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Congressional Research Service

Renewable Energy Programs in the 2008 Farm Bill

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Summary

The Food, Conservation, and Energy Act of 2008 (P.L. 110-246, the 2008 farm bill) extends and expands many of the renewable energy programs originally authorized in the Farm Security and Rural Investment Act of 2002 (P.L. 107-171, 2002 farm bill). The bill also continues the emphasis on the research and development of advanced and cellulosic bioenergy authorized in the 2007 Energy Independence and Security Act (P.L. 110-140).

Farm bill debate over U.S. biomass-based renewable energy production policy focused mainly on the continuation of subsidies for ethanol blenders, continuation of the import tariff for ethanol, and the impact of corn-based ethanol on agriculture. The enacted bill requires reports on the economic impacts of ethanol production, reflecting concerns that the increasing share of corn production being used for ethanol had contributed to high commodity prices and food price inflation.

Title VII, the research title of the 2008 farm bill, contains numerous renewable energy related provisions that promote research, development, and demonstration of biomass-based renewable energy and biofuels. The Sun Grant Initiative coordinates and funds research at land grant institutions on biobased energy technologies. The Agricultural Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative provides support for on-farm biomass energy crop production research and demonstration.

Title IX, the energy title of the farm bill, authorizes mandatory funds (not subject to appropriations) of $1.1 billion, and discretionary funds (subject to appropriations) totaling $1.0 billion, for the FY2008-FY2012 period. Energy grants and loans provided through initiatives such as the Bioenergy Program for Advanced Biofuels promote the development of cellulosic biorefinery capacity. The Repowering Assistance Program supports increasing efficiencies in existing refineries. Programs such as the Rural Energy for America Program (REAP) assist rural communities and businesses in becoming more energy-efficient and self-sufficient, with an emphasis on small operations. The Biomass Crop Assistance Program, the Biorefinery Assistance Program, and the Forest Biomass for Energy Program provide support to develop alternative feedstock resources and the infrastructure to support the production, harvest, storage, and processing of cellulosic biomass feedstocks. Cellulosic feedstocks—for example, switchgrass and woody biomass—are given high priority both in research and funding.

Title XV of the 2008 farm bill contains tax and trade provisions. It continues current biofuels tax incentives, reducing those for corn-based ethanol but expanding tax credits for cellulosic ethanol. The tariff on ethanol imports is extended.

Implementation of the farm bill's energy provisions is underway. President Obama, in May 2009, directed the U.S. Department of Agriculture (USDA) and the Department of Energy (DOE) to accelerate implementation of renewable energy programs. Notices and proposed rules have appeared in the *Federal Register* soliciting applications for the Biorefinery Program, the Rural Energy for America Program, and the Biomass Crop Assistance Program.

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Background

Renewable energy policy in the Food, Conservation, and Energy Act of 2008 (P.L. 110-246, 2008 farm bill) builds on earlier programs, many of which were established in the Farm Security and Rural Investment Act of 2002 (P.L. 107-171, 2002 farm bill). The 2002 farm bill was the first omnibus farm bill to explicitly include an energy title (Title IX). The energy title authorized grants, loans, and loan guarantees to foster research on agriculture-based renewable energy, to share development risk, and to promote the adoption of renewable energy systems. Since enactment of the 2002 farm bill, interest in renewable energy has grown rapidly, due in large part to a strong rise in domestic and international petroleum prices and a dramatic acceleration in domestic biofuels production (primarily corn-based ethanol).[1] Many policymakers view agriculture-based biofuels as both a catalyst for rural economic development and a response to growing energy import dependence. Ethanol and biodiesel, the two most widely used biofuels, receive significant federal support in the form of tax incentives, loans and grants, and regulatory programs.[2]

The 2008 farm bill became law six months after the enactment of the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140), and many of its provisions also build on the goals of EISA.[3] The emphasis on facilitating production of biofuels derived from cellulosic feedstocks reflects the goals of the renewable fuels standard (RFS) in EISA. EISA includes a significant expansion of the RFS to 36 billion gallons by 2022, with carve-outs for biodiesel (1 billion gallons by 2012) and cellulosic ethanol (16 billion gallons by 2022) and an implicit cap on corn starch ethanol (15 billion gallons by 2015). Provisions in the 2008 farm bill reflect the increased role for biofuels mandated by the expansion of the RFS and its likely impact on the U.S. agriculture sector.[4]

The emphasis on cellulosic ethanol also reflects increasing concerns about the economic and environmental issues associated with corn starch-based ethanol.[5] Record high commodity prices in 2007 and mid-2008, combined with high energy costs, resulted in sharp increases in livestock feed costs, export prices, and domestic food price inflation. For the first time, an agricultural commodity is directly competing with petroleum in the marketplace. Ethanol production, the profitability of which depends directly on both petroleum and corn prices, accounts for about a third of U.S. corn production. The increase in corn used for U.S. ethanol production exceeds the increase in corn produced during the three years. When petroleum prices rise, so does demand for ethanol as a substitute, which in turn increases both the demand for and price of corn. The "food versus fuel" debate intensified during the 2008 farm bill debate as food price inflation accelerated both in the U.S. and globally—highlighting some of the potential problems associated with replacing even a small share of the nation's gasoline consumption with corn-based ethanol.

