



Sale of Abengoa Bioenergy's Gen 1 Ethanol Plants

August 2016

Overview of Abengoa's Gen 1 Ethanol Plants

Abengoa operates 6 Gen 1 ethanol plants totaling 381 MGPY⁽¹⁾.



Location	MGPY
1. Madison, IL	90
2. Mt. Vernon, IN	90
3. York, NE	56
4. Ravenna, NE	90
5. Portales, NM ⁽¹⁾	30
6. Colwich, KS	25
Total	381

Source: Company website.

Note: Plant size based on nameplate capacity.

(1) Portales, NM ethanol plant was not sold in the 363 bankruptcy process.

Summary Plant Information – Abengoa Ethanol Plants

Plant Location	Capacity (MGPY)	Technology	Rail Access	Corn Oil	Comments
Madison, IL	90	Vogelbusch	CSX / NS / CN / KCS	Yes	<ul style="list-style-type: none"> • Construction started in 2008 and began production in early 2010 • Located next to the Mississippi River • Produces 230K tons of DGS and consumes 825K tons of corn annually
Mt. Vernon, IN	90	Vogelbusch	CSX / NS / CN / KCS	Yes	<ul style="list-style-type: none"> • Construction started in 2008 and began production in early 2010 • Located in the Corn Belt along the Ohio River • Produces 230K tons of DGS and consumes 825K tons of corn annually • Products are transported by truck, train and boat
York, NE	56	Vogelbusch	BNSF / UP	Yes	<ul style="list-style-type: none"> • Built in 1994 and expanded in 1996 and 2001 • Produces 145K tons of DGS and consumes 520K tons of corn annually • >50% of CO2 produced is captured and refined by the client on site • Supports the adjacent biomass pilot plant

Source: RFA, Company website and OPA research.

Note: CSX – CSX Corporation; NS – Norfolk Southern; CN – Canadian National; KCS – Kansas City Southern; BNSF – Burlington Northern and Santa Fe.

Summary Plant Information – Abengoa Ethanol Plants

Plant Location	Capacity (MGPY)	Technology	Rail Access	Corn Oil	Comments
Ravenna, NE	90	Vogelbusch	BNSF / UP	Yes	<ul style="list-style-type: none"> Construction started in 2005 and completed in 2007 Produces 230K tons of DGS and consumes 825K tons of corn annually The first in the US to use continuous fermentation technology A double railroad circuit for simultaneous loading and shipment of ~3M gallons of bioethanol in 95 tank cars Designed to recycle all process waters
Portales, NM	30	Vogelbusch	BNSF / UP	No	<ul style="list-style-type: none"> Built in 1985, expanded in 2006 to double capacity Produces 75K tons of DGS and consumes 260K tons of corn and sorghum annually Can simultaneously use corn and sorghum Primary markets are Texas and California
Colwich, KS	25	Vogelbusch / ICM	BNSF / UP	Yes	<ul style="list-style-type: none"> Built in 1982, one of the oldest dry mill bioethanol facilities in the US Produces 70K tons of DGS and consumes 240K tons of corn and sorghum annually Can simultaneously use corn and sorghum 50% of the energy requirements covered by methane coming from a municipal solid waste dump

Source: RFA, Company website and OPA research.

Note: CSX – CSX Corporation; NS – Norfolk Southern; CN – Canadian National; KCS – Kansas City Southern; BNSF – Burlington Northern and Santa Fe.

Case Study: Green Plains' Acquisition



Green Plains acquired the Madison, Mt. Vernon and York plants for \$237.4M or \$1.01/gal.

Transaction Highlights

- On June 13, 2016, Green Plains was selected as the Stalking Horse bid for the Madison and Mt. Vernon ethanol plants
 - \$200.0M or \$1.11/gal
- On August 22, 2016, GPRE was the successful bidder on the Madison, Mt. Vernon and York plants
 - \$200.0M for Madison and Mt. Vernon
 - \$37.4M or \$0.67/gal for York
 - Tops BioUrja's \$35.0M Stalking Horse
- To be approved by Missouri Bankruptcy Court on August 29, 2016
- Expected closing by September 30, 2016

GPRE Overview

- Headquartered in Omaha, NE
 - Founded in 2004
 - IPO in 2006
 - Owns 62.5% of Green Plains Partners
- 3rd largest ethanol producer (post acquisition)
 - 17 plants with total capacity of 1,424MGPY
 - 2nd largest dry mill ethanol producer
- Publicly traded (NASDAQ: GPRE)
 - Market Cap: \$916M (as of 8/24)
 - Enterprise Value: \$1,802M ⁽¹⁾
 - LTM Production: 998M gal (as of 6/30)
 - LTM EBITDA: \$110.7M ⁽¹⁾ or \$0.09/gal ⁽²⁾

Source: Company Press Release. Wall Street Journal.

