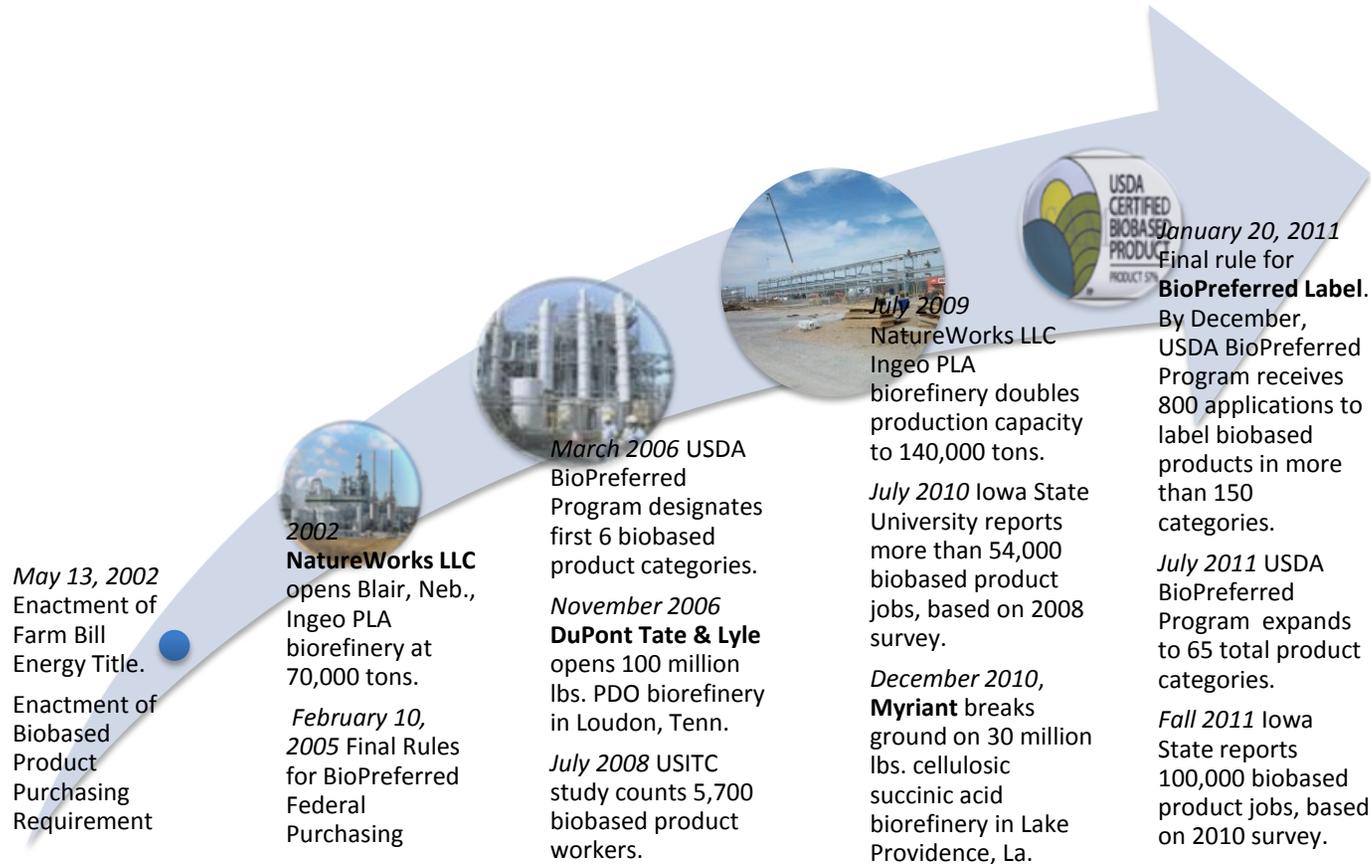

Farm Bill Energy Title Programs

Timeline of a Successful Policy
Initiative

Biotechnology Industry Organization (BIO)

