Biomass Crop Assistance Program (BCAP): Status and Issues

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Summary

The Food, Conservation, and Energy Act of 2008 (P.L. 110-246, 2008 farm bill) created the Biomass Crop Assistance Program (BCAP) to assist with the bioenergy industry's hurdle of continuous biomass availability—viewed as a critical deterrent to private sector investment in the cellulosic biofuels industry. To accomplish this, BCAP was charged with two tasks: (1) to support the establishment and production of eligible crops for conversion to bioenergy in selected areas, and (2) to assist agricultural and forest land owners and operators with collection, harvest, storage, and transportation of eligible material for use in a biomass conversion facility.

BCAP is administered by the U.S. Department of Agriculture's (USDA's) Farm Service Agency (FSA). BCAP provides two categories of financial assistance: annual and establishment payments, which share in the cost of establishing eligible biomass crops and maintaining production; and matching payments, which share in the cost of the collection, harvest, storage, and transportation of biomass to an eligible biomass conversion facility. The payments have different eligibility and sign-up requirements, payment rates, and contract lengths. BCAP assistance for establishing and producing biomass crops is available within designated project areas. BCAP project areas are specific geographic areas where producers may enroll land into BCAP contracts and produce specified biomass crops. As of June 2012, eleven BCAP project areas had been approved.

On June 11, 2009, FSA implemented one portion of BCAP—the Collection, Harvest, Storage, and Transportation (CHST) matching payment program—through a Notice of Funds Availability in the *Federal Register*. The partial implementation created a possible unintended consequence of market competition for wood shavings, wood chips, sawdust, and other wood "scraps" between traditional purchasers—namely landscapers and particleboard manufactures—and facilities that convert biomass to energy. The issuance of the BCAP proposed rule on February 8, 2010, suspended CHST program enrollment and proposed rules for the implementation of the remainder of the BCAP program. USDA issued the BCAP final rule on October 27, 2010, implementing both program components.

Under the 2008 farm bill, BCAP was authorized to receive such sums as necessary, meaning that funding for BCAP is both mandatory through the Commodity Credit Corporation and open-ended since it depends on program participation. However, recent congressional actions (as part of the annual appropriations process) have capped program funding in FY2010, FY2011, and FY2012. In response to funding reductions, USDA temporarily suspended the CHST matching payment portion of the program through FY2011, and re-prioritized future program funds in favor of uses that emphasize annual and establishment payments, especially under existing contracts, over CHST matching payments.

While BCAP is in the early stages of implementation, concerns regarding eligibility, funding, and sustainability continue to be discussed. These issues could shape future congressional action on the program in the context of budgetary measures and possible reauthorization in the next farm bill. In particular, BCAP does not include "baseline" budget spending beyond FY2012. Based on current budgetary requirements, the authorizing committees could potentially need to secure offset funding if BCAP were to be reauthorized in the next farm bill. This could prove difficult given tight budgetary constraints and the more recent and higher projections of the program's cost compared to its initial cost estimates.

Contents

Tables

Contacts

BCAP Overview

The Biomass Crop Assistance Program (BCAP) is intended to assist with some of the feedstock supply challenges facing the cellulosic biofuels industry. One ongoing hurdle for cellulosic biofuels development and manufacturing is the need for a constant supply of available biomass.[1] However, the cellulosic biofuels industry has struggled with the quintessential "chicken and egg" problem—investors are reluctant to invest in processing plants based on an as-yet unproven technology (i.e., the conversion of cellulosic biomass to biofuels on a commercial scale), while producers are unwilling to devote land and resources to planting a dedicated biomass crop without nearby biofuels plants to buy it. In other words, the development of a cellulosic biofuels industry hinges simultaneously on the effective availability and use of new biomass feedstocks.

This report provides a description of BCAP's main components—annual & establishment payments, matching payments, and project areas—as outlined in USDA's final rule, along with a discussion of program funding and implementation issues. In addition, a brief discussion of BCAP's potential future in the next farm bill is included at the end of the report.

Legislative Origins

To date, most biofuels production in the United States has been from corn starch. As a result of rapidly expanding corn ethanol production, an increasing share of the nation's annual corn crop—estimated at a 41% share in 2011—is being used to produce ethanol.[2] Dedicating an increasing share of the U.S. corn harvest to ethanol production has evoked fears of unintended market and environmental consequences. As a result of these and other concerns, in recent years policymakers have sought to redirect their bioenergy policies to provide incentives for the research and development of new agriculture-based renewable fuels, especially second-generation biofuels (based on non-food crop biomass such as cellulose and algae), and to expand their distribution and use.[3]

In particular, through the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140), Congress established a goal of 36 billion gallons of biofuel use by 2022, including 16 billion gallons of cellulosic biofuels.[4] Similarly, the 2008 farm bill (the Food, Conservation, and Energy Act of 2008, P.L. 110-246) included an energy title, Title IX, with a set of bioenergy programs administered primarily by the U.S. Department of Agriculture (USDA) that focused on non-corn-ethanol biofuels.[5] Among the Title IX bioenergy programs of the 2008 farm bill is BCAP[6]—authorized by Congress to support the establishment and production of eligible biomass crops for conversion to bioenergy in selected areas, and to assist agricultural and forest land owners and operators with collection, harvest, storage, and transportation (CHST) of eligible material for use in a biomass conversion facility.

[1] See CRS Report RR41106, *Meeting the Renewable Fuel Standard (RFS)Mandate for Cellulosic Biofuels: Questions and Answers*.

[2] USDA, *World Agricultural Supply and Demand Estimates (WASDE) Report*, January 11, 2013.

[3] See CRS Report R41282, *Agriculture-Based Biofuels: Overview and Emerging Issues*.

[4] See CRS Report R40155, *Renewable Fuel Standard (RFS): Overview and Issues*.

[5] See CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*.

[6] BCAP is authorized by §9001 of the Food, Conservation, and Energy Act of 2008, which created a new §9011 within the Farm Security and Rural Investment Act of 2002 (P.L. 107-171; 7 U.S.C. §8111, et seq.).

All of the major Title IX bioenergy programs (including BCAP)—but with the exception of the Feedstock Flexibility Program for Bioenergy Producers—expired at the end of FY2012 and lacked baseline funding going forward. However, the American Taxpayer Relief Act of 2012 (ATRA; P.L. 112-240)—signed into law by President Obama on January 2, 2013—extends the 2008 farm bill (P.L. 110-246) through FY2013 (i.e., until September 30, 2013, or, in the case of the farm commodity programs that are on a different calendar, through crop year 2013).[7]

Program Operation

BCAP is administered by USDA's Farm Service Agency (FSA)[8] and receives mandatory funding through the Commodity Credit Corporation (CCC).[9] BCAP has two main statutory purposes: to support the establishment and production of eligible crops for conversion to bioenergy in selected areas; and to assist agricultural and forest land owners and operators with collection, harvest, storage, and transportation (CHST) of eligible material for use in a biomass conversation facility.