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[1] For more information, see CRS Report R40488, *Ethanol: Economic and Policy Issues*.

[2] For a listing of federal incentives in support of biofuels production, see CRS Report R40110, *Biofuels Incentives: A Summary of Federal Programs*.

[3] For more information, see CRS Report RL34239, *Biofuels Provisions in the 2007 Energy Bill and the 2008 Farm Bill: A Side-by-Side Comparison*.

[4] For more information, see CRS Report R40155, *Renewable Fuel Standard (RFS): Overview and Issues*; and CRS Report R41106, *Meeting the Renewable Fuel Standard (RFS) Mandate for Cellulosic Biofuels: Questions and Answers*.

[5] For more information, see CRS Report RL34738, *Cellulosic Biofuels: Analysis of Policy Issues for Congress*.

Competition for limited corn supplies between livestock producers, ethanol refiners, exporters, and other domestic users resulted in calls for at least a partial waiver of the RFS in 2009.[6]

Several of the federal programs that currently support renewable energy production in general, and agriculture-based energy production in particular, are outside the purview of the U.S. Department of Agriculture (USDA) and have legislative origins outside of the farm bill. For example, the RFS mandates the inclusion of an increasing volume of biofuels in the national fuel supply. This originated with the Energy Policy Act of 2005 (P.L. 109-58) and was more recently expanded in EISA. Similarly, the federal tax credits available to biofuel blenders were initially contained in the American Jobs Creation Act of 2004 (P.L. 108-357), although they have been incorporated in the farm bill.

Major Energy Provisions in the 2008 Farm Bill

The 2008 farm bill (P.L. 110-246) significantly expands existing programs to promote biofuels. Like the 2002 farm bill (P.L. 107-171), it contains a distinct energy title (Title IX) that covers a wide range of energy and agricultural topics with extensive attention to biofuels, including corn starch-based ethanol, cellulosic ethanol, and biodiesel. Research provisions relating to renewable energy are found in Title VII and tax and trade provisions are found in Title XV.

The enacted 2008 farm bill keeps the structure of Title IX as it was in the Senate-passed version of the farm bill. Title IX serves as a substitute amendment to the 2002 farm bill Title IX and consists of 3 sections. The first section, 9001, contains 13 new provisions which effectively replace the provisions of the 2002 bill. Sections 9002 and 9003 direct studies and reports on biofuels infrastructure and renewable fertilizer, respectively. See **Appendix A** for a side-by-side comparison of previous law with the energy provisions of the 2008 farm bill.

Key biofuels-related provisions in the enacted 2008 farm bill include:

- emphasis on cellulosic ethanol production through new blender tax credits, promotion of cellulosic feedstocks production, feedstocks infrastructure and refinery development;
- grants and loan guarantees for biofuels (especially cellulosic) research, development, deployment, and production;
- studies of the market and environmental impacts of increased biofuel use;
- expansion of biofuel feedstock availability;
- expansion of the existing biobased marketing program to encourage federal procurement of biobased products;
- support for rural energy efficiency and self-sufficiency;
- reauthorization of biofuels research programs within the USDA and Environmental Protection Agency (EPA);

[6] In April 2008, Texas Gov. Rick Perry wrote the Environmental Protection Agency seeking a waiver from the federal ethanol mandate, noting its contribution to higher food prices and dire impact on the cattle industry. The waiver request was denied. Also, see CRS Report RS22870, *Waiver Authority Under the Renewable Fuel Standard (RFS).*

- an education program to promote the use and understanding of biodiesel;
- reduction of the blender tax credit for corn-based ethanol;
- continuation and expansion of the federal bio-products certification program;
- environmental safeguards through greenhouse gas emission requirements on new biofuel production; and
- continuation of the import duty on ethanol.

Energy Policy Issues in the 2008 Farm Bill

Cellulosic Biofuels

The 2008 farm bill energy title provides $1 billion in financial incentives and support to encourage the production of advanced (mainly cellulosic) biofuels.[7] Grants and loan guarantees leverage industry investments in new technologies and the production of cellulosic feedstocks. For instance, the Biomass Crop Assistance Program (BCAP, Section 9001) supports the production of dedicated crop and forest cellulosic feedstocks and provides incentives for harvest and post-production storage and transport.[8] Advanced biofuels refinery capacity construction is assisted under the Biorefinery Assistance program (Section 9001) through grants and loans for the development, construction, and retrofitting of commercial-scale refineries to produce advanced biofuels. These programs are supported by increased funding for advanced biofuels research under the Agricultural Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative (Section 7207), and the Sun Grant Program (Section 7526) which support and coordinate advanced biofuels research, extension, and development between government agencies, universities, and research institutions.

