

# CHAPTER 5 Incentives to Produce and Use Woody Biomass

## 5.0 INTRODUCTION

Many national, state, and local policies and incentives encourage woody biomass production and utilization. Becoming familiar with these policies and incentives can help you better assist and advise your clients with bioenergy and bioproducts information and advice. Since legislation is constantly evolving, it is wise to review specific details that you share with your target audience to make sure they are current.

## 5.1 FEDERAL POLICIES AND INCENTIVES

The federal government actively encourages the use of woody biomass for energy and biobased products such as cellulosic ethanol and biodiesel (Figure 1) by setting policy and providing incentives. Efforts to encourage the electric utility industry to use resources other than coal and natural gas began with the Public Utility Regulatory Policies Act of 1978 (PURPA). This act was designed to help promote energy conservation and the use of renewable resources. More recent policy efforts to encourage development of biomass energy include the following (U.S. DOE, 2007):

- The National Energy Policy Act of 1992 contains several provisions to encourage the use of renewable energy sources.
- Executive Order 13134, issued by Executive Memorandum in August 1999, encourages the development and promotion of biobased products and bioenergy.
- The Biomass Research and Development Act of 2000 describes the need for biomass research, encourages coordination between the United States Department of Energy (U.S.DOE) and United States Department of Agriculture (USDA), created the Biomass Research and Development Board, and set the scope of the joint U.S.DOE-USDA Biomass Initiative.
- The Farm Bill of 2002, Title IX, supported biomass through federal procurement procedures, renewable fuels development programs, cooperative extension and research programs, and the Biobased Products and Bioenergy Coordination Council.
- The Healthy Forest Restoration Act of 2003 recommended thinning programs to reduce accumulation of woody fuel to lower the risk of catastrophic wildfire. The collection and removal of small-diameter trees and understory shrubs has spawned local biomass utilization efforts.
- The Energy Policy Act of 2005 (EPACT) provided for a federal tax credit for energy production using renewable fuels; grants for forest biomass utilization; and grants for small enterprises, training, and outreach (see the following section, “Incentives,” for more information).

Figure 1: The federal government offers incentives to forest landowners to ensure the protection of watersheds and health water supplies. PHOTO COURTESY OF FOREST STEWARDSHIP PROGRAM.



- The Energy Independence and Security Act of 2007 (EISACT) reauthorized a number of the programs found in the Energy Policy Act of 2005. In addition, it set a mandatory Renewable Fuel Standard (RFS) that requires energy producers to use at least 36 billion gallons of biofuel in 2022. (See the following section, “Incentives,” for more information.)
- The Food Conservation and Energy Act of 2008 reauthorizes 2002 Farm Bill programs and provides grants for investment in renewable technologies, financial incentives to use agricultural and forestry crops for bioenergy. It also established a biobased markets program. (See the following section, “Incentives,” for more information.)

In an effort to maximize expert input and help ensure efficient usages of funding, federal agencies are working together to address issues surrounding woody biomass production and utilization. Multiagency projects, such as the Biomass Research and Development Initiative (BRDI), a collaboration between USDA and U.S.DOE, specifically work to address cellulosic ethanol costs, logistics of biomass use, biobased products, and related policies. BRDI is managed by two groups, an advisory committee consisting of thirty appointed members from industry, academia, environmental groups, and state or tribal government; and an oversight committee with members representing the following agencies (U.S.DOE, 2008):

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Energy
- Department of Interior
- Department of Transportation
- Department of the Treasury
- Environmental Protection Agency
- National Science Foundation
- Office of the Federal Environmental Executive
- Office of Science and Technology Policy

In 2003, the U.S. departments of Agriculture, Interior, and Energy produced a joint Memorandum of Understanding (MOU) agreeing to cooperate to support the use of woody biomass where economically and ecologically appropriate. This MOU raised awareness about the possibilities of using wood for energy production among agency employees, collaborators, natural resource professionals, and communities as well as prompting the development of joint programs to provide support. Furthermore, the MOU outlined several policy principles to guide the processes by which agencies work with communities to promote woody biomass utilization (NACD, 2005):

- Collaborate with local communities to create woody biomass utilization strategies.
- Increase public understanding of the amount and value of woody biomass, and that it can be an effective element of habitat restoration and wildlife risk reduction activities.
- Develop and apply the best scientific knowledge to manage forests for woody biomass production
- Encourage the use of contracts and other agreements with growers, suppliers, and haulers to reduce wildland fuels and provide reliable, long-term supplies of woody biomass.
- Develop woody biomass systems to create jobs and new economic opportunities.

