Farm Bill
Energy Title Programs

Timeline of a Successful Policy Initiative

Biotechnology Industry Organization (BIO)
Biotechnology Industry Organization (BIO)

Timeline: BioPreferred

May 13, 2002
Enactment of Farm Bill Energy Title.
Enactment of Biobased Product Purchasing Requirement

2002
NatureWorks LLC opens Blair, Neb., Ingeo PLA biorefinery at 70,000 tons.

February 10, 2005
Final Rules for BioPreferred Federal Purchasing

March 2006 USDA BioPreferred Program designates first 6 biobased product categories.

November 2006
DuPont Tate & Lyle opens 100 million lbs. PDO biorefinery in Loudon, Tenn.

July 2008
USITC study counts 5,700 biobased product workers.

July 2009
NatureWorks LLC Ingeo PLA biorefinery doubles production capacity to 140,000 tons.

July 2010
Iowa State University reports more than 54,000 biobased product jobs, based on 2008 survey.

December 2010
Myriant breaks ground on 30 million lbs. cellulosic succinic acid biorefinery in Lake Providence, La.

January 20, 2011
Final rule for BioPreferred Label. By December, USDA BioPreferred Program receives 800 applications to label biobased products in more than 150 categories.

July 2011
USDA BioPreferred Program expands to 65 total product categories.

Fall 2011
Iowa State reports 100,000 biobased product jobs, based on 2010 survey.
Timeline: Biorefinery Assistance Program

May 13, 2002
Enactment of the Biomass Research and Development Grant Program for biorefinery construction.

May 22, 2008
Enactment of Biorefinery Assistance Program, providing construction loan guarantees.

June 11, 2007
Notice inviting applications for BRDI grants.

December 2009
Sapphire Energy receives conditional commitment of loan guarantee under BAP.

January 5, 2011
INEOS New Planet Energy, Enerkem, and Coskata receive conditional commitments for loan guarantees under BAP.

February 9, 2011
INEOS New Planet Energy breaks ground in Vero Beach, Fla. on 8 million gallon cellulosic biorefinery.

February 14, 2011
Interim Final Rule issued on BAP.

March 11, 2011
BAP invites applications for available funds.

August 2011
INEOS New Planet Energy closes private financing. The project employs 50 operators.

November 2011
Sapphire Energy closes financing for 1 million gallon algal biorefinery in Columbus, N.M.

January 2012
ZeaChem and Fiberight receive conditional commitments for loan guarantees.
Timeline: Biomass Crop Assistance Program

May 22, 2008
Enactment of Biomass Crop Assistance Program (BCAP)

October 27, 2010
Final Rule on BCAP.
December 2010
POET Biorefining facilities qualify as Biomass Conversion Facilities.

May 2011
Farm Services Agency announces first BCAP project area, with up to 50,000 acres. USDA estimates 700,000 jobs to be created by BCAP.

July 2011
Four new BCAP areas add 78,000 acres in five states to program.

September 2011
Four additional BCAP areas add 19,000 new acres in four states to program, including one sponsored by ZeaChem. Final rule for Biomass Crop Assistance Program issued.
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.
Fiberight, Blairstown, Iowa

6 million gallon per year cellulosic ethanol.
Start Date: 2Q 2013.

Figure 2: Fiberight 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.
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| May 13, 2002       | Enactment of the Farm Security and Rural Investment Act of 2002 (PL 107-171)  
|                    | 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.  
|                    | Enactment of **Biobased Product Purchasing Requirement Program**  
|                    | - 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.  
|                    | Enactment of the **Biomass Research and Development Grant Program** for biorefinery construction.  
|                    | - 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.  
| 2002               | 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.  
| March 2006         | 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.  
| Nov. 2006          | DuPont Tate & Lyle opens commercial biorefinery, producing 100 million pounds of PDO annually, in Loudon, Tenn., following six years of pilot production.  
| June 11, 2007      | 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.  
| May 2008           | USDA BioPreferred Program designates additional 27 categories of biobased products for preferred federal purchasing.  
| May 22, 2008       | Enactment of the **Biobased Markets Program**  
|                    | - Funded at $9M over the life of the Farm Bill (2008-2012).  
| Enactment of the Food, Conservation, and Energy Act of 2008 (PL 110-234) | Enactment of the **Biorefinery Assistance Program** |
- 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).