Cellulosic ethanol is produced from cellulose, hemicellulose, or lignin derived from the structural material that provides much of the mass of plants. Besides corn, several other agricultural products are viable feedstock and appear to offer attractive long-term supply potential—particularly cellulose-based feedstock such as prairie grasses and fast-growing woody crops such as hybrid poplar and willow trees, as well as waste biomass materials (logging residues, wood processing mill residues, urban wood wastes, and selected agricultural residues such as sugar cane bagasse and rice straw). Some cellulosic feedstock, such as native prairie grasses (e.g., switchgrass), appear to offer environmental benefits over corn-based ethanol because they thrive on marginal lands (as well as on prime cropland) and need little water and no fertilizer.

Currently, cellulosic ethanol is not produced on a commercial scale. Only a few small refineries are scheduled to begin production in 2010, with an additional nine expected to commence production by 2013 for a total output of 389 million gallons per year (mgpy). In January 2009,

[7] Advanced biofuels include biofuels derived from cellulosic feedstocks; sugar and starch other than corn kernel-starch; waste material including crop residue, animal, plant, or food waste; diesel fuel produced from renewable biomass including vegetable oil and animal fat; butanol or other alcohols produced through the conversion of organic matter; and other fuels derived from cellulosic biomass. For more information, see CRS Report RL34738, *Cellulosic Biofuels: Analysis of Policy Issues for Congress.*

[8] For more information on BCAP, see CRS Report R41296, *Biomass Crop Assistance Program (BCAP): Status and Issues*.

USDA announced funding for a cellulosic biofuels plant under the Biorefinery Assistance program (Section 9001) with projected output of 20 mgpy, beginning in 2010. The RFS mandates cellulosic ethanol production of 100 mgpy in 2010, and 500 mgpy in 2012 (a year earlier than the projected output of 389 mgpy). For more information on cellulosic ethanol, see CRS Report RL34738, *Cellulosic Biofuels: Analysis of Policy Issues for Congress.*

Tax Credits and Tariffs

Title XV of the 2008 farm bill contains provisions which extend and modify tax credits and tariffs on ethanol. In keeping with the promotion of cellulosic ethanol, a blender credit of $1.01 per gallon applies to ethanol produced from qualifying cellulosic feedstocks. This tax credit is intended to spur investment in cellulosic ethanol production. The ethanol blender tax credit of $0.51 per gallon (which applies to all ethanol blended, including imports) was reduced to $0.45 per gallon in January 2009. Section 15331 of the farm bill requires the reduction starting the first year following that year in which U.S. ethanol production and imports exceed 7.5 billion gallons. Production and imports in 2008 were estimated to have exceeded 9 billion gallons.

The $0.54 per gallon import tariff for ethanol benefits the U.S. ethanol industry by protecting U.S. ethanol from lower-cost imports and also keeps imported ethanol from benefitting from the blender tax credit when it is blended into gasoline in the United States. The tariff was set to expire at the end of 2008 but has been extended to the end of 2010 by the farm bill (P.L. 110-246, Section 15333). With the decrease in the blender tax credit to $0.45, the tariff now exceeds the blender tax credit by nine cents, and so more than offsets the benefit of the blender tax credit.

Economic Impacts of Ethanol Production

The impact of increased ethanol production on agricultural and rural economies was a subject of debate during the farm bill process. As a result, the farm bill includes provisions requiring a series of reports assessing how ethanol production may be impacting the farm economy, the environment, and consumer food prices. Among these are the Comprehensive Study of Biofuels (to be conducted by the USDA, the EPA, the Department of Energy (DOE), and the National Academy of Sciences) and the Biofuels Infrastructure Study by USDA, DOE, EPA, and the Department of Transportation (DOT). The Biomass Crop Assistance Program (BCAP, Section 9001) requires an assessment of the economic impacts of expanded cellulosic biomass production on local economies and infrastructures. Likewise, the Biomass Research and Development Program (Section 9001) requires a report on the economic impacts of rural economies of biorefinery expansion and conversion by USDA.

Funding for Energy Programs

Appendix B illustrates mandatory and discretionary spending levels for renewable energy programs authorized in the 2008 farm bill. Mandatory funding is through USDA's Commodity Credit Corporation (CCC).[9] Programs identified as receiving mandatory funds are funded at these

[9] The CCC is the funding mechanism for the mandatory payments that are administered by various agencies of USDA, including all of the farm commodity price and income support programs and selected conservation programs.

levels unless Congress limits funding to a lower amount through the appropriations or legislative process. Discretionary programs are funded each year through the annual appropriations process.

Title IX authorizes $1.1 billion in mandatory funding for FY2008 through FY2012, compared with $800 million in the 2002 farm bill (FY2002-FY2007). Mandatory authorization in the 2008 farm bill includes $320 million to the Biorefinery Assistance Program, $300 million to the Bioenergy Program for Advanced Biofuels, and $255 million to the Rural Energy for America Program (REAP). Authorizations for appropriations in the 2008 farm bill total $1 billion, four times the $245 million in the 2002 farm bill. Most of the increase is for the Biorefinery Assistance Program, which has an authorization $600 million higher than in the 2002 farm bill. **Table 1** provides a list of provisions in the 2008 farm bill's energy title, and selected energy programs in the research title, for FY2009 through FY2011, along with their funding levels (as requested by the President, authorized levels in the 2008 farm bill, and budget authority provided by Congress) where available.

