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Commercial Production of Liquid Fuels from Cellulosic Biomass

December 2012

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

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Key Strategic Relationships in Place

Strategic Relationships

UOP A Honeywell Company

Envergent Technologies A Honeywell Company

Chevron Technology Ventures

Fibria

FPI FELDA PALM INDUSTRIES

Ivanhoe Energy

Red Arrow Smoke • Grill • Browning • Cooking Flavors

Shareholders

Credit Suisse

IMPAX

Chevron Technology Ventures

Fibria

FPI FELDA PALM INDUSTRIES

Since 1996, Ensyn has returned to shareholders 3x the amount it has raised in equity funding

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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

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.*

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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**

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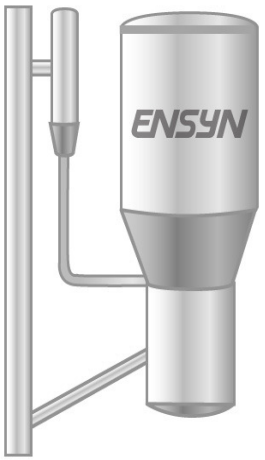
From Cellulosic Biomass to a Barrel of Oil

Biomass Feedstock

RTP Process



Petroleum Replacement Fuel

Broad and Deep Addressable Markets

- **Heating Oil**
  RFS2 Approval in Process
- **Refinery Feedstock**
  (Transportation Fuels)
  RFS2 Approved
- Engine Fuel (for Power)
- **Stand-alone Upgrading to Transportation Fuels**
  RFS2 Approved

From solid biomass to liquid fuels in less than 2 seconds

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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

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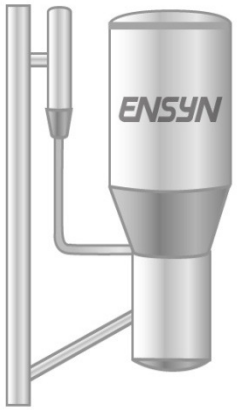
Maximum Conversion of Carbon to Liquid Fuels (with minimum capital)

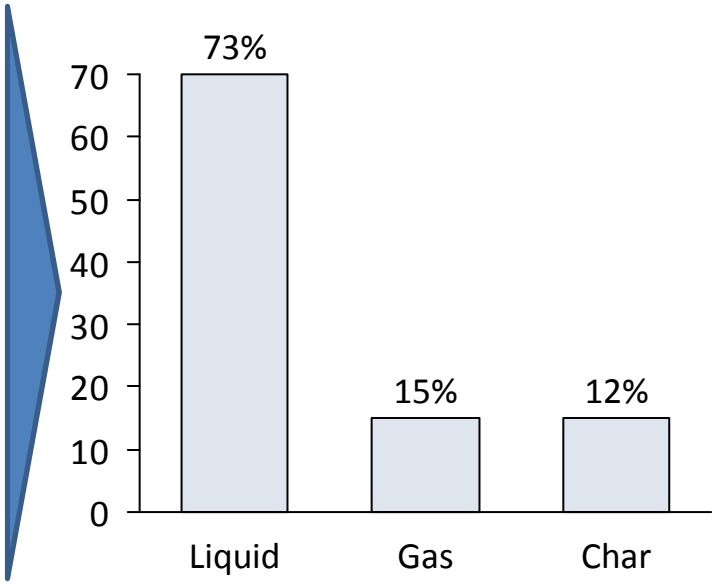
Biomass Feedstock | **RTP Process** | **RTP Products** | **Approximate Product Yields (weight %)**



Liquids

Gas

Char



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

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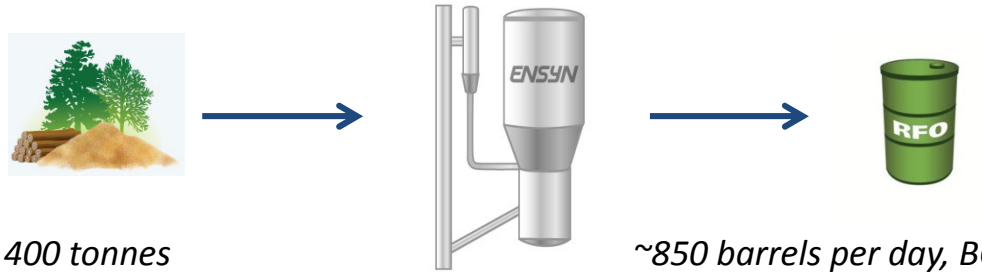
Ensyn's Reference RFO Production Facility

