

STATEMENT OF SECRETARY THOMAS VILSACK
U.S. DEPARTMENT OF AGRICULTURE
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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
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Chairwoman Boxer, Ranking Member Inhofe, and members of the committee, renewable energy today offers both challenges and historic opportunities for our nation. The accelerated deployment of renewable energy is a high priority for the Obama Administration, as it has been for Congress as well, on a bipartisan basis, for many years. We are partners in this effort, and I welcome this opportunity to discuss USDA's role in helping to build a cleaner, more secure, more sustainable, and domestically-produced energy sector for future generations.

President Obama has set an ambitious goal of reducing oil imports by one-third from 2008 levels by 2025. Increasing biofuel production and use are an important part of achieving that goal, and the Administration is working on an integrated research strategy to overcome barriers to increased use of today's biofuels and accelerate the development of next-generation biofuels. This strategy includes targeted investment in biofuels distribution infrastructure, support for research, development and early-stage deployment of promising next-generation biofuels technologies, and implementation of the Renewable Fuels Standard and other key components of the regulatory framework.

USDA's commitment to renewable energy is longstanding. While there are urban and suburban sources of renewable energy, renewable energy is largely rural energy. Biofuels and biomass rely primarily on farm and forest feedstocks. Due to siting challenges, large scale wind and solar

farms, as well as geothermal plants may be located in rural areas. 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, while biofuels and biomass offer exciting new opportunities specifically for American agricultural producers. Our nation's future depends on out-innovating, out-investing, out-educating, and out-building our competitors in an ever-more integrated world economy, and renewable energy is clearly one of the sectors in which we must win the future.

USDA is not alone in this effort. I am pleased to be joined today by my colleagues from the Environmental Protection Agency (EPA) and the Department of Energy (DOE). The Administration recently put forth a Blueprint for a Secure Energy Future, focusing on the development of domestic renewable energy supplies to help harness America's clean energy potential. Recognizing the promise of commercial development of cellulosic and advanced biofuels, their potential contribution towards reducing our oil dependence, and the current challenges to bringing those technologies to scale, the President has set a goal of breaking ground on at least four commercial-scale cellulosic or advanced bio-refineries over the next two years. In addition, the President has challenged USDA, DOE, and Navy to investigate how to speed the development of drop-in biofuel substitutes for diesel and jet fuel.

USDA has entered into Memoranda of Understanding related to renewable energy with the Department of the Navy and with the Federal Aviation Administration (FAA) and we work closely with many partners in academia and the private sector as well. The aviation industry is a prime example of a sector that is pressing forward to transition to renewable jet biofuels. We

recognize that the future of renewable energy depends on addressing technological and regulatory challenges, as well as the financial challenge. We must drive costs down and market access up, develop self-sustaining business models that allow renewables to succeed in the marketplace, ultimately without subsidy. Accelerating that evolution in an environmentally responsible way is a key goal for USDA and the Nation.

Some have suggested that not enough food, feed, and fuel can be grown to meet our needs. However, we have seen that time and again our Nation's farmers and ranchers have risen to that challenge. Growing energy crops is another challenge for this country and the globe and we are confident that we can meet food, feed, and fuel needs while maintaining and expanding our conservation ethic and creating jobs and economic growth in rural economy.

Growing energy crops is another challenge and America's farmers, ranchers, forest landowners can do their part to meet those goals and, we at USDA, stand ready to support their can-do spirit.

Renewable Energy at USDA

USDA's support for biofuels is an important part of a much broader commitment to a cleaner and greener future; an energy policy that reduces our dependence on imported oil; and a strategy that promotes jobs and economic growth in the United States. USDA's commitment has included investment in biofuels, biomass, wind, solar, geothermal, and hydroelectric power, as well as basic scientific research into second and third generation biofuels.

This commitment is deep, broad, and longstanding, and it is supported by funding and dedicated staff from no less than 12 USDA agencies and offices:

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

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.

