, and the weak dollar are the main causes of rising food prices, not the RFS.

Sincerely,



Joe Jobe
Chief Executive Officer
National Biodiesel Board

Endnotes:

¹ Minnesota requires biodiesel be used at a 2% blend requirement in 2008; and the state of Illinois encourages an 11% blend of biodiesel by way of a tax incentive (a handful of other states and local governments require biodiesel at minimal levels).

² The analysis on the economic contribution of the biodiesel industry on the United States in 2007, was prepared by John Urbanchuk (biography follows the report). It is important to note the analysis completed by Mr. Urbanchuk estimated 375 million gallons of biodiesel would be produced in 2007. The actual production in 2007 was 500 million gallons.

ECONOMIC CONTRIBUTION OF THE BIODIESEL INDUSTRY

**Prepared for the National Biodiesel Board
With Funding Support from the USDA Biodiesel Fuel Education Program**

**John M. Urbanchuk
Director
LECG, LLC**

November 19, 2007

Biodiesel is a non-toxic, biodegradable diesel fuel made from soybean and other vegetable oils, animal fats, and used or recycled oils and fats. The biodiesel industry is in its infancy but is poised for significant growth. An estimated 375 million gallons of biodiesel will be produced and used in the U.S. in 2007, up from 225 million gallons last year and about 500 thousand gallons in 1999. According to the National Biodiesel Board there are 165 manufacturing capable of producing biodiesel in the U.S. These plants have an annual capacity of 1,850 million gallons.

The biodiesel industry makes a substantial contribution to the American economy and the economy of the communities where biodiesel production is located. The demand for soybean oil and other fats and oils used to produce biodiesel increases crush demand for soybeans, supports soybean prices, and keeps land in soybean production. Consequently biodiesel production helps increase the value of agricultural production and farm income from marketing and stimulates the demand for goods and services produced by other sectors of the economy and delivered to agriculture.

The impact of biodiesel production on the economy is provided by the direct effects of annual expenditures for soybean oil, other fats and oils used as feedstocks, and inputs such as natural gas, other utilities, and labor to produce biodiesel. Spending for these goods and services represents the purchase of output of the supplying industries. For example, soybean oil is the output of the fats and oils refining and blending industry. This spending circulates throughout the entire economy several fold stimulating aggregate demand, supporting the creation of new jobs, generating household income, and providing tax revenue for government at all levels.

The biodiesel industry will spend nearly \$1.4 billion on goods and services this year. Feedstock costs (soybean oil and other feedstocks) are the largest component of operating costs, accounting for about 83 percent of production costs. The total impact of biodiesel includes the impacts of ongoing annual operations and the direct value added by the production of biodiesel and co-products (glycerin). The spot price of B100 for most of 2007 has averaged \$3.78 per gallon. Consequently the 375 million gallons of biodiesel produced this year is valued at \$1.42 billion. The biodiesel industry also produces glycerin as a byproduct. Given large supplies on the market, raw glycerin prices are averaging about 2.5 cents per pound. The 288 million pounds of raw glycerin produced by the biodiesel industry are valued at \$7.2 million.

As shown in Table 1, when the value of biodiesel and glycerin is added to the indirect impacts generated by the spending to create this output, the biodiesel industry will add \$4.1 billion to GDP this year, increase household income by nearly \$960 million, and support the creation of as many as 21,803 jobs in all sectors of the economy.

