July 2004

BCO Newsletter

Bioenergy - Climate Protection - Oil Reduction

Environmental and Energy Study Institute

122 C Street, NW,
Suite 630
Washington, DC
20001
Phone: (202) 628-1400
Fax: (202) 628-1825
www.eesi.org

Carol Werner
Executive Director

Please distribute BCO (Bioenergy, Climate Protection, Oil Reduction) Newsletter to your colleagues, or send us their email addresses and we will add them to our distribution list.

Article and commentary submissions are encouraged, and should be sent via email to eco@eesi.org

IN THIS EDITION:

COMMENTARY

- The 15% Solution: How Biofuels Can End U.S. Dependence on Mideast Oil by Dan Manternach

FEATURE ARTICLE

- Increased Ethanol Yield from Purdue Yeast Variety

LEGISLATIVE/ADMINISTRATIVE UPDATES

- House Agriculture/Energy Appropriations News
- FY05 Energy and Water Bill (HR. 6414) Update
- California Air Resources Board (CARB) Proposed Rule on Particulates and Public Fleets
- FY04 NOFA for Section 9006: Renewable and Efficiency Grants
- FY04 NOSA for Section 6401: Value-Added Project Grant (VAPG) Program

RECENT STUDIES

- Agencies Still Awaiting USDA's Bio-based Products Labeling Requirements
- U.S. Agriculture and Forestry Greenhouse Gas Inventory: 1990-2001

NEWS BRIEFS

UPCOMING EVENTS

NOTABLE QUOTABLES

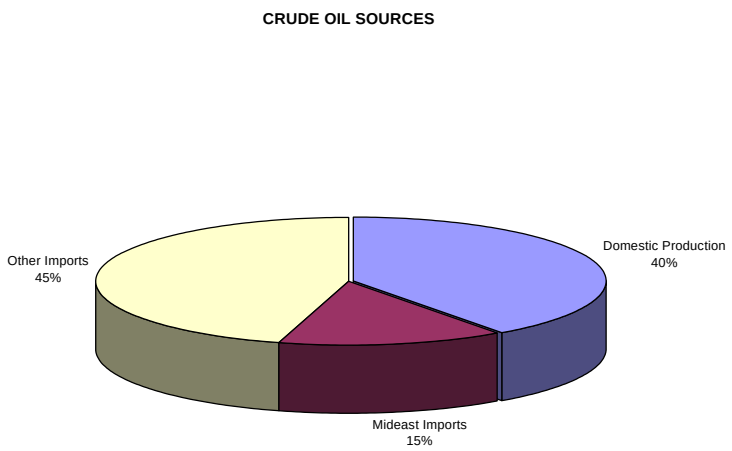
COMMENTARY

The 15% Solution: How Biofuels Can End U.S. Dependence on Mideast Oil

Dan Manternach
Managing Director, Biobased Manufacturers Association (www.biobased.com)

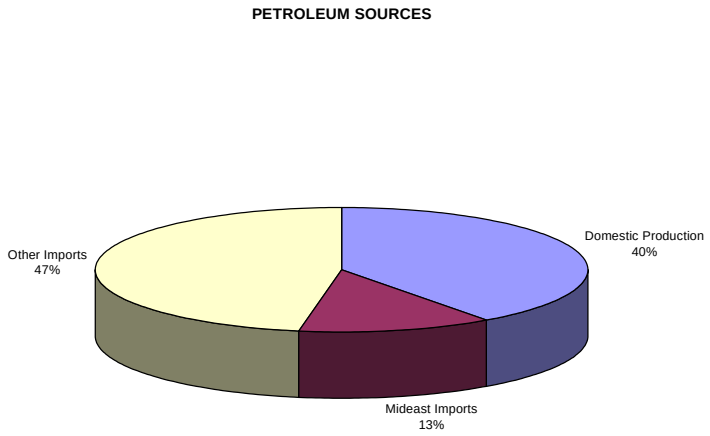
This oil crisis is unlike those of the past. It's not been created by temporary shortages, but by raging demand growth, mostly in China. That isn't going to suddenly go away. If anything, it will only get worse. For years, those who have promoted biofuels as a way to end dependence on Mideast oil have been scorned as delusional. The conventional wisdom has been that biofuels can never come close to meeting this nation's consumption. And they're right. But the critics miss the point. We don't need to replace every barrel of oil we use with biofuels, only what we import from the Mideast. And we're calling it "the 15% solution" to dependence on the Middle East.

There are lots of other sources for imported oil. Take a look at the tables and charts presented here. Notice that so far this year, only 14.5% of our crude oil consumption and only 12.7% of our petroleum consumption have come from the Middle East (Saudi Arabia, Iraq and Kuwait).



U.S. CRUDE OIL IMPORTS (thous. Barrels/day)	YTD 04	% share
Canada	1568	17.3%
Mexico	1553	17.1%
Saudi Arabia	**1404**	**15.5%**
Venezuela	1312	14.5%
Nigeria	1068	11.8%
Iraq	**614**	**6.8%**
Angola	295	3.3%
United Kingdom	237	2.6%
Algeria	157	1.7%
Norway	178	2.0%
Kuwait	**179**	**2.0%**
Gabon	122	1.3%
Colombia	149	1.6%
Ecuador	163	1.8%
Equatorial Guinea	69	0.8%
TOTAL IMPORTS	**9068**	**100.0 %**
DOMESTIC PROD.	6,045	
TOTAL CONSUMP.	15,113	

CRUDE OIL SOURCES		
Domestic Production	6,045	40.0%
Mideast Imports	2197	14.5%
Other Imports	6871	45.5%



PETROLEUM SOURCES		
Domestic Production	40.0%	7,103
Mideast Imports	**12.7%**	**2260**
Other Imports	47.3%	8395

PETROLEUM IMPORTS (thous. Barrels/day)	YTD 04	% share
Canada	2117	19.9%
Mexico	1600	15.0%
Venezuela	1543	14.5%
Saudi Arabia	**1458**	**13.7%**
Nigeria	1148	10.8%
Iraq	**614**	**5.8%**
Algeria	407	3.8%
United Kingdom	343	3.2%
Angola	300	2.8%
Norway	260	2.4%
Virgin Islands USA	286	2.7%
Kuwait	**188**	**1.8%**
Russia	116	1.1%
Netherlands	103	1.0%
Colombia	172	1.6%
TOTAL IMPORTS:	10655	100.0%
DOMESTIC PROD.	7,103	
TOTAL CONSUMP.	17,758	

Many are surprised to learn that while we do import 60% of our fuel, less than one fourth comes from the Middle East. One fourth of 60% is 15%. That's why I say we only have to replace 15% of consumption with a combination of conservation and increased production of biofuels to more than offset Mideast imports of both crude oil and petroleum. That's an attainable goal, especially now with technological breakthroughs showing us how to turn cellulosic matter such as crop residues, forestry wastes and municipal solid wastes into bioethanol.