For example, USDA has recently announced the interim final rule and Notice of Funds Availability (NOFA) announcing \$70 million for the Rural Energy for America Program (REAP). Within this regulation, we have modified the programs to formally list Flexible Fuel Pumps as a project eligible for grants. This in conjunction with the other USDA programs will assist in our goal of 10,000 Flexible Fuel Pumps in five years.

Renewable energy offers farmers, ranchers, foresters, and rural communities tremendous opportunities. Biorefineries currently are and most will continue to be located in rural areas – close to feedstocks which will fuel the facility.

- Those providing the feedstock will have a choice as to what to produce and a local and reliable demand for their product. Farmers would be less susceptible to volatility in export markets influencing the price they receive for the biomass produced. Dedicated energy crops (i.e., switchgrass or miscanthus) are expected to be produced on environmentally-sensitive marginal lands which are less suited for food production, but able to generate a positive economic return. Also, research into these crops are indicating that in some cases these crops will improve land conditions.
- The operation of the biorefinery (or an integrated biorefinery which can produce renewable energy and high-valued biobased products) creates direct jobs; for those who will work in the facility. Storage, rail, and road infrastructure will likely develop to move feedstocks from the farm gate and renewable fuel to blending terminals and the market.
- The construction of the facility creates economic growth for the local community. Those workers building the facility, the materials needed to construct the facility, transportation and other ancillary services required all generate economic activity and lead to income generation, economic growth and added job creation.

- Collectively, growing economic prospects are expected to lead to improvements in education and health facilities in the rural sector – further job creation and improve prosperity in rural America.

USDA supports the entire supply chain of renewable energy production and use: from feedstock research and development through to biofuels infrastructure development. Key USDA programs include:

- Bioenergy Program for Advanced Biofuels. This program provides payments to ensure an expanding production of advanced biofuels by providing payments to eligible advanced biofuel producers in rural areas for the production of fuel derived from renewable biomass other than corn kernel starch.
- Biorefinery Assistance Program. This program guarantees loans financed by the private sector for the construction and development of biorefineries that employ eligible technology for the production of advanced biofuels.
- Repowering Assistance Program. This program makes payments to eligible biorefineries to encourage the use of renewable biomass as a replacement fuel source for fossil fuels used to provide heat or power in the operation of these eligible biorefineries.

Interim final rules were published in February 2011 for the programs mentioned above and NOFA's were issued in March 2011. We are currently accepting applications for these programs.

- Biomass Crop Assistance Program (BCAP). USDA's Farm Service Agency assists in partnership development between biomass energy facilities and farmers or forest landowners who can apply to become a "project area" for growing new biomass. If selected, the farmers can receive up to 75 percent of the cost of establishing a perennial crop, and an annual payment to maintain that crop – for up to 15 years if it's a new woody crop, or up to 5 years if it's a new herbaceous crop. These crops cannot be invasive species, nor can these crops be conventional crops that already receive assistance from USDA, like corn, soybeans, wheat, cotton or rice.

Also, biomass producers can receive matching payments of one dollar per dollar of biomass that is delivered to an energy facility, up to \$45 per ton. This can be existing biomass, but it must be collected or harvested directly from the land, using a conservation or forest stewardship plan, and if woody biomass, cannot have an existing market, and must be removed to reduce fire, disease, invasive species threats, or improve ecosystem health.

During the initial round of funding in late 2009 and early 2010, BCAP matching payments provided opportunities to produce energy from biomass while simultaneously accomplishing horticultural or silvacultural purposes. For example, one small family-

owned California forestry company was able to salvage for energy its timber that had been seriously burned and degraded in a forest fire several years previous. Another company was able to acquire older, non-productive orchard waste for energy that otherwise would have been burned, generating electricity instead of smoke and ash in the open air. A third enterprise was able to transform biomass into energy by removing woody fire fuel hazards from forests tracts that previous was uneconomical to retrieve, helping to reduce the threat of forest fires.