To meet the above-stated statutory purposes, BCAP provides financial assistance to owners and operators of agricultural land and non-industrial private forest land who wish to establish, produce, and deliver biomass feedstocks. BCAP provides two categories of financial assistance:[10]

1. **establishment and annual payments**,[11] including a one-time payment of up to 75% of the cost of establishment for perennial crops, and annual payments (i.e., rental rates based on a set of criteria) of up to five years for non-woody and 15 years for woody perennial biomass crops; and
2. **CHST matching payments**, at a rate of $1 for each $1 per ton provided, up to $45 per ton, for a period of two years, which may be available to help eligible material owners with CHST of eligible material for use in a qualified biomass conversion facility.

These two payments—annual/establishment and matching—include different eligibility and sign-up requirements, payment rates, and contract lengths (**Table 1**).

[7] A crop year refers to the year in which a commodity is harvested.

[8] For additional BCAP information, see the Farm Service Agency's BCAP website, http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap.

[9] See footnote 22 for a description of the CCC.

[10] Farm Service Agency, USDA, "Biomass Crop Assistance Program (BCAP), "Fact Sheet," at http://www.fsa.usda.gov/Internet/FSA_File/bcap_update_may2011.pdf.

[11] Because annual payments and establishment payments have similar eligibility requirements and limitations they are discussed together and referred throughout this report as "annual and establishment payments."

Table 1. Differences Between Annual & Establishment Payments and CHST Matching Payments in the BCAP

	Annual & Establishment Payments	CHST Matching Payments
Location	Project areas only	Nationwide
Eligible Lands	Private lands	Federal, state, tribal, and private lands
Who participates	Eligible producers	Eligible biomass material owners
Contract vs. Agreement	Contract with producers; agreement with project area sponsors	Agreement with biomass conversion facilities; material owner must apply
Contract or agreement period	5 to 15 years	2 years
Payment type	Annual payments at the market rate plus incentives and payments for establishing the initial crop	Matching payment for the collection, harvest, storage, and transportation of eligible material
Payment limit	75% of the cost to establish the crop	Up to $45 per ton matching payment
Eligible for payments	Eligible biomass crop—generally, crops that receive payments under Title I (the commodity title) of the farm bill (e.g., corn, wheat, rice, and soybeans) and noxious weeds or invasive species are not eligible for annual payments	Eligible biomass material—invasive and noxious species are considered eligible material; however, crops eligible to receive payments under Title I of the 2008 farm bill; animal waste and byproducts (including fats, oils, greases, and manure); food waste and yard waste; and algae are not eligible
Payment Reduction	Annual payments are reduced if crop is sold for any other purpose, including BCAP matching payments, or for contract violation	Payments are reduced for contract violations

Source: CRS and USDA, Commodity Credit Corporation, "Biomass Crop Assistance Program," Final Rule, 75 *Federal Register* 66212, October 27, 2010.

Annual & Establishment Payments

BCAP's annual and establishment payments are available to certain producers who enter into contracts with USDA to produce eligible biomass crops on contract acres within designated BCAP project areas. They are intended to encourage longer-term investment by producers in new, dedicated biomass crops for bioenergy production. Establishment payments would cover part of the cost associated with "establishing" these crops (i.e., clearing, planting, and seeding) within a project area. Multi-year contract annual payments would cover possible income forgone and additional risk associated with shifting away from traditional crop production.

Producer eligibility under BCAP's establishment and annual payments is limited to approved project areas.

Establishment Payments

BCAP establishment payments may cover up to 75% of the cost of establishing a perennial crop, including woody biomass. These costs may include the cost of seeds and stock for perennials; the cost of planting the perennial crop; and, for nonindustrial private forestlands, the cost of site preparation and tree planting. Previously established biomass crops, crops established using other federal sources, and annual crops are not eligible for establishment payments but may still be eligible for annual payments.

Annual Payments

BCAP annual payments would support up to 15 years of eligible woody crop production and five years of non-woody crop production. These payments would assist with the additional risk and possible forgone income associated with shifting away from traditional crop production. Annual payments are on a per-acre basis and would use market-based rental rates determined by FSA. Rental rate calculations are similar to those used for the Conservation Reserve Program (CRP).[12]

Annual payments may be reduced for several reasons, including

- if an eligible crop is delivered to the biomass conversion facility:
  - for conversion to cellulosic biofuels (payments reduced by 1% of the total sale price);
  - for conversion to advanced biofuels (payments reduced by 10% of total sale price); or
  - for conversion to heat, power, or biobased products (payments reduced by 25% of total sale price);
- if an eligible crop is used for purposes other than conversion to heat, power, biobased products, or advanced biofuels (payments reduced by 100% of the total sale price);
- if the producer receives a BCAP matching payment (payments reduced by 100% of the matching payment);
- if the producer violates a term of the contract; or
- under other circumstances determined by USDA.

Eligible Land

As defined in statute, only private agricultural and non-industrial private forest lands are considered eligible under the annual and establishment payment portion of BCAP. Federal and state-owned lands are ineligible. Lands enrolled in existing land retirement programs for conservation purposes—the Conservation Reserve Program, the Wetlands Reserve Program, and the Grassland Reserve Program—are also ineligible. To address the concern of native grassland conversion, any land considered "native sod" as of the date of enactment (June 18, 2008) is also considered ineligible.[13]

Eligible Producer

Producers within the selected BCAP project area would be eligible to receive annual and establishment payments after entering into a BCAP contract. According to the USDA final rule, producers with established eligible crops would be unable to collect an establishment payment but would remain eligible for annual payments. The project sponsor would also be eligible to

[12] For more information, see CRS Report RS21613, *Conservation Reserve Program: Status and Current Issues*.

[13] §9011(a)(5)(B)(ii) of the Farm Security and Rural Investment Act of 2002, (7 U.S.C. 8111 et seq.) as amended by §9001 the Food, Conservation, and Energy Act of 2008 (P.L. 110-246).

collect annual and establishment payments, so long as the land is eligible and not federal, state, or government owned.

Eligible Crop

The 2008 farm bill defines the term "eligible crop" under the annual and establishment payment portion of BCAP as a crop of renewable biomass (see text box below).[14] This is different from the matching payment portion of BCAP, which includes a separate definition for "eligible material." Although both eligible crops and eligible material are defined as renewable biomass, exclusions for the two differ. Eligible crops under the annual and establishment payment portion of BCAP may not include crops eligible for payments under Title I of the 2008 farm bill[15] or any plant that is invasive or noxious or has the potential to become invasive or noxious.

Contract

BCAP contracts for annual and establishment payments vary in length: 5 years for non-woody perennial crops and 15 years for woody perennial crops. All contracts are required to have an active and current conservation plan or forest stewardship plan, depending on the type of crop grown. These plans seek to address environmental concerns of potential impact on soil, water, and related resources. Participants must also be in compliance with highly erodible and wetland conservation requirements.[16]

USDA-Sponsor Agreement

Agreements for annual and establishment payments may be made between USDA and a project area sponsor. Agreements specify the qualified project area sponsor's plans and how the sponsor will support the establishment and production of eligible crops for conversion to bioenergy in the BCAP project areas. This could include the type of biomass that will be used for the project, the intended use of the biomass and type of energy produced, and any new or proposed uses for the biomass.