Beginning life in 1864 as the frail, orphaned son of slaves, George Washington Carver prevailed over rampant, open and blatant racism to become one of America's greatest scientific minds in agriculture. His work resulted in the creation of 325 products from peanuts alone; more than 100 products from sweet potatoes and hundreds more from a dozen other plants native to the South. Carver died in 1943. But he left us these immortal words:

> *"I believe the Great Creator has put ores and oil on this earth to give us a breathing spell ... As we exhaust them, we must be prepared to fall back on our farms, which are God's true storehouse and can never be exhausted. For we can learn to synthesize materials for every human need from the things that grow."*

Those of us today promoting a carbohydrate economy over one dependent on imported hydrocarbons are driven by that same vision. We have shown how our current dependence on hydrocarbons is leading us on a path of polluting our air, our water and our bodies that will be a shameful legacy of slow death to our planet and people if left unchecked. And more recently, we are seeing in rising oil prices and body counts a deadly mixture of clashes in religion, culture and global dependence on the Middle East, where some see us marching down the path towards an even grimmer scenario, an Armageddon of Biblical proportions.

Is the beginning of the end of the oil age upon us? Writer Joan Lowy summed up this newly discovered sense of urgency in a recent article published on the U.S. Department of Energy website entitled "The End of the Oil Age." She talked about "the big rollover," the moment when worldwide demand for oil outstrips the global capacity to produce it. Most oil experts agree that when that day of reckoning comes, it will signal the end of the oil age and the end of cheap energy. Petroleum geologists, energy-industry analysts and others are now saying that moment is close at hand and may even have already occurred.
While the public has generally grown complacent about oil dependence, believing that the day the world runs out of oil is far in the future, that is not the moment that counts, oil experts told Lowy. Rather, the key moment will be when oil production can no longer keep pace with demand. When that happens, prices will rise – as they already are - and they will keep rising until demand is choked off to what can be produced.
Since transportation in the United States is almost wholly dependent on oil, and the United States uses more oil than any other nation, the potential for economic havoc is great. David Goodstein, a physics professor at the California Institute of Technology has written a treatise called "Out of Gas: The End of the Age of Oil". In it, Goodstein notes, "Whether the big rollover happens in 2020 or 2050 is not important. It still doesn't give us enough time to come up with an alternative if we don't make an attempt to come up with an alternative right away."

It's the "monster in the closet," according to Kenneth Deffeyes, a professor emeritus of geosciences at Princeton and an expert on oil depletion. Forecasts for when world demand will outstrip world production capacity vary. The most optimistic private analysts give us until the end of the decade. Deffeyes is more precise, and far less optimistic, predicting the day will come around Thanksgiving of 2005 "give or take a month." Exploding oil demand in China, India and other developing countries make it impossible to dismiss such predictions.

The real price of fossil fuel is far greater than the pump price. There is growing awareness in this country that the price of fuel at the pump, even after recent increases, is still only part of the true cost because the pump price does not reflect the enormous "hidden costs" U.S. taxpayers are paying. There is a very good reason U.S. prices are still nowhere close to what they pay for fuel in Europe. Numerous studies over the past decade have shown repeatedly that we are subsidizing the oil industry by tens if not hundreds of billions of dollars every year in six specific areas:

- Reduced corporate income taxes for the oil industry.
- Lower than average sales taxes on gasoline.
- Government funding of domestic programs and infrastructure that primarily benefit the oil industry.
- Remediating environmental problems rooted in oil consumption.
- Maintaining the capability to militarily defend access to Middle Eastern oil "at any cost."
- Huge contributor to U.S. balance of trade deficit that weakens the dollar in purchasing power for other imported goods.

Two more huge sources of biofuels: CRP and Brazil. There are over 36 million acres of cropland in the Conservation Reserve Program. There should be in-depth studies of the potential for allowing farmers to harvest fuel crops such as switchgrass from this land without jeopardizing their payments so long as measures are taken to preserve most of the side-benefits to wildlife habitat, such as no harvest during nesting seasons, staggering harvest so that plenty of refuge for wildlife remains at any one time, etc.

Import Brazilian ethanol rather than soybeans? Here's another idea that must be discussed in agricultural circles: Eliminating restrictions on the importation of Brazilian ethanol made from sugar cane. American soybean producers have been sweating bullets over the productive potential of Brazilian agricultural lands. Why not give them an incentive to grow sugarcane and ship us ethanol instead of growing soybeans? Wouldn't that make a lot more sense than importing Middle Eastern oil? We won't have to send armies to fight and die in Brazilian cane fields. And the South Americans won't use our dollars to wage terrorist war against us.

EESI welcomes your comments regarding this guest commentary. Please let us know if you would like to submit a commentary for a future BCO.

Feature Article

Increased Ethanol Yield from Purdue Yeast Variety

A new strain of yeast developed by a team of researchers led by Nancy Ho at Purdue University's Laboratory of Renewable Resources Engineering (LORRE) is able to increase the conversion of cellulose to ethanol by 40 percent. This improved technology would have far reaching implications for potential ethanol feedstocks. Currently, corn cellulose is one of the easiest feedstocks to convert to ethanol, whereas cellulosic materials have the complication of containing two forms of fermentable sugar, glucose and xylose. The ethanol industry, using natural *Saccharomyces* yeast, is only able to ferment glucose. Ho and her team were able to develop much more efficient yeast during the 1980's and 1990's, which were able to utilize the 30 percent of agricultural residues consisting of xylose.