Table 1. 2008 Farm Bill Energy Funding by Provision, FY2009 to FY2011

($ in millions)

			FY2009			FY2010			FY2011		
Section[a]	Program	Funding Type	Pres Req[b]	FB Auth[c]	Budget Auth	Pres Req[b]	FB Auth[c]	Budget Auth	Pres Req[b]	FB Auth[c]	Budget Auth
Sec. 7205	Nutrient Management Research and Extension Initiative	Discretionary	0	SSAN	0	0	SSAN	0	0	SSAN	NA
Sec. 7207	Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative	Discretionary	0	50	0	0	50	0	0	50	NA
Sec. 7526	Sun Grant Program	Discretionary	0	75	0	0	75	0	0	75	NA
Sec. 9002	Federal Biobased Markets Program	Mandatory	—	2	2	—	2	2	—	2	NA
Sec. 9002	Federal Biobased Markets Program	Discretionary	0	2	0	0	2	0	0	2	NA
Sec. 9003	Biorefinery Assistance	Mandatory	—	75 TRAUE	75 TRAUE	—	245 TRAUE	245 TRAUE	—	TRAUE	NA
Sec. 9003	Biorefinery Assistance	Discretionary	0	150	0	17	150	0	17	150	NA
Sec. 9004	Repowering Assistance	Mandatory	—	35 TRAUE	35 TRAUE	—	TRAUE	TRAUE	—	TRAUE	NA
Sec. 9004	Repowering Assistance	Discretionary	0	15	0	0	15	15	0	15	NA
Sec. 9005	Bioenergy Program for Advanced Biofuels	Mandatory	—	55 TRAUE	55 TRAUE	—	55 TRAUE	55 TRAUE	—	85 TRAUE	NA
Sec. 9005	Bioenergy Program for Advanced Biofuels	Discretionary	0	25	0	0	25	0	0	25	NA

			FY2009			FY2010			FY2011		
Section[a]	Program	Funding Type	Pres Req[b]	FB Auth[c]	Budget Auth	Pres Req[b]	FB Auth[c]	Budget Auth	Pres Req[b]	FB Auth[c]	Budget Auth
Sec. 9006	Biodiesel Education Program	Mandatory	—	1	1	—	1	1	—	1	NA
Sec. 9007	Rural Energy for America Program (REAP)	Mandatory	—	55 TRAUE	55 TRAUE	—	60 TRAUE	60 TRAUE	—	70 TRAUE	NA
Sec. 9007	Rural Energy for America Program (REAP)	Discretionary	0	25	5	68	25	40	40	25	NA
Sec. 9008	Biomass Research and Development	Mandatory	0	20 TRAUE	20 TRAUE	—	28 TRAUE	28 TRAUE	—	30 TRAUE	NA
Sec. 9008	Biomass Research and Development	Discretionary	0	35	0	0	35	0	0	35	NA
Sec. 9009	Rural Energy Self-Sufficiency Initiative	Discretionary	0	5	0	0	5	0	0	50	NA
Sec. 9010	Feedstock Flexibility Program for Bioenergy Producers	Mandatory	—	SSAN	0[d]	—	SSAN	0[d]	—	SSAN	NA
Sec. 9011	Biomass Crop Assistance Program (BCAP)	Mandatory	—	SSAN	SSAN	—	SSAN	552[e]	—	SSAN	432[e]
Sec. 9012	Forest Biomass for Energy	Discretionary	0	15	0	0	15	0	15	15[f]	NA
Sec. 9013	Community Wood Energy Program	Discretionary	0	5	0	0	5	0	5	5[f]	NA

Source: Compiled by CRS using the Food, Conservation, and Energy Act of 2008 (P.L. 110-246) and annual appropriation acts.

Notes: "Pres. Req." = Presidential budget request; "FB Auth." = 2008 farm bill authorized level; Budget Auth = Budget authority; "SSAN" = Such sums as necessary; "TRAUE" = to remain available until expended; and "NA" = not available.

a. Section 9001 of the 2008 farm bill (P.L. 110-246) amends title IX of the 2002 farm bill (P.L. 107-171). Sections 9001 through 9013 of the table are the amended section numbers.

b. The President's budget request typically does not include mandatory programs unless a reduction is requested. A "—" indicates that neither a reduction or increase was requested by the Administration for the mandatory program.

c. Many Title IX programs include funding that is authorized "to remain available until expended" (TRAUE), therefore carryover could exist from previous years if funds are unobligated.

d. This program is "triggered" when a sugar surplus exists. According to USDA, the Commodity Credit Corporation (CCC) does not have a surplus inventory of sugar, therefore this program has not been implemented.

e. The Supplemental Appropriations Act of 2010 (P.L. 111-212) limits mandatory spending on BCAP by allowing no more than $552 million in FY2010 and $432 million in FY2011. For more on these types of changes in mandatory program spending, see CRS Report R41245, *Reductions in Mandatory Agriculture Program Spending*. For more information on the 2010 supplemental, see CRS Report R41255, *FY2010 Supplemental Appropriations for Agriculture*.

f. The President's budget proposes to fund both the Forest Biomass for Energy Program (section 9012) and the Community Wood Energy Program (section 9013) using funds from the Hazardous Fuels program within the Forest Service.

