



ENSYN

Evolution of Next Generation Bioproducts

International Bioenergy Conference & Exhibition

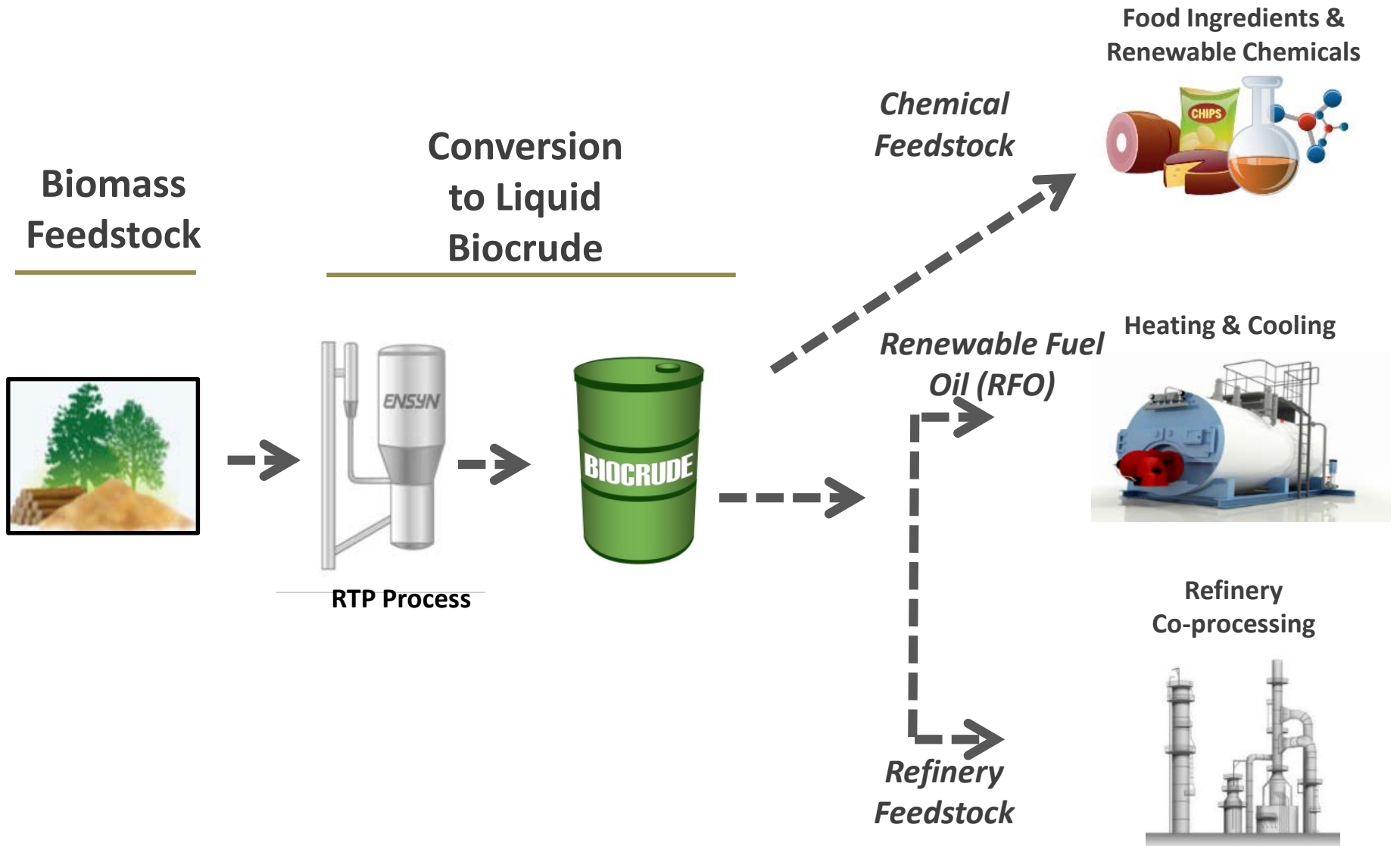
June 17, 2016



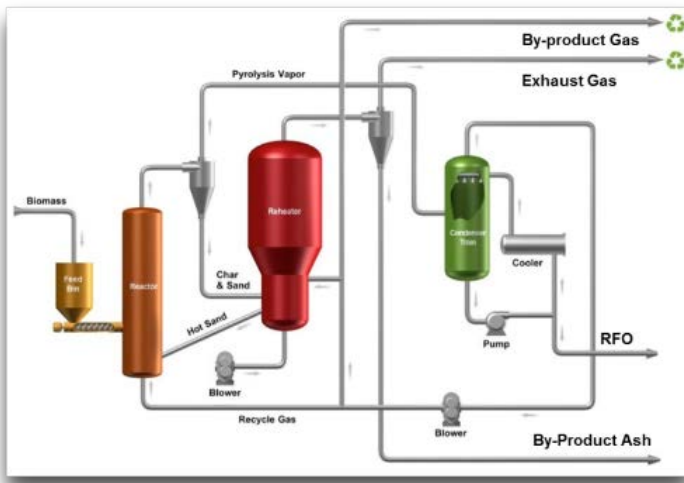
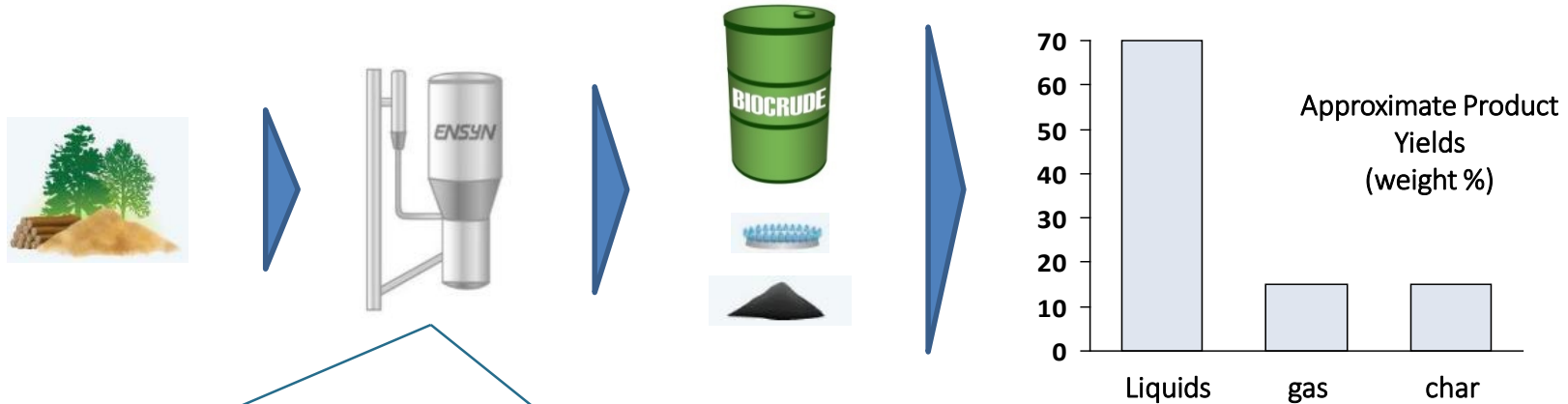
Ensyn's Approach to Next Generation Bioproducts

- ▶ Production of renewable low carbon fuels and chemicals
- ▶ Anchored by Ensyn's commercial RTP process
- ▶ Our existing chemicals, heating & cooling business offer steady growth
- ▶ The refinery feedstock market represents a global opportunity for the production of low carbon fuels
- ▶ We maintain world-class strategic relationships across the value chain
- ▶ Existing commercial production in Wisconsin and Ontario
- ▶ Capacity expansion underway in Canada, Brazil and the U.S.

Ensyn's Business – Forest Biomass to High Value Products



Ensyn's RTP[®] Technology



Maximum Conversion of Solid Carbon to Liquid

- Not “severe” – a non-catalytic, thermal process
- Similar to Fluid Catalytic Cracking (FCC)
- No need for catalysts, high pressure or hydrogen
- Gas and char used to run the facility and dry the biomass (energy self-sufficient)
- 35 patents issued, 97 pending

A 30+ Year Growth Story Backed by Commercial Operations



1984



1989
Commercial
Deployment



1998-2005
Heavy Oil



2006
Ontario Facility &
return
to Bio-energy



Ongoing
Bioenergy
Expansion

Strategic Relationships Across the Value Chain

Feedstock



Conversion to RFO



Refinery Feedstocks



Heating & Cooling



Specialty Chemicals & Food Ingredients



Specialty Chemicals – Food Ingredients

- One of Ensyn's initial commercial market applications
- Over 25 years of commercial production
- Over 30 food products developed
- Five commercial RTP facilities currently in operation
- Strategic partner: Kerry Group (Red Arrow Products, Wisconsin)
- Kerry/Red Arrow is the global leader



