Innovative Solutions for Sustainability

Second-Generation Biofuels: Ready for Take-off

ABENGOA

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Executive VP

Analyst and Investor Day
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Such statements reflect the current views of Abengoa with respect to future events and are subject to risks, uncertainties and assumptions.

Many factors could cause the actual results, performance or achievements of Abengoa to be materially different from any future results, performance or achievements that may be expressed or implied by such forward-looking statements, including, among others, changes in general economic, political, governmental and business conditions globally and in the countries in which Abengoa does business, changes in interest rates, changes in inflation rates, changes in prices, changes to national and international laws and policies that support renewable energy sources; inability to improve competitiveness of our renewable energy services and products; decline in public acceptance of renewable energy sources; legal challenges to regulations, subsidies and incentives that support renewable energy sources; inability to obtain new sites and expand existing ones; changes in business strategy and various other factors.

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Abengoa does not intend, and does not assume any obligations, to update these forward-looking statements.
Biofuels demand is growing worldwide and supply-demand unbalance is shifting.

Abengoa posses a unique 1G ethanol platform that has yield stable margins over time.

Abengoa plans on leveraging its 1G platform and 2G proprietary technology to become one of the leaders in 2G.
Business Description. Our Capabilities

Future Opportunities
Biofuels expected to make up 60% of global fuel demand growth by 2030

Liquids Demand Growth (BGY)

Source: IEA, EIA, UN, WB
Expected +10% CAGR ethanol demand in all markets though 2020, supported by energy security and sustainability

Drivers

- Legislation: RED (10% renewable energy in transportation by 2020)
- Energy security
- Sustainability
- Population growth
- Income increase
Demand will remain strong due to legislation, sustainability & better economics

Global Demand (BGY)

Source: Unica, RFA, Ebio, FO Lichts, Abengoa estimates
While ethanol supply growth has slowed down in the past 2 years ...

... resulting in demand expecting surpassing supply by 2011

Source: Unica, RFA, Ebio, FO Lichts, Abengoa estimates
Strong position through diversification

Biofuel capacity = 380 MGY
Feed capacity = 980 KTY

Biofuel capacity = 395 MGY
Feed capacity = 885 KTY

Biofuel capacity = 50 MGY
Sugar capacity = 540 KTY

Global footprint

- Large asset base
- Access to various geographies
- Logistic leverage/arbitrages
- Raw material alternatives
- Experienced team
- Risk management platform

Global

Biofuel (MGY): 825
Sugar (KTY): 540
Feed (KTY): 1,865
Margin protection is at the core of our policy

The correct management of our assets and implementation of our Risk Management Policy allow us to protect margins.

- **Control**: RMC* assure that proc. are being done in due time and manner
- **Analysis**: Smart market analysis system
- **Flexibility**: To be adapted to market changes
- **Cash**: Monitor cash needs
- **Discipline**: Execute approved strategy
- **Protection**: Hedge to keep positive margins

Risk Management Policy

![Graph showing EBITDA margin from Q1 2007 to Q4 2010 with average 11.4%]

*RMC = Risk Management Committee
1. Business Description. Our Capabilities
2. Future Opportunities
Global ethanol to show solid growth through 2020 with 25% share by 2G

2G is here

2020 Ethanol Production Mix by Geography (BGY)

- North America: 11 (2nd Generation), 20 (1st Generation)
- Europe: 1 (2nd Generation), 4 (1st Generation)
- Brazil: 5 (2nd Generation), 20 (1st Generation)
- Rest of the World: 4 (2nd Generation), 12 (1st Generation)

Global Ethanol Output (BGY)

- 2010: 23 (2nd Generation), 56 (1st Generation)
- 2020: 76 (2nd Generation), 20 (1st Generation)

Biomass enzymatic hydrolysis process

Mechanical and chemical attack to break biomass fibers and release sugar (xylose)

Biochemical attack to break the cellulose into sugars (glucose)

Conversion of the sugars in alcohol (both xylose and glucose)

Separation of the alcohol from the solid co-product

Products:
- Ethanol
- Co-products: lignin, animal feed, raw material for bio-products

- Thermo-chemical pretreatment
- Enzymes and mechanical and chemical attack to break biomass fibers and release sugar (xylose)
- Cellulose hydrolysis
- Glucose + Xylose fermentation to ethanol
- Enzymatic hydrolysis
- Fermentation
- Distillation
- Lignin recovery
- Products: Ethanol and Co-products: lignin, animal feed, raw material for bio-products
On the right path to a consolidated industry