Appendix A. Comparison of the Enacted 2008 Farm Bill (P.L. 110-246) with Previous Law

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
Title VII: Agriculture Research and Extension	
Nutrient Management Research and Extension Initiative	
Section 1673(h) of the Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624) authorizes matching grants under the farm bill nutrient management research and extension initiative for finding innovative methods and technologies for economic use or disposal of animal waste. Extendes through 2007 in section 7120 of the 2002 farm bill. Such sums as necessary are appropriated annually for FY1999-FY2007. [7 U.S.C. 5925a]	Extends the nutrient Management research and extension initiative through FY2012 and adds dairy cattle waste as a type of waste to be studied. Also adds an amendment to include the production of renewable energy from animal waste as an eligible activity to receive grants under this section. Authorizes such sums as necessary annually for FY2007-FY2012. [Sec. 7205]
Agricultural Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative	
No provision.	Establishes the Agricultural Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative, a program to award competitive matching (up to 50%) grants for projects with a focus on supporting on-farm biomass crop research and the dissemination of results to enhance the production of biomass energy crops and the integration of such production with the production of bioenergy. Discretionary appropriations of $50 million annually are authorized for FY2008-FY2012. [Sec. 7207]
Sun Grant Program	
Section 9011. This provision was added subsequent to the 2002 farm bill under the Sun Grant Research Initiative Act of 2003. Establishes 5 national Sun Grant research centers based at land-grant universities, each covering a different national region, to enhance coordination and collaboration between USDA, DOE, and land-grant universities in the development, distribution, and implementation of biobased energy technologies. Competitive grants are available to land-grant schools within each region. Authorized appropriations of $25 million in FY2005, $50 million in FY2006, and $75 million for each of FY2007 through FY2010 for total discretionary funding of $375 million during FY2005-FY2010. [7 U.S.C. 8109]	Reauthorizes the Sun Grant Program through FY2012 and establishes a 6th regional center—Western Insular Pacific Sub-Center—at the University of Hawaii. Authorizes discretionary funding of $75 million annually for FY2008-FY2012. [Sec. 7526]
Title IX: Energy	
Definitions	
Sec. 9001. Defines Administrator, Biomass, Biobased Product, Procuring Agency, Renewable Energy, Rural Small Business, and Secretary. [7 U.S.C. 8101]	New section 9001 of FSRIA. Adds several definitions including "Advanced Biofuels," which excludes any fuel derived from corn starch, but includes ethanol derived from other plant starches (e.g., sorghum), sugar, as well as cellulosic biomass or organic waste; it also includes organically-derived biogas, butanol or other alcohols; and, notably, biodiesel. Other definitions are biobased product; biomass conversion facility; biorefinery; intermediate ingredient or feedstock; renewable biomass; and renewable energy. Adopts the Senate definitions with amendments. Advanced biofuels include aviation, jet, and heating fuels made from cellulosic biomass. [Sec. 9001]

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
Biobased Markets Program	
Sec. 9002. Requires federal agencies to purchase biobased products under certain conditions and authorize a voluntary biobased labeling program. USDA regulations define biobased products, identify biobased product categories, and specify the criteria for qualifying those products for preferred procurement. Mandatory Commodity Credit Corporation (CCC) funding of $1 million is authorized for each of FY2002 through FY2007 for testing biobased products. [7 U.S.C. 8101]	New section 9002 of FSRIA. Renames program as the Biobased Markets Program. Requires procuring agencies to establish a program and specifications for procuring biobased products (excluding motor vehicle fuels, heating oil, or electricity). Establishes the voluntary labeling program: "USDA Certified Biobased Product." Requires USDA to establish a national registry of biobased testing centers and a report on implementation. Mandatory CCC funding of $1 million in 2008, and $2 million annually for FY2009-FY2012. Discretionary funding of $2 million annually is authorized for FY2009-FY2012. [Sec. 9001]
Biorefinery Assistance	
No provision.	New section 9003 of FSRIA. Biorefinery Assistance Program. Assists in the development of new and emerging technologies for the development of advanced biofuels. Provides competitive grants and loan guarantees for construction and retrofitting of biorefineries for the production of advanced biofuels. Biorefinery grants provided for up to 30% of total cost. Each loan guarantee is limited to $250 million or 80% of project cost. Mandatory funding of $75 million in FY2009 and $245 million in FY2010, available until expended for loan guarantees. Discretionary funding of $150 million annually is authorized for FY2009-FY2012. [Sec. 9001]
Repowering Assistance	
Section 9003. Establishes a grant program to help finance the cost of developing and constructing biorefineries and biofuel production plants to carry out projects to demonstrate the commercial viability of converting biomass to fuels or chemicals. Mandatory funding is not authorized and discretionary funding has not been appropriated for the program. Therefore, no implementation regulations have been developed. [7 U.S.C. 8103]	New section 9004 of FSRIA. Provides payments to encourage biorefineries in existence on the date of enactment to convert from fossil fuel to renewable energy power sources. Encourages new production of energy for refineries from renewable biomass. Mandatory funding of $35 million for FY2009, to remain available until expended. Discretionary funding of $15 million annually for FY2009-FY2012 is authorized. [Sec. 9001]
Energy Program for Advanced Biofuels	
Section 9010. Originally created by a 1999 Executive Order during the Clinton Administration, the bioenergy program provides mandatory CCC incentive payments to biofuels producers based on year-to-year increases in the quantity of biofuel produced. Mandatory CCC funding of $150 million is available for each of FY2002 through FY2006. No funding is authorized for FY2007. [7 U.S.C. 8108]	New section 9005 of FSRIA. Establishes the Bioenergy Program for Advanced Biofuels to encourage production of advanced biofuels. Not more than 5% of the funds can go to facilities with total refining capacity exceeding 150 million gallons per year. Producers of advanced biofuels contracts with USDA to receive payments based on the quantity and duration of production of advanced biofuels, the net renewable energy content of the biofuel, and other factors. Payments limited to ensure equitable distribution. Mandatory funding of $55 million for 2009, $55 million for FY2010, $85 million for FY2011, and $105 million for FY2012. Discretionary funding of $25 million annually is authorized for FY2009-FY2012. [Sec. 9001]
Biodiesel Fuel Education Program	
Section 9004. Administered by USDA's Cooperative State Research, Education, and Extension Service, the program awards competitive grants to nonprofit organizations that educate governmental and private entities operating vehicle fleets, and educates the public about the benefits of biodiesel	New section 9006 of FSRIA. Extends the Biodiesel Fuel Education Program through 2012. Mandatory CCC funds of $1 million are provided annually for FY2008-FY2012. [Sec. 9001]