The U.S. Forest Service, Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (FWS), U.S. Environmental Protection Agency (EPA), and U.S. Department of Energy (U.S.DOE) are actively participating in biomass utilization efforts. For instance, under a closely monitored program, the BLM authorizes contractors to remove woody biomass from lands it manages through stewardship contracts that exchange cost of thinning and removal for the value of the harvested wood. These practices often receive strong opposition from some environmental groups who are concerned that forests may be overharvested.

## Federal Incentives

Federal agencies use various incentive programs to encourage the use of woody biomass. The following programs help provide funding for research and development of new technologies and investment in and use of renewable forms of energy. Tax credits are available for those who produce energy from renewable sources. The Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 (U.S.DOE, 2007) provide several incentives that apply to woody biomass.

### *Federal Renewable Energy Production Tax Credit*

The production tax credit is an inflation-adjusted tax credit for electricity produced from qualifying renewable energy sources or technologies. EPACT 2005 expanded the types of qualifying sources and systems (U.S.DOE, 2007). Three different rates of tax credits are available for producers of energy from biomass. A credit of 1.5 cents per kilowatt-hour (kWh) is available for facilities that use wood from trees planted for energy use (closed-loop biomass). If the wood is mixed with coal in a co-firing facility, the 1.5 cents credit is reduced to match the ratio of wood fuel used. Using waste wood from any source enables facilities to earn 0.75 cents per kilowatt-hour (kWh) in tax credits. For the year 2005, the credit was adjusted for inflation to make the credit 1.9 cents per kWh for wind energy, closed-loop biomass, geothermal and solar, and 0.9 cents per kWh for open-loop biomass (NRBP, 2005).

### *Grants for Forest Biomass Utilization*

Sections 209, 210, and 944 of EPACT 2005 enable grant programs for rural or remote communities. One program is for communities that improve the commercial value of woody biomass for increased efficiency or use, and the other is for small business bioproduct marketing and certification (Ashworth, 2006). USDA is authorized to issue grants to improve the commercial value of forest biomass for such uses as electric

power and heat. Eligible communities can get up to \$500,000 total or up to \$20 per ton of green forest biomass for utilization. USDA may also issue grants for small business bioproduct marketing and certification and may match grants up to \$100,000 for a total of \$1 million per year. U.S.DOE may issue grants for rural and remote community electrification, with grants up to \$20 million per year available for increased efficiency or use of renewable energy sources including woody biomass.

### *Grants for Forest Biomass Utilization Research and Development*

Section 223 EISACT 2007 authorizes \$25 million for each of the fiscal years 2008 through 2010 for grants for research, development, demonstration, and commercial application of biofuel production technologies in states with low rates of ethanol production, including low rates of production of cellulosic biomass ethanol, as determined by the Secretary. Section 234 of the EISACT 2007 authorizes \$25 million for establishment of a competitive grant program, in a geographically diverse manner, for projects submitted for consideration by institutions of higher education to conduct research and development of renewable energy technologies.

### *Grants for Small Enterprises, Training, and Outreach*

Millions of dollars in grants have been awarded to small enterprises, universities, and research institutions to develop new uses for woody biomass, to explore policy issues, and to develop training and outreach programs.