CHST Matching Payments

CHST matching payments under BCAP assist agricultural and forest land owners and operators with collection, harvest, storage, and transportation of eligible material for use in a biomass conversion facility. Unlike the annual and establishment payments discussed above, the matching payments do not define eligible facilities by project areas.

[14] For additional discussion about biomass definitions, see CRS Report R40529, *Biomass: Comparison of Definitions in Legislation Through the 112th Congress*.

[15] As defined in the USDA final rule, these include whole grain derived from a crop of wheat, corn, grain sorghum, barley, oats, or rice; honey; mohair; oilseeds such as sunflower seed, rapeseed, canola, safflower, flaxseed, mustard seed, crambe, soybeans, and sesame seed; pulse crops such as dry peas, lentils, or small chickpeas; peanuts; sugar; dairy products; wool; and cotton boll fiber.

[16] Highly erodible lands compliance may be found under Subtitle B of Title XII of the Food Security Act of 1985 (16 U.S.C. 3811 et seq.) and wetlands compliance may be found under Subtitle C of Title XII of the Food Security Act of 1985 (16 U.S.C. 3821 et seq.).

BCAP's matching payments are available to eligible material owners who deliver eligible material to qualified biomass conversion facilities. They provide two-year contracts whereby USDA would pay—at the rate of $1 for each $1 per dry ton equivalent of biomass—the price to collect, harvest, store, and transport eligible material to biomass conversion facilities. Payments may not exceed $45 per ton for a two-year period.

Matching payments are intended to provide incentives for collecting underutilized biomass for bioenergy production. This would remove existing biomass where it might not currently be profitable to do so (e.g., crop residue or forest undergrowth). Eligible material must be harvested directly from the land and separate from a higher-value product (e.g., Title I crops). Invasive and noxious species are considered eligible material and land ownership (private, state, federal, etc.) is not a limiting factor to receive matching payments.

Conversion Facilities

A biomass conversion facility is defined in statute as a facility that converts or proposes to convert renewable biomass into heat, power, biobased products, or advanced biofuels. To become a BCAP qualified biomass conversion facility, the facility must enter into an agreement with USDA within the state it is located.[17]

Eligible Land

Unlike under the BCAP annual and establishment payments, land is not a limiting factor. If the material is determined to be eligible, then the land from which it comes is not an issue. According to the USDA final rule, eligible material may be harvested or collected from certain National Forest System and Bureau of Land Management lands; from nonfederal lands, including state and locally held government lands; and from tribal lands held in trust by the federal government.[18]

Material Owner

A material owner must first apply and be approved as eligible by FSA before deliveries to qualified biomass conversion facilities are eligible for matching payments. For materials collected on private lands, an eligible material owner could be the landowner, the operator or producer of the farming operation, a biomass conversion facility that owns or operates eligible land, or a person designated by the landowner. For public lands, material owners must have the right to harvest or collect material through a permit, contract, or agreement with the appropriate agency or government entity. Federal government entities are not eligible.

Eligible Material

Similar to eligible crops under the annual and establishment payments, eligible material is also defined as renewable biomass. However, the exclusions to renewable biomass differ for eligible materials as compared with eligible crops. Eligible material does not include crops eligible to

[17] FSA makes the list of qualified biomass conversion facilities publicly available on its website: http://www.fsa.usda.gov/Internet/FSA_File/bcapfacilitieslist.pdf.

[18] Some restrictions do apply to the harvesting times, methods, and levels from nonprivate land.

receive payments under Title I of the 2008 farm bill; animal waste and byproducts (including fats, oils, greases, and manure); food waste and yard waste; and algae. In contrast, invasive and noxious species are considered eligible material. According to the final rule, eligible material must be collected directly from the land, separated from a high-valued product (such as a Title I crop), and collected according to an approved conservation plan, forest stewardship plan, or equivalent plan. This requirement is intended to prevent high-value products from becoming eligible for matching payments.

USDA- Biomass Conversion Facility Agreement

Agreements for matching payments may be made between USDA and an eligible biomass conversion facility. According to USDA's final rule, these agreements include items such as the obligations of the facility to provide a purchase list, receipts, and scale tickets for the eligible material owners; maintain accurate records of all eligible material purchases; calculate the dry ton weight equivalent of tonnage delivered; pay fair market value for eligible material regardless of the material owner's eligibility for BCAP matching payments; and make the facility's address and contact information publicly available.

Payment

Eligible material owners must notify FSA following delivery to an eligible biomass conversion facility. Once delivery is verified by FSA, payments are made based on total actual tonnage delivered, total payment received, and certification from the conversion facility. BCAP matching payments are limited to $1 for each $1 per dry ton equivalent provided by the biomass conversion facility, not to exceed $45 per ton. Payment terms are limited to no more than two years beginning on the date of first payment by USDA.

Project Areas

BCAP assistance for establishing and producing biomass crops is available within designated project areas. BCAP project areas are specific geographic areas where producers may enroll land into BCAP contracts and produce specified biomass crops.[19] Participants may be eligible to receive financial and technical assistance as well as annual payments to establish these crops.

Project areas are established based on proposals submitted (on a voluntary basis) to USDA's Farm Service Agency (FSA) by either a group of producers or an entity that converts biomass to heat, power, a biobased product, or an advanced biofuel. The USDA final rule (75 *Federal Register* 66212) makes no restrictions on who may sponsor a project. Sponsors could include biomass conversion facility owners, such as federal entities, private entities, state or local government agencies, schools, or nongovernment organizations. Those interested in submitting a proposal are encouraged to contact their FSA state office for details. Upon designation of a project area, certain producers within the project area are then eligible to enroll land into the program.

[19] See FSA, USDA, "BCAP Project Area Information," at http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap-pjt.

The statute authority requires project area sponsors to include the following as part of the proposal:[20]

- a description of the eligible land including the geographic boundary describing the area where land can be enrolled;
- a list of eligible crops of each producer that will participate in the proposed project area;
- a letter of commitment from a biomass conversion facility that the facility will use the eligible crops intended to be produced in the project area;
- evidence that the biomass conversion facility has sufficient equity available, if the facility is not operational at the time the proposal is submitted; and
- any other appropriate information about the biomass conversion facility that gives reasonable assurance that the plant will be in operation by the time eligible crops are ready for harvest.

Project area proposals are submitted to the applicable FSA state office for recommendation to the national office. If the project areas spans multiple states, the project proposals are submitted to the FSA state office where a majority of the project area land is located.[21] Proposals are evaluated on a set of statutorily defined criteria, including the volume of crops proposed to be produced; the volume of biomass from sources other than those grown on contract acres; the anticipated economic impact to the project area; the opportunity for local producers to participate in ownership of the facility; the impact on soil, water, and related resources; the variety of biomass production approaches within the project area; and the range of eligible crops among project areas. Proposals meeting these criteria would be considered eligible for BCAP as project areas.

