Visible Progress in Commercialization of Advanced Biofuels, Biobased Products and Renewable Chemicals

Industrial Biotechnology Companies Leading the Way

Biotechnology Industry Organization (BIO)

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 Bioenergy New Technologies biorefinery construction progress, Feb. 2012.

BioAmber, Pomacle, France

2,000 metric tons per year biobased succinic acid.
Start Date: January 2010.

Figure 3: BioAmber Succinic Acid Biorefinery and warehoused product in operation since 2010.

BP Biofuels, Highland County, Fla.

36 million gallon per year cellulosic biofuel biorefinery. 20,000 acre energy cane farm.
Start Date: 4Q 2014.

Figure 4: Energy cane from Henderson Liberty Farms in Highland County, Fla., April 2012.

BP Biofuels, Jennings, La.

1.4 million gallon per year cellulosic biofuel demonstration biorefinery.
Start Date: February 2007.

Figure 5: BP Biofuels demonstration facility and feedstock processing, in operation since 2007.

DuPont Cellulosic Biofuels, Vonore, Tenn.

250,000 gallon per year cellulosic biofuel demonstration biorefinery.
Start Date: 4Q 2009

Figure 6: DuPont Cellulosic Biofuel biorefinery in Vonore, Tenn.

DuPont Tate & Lyle, Loudon, Tenn.

100 million lbs. per year, 1,3 propanediol.
Start Date: November 2006.

Figure 7: DuPont Tate & Lyle PDO Biorefinery in operation since 2006.

Fiberight, Blairstown, Iowa

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

Figure 8: Fiberight biorefinery undergoing renovation to cellulosic ethanol April 2012.

Gevo, Luverne, Minn.

22 million gallon per year biobutanol.
Start Date: 2Q 2012.

Figure 9: Gevo biorefinery retrofitted for biobutanol production opened May 2012.

INEOS New Planet Energy, Vero Beach, Fla.

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

Figure 10: USDA Sec. Tom Vilsack checks construction progress, August 2011.

Figure 11: INEOS Bio New Planet Energy groundbreaking February 2011.

Myriant, Lake Providence, La.

30 million lbs per year of bio-succinic acid.
Start Date: 1Q 2013.

Figure 12: Myriant construction progress March 2012.

NatureWorks, LLC, Blair, Neb.

140,000 tons per year PLA.
Start Date: 2002.

Figure 13: NatureWorks PLA biorefinery, in operation since 2002.

Novozymes, Blair, Neb.

Commercial enzyme biorefinery.
Start Date: May 2012

Figure 14: Novozymes North America enzyme biorefinery opened May 30, 2012.

POET-DSM Advanced Biofuels, Emmetsburg, Iowa

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

Figure 15: POET-DSM corn stover stack yard November 2011.

Figure 16: POET-DSM groundbreaking March 2012.

Reverdia, Cassano Spinola, Italy

10 kiloton per year Biosuccinium™ succinic acid.
Start Date: 4Q 2012.

Figure 17: Reverdia commercial plant under construction June 2012.

Sapphire Energy, Columbus, N.M.

1 million gallon per year integrated algal biorefinery.
Start Date: 1Q 2014.

Figure 18: Sapphire IABR ground preparation October 2011.

Figure 19: Sapphire IABR construction progress November 2011.

Verenium, San Diego, Calif.

Fermentation pilot plant for enzyme development.
Start Date: 3Q 2012

Figure 20: New Verenium headquarters and pilot plant under construction in San Diego, April 2012.

ZeaChem, Boardman, Ore.

250,000 gallon per year acetic acid, ethyl acetate and cellulosic ethanol.
Start Date: 2012.

Figure 21: ZeaChem demonstration biorefinery, aerial view, opened January 2012.

Figure 22: ZeaChem demonstration facility under construction, September 2011.