(1) Includes 62.5% of Green Plains Partners.

(2) Based on nameplate capacity of 1,188MGPY.

Case Study: KAAPA and ICM's Acquisitions

KAAPA acquired Ravenna for \$115M, while ICM acquired Colwich for \$3.15M.

Transaction Highlights

- On June 13, 2016, KAAPA was selected as the Stalking Horse bid for Ravenna plant
 - \$115.0M or \$1.28/gal
 - Confirmed as buyer post-auction
- To be approved by Missouri Bankruptcy Court on August 29, 2016
- Expected closing by September 30, 2016

Transaction Highlights

- On August 22, 2016, ICM was the successful bidder on the Colwich Plant
 - \$3.15M or \$0.13/gal
 - Tops ACE' Ethanol's \$3.0M Bid
- To be approved by Missouri Bankruptcy Court on August 29, 2016
- Expected closing by September 30, 2016

KAAPA Overview

- Headquartered in Minden, NE
- Owns a 80 MGPy plant in Minden, NE
- Owns a portion of 3 additional plants in MN, ND, OH through KE Holdings
- Post acquisition:
 - Owns all or a portion of 4 plants with total capacity of 302MGPy



ICM Overview

- Headquartered in Colwich, KS
 - Operates a pilot plant in St. Joseph, MO
- Provides equipment and technology to ethanol plants
 - ICM technology plants produced 8.8BGPy
- Operates plants on behalf of owners



Source: Company Press Release, Company Website, Wall Street Journal.

Ethanol Plant Acquirers (2009 – 2016)

8 buyers have bought 65% of plants and 78% of capacity since 2009. Only 30 buyers in 5 years.

Top 8 Buyers

- **Flint Hills**
 - 5 Acquisitions in 2010 – 2014
 - 7 plants and 760 MGPy capacity
- **GPRA**
 - 8 Acquisitions in 2009 – 2016
 - 13 plants and 1,036 MGPy capacity
- **Valero**
 - 4 Acquisitions in 2009, 2010 and 2014
 - 12 plants and 1,220 MGPy capacity
- **Guardian Energy / KAAPA**
 - 4 Acquisitions in 2009, 2010, 2013 and 2016
 - 4 plants and 394 MGPy capacity
- **CHS**
 - 2 Acquisitions in 2014 and 2015
 - 2 plants and 258 MGPy capacity
- **Pacific Ethanol**
 - 2 Acquisitions in 2010 and 2015
 - 5 plants and 335 MGPy capacity
- **Murphy Oil**
 - 2 Acquisitions in 2009 and 2010
 - 2 plants and 225 MGPy capacity
- **Big River**
 - 2 Acquisitions in 2009 and 2012
 - 2 plants and 155 MGPy capacity

Single Acquisition Buyers

- Pennsylvania Grain Processing / 110 MGPy – 2012
- Global LP / 107 MGPy – 2013
- Central Farmers Co-Op / 100 MGPy – 2009
- POET / 90 MGPy – 2010
- Siem Kapital & North Atlantic Value⁽¹⁾ / 87 MGPy – 2011
- Marathon Petroleum / 86 MGPy – 2013
- Future Fuels / 65 MGPy – 2013
- Tyton BioEnergy / 60 MGPy – 2014
- Ace Ethanol / 60 MGPy – 2013
- Aemetis / 55 MGPy – 2012
- Pratt Biofuel / 55 MGPy – 2012
- The Andersons / 55 MGPy – 2012
- Carbon Green / 50 MGPy – 2009
- REX / 50 MGPy – 2011
- Nebraska Corn Processing / 44 MGPy – 2009
- Palmer Energy / 40 MGPy – 2012
- Aventine / 38 MGPy – 2010
- Granite Falls / 37 MGPy – 2013
- ICM / 25 MGPy – 2016
- Gevo / 22 MGPy – 2010
- Green Biologics / 21 MGPy – 2014
- West Ventures / 18 MGPy – 2013

(1) Going private transaction.

Ethanol Plant Bankruptcy Acquisitions

Since 2009-2013, valuations for ethanol plant acquisitions out of bankruptcy have averaged \$0.71/gallon.

Price per Gallon (2009 – 2016)