Project proposals are accepted by FSA on a continuous basis and, if the project is approved, producers within the project area could be eligible for annual payments and establishment payments. Producers within a designated BCAP project area may apply to enroll land into the program and receive assistance to grow eligible biomass crops. Biomass must be established, produced and harvested or collected according to an approved conservation, forest stewardship, or similar plan to ensure that soil, water and other resource concerns are adequately addresses on the enrolled land.

As of June 2012, 11 BCAP project areas had been approved. The project areas and their approved eligible biomass crops are listed in **Table 2**.

[20] §9011(c)(2) of the Food Security and Rural Investment Act of 2002 (7 U.S.C. 8111 et seq.), as amended.

[21] For more information, see "BCAP Project Area Proposal Guidelines," FSA, USDA, available at http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ener&topic=bcap-pjt-bpro.

Table 2. List of Approved BCAP Project Areas with Location and Feedstock

Project Area	Location	Eligible Feedstocks
1	Kansas and Missouri: 39 counties	Mixtures of perennial native grasses and forbs, such as Switchgrass, Big Bluestem, Illinois Bundleflower and Purple Prairie Clover. Additionally, existing suitable stands of native grasses, legumes and forbs (existing native grass stands can be located on expired CRP fields).
2	Arkansas: 8 counties	Giant Miscanthus rhizomes of the "Illinois Clone," a sterile cultivar of perennial miscanthus giganteus.
3	Missouri: 9 counties	Giant Miscanthus rhizomes of the "Illinois Clone," a sterile cultivar of perennial miscanthus giganteus.
4	Missouri: 7 counties	Giant Miscanthus rhizomes of the "Illinois Clone," a sterile cultivar of perennial miscanthus giganteus.
5	Ohio: 4 counties; and Pennsylvania: 3 counties	Giant Miscanthus rhizomes of the "Illinois Clone," a sterile cultivar of perennial miscanthus giganteus.
6	Oregon: 5 counties; and Washington: 1 county	Camelina
7	Kansas: 5 counties; and Oklahoma: 1 county	Perennial native grasses and forbs, e.g., Switchgrass, Big Bluestem, Illinois Bundleflower and Purple Prairie Clover.
8	California: 17 counties; Washington: 17 counties; and Montana: 56 counties	Camelina
9	Oregon: 1 county	Hybrid poplar trees
10	New York: 9 counties	Shrub willow
11	North Carolina: 11 counties	Switch grass and Freedom Giant Miscanthus

Source: Farm Service Agency (FSA), USDA, "BCAP Area Project Listing," at http://www.fsa.usda.gov/bcap.

Note: The list is as of June 2012.

BCAP Funding Status

Under the 2008 farm bill, BCAP was initially authorized to receive "such sums as necessary" for each of the fiscal years 2008 through 2012. This mandatory funding is provided through the borrowing authority of USDA's Commodity Credit Corporation (CCC).[22] As a result, USDA could use a virtually unlimited amount of funding from the CCC to implement BCAP, until the program's authority expired on September 30, 2012. Because funding is mandatory and paid through CCC, no annual appropriations are required for BCAP. Instead, actual BCAP outlays were to depend on the number of participants and the extent of eligible biomass crops involved in

[22] 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. The CCC is a wholly owned government corporation that has the legal authority to borrow up to $30 billion at any one time from the U.S. Treasury (15 U.S.C. §714 et seq.). It repays most of the funds it borrows with appropriations within the annual Agriculture appropriations law, usually as an indefinite "such sums as necessary" appropriation. For more information on mandatory versus discretionary authorizations, see CRS Report R41964, *Agriculture and Related Agencies: FY2012 Appropriations*.

the program. However, as BCAP implementation unrolled and outlays exceeded initial expectations, Congress placed spending caps on the program's mandatory funding authority via the annual appropriations process.

Through FY2012, nearly $900 million has been paid out to projects in 31 states. This is substantially more outlays than projected under the initial 2008 projections of program costs by the Congressional Budget Office (CBO). CBO had originally estimated that BCAP outlays would be a cumulative $36 million during the authority of the program (FY2008-FY2012) including outlays of $3 million for FY2009, $6 million in FY2010, $11 million in FY2011, and $16 million in FY2012.[23]

Although no outlays were made under BCAP in FY2008 since the program was not yet operating, program costs soon escalated. In FY2009, $243 million in outlays were incurred, mostly as the result of CHST matching payments to biomass materials that met the legal definition of qualifying materials but that were not intended for use in the production of second-generation biofuels. As a result, Congress became concerned about limiting this type of unintended outlays and, in 2010, limited BCAP funding to $552 million for FY2010 and $432 million for FY2011 (2010 Supplemental Appropriations Act; P.L. 111-212).[24] A year later, Congress further reduced BCAP funding for FY2011 to $112 million (Department of Defense and Full-Year Continuing Appropriations Act, 2011; P.L. 112-10). In response to the reduced funding levels, FSA suspended the CHST matching payment portion of the program through FY2011.[25]

In its final rule for the BCAP program,[26] USDA announced a re-prioritization of program funds that emphasized annual & establishment payments, especially under existing contracts, over CHST matching payments (see next section "BCAP Implementation Status" for details).

In its March 2011 baseline, CBO projected that BCAP will have projected outlays of $141 million in FY2011 and $248 million in FY2012.[27]

> With respect to FY2012 funding, the President's FY2012 budget proposed to limit funding for CHST to $70 million. The remaining annual and establishment payment portion of BCAP would remain at such sums as necessary (SSAN). On June 16, 2011, the House passed an FY2012 appropriations bill (H.R. 2112) that would have eliminated all funding for BCAP for FY2012. In contrast, the Senate FY2012 spending bill left BCAP mandatory spending untouched. In the final FY2012 Agriculture appropriations act (P.L. 112-55), BCAP mandatory spending was limited to $17 million.

In its March 2012, CBO projected BCAP outlays at $24 million in FY2011 and $19 million in FY2012.[28]

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[23] CBO, "Food, Conservation, and Energy Act of 2008—Conference Agreement," March 2007 CBO baseline (modified to reflect subsequent enacted legislation), May 12, 2008.

[24] 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*.

[25] USDA, FSA, *Prioritizing Limited BCAP Funds for Establishment of and Annual Payments for Approved Project Area Activities*, Notice BCAP-27, Washington, DC, September 15, 2011, http://www.fsa.usda.gov/Internet/FSA_Notice/bcap_27.pdf.

[26] Biomass Crop Assistance Program," Final Rule, 75 Federal Register 66212, October 27, 2010.

[27] CBO, "CBO March 2011 Baseline for CCC & FCIC," March 2011.

BCAP, along with most of the other major Title IX bioenergy programs—with the exception of the Feedstock Flexibility Program for Bioenergy Producers—expired at the end of FY2012 and lacked baseline funding going forward.[29] However, the American Taxpayer Relief Act of 2012 (ATRA; P.L. 112-240)—signed into law by President Obama on January 2, 2013—extends the 2008 farm bill (P.L. 110-246) through FY2013.[30] However, no new mandatory funding was included for BCAP under ATRA; instead, ATRA included discretionary funding of $20 million for BCAP authorized to be appropriated for FY2013. Due to the lack of mandatory funding authority, if policymakers want to continue BCAP payments under either the 2008 farm bill extension or in the next farm bill, they will need to pay for the program with offsets.

