

**Testimony for
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United States Department of Agriculture
Before the House Agriculture; Conservation, Energy and Forestry Subcommittee
On Agricultural Program Audit: Examination of USDA Energy Programs**

Chairman Thompson, Ranking Member Holden, and Members of the Subcommittee, our nation today faces pressing challenges to increase our energy security, decrease our dependence on imported oil, protect and improve our environment, and create new jobs and new opportunities that will strengthen our economy. In the face of these challenges, renewable energy offers an enormous opportunity for all Americans but especially for agriculture and rural America to help build a cleaner, more secure, more sustainable, and domestically-produced energy sector for future generations. Advancing the development and deployment of renewable energy is a high priority for the Obama Administration, as it has been for bi-partisan champions in Congress for many years. USDA has been and remains a proud partner in these efforts. We appreciate the opportunity to appear before you today to discuss USDA's energy programs which contribute to an energy policy that reduces our dependence on imported oil, protects our environment, and promotes jobs and economic growth in the United States.

This testimony will review the Title IX (Energy Title) programs from the 2008 Farm Bill and will also provide additional information on some of the ways in which other agencies and programs contribute to the overall USDA energy portfolio.

RENEWABLE ENERGY AT USDA

USDA has a longstanding commitment to supporting the research and development and commercialization of renewable energy resources. While there are urban and suburban sources of renewable energy, renewable energy is largely rural energy – produced in rural areas and moved to more urban areas where the majority of the energy users live.

USDA support for biofuels and bioenergy is an important part of a much broader commitment to a cleaner and greener future which has included investment in biofuels, biomass to energy, wind, solar, geothermal, hydroelectric power and energy efficiency, as well as basic scientific research

into second and third generation biofuels and biomass to power. USDA recognizes that environmentally responsible renewable energy and energy conservation provide opportunities for economic growth and prosperity across rural America and the Nation as a whole. We are working to ensure that our programs meet and exceed the challenge of promoting sustainable economic growth and prosperity.

USDA programs support the entire supply chain of renewable energy production, from feedstock research and development through to the consumer, drawing on the established expertise, funding, and staff from a dozen USDA agencies and offices as follows:

- Rural Development
- Farm Service Agency
- National Institute of Food and Agriculture
- Agricultural Research Service
- National Agricultural Statistics Service
- Economic Research Service
- Office of the Chief Economist
- Departmental Management
- Natural Resources Conservation Service
- Forest Service
- Foreign Agricultural Service
- Agricultural Marketing Service

USDA is working within the Department and with other Federal departments and organizations on furthering renewable energy and energy efficiency; efforts include but are not limited to, the following intra/intergovernmental agreements, councils, working groups, and boards. USDA organizes all energy-related efforts internally through the USDA Energy Council to lead the Department in policy development, and the USDA Energy Council Coordinating Committee to coordinate activities and perform duties assigned by the Secretary and the Energy Council. USDA along with the Department of Energy (DOE) co-chairs the Biomass Research and Development Board (BR&D Board) which coordinates the Government-wide research initiative and activities for the purpose of promoting the use of biobased products, power and biofuels. Members of the board also include the National Science Foundation, Environmental Protection Agency (EPA), Department of the Interior, Department of Defense, Department of Transportation and the Office of Science and Technology Policy. The BR&D Technical Advisory Committee is a group of approximately 30 individuals from industry, academia, and State government, and is responsible for providing guidance to the BR&D Board on the technical focus of the Biomass Research and

Development Initiative. Additionally, President Obama established the Biofuels Interagency Working Group (BIWG) co-chaired by the Secretaries of Agriculture and Energy, and the Administrator of the EPA, which works closely with the BR&D Board in undertaking its work. The BIWG will develop the Nation's first comprehensive biofuel market development program.