Being able to ferment glucose and xylose simultaneously has huge economic benefits, making cellulosic ethanol even more competitive with gasoline. Dr. Ho has said, "It would cost too much money to separate the two sugars before proceeding with fermentation to ethanol, so being able to ferment both sugars together to ethanol is critical."

Iogen is operating under a non-exclusive license from the Purdue Research Foundation for their yeast strain. Its demonstration facility in Ottowa, Canada is the first plant worldwide to be producing ethanol from cellulosic feedstocks. Jeffrey S. Tolan, senior researcher for Iogen confirms, "that Purdue's recombinant glucose- and xylose-fermenting yeast is the most effective microorganism available for the production of ethanol from cellulosic materials." Ethanol produced from this facility is later blended with gasoline in Montreal's Petro-Canada refinery to be used in standard vehicle engines. Iogen is pushing for cellulosic ethyl alcohol (ethanol) to be an effective transportation fuel for the future.

Dr. Ho has expressed doubt that ethanol produced solely from simpler sugars, like corn cellulose, would be able to effectively compete with conventional gasoline from fossil fuel sources. Often these crops are expensive to produce and in relatively limited supply, therefore augmentation of the supply with cellulosic ethanol would be necessary. One ton of cellulosic sources cost roughly half the price of a ton of corn but have been more difficult to convert to ethanol. Regarding the potential of producing cellulosic ethanol she has said, "Corn-based ethanol production in the United States currently is about 3 billion gallons per year. According to conservative estimates, 30 percent of the residue left behind in the cornfield after harvest could produce another 4 billion to 5 billion gallons annually."

Purdue's yeast strain is able to effectively convert tree leaves, wood chips, corn stalks, grass clippings, and cardboard to ethanol. This technological boon will create jobs, allow the sustainable use of marginal lands, and provide increased energy security, among other benefits. LORRE's team has been receiving funding from U.S. Department of Agriculture (USDA), the Department of Energy (DOE), the Consortium for Plant Biotechnology Research Inc., the U.S. Environmental Protection Agency, and other industry sources.

Information from: Emil Venere. *PURDUE YEAST MAKES ETHANOL FROM AGRICULTURAL WASTE MORE EFFECTIVELY*, University of Purdue (www.purdue.edu)

Legislative/Administrative Updates

House Agriculture/Energy Appropriations News

On June 23, 2004 the House Appropriations Committee reported out the Fiscal Year (FY) 2005 Agriculture Appropriations Bill. The overall mandatory funding level reported for FY05 is $66.374 billion with $16.77 billion in discretionary funding. This funding level is an increase from the Administration's request for FY05 but an overall decrease from FY04 funding levels.

FY 04 Funding Level	$16.84 billion (discretionary)	$69.746 billion (mandatory)
FY 05 President's Request	$16.57 billion (discretionary)	$66.370 billion (mandatory)
FY05 House Approp. Bill	$16.77 billion (discretionary)	$66.374 billion (mandatory)

The Administration has issued a government-wide mandate reducing all FY04 non-defense discretionary accounts by 0.59 percent. Specifically for the U.S. Department of Agriculture's budget, the Administration has requested a number of limitations on FY05 spending authorized for a number of USDA mandatory programs (mainly concerning conservation and rural development programs) in order to direct resources for food defense (the President's primary counterterrorism concern in the agriculture sector)[1]. Mandatory funding occupies 75 percent of the USDA's budget and is mainly authorized by the Farm Security and Rural Investment Act of 2002 (P.L 107-171). Theoretically, programs that have been awarded mandatory funding are not a part of the annual appropriations process, though in practice recently, the 'clean energy' programs' **mandatory** funding has been changed to **discretionary** by the Administration.

FY05 House Appropriations for the key 'clean energy' programs that were authorized mandatory funding under the 2002 Farm Bill are as follows:

Section 9006: Renewable Energy and Energy Efficiency Rural Development Program: 'Funding for direct and guaranteed renewable energy loans and grants.' The Committee appropriated **$15 million** for FY05, which is $7.864 million **below the $22.864 million** funding level in FY04 but above the Administration's request of $10.77 million. (The Farm Security and Rural Investment Act of 2002 (P.L. 107-171) authorized $23 million a year in mandatory funding for this very popular program.)

Section 6401: Value-Added Agricultural Product Market Development Grants (VAPG): This program was appropriated **$15.5 million,** which is slightly greater than the funding level in FY04 and the Administration's request of $15 million, for value-added projects including projects producing renewable energy from agricultural products. This program was authorized **$40 million** a year in mandatory funding in the 2002 Farm Bill.)

Section 9002: Federal Procurement of Biobased Products:

The Committee provided the Office of the Chief Economist an **increase of $1.969 million** above the **$1 million appropriated** in FY04 for a "preferred procurement and labeling system for bio-based products."

Section 9004: Biodiesel Education Program:

Mandatory funding of **$1 million** per year has been maintained for this program providing 'competitive grants for eligible entities to educate governmental and private entities and the public about the benefits of biodiesel fuel use.'

Section 9008: Biomass Research Development Act:

The Committee has maintained the **$14 million** mandatory appropriation for this program. Under this program 'USDA will facilitate and promote research, development, transfer of technology, commercialization, and marketing for biobased products and bioenergy using renewable domestic agricultural (plant, animal, marine) and forestry materials.'

Section 9010: Commodity Credit Corporation Bioenergy Program:

The Committee has capped the FY05 funding at **$100 million**. This program, involving contractual agreements between the Secretary of Agriculture and eligible bioenergy producers, was **authorized $150 million** per year in mandatory funding under the 2002 Farm Bill (P.L. 107-171).

Other related items:

The Committee directs the Office of Rural Development "to provide a grant to the **Renewable Fuels Association** and the **National Corn Growers Association** to promote a comprehensive awareness and educate stakeholders on **ethanol**." There was no specific dollar amount referenced.

Within the budget of the Agricultural Research Service, **$1.7 million** has been appropriated for **carbon sequestration** and **green house gas exchange research**. These funds are to be utilized for additional research to manage livestock, manures, fertilizers, biological nitrogen fixation, and soils to minimize emissions and increase sinks.

