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Mega-trends, particularly on energy scarcity, create opportunities for biofuels and bio-chemicals

Mega bio-trends
- Climate change
- Energy scarcity and energy price volatility
- Scarcity of and limited access to raw materials
- Food security challenge
- Greater focus on waste and waste management

Opportunities
- Return to biomass?
- Rise in biofuels
- Evolution in bio-chemicals

Source: World Energy Outlook – 2010 – IEA; MIT; SRI; industry reports; Fibria’s Bio-Strategy Project
In this context, Fibria has carried out extensive study of opportunities in the bio-market

**Fibria Forests**
- Productivity increase
- Genetic improvement
- Transgenics
- ...

**Building**
- Pulp
  - Special pulp (eg. dissolving cellulose)
  - Pulp for paper
  - ...

**Biomass**
- Pellets, Roasted Pellets
- Biofuels
  - Bio-ethanol
  - Biodiesel
  - ...
- Bio-products
  - Bio-polymers
  - Base chemicals
  - Solvents
  - Rayon
  - Carbon fiber
  - ...

**Bio-refinery**
- Cogeneration

**In scope**

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**Goal: Define a portfolio of promising technologies that will materially impact Fibria’s value generation in the medium term**

**Project Scope: biofuels, bioproducts and bioenergy**
This continuous evaluation helped us identify pyrolysis technology and Ensyn as promising opportunities.

**Pyrolysis as a Promising Technology**

- Mature technology
- Good CAPEX/t ratio
- Good yield in biomass conversion
- Potentially economical attractiveness

**Ensyn as the Best Opportunity**

- **Smaller scale** of the plants resulting in lower CAPEX and optimized costs in biomass transport
- **Competitive costs** as compared to other fuel players
- **Flexibility of final uses**: industrial oil, power generation, co-refining and possible upgrade to final fuels
- **Strategy based on partnerships** with players with broad experience in different links of the value chain

Source: Fibria Bio-Strategy Project
Ensyn History

1984
- Foundation

1989
- Commercial production, fuels and chemicals for food sector
  US$20 MM Liquidity Event

1990 - 1998
- Scale-up, fuels and chemicals for food sector

1998 - 2005
- Development and sale of petroleum application for
  US$100 MM

2006 - Today
- Focus on renewable fuels
  Strategic partnerships
  Project rollout
  + 30 million gallons of RFO produced

Source: Ensyn
The bio-oil produced by Ensyn is flexible enough to use in various markets with significant potential.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>RTP Process</th>
<th>Replacement Fuel Oil</th>
<th>Consumer Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility in the use of raw materials</td>
<td>Commercially proven technology</td>
<td>Renewable Product</td>
<td>Consumer market flexibility</td>
</tr>
<tr>
<td>• Non-food raw materials</td>
<td>• Non-catalytic process with high conversion to fuels</td>
<td>• Eligibility for regulatory incentives of the RFS2 program in the category of cellulosic fuels for co-refining and upgrading (C-RIN’s)</td>
<td>• Consumer market in the U.S. alone of more than USD1 trillion</td>
</tr>
</tbody>
</table>

(1) Envergent is a JV between Ensyn and UOP, a Honeywell company, the world’s leading supplier of refinery technology.

Source: Ensyn, Fibria Analysis

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The cost of bio-oil is competitive compared to the cost of oil production in the U.S.

Total RFO Costs vs. Oil Wells in the U.S. (USD/BOE)

Source: Ensyn, Wood Mackenzie, Herold
Ensyn is planning significant capacity expansion in North America

- Over 10 projects identified and under discussion in Canada and US
- First 4 projects in North America to be initiated in 2013
- Additional projects opportunities identified in Malaysia, Indonesia and elsewhere
Economic Indicators of the RTP Units
Estimates of Ensyn for projects in Canada and USA

**Cash Margin (USD/BOE)**

- Maximum Margin with Incentives: 239
- Base margin: 139
- Oil Barrel Value: 100
- Production Cost: 45
- RFO Market Value: 194