Enactment of the **Biomass Crop Assistance Program (BCAP)**
- Provides payments to rural landowners to establish, produce, and deliver biomass feedstocks for biofuels production.
- Funded at “such sums as necessary”.

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<td>July 2009</td>
<td>NatureWorks LLC doubles production capacity to 140,000 tons of PLA at Blair, Neb., biorefinery.</td>
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<td>October 2009</td>
<td>USDA BioPreferred Program designates additional 9 categories of biobased products for preferred federal purchasing.</td>
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<td>December 2009</td>
<td>USDA offers conditional commitment and begins to negotiate loan guarantee for Sapphire Energy under the <strong>Biorefinery Assistance Program</strong>.</td>
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<tr>
<td>October 2010</td>
<td>USDA BioPreferred Program designates additional 9 categories of biobased products for preferred federal purchasing.</td>
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<td>October 27, 2010</td>
<td>Final Rule issued on the <strong>BCAP</strong>. 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.</td>
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<td>December 2010</td>
<td>POET Biorefining facilities in Emmetsburg, Iowa, Scotland, S.D. and Chancellorsville, S.D. qualify as Biomass Conversion Facilities under <strong>BCAP</strong> rule. Myriant breaks ground on a 30 million pound commercial succinic acid facility in Lake Providence, La.</td>
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<td>January 5, 2011</td>
<td>USDA offers conditional commitments and begins to negotiate loan guarantees for INEOS Bio, Enerkem and Coskata, under the <strong>Biorefinery Assistance Program</strong>. 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.</td>
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<td>January 20, 2011</td>
<td>Final Rule issued on the <strong>Biobased Markets Program</strong>. Final Rule issued for <strong>BioPreferred™</strong> 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.</td>
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<td>February 3, 2011</td>
<td>USDA Inspector General Report criticizing the initial implementation of <strong>BCAP</strong> and making recommendations for reforming its administration.</td>
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<td>February 9, 2011</td>
<td>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.</td>
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<td>February 14, 2011</td>
<td>Interim Final Rule issued on the <strong>Biorefinery Assistance Program</strong>.</td>
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<td>March 11, 2011</td>
<td>Notice of Funds Availability (NOFA) inviting applications for the <strong>Biorefinery Assistance Program</strong> through May 10, 2011.</td>
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<td>May 2011</td>
<td>Farm Service Agency (FSA) announces the first <strong>Biomass Crop Assistance Program</strong> 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 <strong>BCAP</strong>. USDA BCAP Fact Sheet <a href="http://www.fsa.usda.gov/Internet/FSA_File/bcap_update_may2011.pdf">http://www.fsa.usda.gov/Internet/FSA_File/bcap_update_may2011.pdf</a></td>
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<td>June 6, 2011</td>
<td>Extension of the NOFA inviting applications for the <strong>Biorefinery Assistance Program</strong> to July 6, 2011.</td>
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<td>July 2011</td>
<td>USDA <strong>BioPreferred</strong> Program designates additional 14 categories of biobased products for preferred federal purchasing.</td>
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<td>Farm Service Agency announces four new <strong>BCAP</strong> project areas, with more 78,000 acres across more than 100 counties in five states.</td>
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<td>August 2011</td>
<td>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.</td>
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<td>September 2011</td>
<td>Farm Service Agency announces four additional <strong>BCAP</strong> project areas, with more than 19,000 acres across 31 counties in four states.</td>
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<td>September 15, 2011</td>
<td>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.</td>
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<td>November 2011</td>
<td>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.</td>
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<td>January 27, 2012</td>
<td>Notice of Funds Availability for the Biorefinery Assistance Program announces there will be no funds available for the program for FY 2012.</td>
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