Table 1
Economic Contribution of Biodiesel by Industry: 2007

Industry	Spending (Mil 2007 \$)	Impact		
		GDP (Mil 2007 \$)	Earnings (Mil 2007 \$)	Employment (Jobs)
Annual Operations				
Feedstocks (soybean oil and other fats)	\$1,118.0	\$2,391.9	\$823.9	19,318
Industrial chemicals	\$106.0	\$196.4	\$75.8	1,488
Electric, natural gas, water	\$44.0	\$66.7	\$27.8	527
Maintenance and repair	\$5.7	\$8.4	\$5.4	144
Business Services	\$47.4	\$7.0	\$4.2	108
Earnings paid to households	\$12.7	\$16.5	\$8.4	219
Subtotal	\$1,333.9	\$2,687.0	\$945.4	21,803
Plus Value of biodiesel output				
Biodiesel		\$1,417.5	\$12.7	
Co-products (glycerin)		\$7.2		
Total Impact		\$4,111.7	\$958.1	21,803

- Expansion of the biodiesel industry will generate additional tax revenues for government at all levels from personal and corporate income taxes that increase in line with higher output levels and larger GDP. Expansion of the biodiesel industry as described above can be expected to generate an estimated \$450 million of additional tax revenue for the Federal government and \$380 million of revenue for State and local governments this year.
- The biodiesel industry more than pays for itself. The additional tax revenues generated by the biodiesel industry are significantly larger than the value of the major Federal tax incentive for biodiesel. With the biodiesel tax credit of \$1.00 per gallon for agri-biodiesel and \$0.50 per gallon for biodiesel from other sources, this program will cost \$329 million this year. However, as indicated above the industry will generate \$448 million of new revenue for the Federal Treasury for a positive net balance of \$120 million.
- The biodiesel industry contributes to improving America's energy security. The 375 million gallons of biodiesel produced in 2007 will displace 25 million barrels of crude oil. Since the U.S. is a net importer of oil, this means that less oil will need to be imported. At today's crude oil prices of \$95 per barrel this means that \$2.4 billion will remain in the American economy instead of being sent abroad to finance oil imports.

The impact of the biodiesel industry on the economy was estimated by applying the appropriate final demand multipliers for output, earnings, and employment for the relevant supplying industry calculated by the U.S. Bureau of Economic Analysis (BEA) to estimates of expenditures for annual operations described above. The final demand multipliers for output, earnings, and employment for the sectors that supply the biodiesel industry are shown in Table 2.

Table 2
U.S. Final Demand Multipliers

	Output	Earnings	Employment (Jobs)
Fats and oils refining and blending	4.0768	0.7654	19.6
Rendering and meat byproducts	3.1499	0.6254	15.8
Electricity	2.4766	0.5980	12.3
Natural gas	3.0580	0.6539	13.3
Water	2.6056	0.7112	17.0
Basic organic industrial chemicals	3.3677	0.7145	15.3
Office administrative services	2.8528	1.0071	24.2
Business support services	2.6223	0.8147	26.1
Maintenance (facilities support)	2.6713	0.9481	27.4
Households (labor)	2.3663	0.6578	18.8

The most significant impact for the economy is provided by the ongoing annual operations of biodiesel plants. The estimates summarized below result from a static analysis of the impact of increasing biodiesel fuels demand and production on the American economy. That is, they reflect the combination of a series of snapshots of the economy rather than a dynamic flow analysis.

The annual expenditures for biodiesel were estimated by multiplying the average cost per gallon for each major expenditure category by the number of gallons produced. The estimated costs to produce biodiesel are based on a process model for a new 10 million gallon biodiesel plant developed by USDA/ARS.² The prices for soybean oil, biodiesel, natural gas, and electricity reflect averages for January through early November 2007. Prices for other inputs and labor reflect current market conditions.

Local Economic Impact: A profitable biodiesel plant will also make a substantial contribution to the local economy. The size of the contribution will depend in large part on the amount of expenditures that are made in the local economy as well as the structure of the economy. Since the biggest expenditure is for soybean oil or other fats and oils (yellow or white grease), the contribution will be largest for a community that hosts both an oilseed processing and biodiesel plant. Most other inputs will be likely be sourced locally.

Assuming that the feedstock is procured locally, at 2007 prices a 10 million gallon per year biodiesel plant can be expected to add nearly \$117 million to the economy of the county in which it is located and pump nearly \$27 million of household income to the local economy. While a typical biodiesel plant does not employ a large number of people directly, the economic activity generated by the plant can be expected to support the creation of as many as 635 new jobs in all sectors of the local economy. The local impact of a 10 MGY biodiesel plant is summarized in Table 3.