**Capex (USD MM) and Production (BOE)**

- Capex from USD 60 to 100 MM, depending on the existing infrastructure
- ~750 BOE per day = 230 k BOE/year = 22 millions of gallons per year

**Return without Leverage – Pre-Tax**

- Without C-RIN’s: 18%
- 50% of C-RIN’s: 32%
- 100% of C-RIN’s: 45%

**Return with 50% of Leverage – Pre-Tax**

- Without C-RIN’s: 22%
- 50% of C-RIN’s: 45%
- 100% of C-RIN’s: 64%

**Proxy of returns in Brazil = ??**
The Ensyn investment is a move that opens a strategic option to Fibria

**Equity Investment only**
- Entry in the company capital with IPO estimated for 2013
- Potential equity appreciation

**JV Investment**
- Maintains upside of the potential equity appreciation
- Allows structuring of JV in Brazil with exclusivity (*)

**JV in Brazil only**
- Constitution of non-exclusive JV in Brazil to operate RTP plants with biomass provided by Fibria

The purchase of the stake should be understood as a **strategic move that creates an option for a new business** in Brazil based on a **promising technology of renewable energy**, with **exclusivity**

*By the exclusivity agreement signed, exclusivity rights held by Ensyn to build and operate RTP plants in Brazil for certain applications will be fully transferred to the JV.*
The JV in Brazil will have a solid position in the key critical factors for success in this market

- Potential to use the base of 1 million ha of Fibria to supply forestry residues
- Relationship under construction with potential forestry, agricultural and sawmill partners
- Leverage of Fibria’s expertise in forestry logistics operations
- Access to Ensyn’s promising pyrolysis technology, protected by solid intellectual property
- Existing access to consumer markets in North America and Brazil

Source: Fibria Strategy Team Analysis
The transaction was designed to minimize invested capital risks and allow Fibria’s capture of the upside

<table>
<thead>
<tr>
<th>Immediate entry in the company’s capital</th>
<th>Option to purchase additional stake</th>
<th>Signature of MOU for JV in Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>• US$20 MM transfer</td>
<td>• Option for additional purchase of up to USD10 MM</td>
<td>• Establishment of exclusive JV (*) in Brazil</td>
</tr>
<tr>
<td>• Right to 1 seat on the company’s board</td>
<td>• Option exercisable until IPO (inclusive)</td>
<td>• Complete market potential mapping in progress</td>
</tr>
<tr>
<td>• Entry into the Controlling Block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Various investment protection rights included in the Shareholders’ Agreement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* By the exclusivity agreement signed, exclusivity rights held by Ensyn to build and operate RTP plants in Brazil for certain applications will be fully transferred to the JV.
Different Valuation Methodologies (USD MM)

DCF Base
Comparables Market Value multiples
Comparables Analyst Value multiples

Conservative Scenario
Gevo
KioR

Optimistic Scenario
Amyris
KioR

Offering Reference Value: USD 300 MM

173
353
532

193
304
415

390
648
905

Average Value

Note: Peers analyzed: Gevo, KioR, Amyris and Solazyme
Note 2: Value based on peers considers multiple of EV over average EBITDA expected for 2013 to 2015, applied to the EBITDAs of the DCF base of Ensyn
Source: Fibria Strategy Team Analysis, Bloomberg, Analysts Report
In sum, the partnership with Ensyn presents a solid and promising business model

Product

Renewable fuel production from non-food biomass

Economic Model

High returns with low investment per unit. Potential for gains with regulatory incentives

Technology

Technology protected and commercially proven, with two industrial units in operation

Consumer Market

Major market potential in North America and worldwide

Strategic Partnerships

Relationships with major industry players: UOP, Chevron, others

Growth

Major expansion plan both in North America and other regions (Asia, South America)

JV in Brazil

Strategic alliance based on competencies with potential to create a relevant biofuel business in the future

Source: Ensyn, Fibria Analysis

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