Ensyn’s Renewable Liquid Fuels

What we do
Production of liquid fuel from non-food biomass - over 30M gallons already produced

Economics
Powerful unit economics - cash cost of $45 BOE, capital-light

Technology
Commercially proven – Over 30 million gallons produced, two successful industrial deployments

Markets
Targeting large global petroleum markets leverages existing fuel oil & refining infrastructure

Strategic Relationships
Strong Strategic Relationships – UOP (Honeywell), Chevron Technology Ventures, Fibria, Felda and others

Roll-out
Significant capacity expansion underway
Since 1996, Ensyn has returned to shareholders 3x the amount it has raised in equity funding.
Fibria – Strategic Alliance, Oct 2012
Excerpt from Fibria investor presentation

Fibria’s investment on Ensyn capital 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

**Equity + 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

**JV leveraging on key competencies of each partner**
- Advantage of feedstock cost
- Excellence in biomass logistics
- Access to technology
- Access to the market

(*) 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.
RTP™ History & Accomplishments

1984: Foundation

1989: Commercial production, fuels and chemicals for food sector & $20+ MM Liquidity event

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

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

2006-Present:
- Focus on renewable fuels
- Strategic partnerships
- Project rollout
- Chemicals upside

Focus on renewable fuels
Strategic partnerships
Project rollout
Chemicals upside
From solid biomass to liquid fuels in less than 2 seconds
Natural Progression to Transportation Fuels

Natural Evolution of the Market Applications for RFO

A consequence of:

- Rapid RFO Technology Development
- RIN approval / EPA
- Strategic/Industry interest
- Massive market potential
- Strong RFO unit economics
### Maximum Conversion of Carbon to Liquid Fuels (with minimum capital)

**Biomass Feedstock** → **RTP Process** → **RTP Products**

<table>
<thead>
<tr>
<th>Biomass Feedstock</th>
<th>RTP Process</th>
<th>RTP Products</th>
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<tbody>
<tr>
<td>Liquid</td>
<td>Gas</td>
<td>Char</td>
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</tbody>
</table>

**Approximate Product Yields (weight %)**

- Liquid: 73%
- Gas: 15%
- Char: 12%

**From solid biomass to liquid fuels in less than 2 seconds**

**The RTP Edge**

- Non-catalytic process maximizes carbon conversion from solid biomass to liquid fuels – and generates high liquid yields
- Gas and Char co-products used as source of energy to run the facility
Ensyn’s Reference RFO Production Facility

- Yield, availability, product quality consistent with historical production
- Scale of reference facility minimizes the delivered cost of biomass
- Standard 400 tpd design is matched to biomass supply

### Facility Profile

<table>
<thead>
<tr>
<th>Input</th>
<th>400 tpd biomass</th>
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<tbody>
<tr>
<td>Output</td>
<td>850 BOE/day</td>
</tr>
<tr>
<td></td>
<td>(23 MM Gallons/year of RFO)</td>
</tr>
<tr>
<td>Capital Cost</td>
<td>$60 - $100 mm</td>
</tr>
<tr>
<td>Equity Ownership</td>
<td>Shared between Ensyn and Feedstock owner</td>
</tr>
<tr>
<td>Construction Period</td>
<td>2 years</td>
</tr>
</tbody>
</table>

### Modular, Repeatable Facility

- 400 tonnes per day of dry biomass
- ~850 barrels per day, BOE
- = 23 million gallons per year of RFO

Capital costs of $60-$100 million, depending on existing infrastructure
RFO as Heating Oil – Enormous Project Opportunities

- 20+ years of combustion experience in Wisconsin – over 15 million gallons combusted for heat
- Multiple recent commercial RFO demonstrations in different boilers - Hosted at Ensyn’s partners & customers
- RFO can be co-fired or used alone in conventional commercial and industrial boilers
- RFO combustion emissions compare favorably with fossil fuel
  - SOx Reduction: > 99%
  - NOx Reduction: > 36%
  - CO Reduction: > 72%
Heating – Canadian Iron Ore Pelletizing Mill

- Iron Ore Mill - Boiler Ops
  - Ran up to 22 GJ/hr
  - Fired one burner exclusively on RFO replacing HFO
  - Application was ideal for RFO

RFO Flame
RFO in Refineries: Drop-In Transportation Fuel

*Utilizes existing refinery capital equipment and infrastructure*

- **RFO**
- **Refinery Processing**
- **Transportation Fuel**
  (fully fungible hydrocarbon)

Minimum of 70 gallons per Ton of wood biomass in pilot plant trials
(80 gallons per tonne)

More than 100 gallons per Ton demonstrated (110+ gallons per tonne)
UOP, a Honeywell Company

**UOP/Honeywell:**
- Upgrading technology for transport fuels
- Engineering / performance guarantees
- Credibility
- Development capabilities
- Worldwide sales network

**Ensyn:**
- RTP technology, patents, I.P.
- Operating history / partnerships
- Proven commercial roll-out in two industries
- Know-how (business and technical)
Chevron Technology Ventures (CTV)

- CTV is Chevron’s business and technology incubator
- CTV champions innovation, commercialization and integration of emerging technologies within Chevron
- Ensyn and CTV’s strategic relationship is focused on the production of renewable transportation fuels from RFO
Discussions underway with 15+ major fiber owners in US and Canada
Discussions based on joint ownership of RFO production units
Target partners capable of multiple facilities
Fibria – Ensyn Strategic Alliance

- Fibria Celulose S.A., (NYSE: FBR) is the world’s largest market pulp producer, with production of over 5 million tonnes per year
- Ensyn established a strategic alliance with Fibria in October, 2012
- Ensyn and Fibria have established a 50/50 joint venture for the development of RTP projects in Brazil
- Fibria invested $20 million for 6% ownership of Ensyn Corporation
- Mr. Vinicius Nonino, Fibria’s head of Strategy and M&A, has joined Ensyn’s Board of Directors
Malaysia & Indonesia: Premium & Felda

- Ensyn has a joint venture with Premium Renewable Energy in Malaysia.
- Premium has an agreement with Felda Palm Industries, Malaysia’s leading palm oil producer, regarding initial five RFO facilities.
- Felda is an investor in Ensyn and Dato’ Sabri, CEO of Felda, serves on Ensyn’s Board.
- Conversion of palm residues to RFO for heat and power.
Ensyn’s renewable liquid fuels
Execution phase underway