At this writing, no date has been set for the markup of the Senate Agriculture Appropriations Bill, and it is not yet known when the Ag Appropriations Bill will be scheduled for House floor action.

[1] Chite, Ralph M. *Appropriations for FY2005: U.S. Department of Agriculture and Related Agencies.* Congressional Research Service, June 18, 2004

FY05 Energy and Water Bill (H.R. 4614) Update:

Before adjournment for the July 4th recess, the House overwhelmingly approved (370-16) the $28 billion FY05 Energy and Water Development appropriations bill. The breakdown for renewable energy under the Dept. of Energy budget by technology is shown below: (thousands of dollars)

	FY04	FY05 Request	House
Biomass/Biorefinery	74,558	72,596	72,596
Geothermal	25,847	25,800	25,800
Hydrogen	77,540	95,325	64,285
Hydropower	4,971	6,000	5,000
Solar Energy	84,499	80,333	82,733
Wind	41,355	41,600	41,600
Intergovernmental	14,912	16,000	17,000
Total for RETs	323,682	337,654	309,014

Related issue in the energy and water bill debate:

Rep. Bernie Sanders (I-Vt) offered an amendment that would have removed $30 million from the Advanced Simulation and Computing Program in the Weapons Activities budget to increase funding for renewable energy programs. This amendment failed by a vote of 150-241. It would have increased funding by 10 percent for solar, wind, biomass, 'clean' hydrogen, and geothermal technologies while reducing the $633 million budget for Advanced Simulation and Computing Programming by approximately less than 5 percent. Sanders urged his colleagues to adopt his amendment. He concluded his comments with; "This is a modest amendment. But it is an important step forward in telling the world we understand that a revolution can happen in breaking our dependency on fossil fuels, on nuclear power, and moving forward to clean, safe, sustainable energy."

[Rep. Sanders' statements on the floor can be viewed at: http://bernie.house.gov/bernie_buzz/6_28_04/index.htm.]

California Air Resources Board (CARB) Proposed Rule on Particulates and Public Fleets

The California Air Resources Board (CARB) has proposed a rule that, if enacted, could increase the use of petroleum, force violations of the federal Energy Policy Act of 1992 and cause vehicle fleets using biodiesel to switch back to diesel fuel. The draft rule, *Diesel Particulate Matter Control Measure for On-Road Diesel-Fueled Fleet Vehicles Owned and Operated by Public Agencies and Utilities,* will phase in the use of "Best Available Control Technology (BACT)" to reduce diesel particulate matter (PM) from fleets owned and operated by public agencies.

EESI submitted comments to the proposed rule as it would have some negative impacts on the utilization of biodiesel. For instance in the wording of the rule, **the definition of "alternative fuels" does not include biodiesel** and therefore the use of biodiesel alone does not constitute an emissions control technology. CARB creates exemptions for engines whereby the "specific diesel emission control strategy would jeopardize the original engine warranty" because they recognize that the manufacturers have not had time to test their technology on all engines. However, EESI was disappointed to see that CARB's draft does not extend the same exemption to biodiesel fuel. In fact, CARB has been slow to push product manufacturers to warranty biodiesel use with these products and has done a poor job to determine which products already warranty biodiesel use.

This rule applies to all government fleets in California. Considering that California consumes 25 percent of all the biodiesel used in the United States, and federal fleets make up 60 percent of the biodiesel market, the impact of this draft rule on biodiesel could be significant.

EESI spearheaded a campaign to submit comments to CARB. The closing date was June 10, 2004. EESI is will circulate CARB's decision once it has been released. For further information on this issue feel free to visit our web-site at www.eesi.org.

FY04 NOFA for Section 9006: Renewable and Efficiency Grants

The U.S. Department of Agriculture (USDA) released its solicitation for Renewable Energy Systems and Energy Efficiency Improvements Program (Section 9006) proposals. This program is authorized under Title IX, of the 2002 Farm Bill. The bill makes available $22.8 million in competitive grant funds for fiscal year (FY) 2004 to purchase renewable energy systems and make energy efficiency improvements for agricultural producers and rural small businesses. Half of the grant funds will be allocated for energy efficiency grant requests and the remaining half for renewable energy grant requests. Grant awards will not exceed 25 percent of the eligible project costs. Due to the time constraints for implementing this program, the Office of Rural Development will once again only institute the grant program (no loans) for FY 2004. Applications must be completed and submitted to the appropriate USDA State Rural Development Office postmarked no later than **July 19, 2004**, 75 days* after the publication of the Federal Register Notice on May 5. Grant awards will be announced by September 30, 2004.

Eligibility

Applicant must be an agricultural producer or rural small business. The applicant must also have demonstrated financial need. In the case of an applicant that is applying as a rural small business, the business headquarters must be in a rural area and the project to be funded also must be in a rural area.

The proposed project must be for the purchase of a renewable energy system or to make energy efficiency improvements and must be located in a rural area. The applicant must be the owner of the system and control the operation of the proposed project. A third-party operator may be used to manage the operation or proposed project. Grant funds are not for research and development; they will only be used for commercial or pre-commercial technology.

Technical reviewers will assess the allowable amount of energy input from a nonrenewable energy source on a per case basis for a proposed renewable energy system.

Eligible projects for energy efficient improvements must conserve energy equal to 20 percent* of at least the last 12 months usage and pay for itself within 11 years or less through energy cost savings.

The applicant will be responsible for performing a National Environmental Policy Act (NEPA)* review taking into account environmental issues and safety concerns with emphasis on land use, air quality, water quality, noise pollution, soil degradation, wildlife, habitat fragmentation, aesthetics, odor, and other construction and installation issues applicable to this type of technology. The environmental review must be completed with enough time for funds to be obligated by September 30, 2004. Proposed projects that require the completion of an Environmental Impact Statement (EIS) may not be selected*.

Grant amounts
Applications for renewable energy systems must be between $2,500* and $500,000.
Applications for energy efficiency improvements must be between $2,500* and $250,000.
One applicant may apply separately for one energy efficiency grant and a renewable energy grant, with a combined maximum grant award of $750,000.