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
fuel use. Mandatory CCC funding of $1 million is authorized for each of FY2003 through FY2007. [7 U.S.C. 8104]	
Energy Audit and Renewable Energy Development Program	
Section 9005. A competitive grant program for eligible entities to provide energy audits and technical assistance to agricultural producers and rural small businesses to assist them in becoming more energy efficient and in using renewable energy technology and resources. Authorized appropriations of such sums as are necessary to carry out the program for each of FY2002 through FY2007. [7 U.S.C. 8105]	See new section 9007 of FSRIA below.
Rural Energy for America Program	
The Renewable Energy Systems and Energy Efficiency Program (Section 9006), administered by USDA's Rural Development Agency, authorizes direct loans, loan guarantees, and grants to farmers, ranchers, and rural small businesses to purchase and install renewable energy systems and to make energy efficiency improvements. Grant funds may be used to pay up to 25% of project costs; combined grants and loans or loan guarantees may fund up to 50% of project cost. Eligible projects include those that derive energy from wind, solar, biomass, or geothermal sources. Projects using energy from those sources to produce hydrogen from biomass or water are also eligible. Mandatory CCC funding of $23 million is available for each of FY2003 through FY2007. Unspent money lapses at the end of each year. [7 U.S.C. 8106]	New section 9007 of FSRIA. Renamed as the Rural Energy for America Program. Provides grants and loan guarantees to state governments, tribal, or local governments, land-grant institutions, rural electric cooperatives or utilities to provide energy audits and renewable energy assistance, and financial assistance for energy efficiency improvements and renewable energy systems. Grants up to 25% of cost are provided. Loan guarantees up to $25 million. Combined amount of grant and guaranteed loans limited to 75% of cost. 20% of funds made available in this section to be reserved for grants of $20,000 or less until the end of the fiscal year. Mandatory CCC funds of $55 million in FY2009, $60 million in FY2010, $70 million in FY2011, and $70 million in FY2012. Discretionary funding of $25 million annually is authorized to be appropriated for FY2009-FY2012. [Sec. 9001]
Biomass Research and Development Program	
This program—created originally under the Biomass Research and Development Act of 2000 (BRDA, P.L. 106-224)—provides competitive funding for research, development, and demonstration projects on biofuels and bio-based chemicals and products, under the Biomass Research and Development Initiative, administered jointly by USDA and DOE. Creates Biomass research and Development Board to coordinate government activities in biomass research, and the Biomass Research and Development Technical Advisory Committee to advise on proposal direction and evaluation. Authorizes mandatory CCC funding of $5 million in FY2002 and $14 million for each of FY2003 through FY2007 (available until expended). Additional appropriation authority of $200 million for each of FY2006 through FY2015. [7 U.S.C. 8101]	New section 9008 of FSRIA. Moves the Biomass Research and Development Act of 2000 in statute to Title IX of FSRIA of 2002. Defines biobased product. Expands advisory committee. New technical areas for grants include feedstock development, biofuels and biobased products development, and biofuels development analysis with a minimum of 15% of funding going to each area. Minimum cost-share requirement for demonstration projects increased to 50% and research projects to 20%. Provides for coordination of biomass research and development, including life cycle analysis of biofuels, between USDA and DOE. Authorizes mandatory funding of $20 million for FY2009, $28 million for FY2010, $30 million for FY2011, and $40 million for FY2012. Discretionary funding of $35 million is authorized to be appropriated annually for FY2009-FY2012. [Sec. 9001]
Rural Energy Self-Sufficiency Initiative	
No provision.	New section 9009 of FSRIA. Establishes the Rural Energy Self-Sufficiency Initiative to assist rural communities with community-wide energy systems that reduce conventional energy use and increase the use of energy from renewable sources. Grants are made available to assess energy use in a rural community, evaluate ideas for reducing energy use, and develop and install integrated renewable energy systems. Grants are not to exceed 50% of the total cost of the activity. Appropriations of $5 million annually are authorized for FY2009-FY2012. [Sec. 9001]