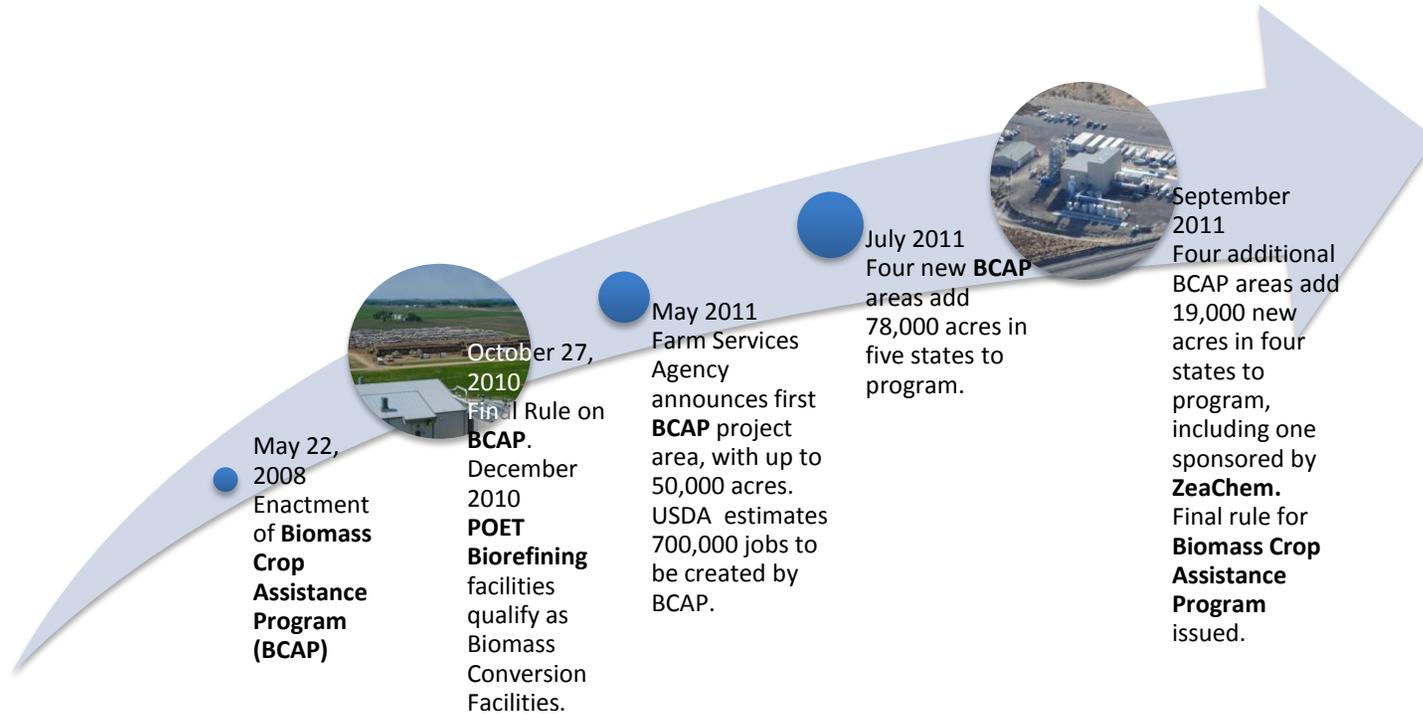
Timeline: BioPreferred



Timeline: Biorefinery Assistance Program



Timeline: Biomass Crop Assistance Program



Abengoa Bioenergy, Hugoton, Kans.

26.5 million gallons per year, cellulosic ethanol.

Start Date: 4Q 2013.



Figure 1: Abengoa biorefinery project stack yard.

Figure 2: Abengoa biorefinery construction progress, June 2012.

DuPont Tate & Lyle, Loudon, Tenn.

100 million lbs. per year, 1,3 propanediol

Start Date: November 2006.



Figure 1: DuPont Tate & Lyle PDO Biorefinery.

Fibright, Blairstown, Iowa

6 million gallon per year cellulosic ethanol.

Start Date: 2Q 2013.



Figure 2: Fibright biorefinery undergoing renovation to cellulosic ethanol.

Gevo, Luverne, Minn.

22 million gallon per year biobutanol.

Start Date: 4Q 2012.



Figure 3: Gevo biorefinery undergoing renovation for biobutanol production.

INEOS New Planet Energy, Vero Beach, Fla.

8 million gallon per year cellulosic ethanol; 6 MW biomass electricity.
Start Date: 2Q 2012



Figure 4: INEOS Bio New Planet Energy groundbreaking February 2011.



Figure 5: USDA Sec. Tom Vilsack checks construction progress, August 2011.