Table 3
Local Economic Impact
10 MGY Biodiesel Plant, 2007 Prices

Industry	Spending (Mil 2007 \$)	GDP (Mil 2007 \$)	Impact Earnings (Mil 2007 \$)	Employment (Jobs)
Annual Operations				
Feedstocks (soybean oil)	\$31.7	\$71.0	\$24.2	569
Industrial chemicals	\$2.8	\$5.2	\$2.0	40
Electric, natural gas, water	\$1.2	\$1.8	\$0.7	14
Maintenance and repair	\$0.2	\$0.2	\$0.1	4
Business Services	\$1.3	\$0.2	\$0.1	3
Earnings paid to households	\$0.3	\$0.4	\$0.2	6
Subtotal	\$37.4	\$78.8	\$27.5	635
Plus Value of biodiesel output				
Biodiesel		\$37.8	\$0.3	
Co-products (glycerin)		\$0.2		
Total Impact		\$116.8	\$27.8	635

Biography: John M Urbanchuk is responsible for managing and providing a broad range of economic, planning, marketing, and policy analysis consulting services to firms and associations involved in industries including agriculture, renewable fuels, and consumer foods. He also works with firms in a wide range of industries to estimate the impact of operations and investment on the national and state economy.

John has extensive experience in agriculture and the biofuels industry. He provides clients with expert economic analysis to support a wide range of agriculture and renewable fuels policy issues. He also has conducted economic feasibility studies and prepared business plans for organizations interested in building and investing in ethanol and biodiesel plants and in providing independent analysis to support due diligence investigations for lenders. Some of his clients include the Renewable Fuels Association, National Corn Growers Association, American Soybean Association, and United Soybean Board, the National Biodiesel Board, the Canadian Renewable Fuels Association, Congressional Budget Office, the Farm Credit Council, the Energy Information Administration, and the Association of Washington Business.

Prior to joining LECCG, Mr Urbanchuk was executive vice president for AUS Consultants, senior vice president and chief economist for Hill and Knowlton, Inc., vice president with Wharton Econometrics, and manager-economic research for Campbell Soup Company.

John has testified as an expert witness before numerous congressional committees including the Senate Finance Committee, House Ways and Means Committee, Joint Economic Committee, the Senate and House Agriculture Committees, the House Committee on Small Business, and the International Trade Commission. He has also testified as an expert witness before the Canadian Import Tribunal as well as committees of the general assemblies of Pennsylvania, California, Washington, Minnesota, Wisconsin, New Mexico, and New Jersey, and as an expert before

proceedings of the federal courts.

John is an adjunct professor at St. Joseph's University in Philadelphia and Delaware Valley College where he teaches graduate courses in agricultural price analysis, industrial policy, and European markets. John also has lectured at Penn State University, the University of Missouri-Columbia, the University of Delaware, Louisiana State University, Purdue University, The JFK Center for Special Warfare, the Budapest University of Economic Sciences, and the Hungarian Academy of Science.

Mr Urbanchuk holds a BS in economics from Penn State University, an MA in economics from Temple University, and has completed all course requirements for the PhD at Temple. John is a graduate of the US Army Foreign Area Officer Program as a specialist in Eurasia.

³ Biodiesel Production Facilities in Texas as compiled by the NBB.