### *Incentives for Biomass Producers*

The Food, Conservation, and Energy Act of 2008 (formerly the 2008 Farm Bill) includes several new provisions, which address biomass and bioenergy. It allots \$1 billion for programs designed to encourage investment in renewable energy and technology. The act also creates the Rural Energy for America Program (REAP), which assists agricultural producers and rural small businesses in planning and preparing feasibility studies for renewable energy projects. The Bioenergy Program receives \$300 million in funding to provide incentives for using agricultural and forestry crops and waste to produce bioenergy and provides for multiyear contracts for crop and forest producers to grow dedicated energy crops. In addition, the act establishes the Biobased Markets Program, designed to provide a USDA certification system for qualifying biobased products. This provision also establishes a federal procurement preference for biobased products.

As renewable and local sources of energy become more valuable, a variety of policies and incentive programs such as those just described may make it easier for communities, industries, and forest landowners to develop woody biomass systems.

## **5.2 STATE AND LOCAL POLICIES AND INCENTIVES**

State and local governments usually follow the regulatory policies set by federal governments; however, in some cases they may adopt their own policies and incentives to further promote the use of renewable resources for energy production.

### **State and Local Policies**

Several policies related to renewable energy, including woody biomass, have been established in the U.S., including generation disclosure rules, renewable portfolio



some of these cases, it may be more economical for customers to generate their own energy on-site using renewable energy systems rather than pay the extra fees associated with distance. In some states, utility companies are required to provide information on renewable energy options when customers request a line extension (North Carolina State University, 2007).

### *Construction and Design Standards*

Several types of building construction and design policies are included in this category. State construction policies require an evaluation of the costs and benefits of using renewable energy technologies for new state construction projects, such as schools, office buildings, and other new facilities. In addition, green building guidelines are being developed in many cities to either encourage or require developers, architects, builders, and engineers to design and construct projects that feature renewable energy technologies.

Local energy codes are another type of standard that can be implemented to increase energy efficiency by requiring building construction or renovation to exceed the state requirements for resource conservation. Builders or renovators can meet this requirement by incorporating renewable energy technologies (North Carolina State University, 2007).

### *Green Power Purchasing/Aggregation Policies*

State and local governments, businesses, and other nonresidential customers can serve as role models to the rest of the community by purchasing electricity from renewable resources, a practice commonly called green power purchasing. Some states even require that state government buildings use a certain amount of renewable energy. Green power purchasing can supply energy for various applications, including local governmental facilities, street lights, or water pumping stations. The process by which local governments combine electric loads from the whole community, or in cooperation with other communities, to form a green power purchasing block is called “community aggregation” or sometimes “community choice.” Utility green pricing programs, green power marketers, special contracts, or community aggregation are different ways to achieve green power purchasing (North Carolina State University, 2007). State and local regulations and policies may also include green pricing programs, required utility green power option programs, statewide net metering, and public benefits funds, as described in the next section.

### *Green Pricing Programs*

Green pricing programs offer customers the option to pay an additional fee beyond their regular electric bills to support the utility’s effort to provide power from renewable sources (Diagram 2). Customers who participate in these types of programs do not receive “green energy” directly, but help fund utilities’ efforts to generate or purchase more of its power from renewable sources (Pew Center for Global Climate Change, 2008). In 2006, there were 484 electric utilities in 44 states offering green power to their customers (U.S.DOE, 2008b). Some states have mandatory green pricing programs, where utilities are required to offer customers the option to purchase power from renewable energy sources, while in other states it is voluntary for utilities. Utilities may fulfill this requirement by generating power from their own renewable resources, through contracts, or through purchasing credits from a certified renewable energy provider (North Carolina State University, 2007).



usually expressed in state and local policies in the form of tax credits, rebates, grant and loan programs, or industrial and production incentives (Werner, 2004). For example, in Florida, a comprehensive four-year plan, the Florida Renewable Energy,

Technology & Energy Efficiency Act of 2006 provides rebates, grants, and tax incentives in order to increase the state's investments in renewable energy resources such as solar, hydrogen, and biofuels (Florida Energy Office, 2006).