BCAP Implementation Status

As stated earlier, BCAP is administered by USDA's Farm Service Agency (FSA).[31] FSA's BCAP website includes URL links to the "BCAP Handbook" and other program documents, the latest USDA BCAP notices and news releases, as well as current information on BCAP project areas. This section includes a brief chronology of BCAP rule development and program implementation.

On May 5, 2009, President Barack Obama issued a directive addressing a variety of advanced biofuel priorities. The presidential memorandum requested the Secretary of Agriculture to accelerate investment in and production of biofuels, and it specifically listed energy programs in the 2008 farm bill, including "guidance and support for collection, harvest, storage, and transportation (CHST) assistance for eligible materials for use in biomass conversion facilities."[32]

On June 11, 2009, USDA published a Notice of Funds Available (NOFA; 74 *Federal Register* 27767) to implement the CHST matching payments component of BCAP.[33] USDA's notice eventually raised concern about possible market competition between the CHST matching payments program and existing wood manufacturing industries.[34] The NOFA was terminated on February 3, 2010.

On February 8, 2010, USDA published a proposed rule for BCAP (75 *Fed. Reg.* 6264) suspending CHST program enrollment and proposing rules to implement the remainder of the BCAP program.[35]

(...continued)

[28] CBO, "CBO March 2012 Baseline for CCC & FCIC," March 2012.

[29] See CRS Report R41433, *Expiring Farm Bill Programs Without a Budget Baseline*.

[30] See CRS Report R42442, *Expiration and Extension of the 2008 Farm Bill*.

[31] For additional BCAP information, see the Farm Service Agency's BCAP website at http://www.fsa.usda.gov/bcap.

[32] U.S. President (Obama), "Memorandum on Biofuels and Rural Economic Development," *Daily Compilation of Presidential Documents*, vol. DCPD200900328 (May 5, 2009).

[33] USDA, Commodity Credit Corporation (CCC), "Notice of Funds Availability (NOFA) for the Collection, Harvest, Storage, and Transportation of Eligible Material," 74 *Federal Register* 27767-27772, June 11, 2009.

[34] "CPA says USDA Biomass Program a Threat to Wood Products Industry," *Wood and Wood Products*, Trends and News, December 2009.

[35] USDA, CCC, "Biomass Crop Assistance Program," 75 *Federal Register* 6264, February 8, 2010.

On October 27, 2010, USDA issued the BCAP interim (i.e., final) rule (74 *Fed. Reg.* 27767) which implements the full BCAP program, including the annual and establishment payment component.[36] The interim (final) rule adopted many of the provisions outlined in the proposed rule, made further revisions, and responded to the more than 24,000 comments received on the proposed rule.

In response to recent funding reductions through the appropriations process, FSA has suspended the CHST matching payments portion of the program through FY2011.[37] The last deadline for submitting project area proposals for annual and establishment payments was September 23, 2011.[38]

As of June 2012, USDA had selected 11 BCAP project areas and continued to enroll producers for annual and establishment payments. However, due to the reduced funding availability imposed by limitations on the availability of mandatory funding through the annual appropriations process (see above discussion), USDA published an interim rule on September 15, 2011 (76 *Fed. Reg.* 56949), amending the BCAP regulation to provide specifically for prioritizing limited program funds in favor of the ''project area'' portion of BCAP. The limited funding available for BCAP means that not all BCAP requests can be funded. The interim rule explicitly provides a priority for funding establishment and annual payments for project area activities because "such activities will produce the greatest long term good in BCAP by providing an ongoing supply of new biomass."[39] Under the interim rule, matching payments for CHST would only be funded if resources are available after funding all eligible project area applications. The interim rule also enables prioritization among project area proposals if eligible requests exceed available funding.

Among the remaining BCAP-related tasks of the 2008 farm bill, USDA is required to submit a report to the House and Senate Agriculture Committees on the dissemination of the best practice data and information gathered from participants receiving assistance under BCAP no later than four years after enactment of the 2008 farm bill (i.e., by June 18, 2012). However, this report is not yet available.

Selected Issues

Initially BCAP's CHST matching payments raised questions and concerns about the BCAP program as a whole. Concerns regarding eligibility, sustainability, and funding continue to be discussed and could shape future congressional action on the program in the context of budgetary measures and possible reauthorization during the next farm bill debate.

[36] USDA, CCC, "Biomass Crop Assistance Program," 75 *Federal Register* 66201, October 27, 2010.

[37] USDA, FSA, *Prioritizing Limited BCAP Funds for Establishment of an Annual Payments for Approved Project Area Activities*, Notice BCAP-27, Washington, DC, September 15, 2011, http://www.fsa.usda.gov/Internet/FSA_Notice/bcap_27.pdf.

[38] USDA, FSA, *BCAP Funding and Project Proposal Submission and Review*, Notice BCAP-22, Washington, DC, September 16, 2011, http://www.fsa.usda.gov/Internet/FSA_Notice/bcap_28.pdf.

[39] *Federal Register*, Vol. 76, No. 179, Thursday, September 15, 2011, p. 56949.

Eligible Crops and Material

Defining what is considered an eligible material or eligible crop under BCAP has become somewhat contentious. By 2010, concerns had surfaced about eligible material creating direct competition with existing uses through the CHST matching payments.[40] Others have expressed concerns about allowing certain fast-growing non-native plants to be included as eligible crops.[41] Below is an expanded discussion on issues related to eligible material and eligible crops.

Defining Renewable Biomass

The 2008 farm bill included a definition for renewable biomass under Title IX. Biomass has separate and distinct definitions on public and private lands. Biomass on public lands would typically come from tree and brush removal for fire prevention purposes, trees unsuitable for commercial harvest, invasive plant removal, and diseased, damaged, or immature tress culled in accordance with forest management practices. Biomass on private land is more broadly defined and includes other organic materials such as animal waste and byproducts, food waste, yard waste, and algae.

Federal Lands, including National Forest System land, as defined in Section 11(a) of the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 U.S.C. §1609), and public lands managed by the Bureau of Land Management, as defined in Section 103 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. §1702)—Renewable biomass includes materials, pre-commercial thinnings, or invasive species that:

(1) are byproducts of preventive treatments that are removed to reduce hazardous fuels, to reduce or contain disease or insect infestation, or to restore ecosystem health;

(2) would not otherwise be used for higher-value products; and

(3) are harvested in accordance with applicable law and land management plans and the requirements for old-growth maintenance, restoration, and management direction, and large-tree retention.

Private Lands, including nonfederal land or land belonging to an Indian or Indian tribe that is held in trust by the United States—Renewable biomass includes any organic matter that is available on a renewable or recurring basis, including:

(1) renewable plant material such as feed grains, other agricultural commodities, other plants and trees, and algae;

(2) waste material (crop residue, wood waste, wood residues, and other vegetative waste material);

(3) animal waste and byproducts such as fats, oils, greases, and manure; and

(4) food waste and yard waste.

