



## 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<sup>(1)</sup>.



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

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

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

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

**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
- 3<sup>rd</sup> largest ethanol producer (post acquisition)
  - 17 plants with total capacity of 1,424MGPY
  - 2<sup>nd</sup> largest dry mill ethanol producer
- Publicly traded (NASDAQ: GPRE)
  - Market Cap: \$916M (as of 8/24)
  - Enterprise Value: \$1,802M <sup>(1)</sup>
  - LTM Production: 998M gal (as of 6/30)
  - LTM EBITDA: \$110.7M <sup>(1)</sup> or \$0.09/gal <sup>(2)</sup>

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

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• <b>Flint Hills</b> <ul style="list-style-type: none"> <li>– 5 Acquisitions in 2010 – 2014</li> <li>– 7 plants and 760 MGPY capacity</li> </ul> </li> <li>• <b>GPRE</b> <ul style="list-style-type: none"> <li>– 8 Acquisitions in 2009 – 2016</li> <li>– 13 plants and 1,036 MGPY capacity</li> </ul> </li> <li>• <b>Valero</b> <ul style="list-style-type: none"> <li>– 4 Acquisitions in 2009, 2010 and 2014</li> <li>– 12 plants and 1,220 MGPY capacity</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Guardian Energy / KAAPA</b> <ul style="list-style-type: none"> <li>– 4 Acquisitions in 2009, 2010, 2013 and 2016</li> <li>– 4 plants and 394 MGPY capacity</li> </ul> </li> <li>• <b>CHS</b> <ul style="list-style-type: none"> <li>– 2 Acquisitions in 2014 and 2015</li> <li>– 2 plants and 258 MGPY capacity</li> </ul> </li> <li>• <b>Pacific Ethanol</b> <ul style="list-style-type: none"> <li>– 2 Acquisitions in 2010 and 2015</li> <li>– 5 plants and 335 MGPY capacity</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Murphy Oil</b> <ul style="list-style-type: none"> <li>– 2 Acquisitions in 2009 and 2010</li> <li>– 2 plants and 225 MGPY capacity</li> </ul> </li> <li>• <b>Big River</b> <ul style="list-style-type: none"> <li>– 2 Acquisitions in 2009 and 2012</li> <li>– 2 plants and 155 MGPY capacity</li> </ul> </li> </ul> |
|---|---|---|

## Single Acquisition Buyers

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Pennsylvania Grain Processing / 110 MGPY – 2012</li> <li>• Global LP / 107 MGPY – 2013</li> <li>• Central Farmers Co-Op / 100 MGPY – 2009</li> <li>• POET / 90 MGPY – 2010</li> <li>• Siem Kapital &amp; North Atlantic Value<sup>(1)</sup> / 87 MGPY – 2011</li> <li>• Marathon Petroleum / 86 MGPY – 2013</li> <li>• Future Fuels / 65 MGPY – 2013</li> <li>• Tyton BioEnergy / 60 MGPY – 2014</li> <li>• Ace Ethanol / 60 MGPY – 2013</li> <li>• Aemetis / 55 MGPY – 2012</li> <li>• Pratt Biofuel / 55 MGPY – 2012</li> </ul> | <ul style="list-style-type: none"> <li>• The Andersons / 55 MGPY – 2012</li> <li>• Carbon Green / 50 MGPY – 2009</li> <li>• REX / 50 MGPY – 2011</li> <li>• Nebraska Corn Processing / 44 MGPY – 2009</li> <li>• Palmer Energy / 40 MGPY – 2012</li> <li>• Aventine / 38 MGPY – 2010</li> <li>• Granite Falls / 37 MGPY – 2013</li> <li>• ICM / 25 MGPY – 2016</li> <li>• Gevo / 22 MGPY – 2010</li> <li>• Green Biologics / 21 MGPY – 2014</li> <li>• West Ventures / 18 MGPY – 2013</li> </ul> |
|--|--|

(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)