FARM BILL ENERGY PROGRAMS

The Food, Conservation, and Energy Act of 2008 (2008 Farm Bill) provided over \$1 billion of mandatory funding during a 5-year period to support a comprehensive approach to energy efficiency and renewable energy development in rural America. The 2008 Farm Bill reauthorized, expanded, and/or modified existing programs, and created new programs and initiatives to promote advanced biofuels production. The bill supports farm, small rural business, and community renewable energy systems; promotes production, marketing, and processing of biofuel feedstocks other than those using corn starch; and expands research, education, and demonstration programs for advanced biofuels. It also expanded programs for federal procurement of biofuels and bio-refinery repowering projects and established USDA as the lead agency for coordination of federal bio-based energy efforts. The Title IX (Energy Title) programs were designed to increase America's energy security, improve the environment, and strengthen rural economies through development and production of renewable energy and the creation of sustainable green jobs. The Obama Administration and USDA are committed to these objectives.

ADDITIONAL USDA ENERGY PROGRAMS AND EFFORTS

Outside of the Energy Title programs, USDA has made significant progress in assisting farmers, forest landowners, rural businesses and communities, rural residents, agricultural producers and the nation responding to energy related issues and opportunities. These range from fundamental scientific research to the development and commercialization of new technologies. They include outreach and education, technical assistance programs, financial support for infrastructure, and the adoption of biobased and energy-saving products and volunteer biobased product labeling by USDA itself. We support more energy efficient farming and sustainable feedstock production and management techniques; geothermal facilities; solar and wind farms; current and advanced

bioenergy production supply chains; and biochemical and genomics research crucial to furthering the advancement of these technologies in the future. USDA also supports modernization of the rural electric grid through smart grid technologies, renewable energy development, as well as renewable energy transmission to move renewable electricity to markets.

RURAL DEVELOPMENT

Rural Development consists of three agencies, the Rural Business Service (RBS), the Rural Utility Service (RUS), and the Rural Housing Service, with RBS and the RUS managing renewable energy programs. Within Rural Development, only RBS operates programs created under the Energy Title of the Farm Bill.

The mission of Rural Development's Rural Business Service (RBS) programs is to enhance the quality of life for rural Americans by providing leadership in building competitive businesses including sustainable cooperatives that can prosper in the global marketplace. We meet these goals by investing financial resources and providing technical assistance to businesses and cooperatives located in rural communities and establishing strategic alliances and partnerships that leverage public, private, and cooperative resources to create jobs and stimulate rural economic activity.

The RBS mission is unique in the Federal government. There is no other Federal agency that focuses only on promoting rural communities and businesses. Our field offices reach out to the poorest, most rural counties in America, providing Federal support to businesses who might otherwise not receive financial aid from any other source.

Energy Programs

RBS implements four Energy Title programs to assist the agriculture and energy sectors in finding energy solutions and helping rural residents, rural small businesses, and communities to access renewable energy systems and to use energy more efficiently. We provide funding opportunities in the form of payments, grants, and loan guarantees for the development and commercialization of renewable energy sources including wind, solar, geothermal, hydrogen, ocean waves, hydroelectric, biomass, and advanced biofuel (ethanol, biodiesel, methane gas, etc.) to change the way people power their homes, businesses, and industries. By making renewable energy sources

commercially viable, we are also helping to create sustainable opportunities for wealth, new jobs, and increased economic activity in rural America.

RBS has been a leader in promoting the creation and expansion of renewable energy in rural areas. Since the enactment of the 2008 Farm Bill, the renewable energy programs authorized under the Energy Title have invested over \$460 million in biorefineries and renewable energy and energy efficiency systems through mandatory funding for grants, loan guarantees, and assistance payments. Through 2010, over 6,100 awards were made, saving/generating close to 28 billion kWh of energy or supporting approximately 2.3 million households for a year. These programs provide an immediate impact and affect all walks of life. Take for example, Gary and Connie Menard, a dairy farming couple in Mooers, New York. They received a \$31,162 grant from USDA which covered 25 percent of the cost of a 12.6 kilowatt solar electric generating system that featured a system to track the sun for maximum output. The system has generated over 85,000 kilowatt-hours of electricity to date and has already saved the farm over \$11,000 in electric costs.