* Denotes changes from FY03 NOFA

To see the **NOFA** for the Renewable Energy Systems and Energy Efficiency Improvements Program visit [http://www.rurdev.usda.gov/rbs/farmbill/04fbnofa.htm]

FY04 NOSA for Section 6401: Value-Added Project Grant (VAPG) Program

The Rural Business-Cooperative Service (RBS), USDA, published the solicitation for the Value-Added Producer Grant Program (section 6041) in the **Federal Register** on **June 15, 2004**. Authorized in the 2002 Farm Bill (P.L. 107-171), the Notice of Solicitation of Applications (NOSA) makes available $13.2 million (down from $27.7 million in 2003) in competitive grant funds for fiscal year 2004 to help support independent agricultural producers develop value-added agricultural business ventures. The purpose of the grants is to facilitate greater participation in emerging and new markets for value-added products. The awarded grant can fund one of two activities: **planning activities** to design an effective value-added marketing opportunity or **acquiring capital** to run an established value-added business. The grantee will be expected to provide proof of the availability of matching funds that must be equal to or greater than the awarded grant. The maximum award per grant is $500,000 with no minimum grant requirement. The RBS predicts it will award approximately 78 grants with an average award of $170,000. Only projects that have a budget period length of 12 months will be considered. Applications must be completed and submitted by mail or electronically no later than **July 30, 2004 by 4 pm (ET)**. Awards are expected to be announced October 1, 2004.

Eligibility
Applicants must be an independent producer, agricultural producer group, farmer or rancher cooperative, or majority-controlled producer-based business venture. An applicant applying to acquire capital must have a business plan in place at the time the application is submitted. To be eligible under the farm or ranch-based renewable energy category, the energy must be produced from agricultural commodities, wind power, or solar power.

Leveraged Funds
The Value-Added Grant award can be used for up to 50 percent of the project cost of implementation. The matching funds may be provided by either the applicant or by a third party in the form of cash or in-kind contributions.

Evaluation Criteria
Each application will be awarded a score depending on a specific set of criteria designed separately for Planning Grants and Working Capital Grants. For Planning Grants a project will be evaluated for technological feasibility, operational efficiency, profitability, sustainability, the type of market where the value-added market will be made available, the potential number of customers, etc. Also the application will be rated according to the qualification of the individuals involved, the leadership abilities of the individuals proposing the venture, the number of independent producers currently committed, the specificity of the work plan, the amount requested (preference given to smaller grant requests), the ratio of project cost to number of owner-producers, the size of the farm receiving the award (smaller farms favored), whether the project adopts measures to implement the presidential initiative of bioenergy, and additional points may be awarded by the Administrator for particularly innovative and creative proposals.

To be Eligible for the Presidential Initiative of Bioenergy
Five points will be awarded if an application demonstrates that at least 51 percent of the project cost will be dedicated to planning activities or working capital for **bioenergy** projects. This energy should be produced primarily for on-farm use, unless the value-added product is ethanol, biodiesel, or energy produced from a manure digestor. On-farm wind energy, solar, and hydro do not qualify for points in this rating process, although they are eligible projects for the Value-Add Program.

For a PDF version of the NOSA visit the USDA website at
[http://www.rurdev.usda.gov/rbs/coops/vapg%202004%20nofa.pdf]

Recent Studies

Agencies Still Awaiting USDA's Bio-based Products Labeling Requirements

As set out in Section 9002 in the 2002 Farm Bill, the U.S. Department of Agriculture (USDA) was expected to provide a comprehensive list of provisions clearly defining the requirements for **biobased products**[1] by November 2002. In April 2004 the Government Accounting Office (GAO), at the request of Sen. Tom Harkin (D-IA), conducted a study to assess the reason for the USDA's delay in releasing this list. Between May 2003 and February 2004 GAO did a number of interviews with USDA officials as well as reviewed documents provided by USDA's Agricultural Research Service; Cooperative State Research, Education, and Extension Service; Office of Energy Policy and New Uses; and Office of Procurement and Property Management. In GAO also interviewed industry representatives and reviewed documents provided by 15 biobased manufacturing companies.

GAO found that to date USDA had released a tentative list of proposed guidelines on December 19, 2003, over a year after the 2002 Farm Bill's deadline. According to GAO, these proposed guidelines are a small step, with recommendations for a small number of procurement practices and a process by which to certify vendors. Unfortunately, the guidelines do not begin to delineate items that should be designated for **preferred procurement** nor give any provision on product availability, relative price, performance, or environmental and public health benefits. USDA officials are optimistic that some items will be more fully defined by September 2004. They do admit that some guidelines would not be finished until 2010. GAO was concerned that the USDA had not yet developed a comprehensive management plan to outline how to implement their procurement guidelines. They feel this would greatly accelerate USDA's progress by forcing them to prioritize their commitments.

The delay has had a detrimental impact on implementation of Section 9002 as the top federal procurement agencies are awaiting USDA's guidelines. The four agencies most affected, responsible for 85 percent of federal procurements, would be the Department of Defense (DOD), the Department of Energy (DOE), the General Services Administration (GSA), and the National Aeronautics and Space Administration (NASA). Once these provisions have been established federal agencies will be required to significantly increase their procurement of biobased industrial products within one year. Should the federal government's annual spending of $230 billion on goods and services be focused on acquiring biobased products, the biobased industry would be better able to broaden their range of products making them more commercially competitive. Some agencies, such as DOE, feel that there are a number of benefits to supporting biobased products. For instance, by using biomass to produce plastics a manufacturer greatly reduces the amount of carbon released during production and limits the disposal of non-biodegradable landfill waste. DOE appreciates the carbon-fixing potential of biomass and adopting biobased products' positive implications for mitigating greenhouse gas emissions.

GAO found that USDA had assigned the responsibility for implementing this section of the farm bill to its Office of Energy Policy and New Uses (within the Office of the Chief Economist), though no funds have been authorized by either the farm bill or USDA for the development of these guidelines. Procurement Office staff have admitted that more funding needs to be available for work to be done on their model procurement program. In fact one staff member responsible for the oversight of this project felt that $450,000 in fiscal year 2005 and $500,000 in fiscal year 2006 would be needed to make significant process on the project. Previously, establishing procurement guidelines had not been a priority for USDA, specifically when implementing a 1998 Executive Order to procure biobased products. GAO found that now even with the legislative mandate, USDA is not providing adequate attention or resources to the project.