Myriant, Lake Providence, La.

30 million lbs per year of bio-succinic acid.

Start Date: Q1 2013



Figure 6: Myriant construction progress March 2012.

NatureWorks, LLC, Blair, Neb.

140,000 tons per year PLA

Start Date: 2002



Figure 7: NatureWorks PLA biorefinery, in operation since 2002.

POET-DSM Advanced Biofuels, Emmetsburg, Iowa

25 million gallons per year cellulosic ethanol.
Start Date: 3Q 2013.



Figure 8: POET-DSM groundbreaking March 2012.



Figure 9: POET-DSM corn stover stack yard November 2011.

Sapphire Energy, Columbus, N.M.

1 million gallon per year integrated algal biorefinery.

Start Date: 1Q 2014



Figure 10: Sapphire IABR construction progress November 2011.



Figure 11: Sapphire IABR ground preparation October 2011.

ZeaChem, Boardman, Ore.

250,000 gallon per year cellulosic ethanol and acetyl acid.

Start Date: 4Q 2011



Figure 12: ZeaChem demonstration biorefinery, aerial view.



Figure 15: ZeaChem demonstration facility under construction, September 2011.

Date	Event
<p>May 13, 2002 Enactment of the Farm Security and Rural Investment Act of 2002 (PL 107-171)</p>	<p>Enactment of the first-ever Farm Bill Energy Title, with comprehensive approach to agriculture energy development and a focus on developing renewable energy, including biofuels and biobased products.</p> <p>Enactment of Biobased Product Purchasing Requirement Program</p> <ul style="list-style-type: none"> • Required federal agencies to purchase products from a list of environmentally preferable biobased products provided they were reasonably comparable in price/performance/availability. • Funded at \$8M over the life of the 02 Farm Bill. <p>Enactment of the Biomass Research and Development Grant Program for biorefinery construction.</p> <ul style="list-style-type: none"> • Awarded grants of up to 50% to offset the cost of developing/constructing biorefineries to demonstrate the commercial viability of converting biomass to fuels or chemicals. • Funded \$60M over the life of the program.
<p>2002</p>	<p>Cargill-Dow joint venture, which eventually becomes NatureWorks LLC, opens PLA resin manufacturing facility in Blair, Neb., producing 70,000 tons and employing 230 people, following three years of pilot production.</p>
<p>Feb. 10, 2005</p>	<p>Final guidelines issued for designating biobased products for federal reference.</p>
<p>March 2006</p>	<p>USDA BioPreferred Program designates first six categories of biobased products for preferred federal purchasing: mobile equipment hydraulic fluids; roof coatings; water tank coatings; diesel fuel additives; penetrating lubricants; and bedding, bed linens, and towels.</p>
<p>Nov. 2006</p>	<p>DuPont Tate & Lyle opens commercial biorefinery, producing 100 million pounds of PDO annually, in Loudon, Tenn., following six years of pilot production.</p>
<p>June 11, 2007</p>	<p>Notice inviting applications for biomass research and development grants. This notice, issued five years after the 2002 Farm Bill, was the first funding opportunity to help with the costs of biorefineries.</p>
<p>May 2008</p>	<p>USDA BioPreferred Program designates additional 27 categories of biobased products for preferred federal purchasing.</p>
<p>May 22, 2008 Enactment of the Food, Conservation, and Energy Act of 2008 (PL 110-234)</p>	<p>Enactment of the Biobased Markets Program</p> <ul style="list-style-type: none"> • Funded at \$9M over the life of the Farm Bill (2008-2012). <p>Enactment of the Biorefinery Assistance Program</p>