### **5.3 FINANCING OPTIONS FOR BIOENERGY PROJECTS**

There are several loan and grant programs that can help fund bioenergy projects in the U.S. Following is a brief summary of some of these programs. See the financing handout in chapter 6 for more details. Resources and regulations concerning financial support change often; so it is wise to check frequently for updated information.

#### **U.S. Department of Agriculture**

##### *The Food, Conservation, and Energy Act of 2008*

The Food, Conservation, and Energy Act of 2008 provides \$320 million in loan guarantees for biorefineries using biomass to produce advanced biofuels. There are a number of other grant programs established by this act such as the bioenergy program, biodiesel fuel education program, and the rural energy for American program.

##### *Business and Industry (B&I) Guarantee Loan Program*

The B&I Guarantee Loan Program provides up to a 90 percent loan guarantee to banks for businesses located in areas with 50,000 in population or less. The primary objective of the program is creation or preservation of jobs in rural areas. Personal guarantees are required along with a minimum of 25 percent tangible equity for companies that produce energy from renewable sources.

##### *Rural Utilities Service (RUS)*

Approximately \$200 million in direct loans is available through USDA's Rural Utility Service for electricity produced from biomass energy that is generated for sale to rural utilities and power companies with a significant "rural customer load." The technology must be "proven" and "renewable."

##### *Renewable Energy Grant and Loan Program*

The USDA Rural Business Service offers entrepreneurs a grant-and-guarantee loan program. Commercial entities and agricultural and forestry producers are eligible. This program has \$11.4 million available for grants and \$176 million in guarantee loan authority available for projects that produce energy from renewable sources. Grants can cover 25 percent of eligible project costs and guarantee loans can be for up to 50 percent of project costs. Loan terms are similar to B&I loan terms and conditions.

##### *Value-Added Agricultural Product Market Development Grants*

In 1994, the Rural Business-Cooperative Service began offering grants to help independent producers, such as forest owners, enter into value-added activities. The primary objective of this grant program is to help eligible applicants develop business plans and strategies for viable marketing opportunities. Grants of up to \$500,000 are

available. All applicants must be producers of agricultural commodities or products, including aquaculture and wood lot enterprises. Grants are available for planning and working capital.

### *Biomass Research and Development Initiative (BRDI)*

As mentioned previously, USDA and U.S.DOE jointly administer the BRDI to provide assistance for research, development, and demonstration of biomass-based products, bioenergy, and biofuels. The intent is to promote greater innovation and development related to biomass. Approximately \$15 million is available for grants in each fiscal year. The maximum grant amount is \$2 million and requires a 20 percent match by the applicant.

### *Cooperative Services*

For cooperative-owned businesses, there are special programs by USDA that may include grants for projects that support the use of renewable fuels. This may involve a partnership with a nonprofit or university if further research and development is involved. These programs are typically for energy projects involving farmer or producer-owned entities. However, even a utility can access these programs if an alliance with producers is established to provide the necessary feedstock to produce energy.

### *Economic Action Program*

The U.S. Forest Service has in recent years offered funding for projects utilizing woody biomass for value-added purposes. The Economic Action Program is designed to assist projects that promote rural economic development, assist rural communities recovering from changes in natural resource management, and provide new ways for rural communities to rebuild or replace transportation and recreation infrastructure while stimulating markets for local wood products.

## **Additional Financing Resources**

In addition to these USDA programs there are other economic development programs that can be accessed to provide grants, equity, and favorable rates and terms for debt financing. Following are descriptions of some of these programs.

### *U.S.DOE Tribal Energy Program Grant*

This federal grant program administered by U.S.DOE's Office of Energy Efficiency and Renewable Energy (EERE) provides financial and technical assistance to Native American tribes for feasibility studies and shares the cost of implementing sustainable installations that use renewable energy sources on tribal lands. Eligible technologies include the use of passive-solar space heat, solar water heat, photovoltaics, wind, biomass, hydroelectric, geothermal, electric, and geothermal heat pumps. The program provides approximately \$2.7 million in funding to selected tribal governments through a competitive grant process.