For additional discussion on the definition of biomass, see CRS Report R40529, *Biomass: Comparison of Definitions in Legislation Through the 112th Congress*.

Wood Residue Competition

In early 2010, after USDA's 2009 notice on CHST matching payments, some manufacturing and nursery industries that use wood shavings, wood chips, sawdust, and other wood "scraps" noticed an increase in price for their raw materials. This increase was linked, by some, to the CHST matching payments, which offered a federal payment match for the same materials if delivered to

[40] U.S. Congress, House Committee on Agriculture, Subcommittee on Conservation, Credit, Energy, and Research, Representative Minnick's comments on BCAP, hearing, *To review the implementation of the 2008 Farm Bill energy title*, 111th Cong., 2nd sess., June 9, 2010.

[41] S. Raghu, R. C. Anderson, and C. C. Daehler et al., "Adding Biofuels to the Invasive Species Fire?," *Science*, September 22, 2006, p. 1742.

a qualified biomass conversion facility.[42] The CHST matching payment of up to $45 per ton created an incentive for material owners to sell to biomass facilities rather than to manufacturers that use the same raw materials for products such as composite panels, particle board, and fiberboard, or to nurseries and landscaping firms that use bark and wood chips for mulch.

Renewable biomass harvested from the National Forest System and other public land is subject to a statutory provision that prohibits material that would otherwise be used for higher-value products.[43] This prohibition, however, did not initially apply to renewable biomass harvested from private land. In USDA's initial proposed rule (February 8, 2010), such biomass remained eligible for CHST matching payments, largely because the 2008 farm bill (P.L. 110-246) did not specifically prohibit biomass that would have otherwise been used for higher-value products produced on private land. However, based on the initial reaction to the CHST matching payments, USDA expanded the public land restriction to private land as well. Therefore, all biomass material that would otherwise be used for higher-value products, from either public or private sources, is considered ineligible under USDA's final rule.

In an effort to enforce this division between higher-value products, in its final rule (October 27, 2010) USDA added the requirement that eligible material be directly harvested from the land in accordance with an approved conservation plan, forest stewardship plan, or equivalent plan; be separated from a higher-value product; and not be classified as a higher-value product by USDA. For example, wood chips are considered eligible material if they are collected directly from the land. Therefore, wood chips collected from delivered and processed trees after the trees are delivered to pulp and paper facilities do not qualify. However, wood chips created in the field from diseased trees for ease of transport to a biomass conversion facility are eligible for matching payments. Another example would be corn cobs as an eligible material. If corn cobs are separated from the higher-value product (i.e., corn kernels) in the field and the cobs are then collected as residue in accordance with a conservation plan and delivered to a conversion facility they are considered eligible for matching payment. If the corn cobs are collected at a vegetable processing facility after being delivered and separated from the higher-value product, they are not considered eligible. This is considered incidental to the normal marketing of the crop and not representative of the collection or harvesting of biomass that would not otherwise be collected.

While manufacturing industries that use wood residue offered the greatest opposition to CHST matching payments as published under the USDA notice, those in the lumber industry that were receiving higher prices also questioned the sustainability of the provision. Some in the biomass industry highlight the temporary nature of the CHST matching payments (maximum two years), and hope that future implementation will focus on the BCAP annual and establishment payments, which are longer-term.[44] Others question USDA's ability to distinguish between high-value product material and renewable biomass material in the future, despite the language in the final rule requiring it to be harvested directly from the land. Some believe the fungibility of wood

[42] Juliet Eilperin, "The Unintended Ripples from the Biomass Subsidy Program," *The Washington Post*, January 10, 2010, p. A03.

[43] Under Section 9001(12)(A)(ii) of the Farm Security and Rural Investment Act of 2002 (P.L. 107-171), as amended by §9001 of the Food, Conservation, and Energy Act of 2008, the term "renewable biomass" includes material that would not otherwise be used for higher-value products, if from National Forest System lands and public lands.

[44] Conference discussion at the Renewable Energy and Technology Conference, Washington, DC, February 4, 2010.

could continue to generate competition between wood-based product output and renewable energy production.[45]

Invasive and Noxious Species

Some have expressed concern that eligibility criteria for materials and crops under BCAP may conflict with practices aimed at limiting the introduction of invasive and noxious species. Others, including USDA, praise invasive and noxious species' inclusion in BCAP as an incentive to further eradication efforts.[46] The 2008 farm bill provides separate definitions of eligible material and eligible crops. Eligible *crop* criteria apply to the annual and establishment payments portion of BCAP and eligible *material* criteria refer to BCAP's CHST matching payments. Invasive and noxious species are considered ineligible as crops for BCAP's annual and establishment payments, but are not excluded as eligible material under BCAP's CHST matching payments.

The inclusion of invasive and noxious species as eligible material has generated both concern and interest in the environmental community.[47] Some note that while the incentive for removal is praiseworthy, such removal could have the unintended consequence of perpetuating the species. USDA's final rule addresses this concern by excluding removal and transportation during reproductive periods and requiring removal be in accordance with a new or amended conservation plan, forest stewardship plan, or equivalent plan. If a material owner violates the current federal standards for noxious weeds,[48] then all matching payments must be repaid. According to USDA, removal costs associated with spreading or establishing an invasive or noxious species while carrying out the activities to receive a matching payment are "outside the scope of BCAP" and would rely on state and other federal laws for penalties.[49]

Several plant traits of an ideal biomass crop are also commonly found among invasive grasses: low energy requirements for maintenance; efficient use of light, water, and nutrients; perennial growth; and high yields.[50] Based on comments received from USDA's proposed rule, crops of species such as giant miscanthus, pennycress, and black locust may be considered eligible energy crops. Many of these are non-native, fast-growing, perennial grass or trees that some consider an ideal energy crop for many of the reasons stated above.[51] Others are concerned that nonsterile varieties can become invasive and noxious[52] or that genetically engineered (GE) varieties could

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[45] Roger A. Sedjo, *The Biomass Crop Assistance Program: Some Implications for the Forestry Industry*, Resources for the Future, RFF DP 10-22, Washington, DC, March 2010.

[46] USDA, "Biomass Crop Assistance Program to Spur Production of Renewable Energy, Job Creation," press release, February 3, 2010, http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=2010/02/0046.xml.

[47] Letter from Bruce Leopold, President, Wildlife Society, to Director of CEPD, USDA Farm Service Agency, April 9, 2010, http://joomla.wildlife.org/documents/BCAP_rule_comments.pdf.

[48] Executive Order 13112, "Invasive Species," 64 *Federal Register* 6183, February 3, 1999. Also see, CRS Report RL30123, *Invasive Non-Native Species: Background and Issues for Congress*.

[49] USDA, Commodity Credit Corporation, "Biomass Crop Assistance Program," 75 *Federal Register* 66222, October 27, 2010.

[50] Joseph M. DiTomaso, Jacob N. Barney, and Alison M. Fox, *Biofuel Feedstocks: The Risk of Future Invasions*, Council for Agricultural Science and Technology, CAST Commentary QTA2007-1, November 2007, http://www.cast-science.org/websiteUploads/publicationPDFs/Biofuels%20Commentary%20Web%20version%20with%20color%20%207927146.pdf.