Targets

- 2010: solazyme
- 2010: AMYRIS
- 2010: VIRENT
- 2009: ZeaChem
- 2010: gevo
- 2010: LS9, INC.
- 2010: coskata

Strategic & financial investors

- 2010: Unilever
- 2010: Chevron
- 2010: TOTAL
- 2010: HONDA
- 2010: Shell
- 2010: VALERO
- 2009: TOTAL
- 2009: BlackRock
- 2009: GM
- 2009: Lanxess
Develop IP biomass-to-ethanol technology and integrate 2G over 1G platform

Our approach

Abengoa Bioenergy Assets

Cereal & Sugar Cane

Sustainability Program Improvements

Biomass to Ethanol Technology

High advanced sustainable ethanol

Proprietary Bio-products
High capacity to leverage 1G competencies into 2G

2G Model

1G Model

Agriculture
Origination & sustainability

Technology
Leadership & innovation

Production
Efficiency

Logistics
Optimization

Marketing
Trading
Hedging
Risk Management
Brand image

Pre-treatment & Presach Process
Enzymatic Hydrolysis
C5 Fermentation
By-Products

2G: Biomass, Management, procurement, logistics & distribution

2G Technology
Synergies of merging 1G & 2G result in significant cost savings (10-15 $cent/gal)
2G very close to be a disruptive solution

First-commercial lignocellulosic ethanol production cost ($/gal)

Expected lignocellulosic ethanol production cost ($/gal) (1)

Source: Biochemical Production of ethanol from corn stover: 2008 – State of Technology Model – NREL; press search; Projections of US. Department of Energy;
(1) BCG “What’s next for alternative energy?”
We own integrated process biomass to ethanol Intellectual Property

- **Biomass pretreatment & presach process**
  - Patent applications: + 12 inventions for cleaning, sizing biomass feedstock; dilute acid & steam explosion pretreatment

- **Enzymatic Hydrolysis (Enzymes program)**
  - Patent application for + 12 inventions for fractionation of biomass, cellulases production, multiple fermentation routes

- **Fermentation (C5 Program)**
  - License for manufacture of hydrolysis enzymes & custom-developed organism for C5 fermentation

- **By-Products valorization (Bioproducts program)**
  - Patent application for CS sugar products, lignin and silica products, high protein feed products

**Target**

- **Enzyme cost**: 40 $/cent/gal
- **Yield**: 70 gal/t
- **C5/C6 conversion**: 90%

Aiming to reach production cost of 2.15 $/gal in first commercial plant
<table>
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<th>Year</th>
<th>Discovery</th>
<th>Technology Development</th>
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- 10 years of technology development
- +100 people in R&D
- +$300 M invested (+$150 M co-financing DOE + EU)
- +26,000 hours of operation in pilot plant
- +4,000 hours of operation in commercial demo plant
Primary objective is to build first-of-its-kind commercial-scale enzymatic hydrolysis conversion of biomass to ethanol

Hugoton Kansas site selected based on significant supply of biomass and strong state and local support for the project

$100 M DoE contract to co-finance project

Project selected for DoE Federal Loan Guarantee program, in due diligence process

Biomass: ~320,000 dt per year contracted fix price for 10 years

- Capacity: 25 MGPY ethanol from biomass
- Electricity capacity: 18-MW gross electrical power. Neutral to grid
- Location: Hugoton, KS (US)
- Site: 400-acre parcel
- Feedstock: Corn stover
- End of construction: 2012 E
To a more diversified business going forward

**Now**

- **Ebitda Margin**: 10% – 15%
- **Volatility**: Medium / High

**Products**

- Ethanol
- Feed
- Sugar
- Electricity
- Biodiesel
- Bioproducts
- Adv. Ethanol
- Conv. Ethanol

**Ethanol-focused (26 BGY)**

- Hydrocarbon Fuels
- Plastics, Fibers, Rubber & other Polymers

**Target 2020**

- **Ebitda Margin**: 15% – 20%
- **Volatility**: Low / Medium

**Products**

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**Incorporated biomaterials (994 BGY)**

- Hydrocarbon Fuels
- Plastics, Fibers, Rubber & other Polymers

**Target Market**

- Gasoline 349 BGY
- Diesel 484 BGY
- Jet 94 BGY
- PMMA
- Polyesters/Xylene/Styrene 27 BGY
- Poly-Propylenes 32 BGY
- Rubber, Lubricants & Additives 8 BGY

**Business profile**

- ABENGOA

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