Biodiesel Production Facilities in Texas as of June 2008

AgriBiofuels, LLC	Dayton	12,000,000	Cottonseed, Soy	Dec. 2006	www.agribiofuels.com
AgriMax Fuels, LLC	Channelvie w	3,000,000	Soy	Mar. 2007	www.agrimaxfuels.com
Biodiesel Industries of Greater Dallas-Fort Worth BioSelect Fuels (GBBLP)	Denton Galveston	3,000,000 30,000,000	Multi Feedstock Multi Feedstock	Mar. 2005 May 2007	www.biodieselindustries.com www.bioselectfuels.com
Brownfield Biodiesel, LLC	Ralls	2,000,000	Cottonseed, Soy, Canola	Apr. 2006	www.brownfieldbiodiesel.com
Central Texas Biofuels	Giddings	600,000	Waste Vegetable Oil	Nov. 2005	
Double Diamond Biofuels, Inc GeoGreen Fuels, LLC	Dimmitt Gonzales	3,000,000 3,000,000	Canola Multi Feedstock	Jan. 2008 Sept. 2006	www.geogreenfuels.com
Green Earth Fuels of Houston, LLC	Galena Park	90,000,000	Multi Feedstock	July 2007	www.greenearthfuelsllc.com
GreenHunter Energy	Houston	105,000,000	Multi Feedstock	June 2008	
Greenlight Biofuels, Ltd.	Littlefield	5,000,000	Cottonseed, Animal Fats	Aug. 2007	www.greenlightbiofuels.net
Huish Detergents Johann Haltermann Ltd	Pasadena Houston	15,000,000 20,000,000	Palm Soy, Canola	June 2005 Oct. 2004	www.huish.com www.dowhaltermann.com
Kemlink Energy, Inc.	Pasadena	2,500,000	Multi Feedstock	Jan. 2007	www.kemlink.com
Momentum Biofuels, Inc.	Pasadena	20,000,000	Multi Feedstock	May 2007	www.momentumbiofuels.com
New Energy Fuels, Inc.	Waller	5,000,000	Multi Feedstock	Oct. 2007	www.newenergyfuels.com
New Fuel Company	Dallas	250,000	Multi Feedstock	Apr. 2006	www.newfuelco.com
Organic Fuels, LLC	Galena Park	30,000,000	Multi Feedstock	Jan. 2006	www.organicfuels.com
Pacific Biodiesel Texas	Hillsboro	2,500,000	Multi Feedstock	Aug. 2006	www.biodiesel.com
Safe Renewable Corp.	Conroe	30,000,000	Multi Feedstock	July 2002	www.saferenewables.com
Smithfield Bioenergy LLC	Cleburne	12,000,000	Multi Feedstock	Mar. 2006	www.bestbiofuels.com
SMS Envirofuels	Poteet	6,000,000	Soy	Jan. 2005	www.smsenvirofuels.com

Valco Bioenergy	Harlingen	3,000,000	Recycled Cooking Oil	May 2007	www.valcobioenergy.com
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Total Texas Biodiesel Capacity 390,850,000 gallons per year

⁴ Jun. 02, 2008: Gov. Perry: "The Future of Renewable Energy in Texas is Now"
Touts Positive Environmental, Economic Impact of Alternative Energy Sources

HOUSTON – Gov. Rick Perry today spoke at the American Wind Energy Association’s Wind Power 2008 Conference and the grand opening of the nation’s largest biodiesel refinery at GreenHunter Energy’s Renewable Fuels Campus in Houston. The governor touted the positive environmental and economic impact of renewable energy sources and the state’s ongoing effort to further diversify its energy portfolio to include wind, biofuels, solar and nuclear.

"The future of renewable energy in Texas is now," Gov. Perry said. "Establishing a diverse energy portfolio continues to be one of my major priorities for the state and renewable energy plays a key role in that diversification." Practical, innovative solutions to energy challenges are a recurring theme in our state’s history. In fact, Texas is on the cutting edge of biofuel technology and leads the nation in installed wind generation capacity. "Texas doesn’t just believe in the potential of wind energy, we are reaping its benefits already," Gov. Perry said at the Wind Power Conference.

In 2007, nearly \$3 billion worth of wind-powered electric generators were installed in Texas, twice as much as any other state. And this addition of more than 1,600 megawatts of capacity increased the state’s total wind capacity by 59 percent. Gov. Perry underscored the need for alternative energy sources that do not impact our food supply. Recently, the governor petitioned the Environmental Protection Agency for a 50 percent waiver from the federal renewable fuels standard mandate for ethanol derived from grain.