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
Feedstock Flexibility Program	
No provision.	New section 9010 of FSRIA. Requires that USDA establish (in FY2008) and administer a sugar-for-ethanol program using sugar intended for food use but deemed to be in surplus. USDA would implement the program only in those years where purchases are determined to be necessary to ensure that the sugar program operates at no cost. The use of such sums as necessary is authorized to carry out the program. [Sec. 9001]
Biomass Crop Assistance Program	
No provision.	New section 9011 of FSRIA. Establishes the Biomass Crop Assistance Program (BCAP) to provide producers committing to biomass production or a biomass conversion facility with contracts, which will enable producers in a BCAP project area to receive financial assistance for crop establishment costs and annual payments for biomass production. Producers must be within an economically practical distance from a biomass facility and adhere to resource conservation requirements. Cost-share payments cover costs of establishing crops and for collection, harvest, storage, and transportation to a biomass conversion facility. Annual payments authorized to producers to support biomass production. A report is required no later than 4 years after enactment. Mandatory CCC funds of such sums as necessary are made available for each of FY2008-F2012. [Sec. 9001]
Forest Biomass for Energy Program	
No provision.	New section 9012 of FSRIA. Forest Service competitive research and development program to encourage use of forest biomass for energy. Priority is given to projects that use low-value forest byproduct biomass for the production of energy; develop processes to integrate bioenergy from forest biomass into existing manufacturing streams; and develop new transportation fuels and improve the production of trees for renewable energy. Authorized appropriations of $15 annually for FY2009-FY2012. [Sec. 9001]
Community Wood Energy Program	
No provision.	New section 9013 of FSRIA. Establishes Community Wood Energy Program to provide matching grants to state and local governments to acquire community wood energy systems for public buildings. Participants must also implement a community wood energy plan to meet energy needs with reduced carbon intensity through conservation, reduced costs, utilizing low-value wood sources, and increased awareness of energy consumption. Authorizes discretionary funding of $5 million annually for FY2009-2012. [Sec. 9001]
Biofuels Infrastructure Study	
No provision.	Requests USDA, DOE, EPA, and DOT to jointly report on the infrastructure needs, requirements, and development approaches for expanding the domestic production, transport, and distribution of biofuels. Mandatory funding of $1 million for FY2008, and $2 million annually for each of FY2009-FY2012. Discretionary appropriations of $2 million annually are authorized for FY2009-FY2012. [Sec. 9002]

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
Renewable Fertilizer Study	
No provision.	Requires a report within 1 year of appropriations on the production of fertilizer from renewable energy sources in rural areas. Report must identify challenges to commercialization of rural fertilizer production, processes and technologies and the potential impacts of renewable fertilizer on fossil fuel use and the environment. Appropriation of $1 million is authorized for FY2009. [Sec. 9003]
Title XI: Livestock	
Study on Bioenergy Operations	
No provision.	Requires a USDA study on the use of animal manure as a fertilizer; the impact of limitations placed on the use of animal manure on consumers and agricultural operations; and the effects of increased competition for manure due to biofuel uses. [Sec. 11014]
Title XV: Trade and Tax Provisions; Subtitle C Part II—Energy Provisions	
Credit for Production of Cellulosic Biofuel	
Under the American Jobs Creation Act (AJCA) of 2004, (P.L. 108-357), cellulosic ethanol, once developed, would receive the current tax credit of $0.51 per gallon available to any ethanol blended into gasoline as provided through Dec. 31, 2010. [26 U.S.C. 40]	Provides a fourth tax credit under 26 U.S.C. 40, the Cellulosic Biofuel Producer Credit. The credit is $1.01 per gallon less the amount of small-producer ethanol credit claimed and the alcohol mixture credit claimed for ethanol. [Sec. 15321]
Comprehensive Study of Biofuels	
No provision.	The Secretary of Treasury, with USDA, DOE, and EPA shall commission the National Academy of Sciences to produce a report on biofuels, including current and projected production, economic and environmental impacts, government program impacts, and the relative impacts of different types of biofuels. [Sec. 15322]
Alcohol Fuel: Modification of Alcohol Credit	
Any ethanol blended into gasoline is eligible for a tax credit of $0.51 per gallon as provided under current law (AJCA of 2004, P.L. 108-357) through Dec. 31, 2010. [26 U.S.C. 40]	Reduces the ethanol tax credit of $0.51 per gallon to $0.45 per gallon beginning in the first calendar year after the year in which 7.5 billion gallons of ethanol is produced. [Sec 15331]
Alcohol Fuel: Calculation of Volume of Alcohol for Fuel Credits	
Under current law (AJCA of 2004, P.L. 108-357) the volume of bio-alcohol counted as fuel eligible for the tax credit may include up to 5% of the volume as denaturant. [26 U.S.C. 40]	Reduces the permissible volume of denaturant to 2% for purposes of calculating the volume of alcohol eligible for the tax credit. [Sec. 15332]
Alcohol Fuel: Ethanol Tariff Extension	
Under current law (Heading 9901.00.50 of the Harmonized Tariff Schedule (HTS)), imports of ethyl alcohol are subject to a duty of 14.27¢ per liter ($0.54 per gallon) and a duty of 5.99¢ per liter (Heading 9901.00.52; HTS) on imports of ethyl tertiary-butyl ether through Dec. 31, 2008. [19 U.S.C. Chapter 18]	Extends the tariff of $0.54 per gallon for imported ethanol or mixtures of ethanol (headings 9901.00.50 and 9901.00.52 of the HTS) through Dec. 31, 2010. [Sec 15333]