[51] Dan Burden, *Miscanthus Profile*, Agricultural Marketing Resource Center, August 2009, http://www.agmrc.org/commodities__products/biomass/miscanthus_profile.cfm.

[52] USDA, NRCS National Plants Database, *PLANTS Profile: Miscanthus Andersson Silvergrass*, June 2010, (continued...)

result in hybridization with wild relatives, resulting in invasive or noxious species causing economic and ecological damage.[53] Some states include varieties of these species on statewide noxious weed listings. In these states, they would be ineligible as a crop under USDA's final rule; however, there is continued concern that the plant's introduction as a crop could have unintended consequences, given that the USDA final rule does not distinguish between the sterile varieties and nonsterile varieties. Even the BCAP Final Programmatic Environmental Impact Statement (FPEIS)[54] highlights potential issues associated with the introduction of GE species and non-native varieties for use as biomass crops. To prevent the spread of invasive or noxious species, USDA is relying on thorough, site-specific environmental evaluation of a project area prior to selection. This could potentially slow implementation of the program or impose costs on biomass producers.[55]

"Black Liquor"

In 2009, concerns emerged about "black liquor" meeting the definition of renewable material under BCAP, and thus potentially qualifying for CHST matching payments. Black liquor is a waste product from the paper production process composed of mostly organic lignin and inorganic pulping chemicals, and has long been used in the pulp and paper industry as a source of energy.[56] An existing alternative fuel excise tax credit targeting blends of biofuels with petroleum products for transportation purposes was expanded under the 2007 Energy Independence and Security Act (EISA; P.L. 110-140) to include alternative fuels used by non-transportation industries. As a result, paper companies, who were already using black liquor for processing energy at the treatment plant, by including a small mixture of diesel were now able to claim their black liquor as a biofuel that qualified for the biofuel excise tax credit. According to news reports, the black liquor loophole cost taxpayers over $4 billion in 2009.[57]

A provision in the enacted health care bill (P.L. 111-148) disqualified black liquor from eligibility as of January 1, 2010. USDA's final rule for BCAP states that black liquor is considered an industrial waste by-product and therefore is not eligible under BCAP. Despite this declaration, those in favor of black liquor's inclusion as an eligible source object to USDA's reasoning that black liquor is made from "inorganic" material, citing that "neither the statute nor the BCAP eligible materials list requires that eligible biomass actually originate directly from the land."[58]

(...continued)

http://plants.usda.gov/java/profile?symbol=MISCA.

[53] USDA, FSA, *Biomass Crop Assistance Program Programmatic Environmental Impact Statement*, Final, June 2010, pp. 4-52, http://www.fsa.usda.gov/Internet/FSA_File/bcapfinalpeis062510.pdf.

[54] Ibid.

[55] Jody M. Endres, Timothy A. Slating, and Christopher J. Miller, "The Biomass Crop Assistance Program: Orchestrating the Government's First Significant Step to Incentivize Biomass Production for Renewable Energy," *Environmental Law Reporter*, vol. 40 (2010), p. 10076.

[56] *Bloomberg News*, "Black Liquor Tax Boondoggle May Net Billions for Papermakers," by Bob Ivory and Christophe Doneville, April 17, 2009.

[57] *New York Times,* "Tax Loopholes Block Efforts to Close Gaping U.S. Deficit," by Jonathan Weisman, July 20, 2012; and *Accuval*, "Black Liquor Tax Credits: The End of a Loophole for the Pulp & Paper Industry," March 2010, at http://www.accuval.net.

[58] Letter from Paul Noe, Vice President for Public Policy at the American Forest and Paper Association, April 8, 2010.

Sustainability

BCAP has a dual purpose of establishing new dedicated biomass crops for bioenergy production (annual and establishment payments) and increasing the collection of existing and underutilized biomass for bioenergy production (matching payments). The latter purpose—incentives for biomass removal in areas where it is possible but not currently profitable—is a key factor for the forestry sector. The removal of hazardous wildfire fuels and invasive species could provide biomass for renewable energy conversion rather than being disposed of in ways that contribute additional carbon to the atmosphere.[59]

In addition to biomass removal from forestland, crop residue is also considered to be viable biomass for renewable energy production. Following harvest, the remaining plant, or residue, can be left on the ground for soil health, erosion and weed control, water quality, and nutrient management. The amount of residue left behind depends on the location, crop, and other locally driven factors. The research on crop residue removal varies in the amount that can be sustainably removed, ranging between 25% and 70%.[60] Many federal conservation programs provide financial assistance for practices that increase crop residue retention on the land, because of the environmental benefits.[61] The BCAP payments to remove this residue for bioenergy production have caused some to question whether this is a duplication of the federal effort and is counterproductive. Soil scientists in particular are concerned that the benefits to bioenergy would not outweigh the potential soil and environmental concerns associated with the removal of crop residue and caution against removing too much residue in sensitive areas.[62]

Dedicated biomass crops, such as switchgrass, hybrid poplars, and hybrid willows, are considered by many to be more desirable crops because they have a short rotation (re-grow quickly after each harvest) and use fewer resources, such as water and fertilizers, than traditional field crop production. Compared with field crops such as corn, dedicated biomass crops are also thought to have less impact on available food supplies.[63] Despite potential environmental benefits, concerns persist about the additional use of fertilizers and water resources that could be required to increase the per-acre yields to become economically feasible.[64] Also, the continued demand for biomass supply could generate additional land use pressures for expanded production, possibly in direct competition with current land conservation programs, such as the Conservation Reserve Program.[65]

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[59] See CRS Report R40811, *Wildfire Fuels and Fuel Reduction*.

[60] Several research articles exist on this subject. An example of lower residue estimates is, H. Blanco-Canqui and R. Lal, "Corn Stover Removal for Expanded Uses Reduces Soil Fertility and Structural Stability," *Journal of American Soil Science*, vol. 73 (2009), pp. 418–426. An example of higher removal estimates is J. Sheehan, A. Aden, and K. Paustian et al., "Energy and Environmental Aspects of Using Corn Stover for Fuel Ethanol," *Journal of Indian Ecology*, vol. 7 (2004), pp. 117-146.

[61] For more information on available agricultural conservation programs, see CRS Report R40763, *Agricultural Conservation: A Guide to Programs*.

[62] Rattan Lal, "Is Crop Residue a Waste?" *Journal of Soil and Water Conservation*, vol. 59, no. 6 (Nov/Dec 2004), pp. 136A-139A.

[63] Bruce A. Babcock, *Breaking the Link between Food and Biofuels*, Briefing Paper 08-BP 53, July 2008, Center for Agricultural and Rural Development, Iowa State University, http://www.card.iastate.edu.

[64] Institute for Agriculture and Trade Policy, *Growing a New Crop for a New Market*, August 2009, http://www.iatp.org/iatp/publications.cfm?refid=106612.

[65] Loni Kemp and Julie M. Sibbing, *Growing a Green Energy Future*, National Wildlife Federation, March 2010.