The three Energy Title programs that RBS administers for the sole purpose of promoting biofuels are distinct and unique in the Federal government. There are no other programs that's sole purpose is to support the processing of advanced biofuel production, as is the case for the Biorefinery Assistance program and the Advanced Biofuel Payment Program respectively. The Repowering Assistance Program is the only program of its kind, providing support to biorefineries to convert their power systems to renewable energy.

Rural Energy for America Program (REAP)

REAP is the longest running renewable energy program that RBS operates. Initially authorized under the 2002 Farm Bill, the program was reauthorized and expanded in the 2008 Farm Bill. REAP provides grants and loan guarantees for renewable energy and energy efficiency to support a multitude of methods to support the energy sector in rural America. The President's Budget for Fiscal Year (FY) 2012 requested \$37 million to support a program level of \$45 million in 2012 in addition to the \$165 million in mandatory program level funding to support \$210 million in program activity. In FY 2011 RBS has \$75 million in mandatory and discretionary funding to

support a program level of \$113 million in funds which will be awarded to many of the over 3,000 applications that were received. In FY 2010, the program provided 2,400 grants and loan guarantees totaling \$159 million in support for energy audit projects, and energy efficiency and renewable energy projects that ranged from biofuels to wind, solar, geothermal, anaerobic digesters, hydroelectric, and biomass projects.

Four categories of program assistance are available through the REAP:

1) The REAP Renewable Energy Systems/Energy Efficiency Improvement Grants Program is designed to assist farmers, ranchers and rural small businesses that are able to demonstrate financial need. All agricultural producers, including farmers and ranchers, who gain 50 percent or more of their gross income from the agricultural operations are eligible. Small businesses that are located in a rural area can also apply. Rural electric cooperatives may also be eligible to apply.

2) The REAP Energy Audit and Renewable Energy Development Assist Grants Program is available to eligible entities which include a unit of State, tribal, or local government; institutions of higher education; rural electric cooperatives; or a public power entity. The program is designed to assist farmers, ranchers, and rural small businesses.

3) The REAP Feasibility Study Grants Program is designed to assist agriculture producers (including farmers and ranchers) and rural small businesses. All agricultural producers who gain 50 percent or more of their gross income from the agricultural operations are eligible. Small businesses that are located in a rural area can also apply. Rural electric cooperatives may also be eligible to apply.

4) The REAP Guaranteed Loan Program has recently established a new definition for eligible applicants. All agricultural producers or rural small businesses are eligible to apply. Agricultural producers must gain 50 percent or more of their gross income from their agricultural operations. An entity is considered a small business in accordance with the Small Business Administration (SBA) small business size standards NAICS code. Most lenders are eligible,

including national and State-chartered banks, Farm Credit System banks and savings and loan associations. Other lenders may be eligible if approved by USDA.

This program supports a wide range of small businesses, and technologies can range from wind turbines, to methane digesters, to geothermal systems. For example, in Altura Minnesota, Pork and Plants of Altura was awarded a \$16,250 grant to build a renewable energy system. The grant provided sufficient incentive to motivate Pork and Plants to utilize corn and pellets to provide the heat needed for their greenhouses eliminating the need for approximately 40,000 gallons of liquid propane gas per year.

Biorefinery Assistance Program

The Biorefinery Assistance Program (Section 9003) provides loan guarantees to assist in the development of new and emerging technologies to develop advanced biofuels. An Interim Rule was published on February 14, 2011, the Notice of Funds Available (NOFA) was published March 11, 2011, and the application window closed July 6, 2011. RBS received thirteen applications, requesting over \$1.3 billion in requested funding. We are currently reviewing the applications and identifying loans that may range up to \$250 million.

The Biorefinery Assistance program is the only Federal program that provides support exclusively to advanced biofuel biorefineries. Eligible applicants include individuals, entities, Indian tribes, units of State or local government, farm cooperatives, farmer coop organizations, associations of agricultural producers, National Labs, Institutions of higher education, rural electric cooperatives, public power entities, or various consortia of any of those entities.

Repowering Assistance Program

The Repowering Assistance Program (Section 9004) provides payments to biorefineries who switch from using fossil fuels to produce heat or power from renewable biomass. These biorefineries must have been in existence at the time the 2008 Farm Bill was passed. An Interim Rule was published on February 11, 2011 and a NOFA was published on March 11, 2011, and the application window closed on June 9, 2011.