2002 Farm Bill (FSRIA, P.L. 107-171) or Other Law (as indicated)	Enacted Farm Bill (P.L. 110-246)
Alcohol Fuel: Limitations on, and Reductions of, Duty Drawback on Certain Imported Ethanol	
Section 1313 of the Tariff Act of 1930, as amended, permits the refund of duty if the duty-paid good is re-exported or used to make a good that is exported. A person who manufactures gasoline with ethanol subject to the duty imposed under HTS 9901.00.50 (see previous description), can export jet fuel (does not contain ethanol) and still obtain a refund of the duty paid. [19 U.S.C. Chapter 18]	Eliminates the ability to obtain a refund of duty imposed under HTS 9901.00.50, when imported ethanol is re-exported by substituting either ethanol not subject to the duty, or another petroleum product (e.g., jet fuel) that is exported to obtain the refund. [Sec. 15334]

Appendix B. Authorized Funding for Energy Provisions

Table B-1. 2008 Farm Bill (P.L. 110-246): Authorized Funding for Energy Provisions, FY2008-FY2012

($ millions)

2008 Farm Bill Section	Provision Name	Funding Type	FY2008	FY2009	FY2010	FY2011	FY2012	Total: FY2008-FY2012
Title VII Research								
Sec. 7205	Nutrient Management Research and Extension Initiative	Discretionary	SSAN	SSAN	SSAN	SSAN	SSAN	SSAN
Sec. 7207	Bioenergy Feedstock and Energy Efficiency Research and Extension Initiative	Discretionary	50	50	50	50	50	250
Sec. 7526	Sun Grant Program	Discretionary	75	75	75	75	75	375
Title IX Energy								
Sec. 9002[a]	Biobased Markets Program	Mandatory	1	2	2	2	2	9
		Discretionary	0	2	2	2	2	8
Sec. 9003[a]	Biorefinery Assistance	Mandatory	0	75	245	0	0	320
		Discretionary	0	150	150	150	150	600
Sec. 9004[a]	Repowering Assistance	Mandatory	0	35	0	0	0	35
		Discretionary	0	15	15	15	15	60
Sec. 9005[a]	Bioenergy Program for Advanced Biofuels	Mandatory	0	55	55	85	105	300
		Discretionary	0	25	25	25	25	100
Sec. 9006[a]	Biodiesel Fuel Education Program	Mandatory	1	1	1	1	1	5
Sec. 9007[a]	Rural Energy for America Program	Mandatory	0	55	60	70	70	255
		Discretionary	0	25	25	25	25	100
Sec. 9008[a]	Biomass Research and Development Act	Mandatory	0	20	28	30	40	118
		Discretionary	0	35	35	35	35	140
Sec. 9009[a]	Rural Energy Self-Sufficiency Initiative	Discretionary	0	5	5	5	5	20

2008 Farm Bill Section	Provision Name	Funding Type	FY2008	FY2009	FY2010	FY2011	FY2012	Total: FY2008-FY2012
Sec. 9010[a]	Feedstock Flexibility Program for Bioenergy Producers	Mandatory	SSAN	SSAN	SSAN	SSAN	SSAN	SSAN
Sec. 9011[a]	Biomass Crop Assistance Program	Mandatory	SSAN	SSAN	SSAN	SSAN	SSAN	SSAN
Sec. 9012[a]	Forest Biomass for Energy	Discretionary	0	15	15	15	15	60
Sec. 9013[a]	Community Wood Energy Program	Discretionary	0	5	5	5	5	20
Sec. 9003	Renewable Fertilizer Study	Discretionary	0	1	0	0	0	1
	Total Discretionary Funding	**Discretionary**	**$125**	**$403**	**$402**	**$402**	**$402**	**$1,734**
	Total Mandatory Funding	**Mandatory**	**$2**	**$243**	**$391**	**$188**	**$218**	**$1,042**

Source: P.L. 110-246 (Food, Conservation, and Energy Act of 2008).

Notes: "SSAN" = Such sums as necessary.

a. Section 9001 of the 2008 farm bill (P.L. 110-246) amends title IX of the 2002 farm bill (P.L. 107-171). Sections 9001 through 9013 of the table are the amended section numbers.

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