As of June 2003, USDA had released a tentative timeline, though much of the language contained therein is pessimistic the agency will be able to meet its stated deadlines. In order to be more effective, GAO concluded that USDA at the very least needs to develop a written, comprehensive management plan that will clearly define series of project goals and final release date for labeling guidelines.

[1]GAO provided the **definition** for a biobased product as, "a commercial or industrial product, other than food or feed, that is composed in whole or significant part of biological products, renewable domestic agricultural materials (including plant, animal, and marine materials), or forestry materials.'

For PDF version of GAO study; *Improved USDA Management Would Help Agencies Comply with Farm Bill Purchasing Requirements.* Go to: [http://www.gao.gov/docdblite/details.php?rptno=GAO-04-437]

U.S. Agriculture and Forestry Greenhouse Gas Inventory: 1990-2001

The level of greenhouse gases (GHG's) has consistently risen since the Industrial Revolution. Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) have increased in the atmosphere 31%, 151%, and 17% respectively. The primary cause for the increase in GHG's has been human fossil fuel use. However, land use changes (estimated to be the second largest contributor to CO_2) have also been an important component. Additionally, over half of global emissions of CH_4, and about a third of emissions of N_2O, are believed to be a product of agricultural activities. If lands are properly managed and utilized they can act as a carbon sink, and thus lower the level of GHG's in the atmosphere. In order to gauge the impact of U.S. land use on GHG emissions the USDA conducted the U.S. Agriculture and Forestry Greenhouse Gas Inventory: 1990-2001.

This report has estimates of emissions of carbon dioxide, methane, nitrous oxide, and fluorine containing halogen substances from a variety of sectors. The emissions are expressed in terms of Teragram (Tg) CO_2 equivalents. A Tg equals one million metric tons of pollutant. The unit of measure for pollutants, known as CO_2 equivalents, is determined by estimating the global warming potential of one pollutant relative to a normalized value for one CO_2. So for example, CH_4 is estimated to have 21 times the impact on global warming as the same amount of CO_2. Therefore, if one Tg of CH_4 was emitted, then it would be expressed as 21 Tg CO_2 eq.

Emissions from forestry are one of the main factors in total GHG released annually. Forests absorbed 546 Tg CO_2 eq., harvested wood products stored 213 Tg CO_2 eq., and urban trees absorbed an additional 59 Tg CO_2 eq. in 2001. Thus, forestry in the U.S. sequestered a total of 818 Tg CO_2 eq. This accounts for almost 12% of the total U.S. emissions of 6936 Tg CO_2 eq.

Emissions from agriculture are also an important consideration when determining the total impact of land use on global warming. Approximately one half of agricultural emissions come from livestock. Of the 231 Tg CO_2 eq released by livestock in 2001, 55% came from enteric fermentation (digestive process in which CH_4 is produced as a byproduct), while the rest were a result of animal waste. Livestock waste in the form of manure and urine released a total of 39 Tg CO_2 eq. of CH_4 and 77 Tg CO_2 eq. of NO_2.

Agricultural crop emissions come from three main sources. The smallest component is burning of crop residue, which creates 1.3 Tg CO_2 eq. Rice cultivation contributes an additional 7.6 Tg CO_2 eq. in the form of CH_4. The largest source is the 235 Tg CO_2 eq. released by cropland soils. Bacteria in the soil releases N_2O during the process of nitrification and denitrification. Human additions of fertilizers, crop residues, manure, cultivation of nitrogen fixing crops, and other additives serve to further increase the level of nitrogen present in the soil. Emissions are also augmented by 35 Tg CO_2 eq. from organic soils and 9 Tg CO_2 eq. from lining of soils. In 2001, a total of 279 Tg CO_2 eq. was released in the form of N_2O. However, soils can also act to absorb GHGs, thus lowering their net global warming potential. Agricultural soils absorbed 15 Tg CO_2 eq, while mineral soils sequestered an additional 59 Tg CO_2 eq. Thus, the net emissions from crops were 229 Tg CO_2 eq. in 2001.

Accounting has begun for the annual emissions from energy use in agriculture. Data only exists for 2001 so no trends can be ascertained. A total of 111 Tg CO_2 eq. were released, which is a minute portion of the 5597 Tg CO_2 eq. released annually from energy-related emissions. Combining the total emissions from crops, livestock, and forestry yields a net value of 358 Tg CO_2 eq. being sequestered annually. This is primarily due to the carbon sequestration ability of the forests, which have decreased by only 4.2 million hectares since the beginning of the century, according to the USDA.

Since 1990 GHG emissions have been increasing. Total agricultural emissions have increased by 34 Tg CO_2 eq., or about 8% since 1990. This is primarily due to an increase of 27 Tg CO_2 eq. of N_2O being released from soils. Complementing this increase in emissions has been a 20% decline in total sequestration. This is mainly due to less carbon being sequestered in forests. Taking into account both of these effects, the amount of CO_2 eq. absorbed has declined 41.7% since 1990.

In order to reverse this trend several steps can be taken. Livestock waste can be processed through anaerobic digestive systems, resulting in less CH_4 emissions compared to conventional technology. To reduce the CH_4 from enteric fermentation ongoing research is aimed at making food for cattle more easily digestible, thereby mitigating the amount of CH_4 released. Carbon storage in wood can be increased by allowing for more tree growth. Fortunately, this process is already under way, as total forest area has increased by 4.4 million hectares from 1987 to 1997. Additional sequestration from soils has the largest room for improvement. The IPCC estimated that there is potential for 367 Tg CO_2 eq. per year to be absorbed, compared to the current rate of just 59.1 Tg CO_2 eq. This figure can be attained through further use of no-till agriculture and improved crop rotation. This would entail using more hay and setting aside more land for conservation and pasture.

For further detail and to view the USDA report in its entirety please visit http://www.usda.gov/oce/gcpo/ghginventory.html.

