



California Energy Commission

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AEMETIS

The Aemetis Biorefinery

Renewable Fuels Produced
by Conversion of Existing Corn Ethanol Facilities

August 2012



Disclaimer

Certain of the statements contained herein may be statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. In addition to statements which are forward-looking by reason of context, the words “may, will, should, expects, plans, intends, anticipates, believes, estimates, predicts, potential, or continue” and similar expressions identify forward-looking statements.

Actual results, performance or events may differ materially from those in such statements due to, without limitation, (i) general economic conditions, (ii) ethanol and gasoline prices, (iii) commodity prices, (iv) distillery grain soluble markets, (v) persistency levels, (vi) transportation rates for rail/trucks, (vii) interest rate levels, (viii) ethanol imports, (ix) changing levels of competition, (x) changes in laws and regulations, including govt. support/incentives for biofuels, (xi) changes in process technologies, (xii) the impact of acquisitions, including related integration issues, (xiii) reorganization measures and (xiv) general competitive factors on a local, regional, national and/or global basis, (xv) natural gas and steam prices, and (xvi) chemicals and enzyme prices.

Many of these factors may be more likely to occur, or may be more pronounced, as a result of terrorist activities.

The matters discussed herein may also involve risks and uncertainties described from time to time in the company's annual reports and/or auditors' financial statements. The company assumes no obligation to update any forward-looking information contained herein, and assumes no liability for the accuracy of any of the information presented herein as of a future date.



Aemetis Overview

- **“Aemetis” means “One Prudent Wisdom” (Ae = Scottish; Metis = Greek)**

The prudence and wisdom of replacing petroleum products with renewable fuels

- Biofuels production facilities in North America and Asia
- \$200 million per year revenues run rate from fuels, chemicals and related products
- 110 million gallons per year biofuels capacity
- 110+ employees
- Industry-leading microbial and enzyme technology for production of chemicals/fuels
- 4 granted patents; 14 pending patents on microbe/enzymes and production processes
- Research and Development facility and technology team at Maryland Biotech Center
- Montana renewable fuels pre-commercial plant completed August 2008
- Awarded \$1.8 million CEC grant for cellulosic ethanol production unit in California
- **Global research, development, operations and marketing capabilities in renewable advanced fuels**



Aemetis 60 Million Gallon Ethanol Plant Keyes, California



Aemetis Investments - Next Gen Fuels

- **2007 Acquired Energy Enzymes (Montana)**
 - Former DOE funded enzyme technology for enzyme production and integration
- **2008 Built and operated cellulosic ethanol test facility (Montana)**
 - Used Energy Enzymes production process at test scale
- **2011 Acquired Zymetis (Maryland)**
 - Technology from University of Maryland, funded by State of Maryland and VC's
 - Patented microbe that produces more than 20 cellulosic enzymes
 - Scaled to 7,000 liter production unit at US Army testing facility
 - Demonstrated up to 50% increase in cellulosic ethanol yields
- **2011-12 Retrofitted and Acquired \$130 million (build cost) Keyes ethanol plant**
 - Zero water discharge facility; advanced CIP systems; 80,000 gallon R&D fermenter onsite
 - Deliver about \$40 million per year of lower-cost animal feed to about 200 dairies and feedlots in Central Valley
- **2012 Designed, built and operate Corn Oil Extraction unit at Keyes**
 - About 2 million gallons per year of extracted oil for biodiesel or animal feed
 - Reduces carbon footprint of biofuels produced at Keyes plant by increasing yield
- **2012 CEC Grant \$1.88 million for Cellulosic Ethanol unit at Keyes**
 - Applied Q2 2010; awarded April 2011; CEQA approval Feb 2012; signed CEC agreement July 2012
 - EdenIQ cellulosic ethanol technology testing completed Q1 2012



Aemetis Investments - Next Gen Feedstocks

- **2011 Imported and Planted CX-1 Feedstock (South Carolina)**
 - 15 years USDA funded plant development of high-yielding biofuels feedstock
 - Fresno State University plant genetics and breeding support
 - Field planted in Fresno County
 - Produced more than 1,900 gallons per acre of ethanol (corn is about 500 gpa)
 - Outcome: Reduce land use for ethanol feedstock by 75%-80%
 - Outcome: Reduce cost of biofuel at the pump
 - Outcome: Use high salinity land and provide rotation crop for California farmers
- **2011-12 Tested CX-1 Feedstock in Aemetis Maryland R&D Lab**
- **2012 CX-1 Second Year Planting (Fresno County)**
 - Fresno site will harvest in October
- **2012 California Ag Residue Feedstock Testing – Aemetis Maryland Lab**



CX-1 Ethanol Feedstock



- **Derived from Peruvian and Chinese industrial plants**
- **Highly efficient “Biological Solar Panel”**
 - Large leaves on vine
 - Plant energy not used to grow tall stalk
 - Energy stored in root
- **Yield about 2,000 gallons of ethanol per acre (vs. 500 gpa for corn)**



CEC Partnership

- **Operation of Ethanol Plant to Supply 1.3 billion gallon California market**
 - Aemetis invested to acquire and upgrade Keyes plant
 - EPA has fully approved 15% ethanol (E15), but California E15 adoption may take 2 yrs
 - Market for next generation fuels is limited by the 10% cap on ethanol blending
- **Construction of cellulosic ethanol plant upgrades:**
 - Multi-feedstock demonstration facility for 1 mgy capacity
 - Corn fiber production unit for 1 mgy capacity
 - Multi-feedstock production unit for 5 mgy capacity
- **Next generation feedstock production:**
 - CX-1 scaleup in Central Valley to 30,000 acres (60 million gallons per year of ethanol)
 - Kenaf demonstration site in Central Valley to recover high-salinity and low water land





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