- Rural Energy for America Program (REAP). REAP provides grants and loan guarantees for energy audits and renewable energy development assistance. This includes funding for agricultural producers and rural small businesses to purchase and install renewable energy systems (bioenergy, geothermal, hydrogen, solar, wind and hydro power) and to make energy efficiency improvements including, for example, flexible fuel pumps as noted earlier.

In FY 2010, the REAP provided 2,400 grants and loan guarantees totaling \$159 million in program level 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. Also, in FY 2010, through USDA's Rural Utilities Service (RUS), the American Samoa Power Authority received \$3.1 million in total funding, including a grant of \$1.1 million to fund an engineering and environmental feasibility study for a renewable energy project to replace generation facilities destroyed

by the 2009 tsunami. During FY 2010, RUS approved \$313 million for renewable energy projects.

A family-owned California farm with 500 acres of farmland and 1,500 dairy cows leveraged a \$500,000 REAP grant to finance the installation at its dairy farm of a mesophilic digester system to create biogas from manure and silage to power a 710 kw combined heat and power unit. The system has the capacity to generate up to 6 million kwh annually of electricity and 20,150 MMBtu/year of heat. Surplus power generated by the system is sold to the local utility.

- USDA BioPreferred Program. This program promotes the awareness and federal procurement of biobased commercial and industrial products (made from renewable plant and animal sources) for non-renewable goods and materials. USDA has an online catalog of more than 10,800 qualifying biobased commercial and industrial products.
- Business and Industry Guaranteed Loan Program (B&I). B&I provides assistance to rural businesses seeking to expand and create jobs in rural communities. While not targeted to biofuels or other renewable energy projects, the B&I program over the years has made investments in this critical growth sector.
- Environmental Quality Incentives Program (EQIP). EQIP is a voluntary conservation program administered by USDA's Natural Resources and Conservation Service for farmers, ranchers and owners of private, non-industrial forest land that promotes

agricultural production, forest management, and environmental quality as compatible national goals. EQIP offers financial and technical help to assist eligible producers install or implement conservation practices on eligible agricultural land. The 2008 Farm Bill added energy as a resource concern. Through EQIP, USDA is assisting producers to assess their energy use (energy audits) and apply conservation practices that save energy and protect natural resources.

- Conservation Innovation Grants (CIG). CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program funds are used to award competitive grants to non-Federal governmental or non-governmental organizations, Tribes, or individuals.

Energy-related grants have funded innovative tools to estimate the energy and fossil fuel implications of cropland agronomic practices to be based on sound science and data, yet be useable by farmers and conservationists, life cycle analyses for current conservation practices to assess the energy and fossil fuel implications associated with the use of the practice including analyzing the fossil fuel embedded in materials and agrochemicals, innovative implementation systems to achieve greater use of energy audits including energy audits that address cropland in addition to buildings and equipment, innovative on-farm energy conservation technologies, innovative on-farm applications of renewable

energy production technologies to displace fossil fuel energy, and sustainable biomass production, harvest, and handling technologies.

- USDA Electric Program. This program provides financial assistance to rural electric cooperatives to acquire, construct, extend, upgrade, and otherwise improve energy generation, transmission, or distribution facilities. The Electric Program is working with borrowers to increase investment in wind, biomass, and solar generation.

To spur advanced biofuels, USDA has an aggressive research agenda. We have completed a biofuels roadmap identifying potential pathways to meeting congressionally mandated – RFS2 – goals for national biofuels production. We have established five regional research centers working on the science necessary to ensure profitable biofuels can be produced from a diverse range of feedstocks. And from 2008 – 2010, approximately 30 grants totaling about \$30 million were jointly awarded by USDA’s National Institute of Food and Agriculture and DOE to accelerate fundamental genomic research of cellulosic bioenergy feedstock crops, such as fast-growing trees, shrubs, and grasses.

USDA actively supports the commercialization of advanced biofuels. We are investing in advanced biofuels and biomass energy projects in each of the five regions of the country identified by our Biofuels Roadmap, funding construction and updates to production facilities as well as feasibility studies in 27 States and the Western Pacific.