"Texas plays a vital role in feeding and fueling the nation, and GreenHunter Energy’s biodiesel refinery bolsters this role by providing a necessary alternative to fossil fuels without negatively impacting our food supply," said Gov. Perry. "The transformation of an old waste-oil refinery into a renewable fuel campus is symbolic of our state’s commitment to continually moving towards greater energy independence."

Investments in Texas, like GreenHunter Energy’s, will bring jobs and economic development to the Lone Star State. Through economic development tools like the Texas Enterprise Fund and the Emerging Technology Fund, the state continues to incentivize and invest in research, development and job creation related to clean-energy technologies, further diversifying not only our energy portfolio but our economic landscape.

⁵ USDA’s World Agricultural Supply and Demand Estimates, June 10, 2008. Download the *WASDE* report at <http://usda.mannlib.cornell.edu/>

Highlights from the report:

COARSE GRAINS: The 2008 corn crop is projected at 11.7 billion bushels, down 390 million from last month based on lower expected yields. The national average yield is projected at 148.9 bushels per acre, 5 bushels below last month, and 6 bushels below the 1990-2007 trend. This month's reduction reflects slow planting progress, slow crop emergence, and persistent, heavy rainfall across the Corn Belt. The latest rounds of torrential rainfall are expected to reduce plant populations and nitrogen availability, particularly for corn planted after mid-May.

Corn supplies for 2008/09 are projected 340 million bushels lower this month. Partly offsetting lower production is a 50-million-bushel increase in beginning stocks resulting from lower projected 2007/08 exports. Feed and residual use for 2008/09 is projected 150 million bushels lower on reduced feeding demand with higher prices, increased wheat and sorghum feeding, and lower expected residual losses with the smaller crop. Exports are lowered 100 million bushels reflecting tighter U.S. supplies and increased export competition with higher foreign production. Ending stocks for 2008/09 are projected at 673 million bushels, down 90 million from last month, and 760 million below the 2007/08 forecast. If realized, 2008/09 ending stocks would be the lowest since 1995/96.

The 2008/09 marketing-year average farm price for corn is projected 30 cents higher on both ends of the range at \$5.30 to \$6.30 per bushel. Price forecasts for sorghum, barley, and oats are all raised for 2008/09. Price forecasts for 2007/08 corn and sorghum are also raised reflecting higher expected summer prices.

Global 2008/09 coarse grain production is lowered 3.1 million tons this month. The 9.9-million-ton cut in U.S. corn production is only partly offset by increased corn production in China and the Philippines, and increased corn and barley production in Russia and Ukraine. Foreign corn production is projected 7.6 million tons higher this month and 19.5 million tons above the current 2007/08 forecast. China corn production for 2008/09 is raised to 153.0 million tons, up 3.0 million from last month, reflecting a higher yield consistent with recently released 2007/08 estimates and 2006/07 revisions by China's National Bureau of Statistics. Production for China is raised 6.8 million tons for 2007/08 on a higher reported yield and raised 6.1 million tons for 2006/07 on an upward revision to area. Corn production for Russia and Ukraine is raised 1.5 million tons and 2.0 million tons, respectively, on higher indicated area. Barley production is raised 0.5 million tons each for Russia and Ukraine on higher expected yields with continued good moisture for crop development during May. Brazil corn production for 2007/08 is raised 2 million tons reflecting above average rainfall and higher expected yields for second-crop corn.

World coarse grain consumption for 2008/09 is increased 4.3 million tons this month with increased foreign consumption more than offsetting reduced U.S. corn use. China accounts for most of the increase with corn consumption raised 7.0 million tons mostly on higher expected feeding as hog production recovers from disease problems. Corn exports for 2008/09 are raised 1.0 million tons each for Brazil and Ukraine, offsetting most of the U.S. reduction. Global coarse grain ending stocks are projected higher for 2008/09 with corn stocks up 4.3 million tons, mostly reflecting higher production for China. Global corn ending stocks for 2007/08

and 2006/07 are also raised, again mostly on changes for China.