This program can provide payments to a biorefinery existing before June 2008 based on the quantity of fossil fuel the biorefinery is replacing, the percentage reduction in fossil fuel used by the biorefinery, and the cost effectiveness of the renewable biomass system, economic benefit to the community, and the potential to improve the quality of life in rural America.

Bioenergy Program for Advanced Biofuels

The Advanced Biofuel Payment Program, formerly the Bioenergy Program for Advanced Biofuels (Section 9005) provides payments to eligible producers to support and expand the production of advanced biofuels. Only one producer per refinery is eligible to apply. To date, almost \$30 million in assistance payments have been provided to 141 advanced biofuel producers. On February 11, 2011, an Interim Rule was published and incorporated a notice of contract proposals (NOCP) for the 2010 funding in the amount of \$80 million. A second NOCP for \$85 million was published on March 11, 2011 for the FY 2011 funding; applications for funding were required to be submitted to RBS by May 10, 2011. This program is vital in supporting existing biofuel infrastructure and a crucial support to help us meet the mandated Renewable Fuel Standard (RFS2) which calls for 22 billion gallons of advanced biofuels by 2022.

An example is Indiana Flex Fuels which received \$3,600 in FY 2010. Though relatively small in capacity—a 5 million gallon a year plant—the FY 2010 payment and future payments in FY2011 will provide a financial incentive to biorefineries such as this, which will provide them with a necessary step towards meeting the nation's renewable energy needs.

Performance

In 2009 and 2010, USDA assisted nearly 4,000 rural small businesses, farmers, and ranchers save energy and improve their bottom line by installing renewable energy systems and energy efficiency solutions that have the potential of producing or saving a projected 4.67 billion in kilowatt hours – enough energy to power 390,000 American homes for a year. USDA is among the largest supporters of biofuels in the Nation and our programs are essential in ensuring a stable market structure that creates jobs and meets our Nation's energy needs and goals.

FARM SERVICE AGENCY

Biomass Crop Assistance Program (BCAP)

The Energy Title of the 2008 Farm Bill also authorized BCAP which is implemented by the Farm Service Agency (FSA). BCAP provides financial assistance to owners and operators of agricultural and non-industrial private forest land who volunteer to establish, produce and deliver eligible crops for conversion to bioenergy or bio-based products. Such Commodity Credit Corporation (CCC) funds as necessary were authorized for BCAP. However, subsequent appropriations bills have limited the availability of funding.

There are two types of assistance available under BCAP. First, establishment and annual payments may be available to producers who enter into contracts to produce eligible crops on lands within approved BCAP project areas. Generally, crops that receive payment under the Commodity Title (e.g., corn, wheat, rice, soybeans) and noxious weeds or invasive species are not eligible for payments. Producers may receive up to 75 percent of the establishment costs of a perennial crop and annual payments for up to 5 years for non-woody crops or up to 15 years for woody crops.

Second, matching payments may be available to producers for the collection, harvest, storage and transport of eligible biomass to qualified facilities that produce heat, power, bio-based products, or advanced biofuels from that biomass. To qualify for payment, the biomass must be an eligible material that also is collected or harvested directly from the land before transport to the facility, in accordance with an approved conservation or forest stewardship plan. Woody biomass must not have a previously existing market and must also be removed to reduce forest fire threats, disease or insect infestation, or to restore ecosystem health.

In July 2009, FSA issued a NOFA for the matching payments portion of the BCAP program and issued the first payment in August 2009. In February 2010, the authority for payments under the NOFA ended and FSA published a proposed rule to implement the full BCAP program. The final rule for BCAP was published in October 2010 and FSA began accepting applications for BCAP Project Areas.