Cellulosic Biofuels' Slow Development

The potential development of a cellulosic-based ethanol industry is presently impeded by the state of cellulosic conversion technology, which still is expensive relative to corn-based production and has been slow to move production from laboratory setting to commercial scale. However, the enormous potential supply of low-cost cellulosic plant material available in the United States makes it an attractive prospective feedstock and helps to explain its considerable policy interest.[66]

The 2008 farm bill energy title provides more than $1 billion in financial incentives and support to encourage the production and use of advanced (mainly cellulosic) biofuels.[67] Grants and loan guarantees leverage industry investments in new technologies and infrastructure, as well as in the production of cellulosic feedstocks. However, BCAP was the principal program designed to help "kick start" the U.S. cellulosic biofuels sector. BCAP attempted to remove some of the risk for biomass growers by supporting the production of dedicated crop and forest cellulosic feedstocks and by providing incentives for harvest and post-production storage and transport.[68]

Despite support from BCAP and other federal programs, the cellulosic ethanol sector has been slow to develop. Currently, only small volumes of cellulosic ethanol are produced on a commercial scale. Only a few small refineries (mostly pilot or demonstration in scope) are engaged in limited production. Due to the slow progress in cellulosic ethanol production, EPA has been compelled to substantially reduce the cellulosic biofuel RFS mandates set by Congress for the years 2010 through 2012—from 100 million gallons (mgals) in 2010 to a mandate of 6.5 mgals, from 250 mgals for 2011 to 6.6 mgals, and from 500 mgals for 2012 to a preliminary 3.5 to 12.9 mgals.[69] The EPA waiver of the cellulosic biofuels RFS for three consecutive years, coupled with recent limitations imposed on BCAP funding and the increasing congressional climate of budget austerity, likely increase the uncertainty associated with the future investments needed to kick start this sector.[70]

Two Programs in One

Because BCAP has two distinct payment mechanisms—annual and establishment payments and CHST matching payments—many view BCAP as two separate and unique programs in one. Different definitions and exclusions between the two payment types could create confusion as the program is implemented. Furthering this confusion was USDA's partial rollout of BCAP by implementing the CHST matching payment portion of the program through a notice in June 2009,

[66] See the section entitled "Potential Issues with the Expanded RFS" in CRS Report R40155, *Renewable Fuel Standard (RFS): Overview and Issues*; and see CRS Report R41106, *Meeting the Renewable Fuel Standard (RFS) Mandate for Cellulosic Biofuels: Questions and Answers*.

[67] 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*.

[68] See CRS Report R41296, *Biomass Crop Assistance Program (BCAP): Status and Issues*.

[69] U.S. EPA, *Renewable Fuels: Regulations & Standards, at* http://www.epa.gov/otaq/fuels/renewablefuels/regulations.htm.

[70] See CRS Report R41106, *Meeting the Renewable Fuel Standard (RFS) Mandate for Cellulosic Biofuels: Questions and Answers*.

before the overall annual and establishment payment portion was proposed in February 2010. The unanticipated popularity of CHST matching payments, combined with higher than expected obligations and unintended consequences from product competition, generated concern among many BCAP supporters that the program was drawing too much negative criticism before the whole program was fully implemented.[71] While many support the idea of assisting both dedicated biomass crops and the increased collection of existing biomass, Congress might consider modifying BCAP during the next farm bill debate based on the ongoing implementation of the program.

BCAP in the Next Farm Bill

The 112th Congress spent substantial time and effort during 2012 reviewing existing farm programs, consulting with stakeholders, and preparing new legislation to serve as the next five-year version of omnibus farm legislation—the anticipated 2012 farm bill.[72] The Senate passed its version of the 2012 farm bill—the Agriculture Reform, Food, and Jobs Act of 2012 (ARFJA; S. 3240)—on June 21, 2012. The House Agriculture Committee approved its version—the Federal Agricultural Reform and Risk Management Act of 2012 (FARRM; H.R. 6083)—on July 11, 2012.[73] However, House leadership did not bring H.R. 6083 to the floor for further action. As a result, the 112th Congress failed to pass a new five-year farm bill. Instead, the American Taxpayer Relief Act of 2012 (ATRA; P.L. 112-240) extends the current 2008 farm bill until September 30, 2013, or, in the case of the farm commodity programs that are on a different calendar, through crop year 2013.[74]

As a result of negotiations during the 2008 farm bill and more recently ATRA, BCAP does not include "baseline" budget spending beyond FY2012.[75] Based on current budgetary requirements, the authorizing committees could potentially need to secure offset funding if BCAP were to be reauthorized in the next farm bill.[76] This could prove difficult given tight budgetary constraints and the more recent and higher projections of the program's cost compared to its initial cost estimates.

[71] Conference discussion at the Renewable Energy and Technology Conference, Washington, DC, February 4, 2010.

[72] See CRS Report RS22131, *What Is the Farm Bill?*

[73] For a detailed comparison of current bioenergy provisions with provisions in the two farm bill proposals—as passed by the Senate (S. 3240) and approved by the House Agriculture Committee (H.R. 6083), see CRS Report R42552, *The 2012 Farm Bill: A Comparison of Senate-Passed S. 3240 and the House Agriculture Committee's H.R. 6083 with Current Law*.

[74] A crop year refers to the year in which a commodity is harvested.

[75] As with all federal programs, the farm bill debate is influenced by budgetary constraints imposed by Congress. The baseline establishes how much authorizers may spend on a bill without having to seek offsets elsewhere. Calculating the baseline assumes a continuation of current policies under expected economic conditions; therefore, if a program does not have a baseline, is not expected to continue in future years. Section 257 of the Balanced Budget and Emergency Deficit Control Act of 1985 (P.L. 99-177, 2 U.S.C. §907), as amended, specifies that expiring mandatory spending programs are assumed to continue in the budget baseline if they have outlays of more than $50 million in the current year and were established before the Balanced Budget Act of 1997. Programs established after that date are not automatically assumed to continue, and are assessed program by program in consultation with the House and Senate Budget Committees. Although this rule expired in September 2006, CBO continues to prepare baselines following this methodology (CBO, *The Budget and Economic Outlook: Fiscal Years 2010 to 2020*, pp. 10, 63, and 144, at http://www.cbo.gov/ftpdocs/108xx/doc10871/01-26-Outlook.pdf).

[76] See CRS Report R41157, *The Statutory Pay-As-You-Go Act of 2010: Summary and Legislative History*.

The 113th Congress is expected to write a new farm bill in 2013, and might be expected to use H.R. 6083 and S. 3240 as starting points. The primary difference between the House and Senate bills is in the source of funding.[77] The Senate bill contains $193 million in new mandatory funding, but no discretionary funding authority over the FY2013-FY2017 period. In contrast, H.R. 6083 contains no mandatory funding for BCAP, while authorizing $375 million in discretionary funding authority for BCAP subject to appropriations. In addition, the House bill eliminates all support for the collection, harvest, storage, and transportation (CHST) component of BCAP, severely limiting its potential effectiveness as an incentive to produce cellulosic feedstocks.

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[77] See CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*.