OILSEEDS: This month's U.S. oilseed supply and use projections for 2008/09 include reductions in beginning and ending stocks. Lower beginning stocks reflect a higher export projection for 2007/08. Soybean production and trade are unchanged, but crush is reduced 10 million bushels mainly reflecting reduced prospects for domestic soybean meal use. Soybean ending stocks for 2008/09 are projected at 175 million bushels, down 10 million from last month. Other changes include reduced soybean oil used for biodiesel production for both 2007/08 and 2008/09 as high soybean oil prices relative to other fats and oils have reduced the soybean oil share of total biodiesel production more quickly than expected.

Soybean, meal, and oil prices for 2008/09 are all raised this month. The U.S. season-average soybean price is projected at \$11.00 to \$12.50 per bushel, up 50 cents on both ends of the range. Soybean meal prices are projected at \$295 to \$355 per short ton, up 15 dollars on both ends of the range. Soybean oil prices are projected at 52 to 56 cents per pound, up 2 cents on both ends of the range.

Global oilseed production for 2008/09 is projected at 419.3 million tons, up 31.6 million tons from 2007/08. Foreign oilseed production is projected at 326.3 million tons, up 18.6 million tons from 2007/08. Global soybean production is projected to increase 10 percent to 240.7 million tons. Most of the increase is due to higher production in the United States as producers increased planted area sharply from 2007/08. Higher soybean production is projected for both Brazil and Argentina as producers respond to high soybean prices. The Brazil crop is projected at 64 million tons, up 3 million from 2007/08. Despite continuing financial problems and a strong currency, producers in Brazil are projected to increase plantings by around 5 percent, more than offsetting a small reduction in yields. The Argentina crop is projected at 48 million tons, up 1 million from 2007/08 based on a small increase in area and yield. Soybean production for China is projected at 16 million tons, up 2.5 million from 2007/08. Global production of high-oil content seed is up 11 percent from 2007/08 reflecting sharp increases in rapeseed and sunflower seed production. Rapeseed production is projected higher in EU-27, China, Canada, India, Ukraine, and Australia. Higher global sunflower seed production is projected for Argentina, Russia, Ukraine, and EU-27. Despite higher global oilseed production, 2008/09 oilseed supplies are up just 3 percent as beginning stocks are sharply lower compared with a year ago.

Global protein meal consumption is projected to increase 2.4 percent in 2008/09. Protein meal consumption is projected to increase 5 percent in China, which accounts for 40 percent of global protein consumption gains. EU-27 protein meal consumption is projected to decline as wheat production and feeding recovers from 2007/08. World soybean trade is projected to reach a record 76.3 million tons, up 2.5 million tons from 2007/08. China is projected to account for 60 percent of the increase, reaching a record 35.5 million tons of imports.

Global vegetable oil consumption is projected to increase 4.3 percent in 2008/09 led by increases for China, India, and EU-27. Industrial use is projected to grow at a reduced rate compared with recent years as high prices of vegetable oils will limit expansion. Global vegetable oil stocks are projected to decline 2 percent from 2007/08.

⁶ *Food and Agricultural Policy Research Institute, U.S. Baseline Briefing Book, Projections for Agriculture and Biofuels Markets, March 2008.* http://fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_03_08.pdf

⁷ *Soybean Meal Evaluation to 2020*, A Report Prepared for the United Soybean Board by LMC International, Ltd., December 2006. <http://www.unitedsoybean.org/Library/RecentLibraryItems.aspx?category=3>

⁸ *Food and Agricultural Policy Research Institute, U.S. Baseline Briefing Book, Projections for Agriculture and Biofuels Markets, March 2008.* http://fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_03_08.pdf

⁹ *Statewide Feasibility Study for a Potential New York State Biodiesel Industry, May 5 2004, LECG, LLC; and Urban Waste Grease Resource Assessment, November 1998, NREL/SR-570-2614.1*