Early this year, FSA began the sign-up period for farmers seeking matching payments for the delivery of crop residues to qualified biomass conversion facilities located in Iowa and South Dakota. Also this spring, FSA announced the first BCAP Project Area comprised of 39 contiguous counties in Missouri and Kansas for the enrollment of up to 50,000 acres of native grasses, including switchgrass, for manufacturing into pellet fuels. Just last month, FSA announced four more BCAP project areas in Arkansas, Missouri, Ohio, and Pennsylvania to grow giant miscanthus which is a sterile hybrid warm-season grass to be converted into bioenergy. Any project area, as part of the project proposal package, must be compliant with the National Environmental Policy Act (NEPA), compliance includes environmental screening, reviews, and may include an environmental assessment or impact statement at cost to the project sponsor(s).

The 2011 Full Year Continuing Resolution limited funding for BCAP to \$112 million. On April 20, 2011, FSA announced that BCAP Project Area proposals must be submitted no later than May 27, 2011, to be considered for FY 2011 funding. Demand for BCAP funding is significant: FSA received 41 project area proposals from 21 States requesting an estimated \$1 billion to enroll more than 1.5 million acres in dedicated energy crops. FSA soon will announce the final project area selection for FY 2011.

Feedstock Flexibility Program (FFP)

The 2008 Farm Bill also established the FFP. Typically, the CCC nonrecourse loan program offers sugarcane and sugar beet growers the opportunity to forfeit their sugar loan collateral to CCC as full satisfaction of the loan with growers keeping the loan proceeds. CCC later dispenses the forfeited sugar into the marketplace by sale or donation. FFP was authorized to prevent the accumulation of government-held sugar stocks that otherwise can impede price recovery by instead allowing CCC to sell the surplus sugar to bioenergy producers as a fuel feedstock. Compared to expectations during the 2008 Farm Bill, however, domestic sugar demand has increased significantly and is expected to remain strong relative to supplies in FY 2011 and FY 2012. While FSA does not anticipate an immediate need for FFP during this period, the proposed rule to implement this program has been drafted and will be published soon.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE (NIFA)

As the USDA's extramural research and education arm, NIFA has a number of programs that support fundamental and applied research into renewable energy and contribute to the USDA role in pursuing our nation's energy security.

Biomass Research and Development Initiative (BRDI)

The Energy Title of the 2008 Farm Bill reauthorized the BRDI competitive grants program which is a joint effort between USDA and the Department of Energy (DOE) to support the development of a biomass-based industry in the United States. The objectives of the program are to promote the development of: (a) technologies and processes necessary for abundant commercial production of biofuels at prices competitive with fossil fuels; (b) high-value bio-based products to enhance the economic viability of biofuels and biopower, to serve as substitutes for petroleum-based feedstocks and products, and to enhance the value of coproducts produced using the technologies and processes; (c) a diversity of economically sustainable domestic sources of renewable biomass for conversion to biofuels, bioenergy, and bio-based products. Projects supported through this program must take into account a life cycle perspective that takes into account the environmental, economic and social implications of the proposed technologies. The program has been effective in developing multi-institutional and multi-disciplinary consortia to increase technology transfer and commercialization.

Biodiesel Fuel Education Program

The Biodiesel Education program (Section 9006) was created to help the biodiesel industry grow by providing technical information about this new fuel to a broad spectrum of U.S. consumers and producers. This program is operated through cooperation between the Office of the Chief Economist (OCE) and NIFA. Education materials and outreach activities deliver information on the environmental benefits of biodiesel, and expert guidance is provided on producing biodiesel, maintaining fuel quality, and insuring fuel safety. Since the Program began in 2003, the U.S. biodiesel industry has grown from just a few firms to over 150 firms today. Awareness of biodiesel among Americans has increased markedly over the past ten years—consumer awareness of biodiesel has grown from 27 percent in 2003 to 86 percent today. At the onset of the Program, many engine manufacturers were apprehensive about using biodiesel, but now

nearly 60% of U.S. manufacturers support the use of biodiesel blends in at least some of their equipment. While the Program has been a major success, education is needed more than ever, with the biodiesel industry ramping-up to meet record production levels, set by the RFS2 mandates.