Heating Fuels

- Ensyn's second market application
- Over 25 years and 20 million gallons of combustion in industrial boilers
- Now operational in a wide range of applications
 - ▶ Heating & cooling markets
 - ▶ Large commercial and institutional users
 - ▶ District heating systems
 - ▶ Mining (indurating furnace)

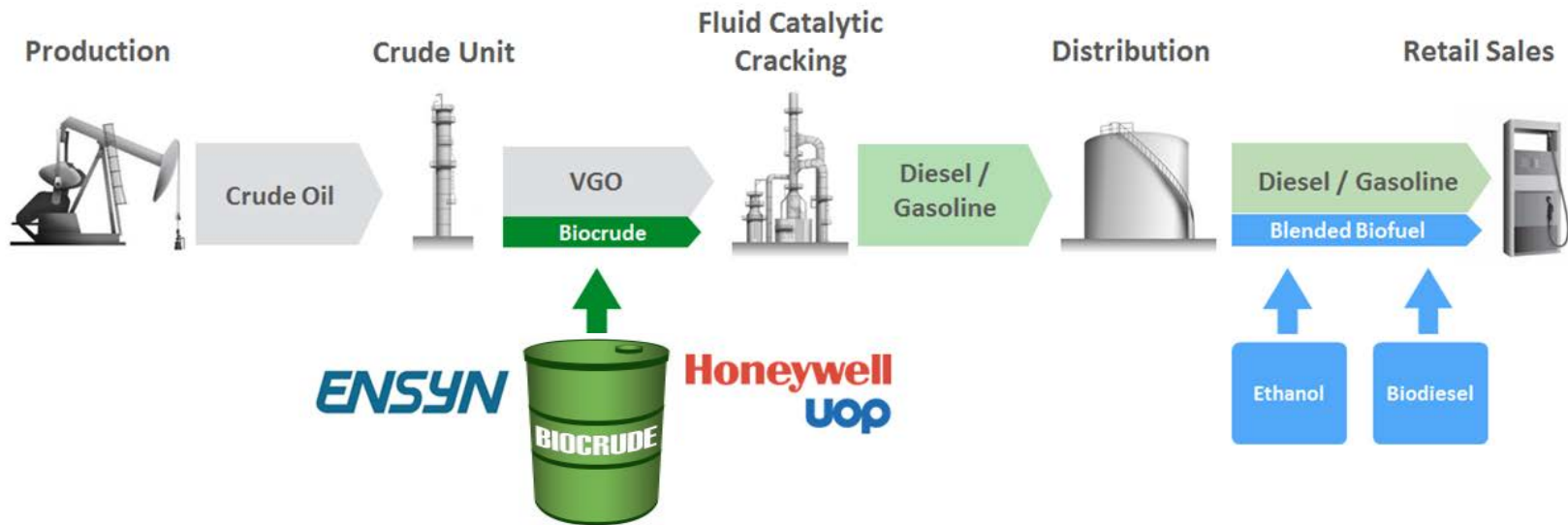


Heating Sales & Contracts

- Memorial Hospital, New Hampshire
 - ▶ 100% fuel conversion for almost 2 years
 - ▶ Generating D-7 RINs under the U.S. RFS
- Youngstown, Ohio district heating
 - ▶ Commercial deliveries have begun
- Bates College
- Additional contracts under negotiation
- Strategic alliances with infrastructure & heating oil suppliers



Refinery Co-processing vs. Traditional Biofuels



Leveraging existing infrastructure:

- Lowers the refiners CAPEX & OPEX of compliance
- Facilitates implementation
- Up to 5% biocrude processed with conventional petroleum feedstocks
- Provides comparable yields on a volumetric basis
- Does not compete for market share with the refiner
- Allows refiner to control generation of their regulatory credits