USDA's five Regional Biomass Research Centers are accelerating the development of a commercial advanced biofuels industry across the United States. The Centers' research are supporting what USDA anticipates will be billions of dollars in investments for new biorefineries needed to deliver 21 billion gallons of advanced biofuels per year by 2022. The Centers are developing new varieties of dedicated energy crops that are highly productive and efficiently use water and fertilizers. One powerful tool being applied is the genetic map of switchgrass, developed by ARS to enhance and accelerate breeding the best feedstocks. Other research is developing the most sustainable ways to incorporate the production and harvest of feedstocks from our farms and forests.

ARS is partnering with the Federal Aviation Administration and the USDA Office of Energy Policy and New Uses to develop the Feedstock Readiness Level Tool to complement the aviation industries' Fuel Readiness Level Tool. This will help the airline industry assess the status of biomass feedstocks for use in the production of biobased jet fuels. This effort supports the Department's *Farm to Fly* initiative, in which we have partnered with the airlines and aviation industry to identify opportunities for commercial production and use of renewable jet biofuels.

The ARS laboratory in Wyndmoor, Pennsylvania, partnered with scientists at Genencor/Danisco to develop a new chemical cocktail and process that will increase ethanol yield from barley – a crop that has not yet been approved by the EPA for ethanol production. Farmers from southern Pennsylvania to South Carolina could profit from using a new two-year rotation of corn followed by winter barley and then soybeans that protects soils, prevents fertilizers from washing into the Chesapeake Bay, and produces grain on land that otherwise would be fallow over the winter.

Osage Bio Energy will use this technology when its new ethanol plant in Hopewell, Virginia, opens in April 2011. Plant construction has provided over 500 construction jobs, leveraged over \$150 million in procurement and labor, and will create 50 new permanent jobs for operating the plant. The new ethanol plant is expected to generate \$2 million in tax revenue every year for the city of Hopewell.

The ARS Sugarcane Research Unit at Houma, Louisiana, is working with British Petroleum and Claflin University to test four experimental energy cane varieties developed by ARS as bioenergy feedstocks. Also, ARS has begun a breeding program for sugarcane and energy cane improvement that will provide important new sources of genetic diversity. These materials contain valuable genes to increase biomass and impart traits that will increase production efficiencies and geographic range of sugarcane and bioenergy feedstocks. This effort will increase germplasm diversity and thus, the potential for direct and future commercial development of sugarcane and biofuels industries.

ARS scientists developed a method using near-infrared light for quickly predicting biomass ethanol yield from switchgrass. The method will be useful for feedstock breeding, genetics, and management research, and can also be used by biorefiners to determine ethanol yield from a particular biomass feedstock. ARS has agreed to distribute its technology to public and private researchers to enable more rapid analysis and more rapid improvement of switchgrass feedstocks.

A partnership of ARS and Iowa State University researchers developed a process that first releases and ferments certain sugars to ethanol, then releases glucose and simultaneously converts it to ethanol with brewer's yeast. Using this process, an ethanol yield of over 75 gallon per ton was achieved from corn stover.

ARS bioenergy research works to develop the best possible feedstocks, ways to produce those feedstocks sustainably on a large scale, the best processes for converting the biomass into economically valuable fuels and other products, and then transfer that technology, methods, and varieties to users.

The Biomass Research and Development Initiative (BRDI) is a grant program that provides funding for research and development of technologies and processes to produce biofuels, bioenergy and high-value biobased products. These projects support the Administration's comprehensive energy strategy of increasing the Nation's energy, economic and national security by reducing our reliance on foreign oil and reducing greenhouse gases. The projects aim to create a diverse group of economically- and environmentally-sustainable sources of renewable biomass. BRDI provides direction and guidance on the technical areas including feedstock development, biofuels and biobased products development, and biofuels development analysis.