News Briefs

New Ethanol Plant to be Constructed in New York

Northeast Biofuels (NEB) has plans to retrofit a former Miller Brewery site outside the City of Fulton in New York. The conversion will cost roughly $140 million and will begin in early July 2004. This will be the first ethanol plant to be built in the Northeast serving one of the most densely populated areas of the country. Its initial output will be 100 million gallons per year, making it the third largest ethanol plant in the United States.

Unlike most ethanol plants that are located in the Midwest in close proximity to leading corn producers, NEB will be tapping into New York's agricultural resource base. NEB president, Eric Will was quoted as saying, "Our primary desire…is to use local corn."[1] NEB will be acquiring corn mainly from Perdue Farms. This venture should have a minimized environmental footprint with most waste products being purchased and utilized by a number of other companies. For instance, after brewing the ethanol (much like brewing beer) the alcohol is removed through a distillation process. The distilled dry grains left over after this process will be sold back to the dairy market as cow feed. Also, the CO_2 released from the process will be bought by BOC Gases to be used in the production of carbonated beverages and dry ice. The facility is well located, virtually next to a CSX Railway line making product distribution much more economical.

[1]Motola, Chris, "New Ethanol Plant Expected to Be Third Largest in U.S.", *Oswego County Business*. June/July 2004

Monthly Ethanol Production Record Broken for March

In March 2004, the U.S. ethanol industry broke the all-time monthly production record. Producers from across the country collectively produced 214,000 barrels per day. The Renewable Fuels Association (RFA) made the announcement on May 25 according to results released by the U.S. Energy Information Administration (EIA). The same time last year ethanol production was 175,000 barrels a day, making March 2004's production an increase of 22 percent. By the end of 2004, 3.3 billion gallons of ethanol will have been produced, John Urbanchuk, an economist commissioned by the Renewable Fuels Association, recently released a study titled "Ethanol and Gasoline Prices" revealing that ethanol used as a blend in gasoline was reducing the overall price by 30 cents per gallon.[1] This production record was accomplished by 78 ethanol plants currently operating in the United States. With ten more plants under construction, ethanol production capacity could be increasing by over 400 million gallons a year.

Renewable Fuels Association, May 25, 2004 http://www.ethanolrfa.org/pr040526.html
[1]The complete analysis can be found at: www.ethanolRFA.org/ethanolandgasprices.doc

Congressional Hearing Gives Ethanol and Biodiesel a Boost

On May 6, Chairman Sam Graves of the House Subcommittee on Rural Enterprises, Agriculture, and Technology held a hearing exploring the benefits of Tax Incentives for Producers of Renewable Fuels and its Impact on Small Businesses and Farmers. On the panel of experts was Mr. Brooks Hurst of the Missouri Soybean Association; Mr. Charlie Hurst of the Golden Triangle Energy LLC; Mr. Duane Adams of the National Corn Growers Association; Mr. Bob Dineen, President of the Renewable Fuels Association; Mr. Joe Jobe, Executive Director of the National Biodiesel Board; Mr. Phillip Lampert, Executive Director for the National Ethanol Vehicle Coalition, and our own Carol Werner; Executive Director of the Environmental and Energy Study Institute. Chairman Graves held the hearing in order to discuss what strides the United States has made in developing a renewable energy industry and what the future holds. He voiced his support of bioenergy initiatives by saying, "Ethanol and biodiesel are not just the future of America's energy supply, they are cleaner and affordable alternatives today," Graves said. "It's a triple play. It's good for the environment. It's good for consumers. And it's good for farmers."

Visit the House Subcommitte on Rural Enterprises, Agriculture, and Technology for witness testimony and Chairman Graves's opening statement at:
http://wwwc.house.gov/smbiz/subcommittees/subcommittee_on_rural_enterprises_agriculture_and_technology.asp

E85 Becoming Standard Product at MAP Terminals

The National Ethanol Vehicle Coalition (NEVC) will be releasing a press statement during the week of July 5th announcing the introduction of E85 (15 percent gasoline and 85 percent ethanol) as a standard product at 14 of Marathon Ashland Petroleum's Midwestern terminals. For the past two years E85 has only been available at the MAP facility located in St. Paul, Minnesota. In the past five years, demand for E85 has grown ten-fold to 10 million gallons a year. With over 3 million flexible-fuel vehicles (FFV), vehicles capable of running on E85 fuel blends, on the road today this initiative may have huge impacts on future markets. Phillip Lampert, Executive Director of NEVC, said "This announcement represents a major breakthrough for E85 as the nation's fifth largest refiner will be recognizing E85 as a "mainstream" fuel and not a niche market product."

Biofuels in Berkeley

Berkeley once again is a center for ingenuity, as residents and community groups work to increase the use of biofuels and vegetable oil as sources of fuel for vehicles. In 2001, the Ecology Center, a community and environmental organization, convinced the city to run its entire fleet of recycling trucks on biodiesel produced from recycled restaurant oil. As a result of this initiative, two Berkeley residents have begun operating a biofuel station in South Berkeley called the *Biofuel Oasis*. The *Oasis* buys its oil from a bulk supplier in Ukiah, CA at $2.90 a gallon. Although still more expensive than regular gas, this price is significantly cheaper than the previous one of over eight dollars per gallon. Although currently limited to storing 55 gallons, the owners of *Oasis* are optimistic that the city will soon allow them to purchase a pump. The Berkeley Bio-Diesel Co-Op, which has 30 active members, continues to focus on biodiesel advocacy. In addition, another Berkeley resident sells and installs kits for $600 allowing diesel cars to run on pure vegetable oil. His two tank system allows car owners to fill up on diesel at a regular gas station while also having the option to run on vegetable oil stored in their trunks. Vegetable oil, unlike biodiesel, does not need to be thinned and can be purchased from a grocery store.

Information from: Biobased.org (website of the Biobased Information System)

Happier than a Pig in Manure

A new breakthrough in alternative fuel technologies is underway at the University of Illinois, Urbana. Lead researcher Yanhui Zhang and his team are developing a thermo-chemical conversion process through which oil can be produced from manure submitted to intense heat and pressure. This technique breaks down the molecular structure of the manure much like the long geologic process of turning organic matter into oil. Zhang claims that this process in the laboratory condenses nature's time scale such that this conversion process is reduced to *half an hour*.