Agriculture and Food Research Initiative (AFRI)

AFRI is NIFA's flagship *extramural* competitive grants program and has a Sustainable Bioenergy Challenge Area which seeks to facilitate the establishment of regional systems for the sustainable production of bioenergy and biobased products. This challenge area funds projects that contribute significantly to reducing the National dependence on foreign oil; have net positive social, environmental, and rural economic impacts; and are integrated with existing agricultural systems. The development of regional bioenergy systems will result in viable commercial options that can be rapidly deployed to produce advanced biofuels as well as value-added co-products to diversify product options, reduce risks, and bridge to full scale advanced biofuel production. A priority of this challenge area is to foster coordinated plans for developing regional systems for the sustainable production and distribution of bioenergy and biobased products with net positive social, environmental, and economic effects. It is expected that the Regional Bioenergy Coordinated Agricultural Projects (CAPS) will network with and leverage existing efforts within USDA, university research, education, and extension, other federal agencies, and the private sector, and take multidisciplinary and transdisciplinary approaches. Another priority in the Sustainable Bioenergy Challenge Area is to develop the bioenergy workforce. The field of bioenergy and biobased products holds potential for new technologies and entrepreneurial opportunities that may substantially change regional rural economies. This emerging bio economy will demand a new workforce and will challenge institutions to produce graduates who have the multidisciplinary and problem solving framework to meet this demand. This new economy will require a trained and competent skill set that meets workforce needs all along the bio-energy value chain encompassing a wide range of technical, educational, socio-economic, and scientific competencies. Projects supported through this program are stimulating the K-12 and baccalaureate and master's level education system to produce students who are science and math based independent thinkers and investigators, steeped in interdisciplinary coursework who can identify solutions to problems and opportunities, work creatively in teams

and present solutions in a clear and concise manner, and who have an interest in America's bio-energy and bio-based products future.

Sun Grant Initiative Program (SGI)

Authorized under the Research Title of the Farm Bill, SGI began ten years ago with support from USDA to harness the capacities of the land-grant universities to develop bioenergy and biobased products through regional collaboration, coordinated through five regional Sun Grant Centers. With support from USDA/NIFA, DOE and the Department of Transportation (DOT) the SGI has over 130 field studies on biomass feedstocks currently underway with locations in more than 75 percent of the states in the nation. SGI research has been a catalyst for attracting industry investments that have resulted in formation of new businesses and creation of new jobs in the bioenergy sector. For example, in the South East SGI Region, SGI supported projects that led to the DuPont-Danisco joint venture partnership with the University of Tennessee and General Energy to open a demonstration scale facility producing lignocellulosic ethanol. Over 7,000 acres of switchgrass are in production and under contract to support this demonstration conversion facility, which is being utilized to develop a commercial scale facility by 2013 that has a production capacity of 25-50 million gallons of ethanol. In the North Central Region, Sun Grant- supported research led to DuPont-Danisco deciding to locate a cellulosic ethanol production facility in Iowa. Similar collaborations are underway in each SGI Region with Sun Grant- supported research leading to commercialization of new feedstock varieties for production of advanced biofuels.

Plant Feedstock Genomics Program

DOE's Office of Biological and Environmental Research has teamed up with NIFA's Agriculture and Food Research Initiative to fund projects that accelerate plant breeding programs and improve biomass feedstocks by characterizing the genes, proteins, and molecular interactions that influence biomass production. DOE and USDA initiated this competitive grant program in 2006 to support fundamental research in biomass genomics. Ultimately, the research seeks to develop and demonstrate environmentally acceptable crops and cropping systems for producing large quantities of low-cost, high-quality biomass feedstocks. Specific focus areas include: elucidating the regulation of genes, proteins, and metabolites to for improved

productivity, processing, or growth characteristics in marginal environmental conditions, such as drought or salt tolerance; developing novel technologies to facilitate the analysis and manipulation of cell wall structure and composition for both breeding and basic research; using genomic approaches that lead to the identification of genetic markers enabling more efficient plant breeding or manipulation; and enhancing fundamental knowledge of the structure, function, and organization of plant genomes leading to improved biomass characterization.