	<ul style="list-style-type: none"> • Provides loan guarantees for the development, construction, and retrofitting of commercial-scale advanced biorefineries. • Funded at \$320M over the life of the Farm Bill (2008-2012). <p>Enactment of the Biomass Crop Assistance Program (BCAP)</p> <ul style="list-style-type: none"> • Provides payments to rural landowners to establish, produce, and deliver biomass feedstocks for biofuels production. • Funded at “such sums as necessary”.
July 2008	U.S. International Trade Commission study, “Industrial Biotechnology: Development and Adoption by the U.S. Chemical and Biofuel Industries,” counts 5,700 workers in the biobased industry.
July 2009	NatureWorks LLC doubles production capacity to 140,000 tons of PLA at Blair, Neb., biorefinery.
October 2009	USDA BioPreferred Program designates additional 9 categories of biobased products for preferred federal purchasing.
December 2009	USDA offers conditional commitment and begins to negotiate loan guarantee for Sapphire Energy under the Biorefinery Assistance Program .
October 2010	USDA BioPreferred Program designates additional 9 categories of biobased products for preferred federal purchasing.
October 27, 2010	Final Rule issued on the BCAP . This final rule importantly reformed the CHST matching payment program to incentivize collection and delivery of only that biomass that would otherwise be uneconomical to retrieve and convert into energy.
December 2010	<p>POET Biorefining facilities in Emmetsburg, Iowa, Scotland, S.D. and Chancellorsville, S.D. qualify as Biomass Conversion Facilities under BCAP rule.</p> <p>Myriant breaks ground on a 30 million pound commercial succinic acid facility in Lake Providence, La.</p>
January 5, 2011	USDA offers conditional commitments and begins to negotiate loan guarantees for INEOS Bio, Enerkem and Coskata, under the Biorefinery Assistance Program . INEOS Bio has operated a pilot biorefinery in Fayetteville, Ark., since 2003. Enerkem has operated a demonstration biorefinery in Quebec since 2009. Coskata operated a demonstration biorefinery in Madison, Pa., for two years, beginning in 2009.

January 20, 2011	Final Rule issued on the Biobased Markets Program . Final Rule issued for BioPreferred™ Voluntary Labeling of Biobased Product. By the end of 2011, BioPreferred had received applications for the certification of more than 800 individual products in 150 different categories, ranging from industrial supplies to personal care items. BioPreferred has identified more than 25,000 products available on the market.
February 3, 2011	USDA Inspector General Report criticizing the initial implementation of BCAP and making recommendations for reforming its administration.
February 9, 2011	INEOS Bio New Planet Energy breaks ground in Vero Beach, Fla., on the Indian River BioEnergy Center, a biorefinery that will produce eight million gallons of cellulosic ethanol and six megawatts of power when fully operational. The project creates 175 construction jobs.
February 14, 2011	Interim Final Rule issued on the Biorefinery Assistance Program .
March 11, 2011	Notice of Funds Availability (NOFA) inviting applications for the Biorefinery Assistance Program through May 10, 2011.
May 2011	Farm Service Agency (FSA) announces the first Biomass Crop Assistance Program project area, with up to 50,000 acres across 39 counties in central and western Missouri and eastern Kansas, producing up to 150,000 tons per year. 700,000 potential U.S. jobs could be created pursuant to BCAP . USDA BCAP Fact Sheet http://www.fsa.usda.gov/Internet/FSA_File/bcap_update_may2011.pdf
June 6, 2011	Extension of the NOFA inviting applications for the Biorefinery Assistance Program to July 6, 2011.
July 2011	USDA BioPreferred Program designates additional 14 categories of biobased products for preferred federal purchasing. Farm Service Agency announces four new BCAP project areas, with more 78,000 acres across more than 100 counties in five states.
August 2011	INEOS Bio New Planet Energy closes private financing, supported by a Biorefinery Assistance Program loan guarantee, of Indian River BioEnergy biorefinery. The project employs 50 permanent operators.
September 2011	Farm Service Agency announces four additional BCAP project areas, with more than 19,000 acres across 31 counties in four states.

September 15, 2011	Final Rule for BCAP amended to provide specifically for prioritizing limited program funds in favor of the “project area” portion of BCAP , with any remaining funds to be eligible for CHST payments.
November 2011	Sapphire Energy closes financing for an algal biofuel biorefinery in Columbus, N.M., supported by USDA Biorefinery Assistance Program loan guarantee. Sapphire began construction in June 2011, and will employ 60 operational personnel. Indirect jobs may total 750.
January 2012	USDA offers conditional commitments and begins negotiations for loan guarantees with ZeaChem and Fiberight. ZeaChem began operation of a demonstration biorefinery in Boardman, Ore., in December 2011. Fiberight began a pilot cellulosic ethanol facility in Virginia in 2009 and is working to convert an existing Blairstown, Iowa waste-to-energy facility. The projects employ 100 people and create 338 construction jobs.
January 27, 2012	Notice of Funds Availability for the Biorefinery Assistance Program announces there will be no funds available for the program for FY 2012.