Utilizing pig manure for fuel production could prove a godsend for swine producers. Disposal and storage of their livestock waste already presents a variety of problems, namely concerning the mitigation of leakage into watersheds and odor. Large-scale farms produce thousands of tons of manure a year, which proves extremely costly for farmers to manage. Similar technology has been developed by *Changing World Technologies* that processes tons of turkey feathers, fat, grease, and entrails at a plant in Carthage, MO. Light oil is being produced from the waste products of a nearby Butterball turkey plant.

The technology is limited in that conversion of manure to oil can only be done on a small scale. There will need to be significantly more research and development done to successfully design a chamber capable of continuously catalyzing the thermochemical reaction. Zhang is optimistic that, in the future, a reactor chamber the size of a home furnace could process manure produced by 2,000 hogs for roughly $10/barrel. Large oil refineries would not buy this oil right away as their equipment would not be able to refine it; though the oil could be used for smaller-scale heating and electric plants, and in the production of plastics, asphalt, and ink.

Associated Press, April 13, 2004: [www.nytimes.com/aponline/business/AP-Farm-Scene.html]

USDA Agriculture and Energy Conference

On June 24-25, U.S. Department of Agriculture's Office of Energy Policy and New Uses with Farm Foundation co-sponsored a conference, *Agriculture as a Producer and Consumer of Energy*, in Arlington Virginia. Some of the topics discussed were biomass and biopower economics, conservation and efficiency, biomass supply/demand studies, the importance of anaerobic digesters for greenhouse gas emission mitigation, and cooperatives for renewable energy development, among others. There were a number of sessions where submitted papers were discussed; *Agriculture as a Producer of Energy*, Vernon Eidman, University of Minnesota; *Agriculture as a Consumer of Energy*, John Miranowski, Iowa State University; *Energy System Integration: How Does Energy from Agriculture Fit into the U.S. Energy System*, Otto Doering, Purdue University. These submitted papers along with others from the conference will be published in a book in the next few months. Any questions concerning the outcomes of this conference should be directed to Roger Conway, (202) 401-0461 or rconway@oce.usda.gov and to Steve Halbrook with Farm Foundation at steve@farmfoundation.org. You can visit www.farmfoundation.org for more information.

Biocycle Conference, Philadelphia

The Biocycle National Conference "Composting, Organic Recycling, and Renewable Energy," was held June 21-23. There were numerous sessions on managing manure through anaerobic digesters to generate energy and compost, development and marketing of biobased products (including energy) as well as on public policy opportunities and needs. Carol Werner, EESI's Executive Director, spoke about federal and state policies, including opportunities through the 2002 Farm Bill.

For more information, visit www.biocycle.net

The Jamaican Sugar-Ethanol Push

With the European Union reconsidering its Common Agricultural Policy, the Sugar Industry Authority (SIA) in Jamaica is looking for other uses for sugar. The EU's CAP gives preferences to the African Caribbean and Pacific countries (ACP) in European markets. Currently, the SIA is pushing the government to upgrade the government-owned *Petrojam* oil refinery to be able to convert sugar to ethanol. *Petrojam* already has begun refurbishing a 40 million-gallon ethanol plant. Under the Caribbean Basin Initiative, Jamaica is entitled to supply up to seven per cent of US ethanol requirements duty-free. Its current supply is far less than this seven per cent quota. As a result Jamaica is looking to convert sugar, from their already struggling sugar-cane industry, to ethanol in hopes to revive this sector. Furthermore, a domestic ethanol industry, officials speculate, would reduce Jamaica's own dependency on US fuel by 10%, or 375,000 barrels a year. For Jamaica, this venture into the ethanol-fuel industry could be an economic boon.

To grow more sugar for the cane industry, however, the government must significantly expand - if not, save - a sugar industry which has already suffered a reduction in production capacity. The industry's output this year will most likely experience a 20% increase from the previous year.

Information from: Biobased.org (web-site of the Biobased Information System)

Upcoming Events

Date	Event	Location	Further Information
August 10-12, 2004	American Coalition for Ethanol 17th Annual Meeting and Ethanol Conference	Duluth, Minnesota	http://www.ethanol.org
August 29- Sept. 2, 2004	10th World Congress: Anaerobic Digestion	Montreal, Quebec	http://www.ad2004montreal.org
August 29- Sept. 3 2004	World Renewable Energy Congress VIII and Expo	Denver, CO	http://www.nrel.gov/wrec/
Sept. 9-10, 2004	Biodiesel Utilization Workshop	Boise, Idaho	http://www.biodieselEducation.org/
October 25-27 2004	Biofuels: Workshop & Trade Show Western and Pacific Region	Sacramento, CA	http://www.bbibiofuels.com/biofuelsworkshop

Notable Quotables

"If one looks at the big picture, it is clear we are on a cusp, a cusp of an historic opportunity to move from finite polluting fossil fuels to abundant non-polluting clean energy. The potential for these technologies is without limits. They allow us to offer our country a new path to abundant clean energy that will revolutionize our impact on this planet."

Representative Bernie Sanders (I-VT)
June 28, 2004– *Congressional Record*

"I am absolutely a fan of biodiesel. I use it in my car because I'm a firm believer in using renewable fuels that are better for our environment. We should all be doing our part to reduce our reliance on foreign oil and contribute to our own economy. On top of all that, biodiesel use helps our nation's family farmers, while preserving the land for future generations."

Willie Nelson
quoted from July 1, 2004 Biodiesel Bulletin

Writers: Alexandra Morel, Sumit Som, Jeffrey Kitrosser
Editor: Carol Werner

Please distribute BCO Newsletter to your colleagues or send us their e-mail addresses and we will add them to our distribution list. Article and commentary submissions are encouraged, and should be sent via email.

Environmental and Energy Study Institute
122 C St., NW, Suite 630
Washington, DC 20001
Phone: (202) 662-1885; Fax (202) 628-1825
eco@eesi.org

Please visit us at http://www.eesi.org/
We welcome your suggestions, comments, and questions.