AGRICULTURAL RESEARCH SERVICE (ARS)

ARS is USDA's principal *intramural* research arm and conducts basic research to support the commercial production of dedicated feedstocks for the making of advanced biofuels and bioenergy. The research is focused on four primary objectives: increase biomass production efficiency to improve grower profits and reduce biorefinery transaction costs; optimally incorporate biomass and other dedicated feedstocks into existing agriculture-based systems; address the uncertainties of expanded feedstock production up-front to avoid negative impacts on existing markets and ecosystem services; and develop and find new ways to utilize value-added coproducts to economically enable commercially preferred biorefining technologies. Region-based production systems are being developed for dedicated energy crops including perennial grasses, oil crops, energy cane, and biomass sorghum.

ARS bioenergy research is conducted through the regional USDA Biomass Research Centers, which include the Forest Service, and is coordinated with NIFA's AFRI *Sustainable Bioenergy* Coordinated Agricultural Projects (CAP) grant program, and the USDA- DOE jointly-funded BRDI grants. ARS also partners with the DOE Plant Feedstock Genomics for Bioenergy competitive grant programs. These combined efforts are done in partnerships with universities, other federal agencies, States, and private companies and are designed to help accelerate the commercial development of biofuels, biopower, and other bio-based products from dedicated feedstocks produced on our nation's farms.

ECONOMIC RESEARCH SERVICE

The Economic Research Service (ERS) conducts rigorous and objective research on the economic and environmental implications of agriculture-based bioenergy production. ERS

research on bioenergy focuses on how policy and market developments affect commodity markets, land use, the environment, rural development, and consumers. Core objectives include: examining the relationships between bioenergy production and farm and retail food prices; developing long-term projections of domestic and international agricultural markets, taking account of changing policies, and macroeconomic events that affect markets for biofuels; examining the effect of biofuel production on rural employment and wealth creation; and analyzing the effect of increased biofuel production on environmental quality and use of scarce natural resources.

ERS research on bioenergy is being enhanced by expanding the capabilities of in-house economic models, geo-spatial analysis tools, budget generators for dedicated energy crops, and by establishing partnerships with universities and other Federal agencies. ERS works in conjunction with the National Agricultural Statistics Service (NASS) to collect and analyze unique data on farm characteristics and production practices from the Agricultural Resource Management Survey. NASS data on agriculture is essential at every stage of infrastructure development, from the initial policies that drive basic research, to the establishment of markets and feedstock production needed to sustain this new industry.

DEPARTMENTAL MANAGEMENT

Biobased Markets Program

The Energy Title of the 2008 Farm Bill established the Biobased Markets Program, known as the BioPreferred[®] Program, and USDA is the lead agency responsible for its implementation. This biobased products program helps to create green jobs in rural communities, adds value to agricultural commodities, decreases environmental impacts, and reduces our dependence on imported oil. USDA's goal is to increase Federal procurement of biobased products government-wide and develop government and public markets through a voluntary labeling program.

USDA has promulgated BioPreferred[®] program guidelines and six rounds of regulations designating categories of biobased products for preferred Federal procurement. As a result, there

are now 50 designated product categories. A seventh designation rule with 14 product categories should be promulgated later this month. When Round seven is published, 64 categories and almost 9,000 products will be approved for preferred Federal procurement. USDA initiated a voluntary labeling program earlier this year; over 430 products from 150 companies have been certified to carry the USDA Certified Biobased label to date. In FY 2010, 88 percent of all applicable USDA contracts included biobased clauses or purchases, up from 80 percent in FY 2008 and 84 percent in FY 2009. In addition, there are over 20,000 biobased products and the number and types of products continue to grow.

NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

NRCS formally identified energy as a resource concern in 2010 and substantial efforts are being made to enhance the Agency's capacity to work with producers in conserving energy. All of the Agency's conservation practice standards were evaluated for their potential contribution to address energy resource concerns and many were revised to incorporate energy as a purpose for performing the conservation practice. Training efforts are underway to ensure that agency employees are prepared to assist customers with energy conservation efforts. A series of agriculture-focused energy fact sheets have been issued and more are under development. In addition, the suite of producer-focused web-based Energy Estimators for animal housing, irrigation, nitrogen, and tillage are being updated to reflect recent information and technologies. These tools provide a simple way for producers to evaluate potential savings from implementing energy conservation practices.

Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program (EQIP), administered by NRCS, has been helping producers in addressing natural resource concerns since 1996. Conservation practices and systems implemented under EQIP have helped producers to achieve environmental objectives, and in some cases to have a beneficial effect on energy resources. For example, producers have reduced energy use through conservation tillage, which requires fewer passes over a field; irrigation water management that conserves water and saves energy; and improved nutrient management, which can include adoption of anaerobic digesters. Manure from the anaerobic digesters provides a reliable level of nitrogen fertilization and can be used to replace

commercial fertilizer. When stored and handled properly, animal manure loses less nitrogen and can be applied with confidence. NRCS can provide information and considerations for designing and constructing appropriate manure handling facilities. Methane produced by the manure can allow biogas generators to produce electricity and heat that producers can use onsite. Also, the potential exists to sell the excess electricity to a local electric grid.

The Conservation Title of the 2008 Farm Bill added energy conservation as a purpose of EQIP and authorized the NRCS administered program to be used for conservation plans that further energy conservation and other purposes of the program. The conservation practice associated with plan development under this authority is known as a “conservation activity plan” (CAP). Two Agricultural Energy Management Plan (AgEMP) CAPs have been developed for energy conservation, one focusing on operation headquarters and one focusing on farm landscape energy conservation.

These AgEMPs for the farm headquarters and farm landscape contain the on-farm energy audit that establishes a baseline of total energy consumption of the farm or ranch operation and also provides recommendations of energy conservation and efficiency measures that the producer can prioritize and implement on their agricultural working lands. For FY 2011 and as of June 15, 2011, NRCS has planned 364 AgEMPs for headquarters and landscape energy audits, obligating \$715,761 in financial assistance funds. Another 133 AgEMP headquarters audits have been completed, with producers receiving \$237,489 in financial assistance payments.

The actual benefits from an on-farm energy audit (AgEMP) to the producer and the environment are achieved fully when the on-farm energy audit recommended measures are implemented.

Four States are already using conservation practice standard 374 for On-Farm Equipment Efficiency Improvements to accelerate implementation. As of June 3, 2011 there were 20 planned and four completed contracts that included this conservation practice standard, totaling nearly \$580,000.

Conservation Stewardship Program (CSP)

NRCS offers financial assistance to producers to enhance their conservation activities, through the CSP including energy conservation. In FY 2011, there are seven CSP enhancements for

energy, ranging from fuel use reduction and renewable energy use to on-farm landscape energy audits and variable frequency drive motors. In FY 2010, program participants applied fuel use reduction on over 206,000 acres and added more than 6,500 systems or units using renewable energy, such as solar powered electric fence charging systems and renewable energy powered pumping plants.

Conservation Innovation Grants (CIG)

NRCS also encourages energy technology innovation and conservation through Conservation Innovation Grants (CIG). Through this competitive process, NRCS awards grants to demonstrate innovative technologies for more effectively managing natural resources while leveraging Federal resources. CIG enables NRCS to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the Nation's most pressing natural resource concerns.

In FY 2010, over \$5.5 million was awarded for 12 projects working in 29 states to demonstrate innovative energy technologies or programs that range from on-farm energy audits to anaerobic digester technologies and sustainable biomass production. Of this, nearly one-half million was awarded in two grants for innovative energy conservation projects. By comparison, between FY 2004 and FY 2009, there were four national CIG grants for innovative energy conservation projects totaling \$1,361,109.

CONCLUSION

As these USDA programs and efforts show, in addition to its environmental, energy security, and national security implications, renewable energy is an important source of jobs, economic growth, and tax revenue in rural communities across the country. USDA recognizes that environmentally responsible renewable energy and energy conservation provide opportunities for economic growth and prosperity across rural America and the Nation as a whole. We are working to ensure that our programs meet and exceed the challenge of promoting economic growth and prosperity.

Thank you, again Mr. Chairman and members of the Subcommittee. With your help, we look forward to continuing to create jobs and build a cleaner, more secure, more sustainable, and domestically-produced energy sector.