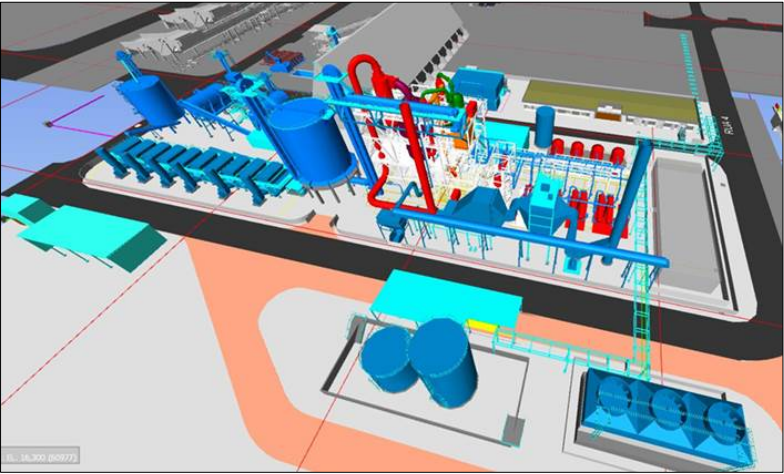
Co-processing Commercialization

- More than 5 years of development
- Strategic alliance with Honeywell UOP expanded in 2014 to include Refinery Co-processing
- In negotiations with a motivated group of “Early Adopter” refiners
- Announced refiner strategic relationships include Chevron & Tesoro
- Additional refiner initiatives underway
- Biocrude supply for these contracts:
 - ▶ Initially from the Ontario facility
 - ▶ Additional deliveries from projects in development

Regulatory Framework Supports Deployment

- RFS – the following pathways are in place
 - ▶ RFO Heating (D7 RINs – Ensyn leading producer of D7 RINs)
 - ▶ Co-processing gasoline (D3 RINs)
 - ▶ Co-processing diesel (D7 RINs)
- LCFS – California pathway approved:
 - ▶ For Ensyn's renewable gasoline and diesel
 - ▶ Carbon intensity determined to be approximately 20-25 g CO₂e/MJ
- RECs
 - ▶ Generation of REC- eligible heat since Aug 2015 in NH
 - ▶ Final stages of measurement protocols with the regulatory authorities

Production Facilities & Projects



Ontario Production Facility

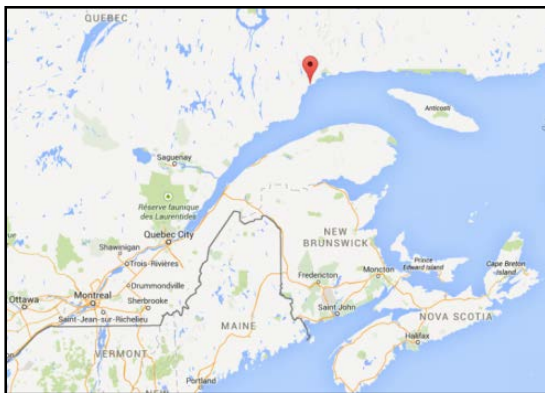
- 3 million gallons per year
- Commissioned in 2006 as a merchant plant for chemicals and fuels production
- Enhanced in 2014 to 24 by 7 operation as Ensyn's anchor fuels facility
- Facility is qualified by the U.S. EPA under the RFS program
- Sales to qualified users in the U.S. are generating D-7 RINs



Cote Nord Project, Quebec



- 10 million gallon per year facility being developed by Ensyn and Arbec Forest Products
- First of several projects contemplated by the partners under a joint development agreement
- Located at Arbec's sawmill facility in Port Cartier, Quebec
- Feedstock for the project is local forest residues
- Product will be sold to heating/cooling and refining customers in the U.S. Northeast
- Project funded, civil work has begun and major equipment modules ordered



Aracruz Project - Brazil

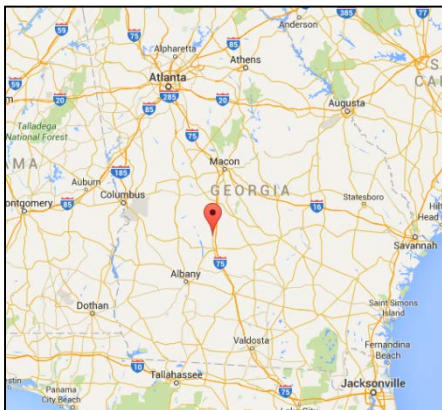


- 20 million gallon per year facility being developed in partnership with Fibria Celulose
- Located at Fibria's pulp mill in Aracruz, Espirito Santo
- Feedstock is eucalyptus forest residues
- Offtake targeted for U.S. refineries and heating/cooling clients
- Preliminary engineering substantially complete



Vienna Project, Georgia

- 20 million gallon per year facility being developed by Ensyn, Renova Capital Partners, and Roseburg Forest Products
- Location is a mothballed mill in Dooly County, Georgia
- Feedstock is forest residues and thinnings from local sources
- Product targeted for refineries and district heating clients
- Conditional commitment from the USDA for a \$70 million loan guarantee with Citibank as the Lender of Record
- Preliminary engineering substantially complete



Ensyn's Success is Supported by its Strong Investor Base





Thank you