The Forest Service is actively working on a number of fronts to broaden the use of woody biomass in the Nation's renewable energy portfolio. While much of this effort centers on the use of biomass for combined heat and power, the agency is also making headway on the use of woody biomass for biofuels. For example, in Columbia, South Carolina, the Forest Service and

the U.S. Endowment for Forests and Communities are funding Agri-Tech Producer's development of a demonstration torrefaction unit to provide various end users with wood that has been made more fuel efficient by super heating for testing in their boilers. Another pilot torrefaction project by HM3 Energy in Gresham Oregon is specifically designed to off-set coal use in electricity production. In San Francisco, California, Forest Service and the Endowment are supporting Phoenix Energy in the development of a gasification process that would generate green energy and biochar from wood.

This is a powerful and flexible suite of programs. In total, we have made many investments in renewable energy projects.

Renewable Energy and Food Costs

The farm value accounts for only about 16 cents of the retail food dollar. Transportation, processing, packaging, labor, and other costs beyond the farm gate account for the remaining 84 cents of the retail food dollar. A major factor contributing to the higher rate of food price inflation in 2011 is higher transportation costs.

Corn prices have risen sharply since last summer due largely to a smaller than expected corn crop. Drought and hot weather reduced the 2010 corn crop from an estimated 13.365 billion bushels in August 2010 to the current estimate of 12.447 billion bushels. USDA's estimate of total corn supplies (that is, production plus beginning stocks plus imports) declined by 627 million bushels (about 4.2 percent) from August 2010 to March 2011. This resulted in a 42 percent increase in the estimate of the average price paid to corn producers (from \$3.80 per

bushel in August 2010 to \$5.40 per bushel in March 2011) due to these decreases in supply coupled with small changes in corn demand. This projected increase in corn prices is similar in magnitude to the increase observed in 2008 in response to a similar set of circumstances.

In fact, world market prices for many food commodities have recently returned to the high levels seen in 2008. Among the factors that have contributed to this price run-up are the slower growth in production and more rapid growth in demand which have tightened world balances of grains and oilseeds over the last decade. Also tightening world markets are recent adverse weather conditions in some major grain and oilseed producing areas. In addition, high oil prices and the associated increased global demand for biofuel feedstocks continue. Other factors that have added to the upward pressure on global food prices include changes in currency exchange rates, growing foreign exchange holdings by major food importing countries, and policies adopted recently by some exporting and importing countries to mitigate their own food price inflation.

Higher energy and food commodity costs have led to recent acceleration in U.S. retail food inflation, but higher corn prices are just one part of the equation. In addition, while corn prices have increased substantially over the past nine months as mentioned above, previous work suggests that the effects on retail food prices are likely small. In 2010, the Consumer Price Index (CPI) for food increased by 0.8 percent and the CPI for food at home rose by 0.3 percent. These annual increases in the cost of food were the smallest in over four decades, despite continued advances in biofuels production. From 2006-10, the CPI for food at home increased by 2.6 percent per year. This annual increase in the CPI for food at home was only slightly above the annual increase of 2.5 percent during 2001-06.

USDA's Economic Research Service is currently forecasting that the CPI for food at home will increase by 3.5-4.5 percent in 2011, as retail prices for all major food categories are expected to increase. For some food products, current forecasts for increased inflation are unrelated to increasing biofuels production. For example, the CPI for fruits and vegetables is forecast to increase by 3 to 4 percent in 2011, up from 0.2 percent in 2010 and the CPI for sugar and sweets is forecast to increase by 2.5 to 3.5 percent in 2011, up from 2.2 percent in 2010. That being said, higher feed costs due to higher corn prices do play a role in projected meat price inflation with beef prices currently forecast to increase 4.5 to 5.5 percent and pork prices forecast to increase 6 to 7 percent in 2011.

USDA's efforts and success stories will certainly grow overtime. Congress has established an aggressive target in the renewable fuel standards and we are working to do our part to meet the goal of 36 billion gallons of renewable fuel by 2022. USDA programs that were discussed today support that goal. And, America's farmers, ranchers, and forest landowners are ready to meet that goal. We are honored to be here today to describe USDA's contributions to this effort and I look forward to responding to your questions.