### *Revenue Ruling 63-20 Bonds*

These tax exempt bonds can be used to provide long-term fixed rate loans for projects that are "public in nature." Bonds are issued by local governments on behalf of a nonprofit entity. The political subdivision issuing the bonds must have a beneficial interest

in the nonprofit entity while the indebtedness remains outstanding. The political subdivision must obtain full legal title to the property upon debt retirement.

### *Tax Increment Financing (TIF)*

Bonds can be issued by local governments for infrastructure improvements in an area predetermined to be part of a “tax increment financing district.” Bond proceeds are used to entice businesses to bring revenue-producing properties to an area. Bonds are retired by the property and/or sales taxes generated by businesses locating in the tax increment district. These bonds are an excellent way to offset the costs of infrastructure associated with projects that produces energy from renewable sources.

### *General Obligation and Revenue Bonds*

General Obligation/Revenue Bonds issued by the state, county, or municipality provide long-term, fixed rate financing at tax exempt bond rates. These bonds provide funding to governments to enable them to attract new industry and economic development to an area.

## **5.4 SUMMARY AND CONCLUSION**

Political and economic support for bioenergy and biofuels will be increasingly important as the United States moves towards goals of energy independence and sustainability. There are many policies, incentives, and resources at the federal, state, and local level that can encourage and support the production and utilization of biomass and bioenergy.

This chapter was adapted from the following sources and used with permission.

Rahmani, M.; A. W. Hodges, and M. C. Monroe. 2007. *Federal Policies and Incentives*, Wood to Energy Outreach Program. Florida Cooperative Extension Service, Circ 1526. University of Florida, Gainesville, FL,

Rahmani, M.; A. W. Hodges, and M. C. Monroe. 2007. *State and Local Policies and Incentives*, Wood to Energy Outreach Program. Florida Cooperative Extension Service, Circ 1526. University of Florida, Gainesville, FL, and

Crain, B.; and A. W. Hodges, and M. C. Monroe. 2007. *Financing Woody Biomass Facilities*, Wood to Energy Outreach Program. Florida Cooperative Extension Service, Circ 1526. University of Florida, Gainesville, FL.

## **REFERENCES**

Ashworth, J. 2006. Biomass, the Energy Policy Act of 2005 and the President’s biofuels initiative. National Renewable Energy Laboratory, Bioenergy and Wood Product II Conference, Golden, Colorado, March 14, 2006.

Florida Energy Office. 2006. Florida’s Energy Act.

National Association of Conservation Districts. 2005. Moving ahead on biomass. Special Report, Forestry Notes. Volume XIV, Issue 3.

North Carolina State University. 2007. Database of State Incentives for Renewable Energy. North Carolina Solar Center and Interstate Renewable Energy Council. <http://www.dsireusa.org/index.cfm> (accessed August 28, 2008).

Northeast Regional Biomass Program (NRBP). 2005. Renewable Electricity Production Tax Credit, Energy Policy Act of 2005. Washington, DC, August 2005.

Pew Center for Global Climate Change. 2008. Energy Sector State Action Maps. [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_states/state\\_action\\_maps.cfm](http://www.pewclimate.org/what_s_being_done/in_the_states/state_action_maps.cfm) (accessed August 28, 2008).

U.S. Department of Energy. 2007. Federal Biomass Policy, Biomass Program, Energy Efficiency and Renewable Energy. [http://www1.eere.energy.gov/biomass/federal\\_biomass.html](http://www1.eere.energy.gov/biomass/federal_biomass.html) (accessed March 21, 2007).

U.S. Department of Energy. Energy Information Administration. 2008b. Green Pricing and Net Metering Programs. [http://www.eia.doe.gov/cneaf/solar.renewables/page/greenprice/green\\_pricing.html](http://www.eia.doe.gov/cneaf/solar.renewables/page/greenprice/green_pricing.html) (accessed August 28, 2008).

Werner, Carol. 2004. Bioenergy: Technologies, Federal and State Incentives. Environment & Energy Study Institute, Washington, DC.