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

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%

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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

Iron Ore Pelletizing Furnace

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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*)

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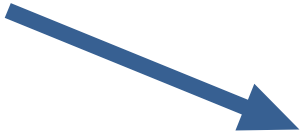
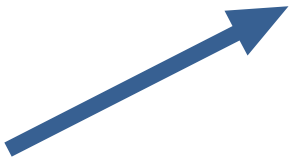
UOP, a Honeywell Company

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)

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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

Chevron Technology Ventures

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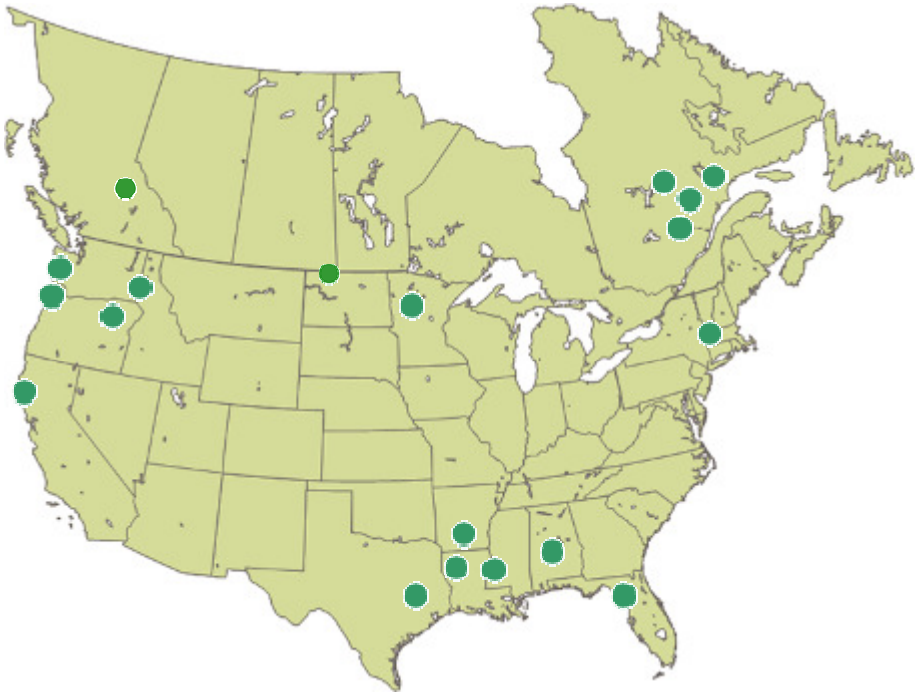
North American Roll-Out



- 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

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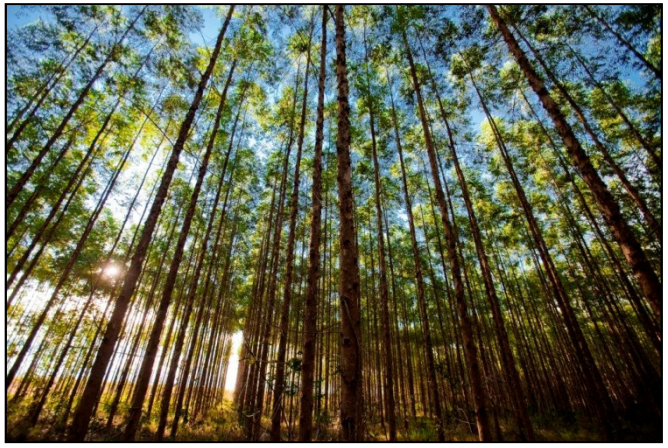
Fibria – Ensyn Strategic Alliance

- 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



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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

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Ensyn's renewable liquid fuels
Execution phase underway