



ENSYN

Scaling Up 2017

Making the global bioeconomy mainstream

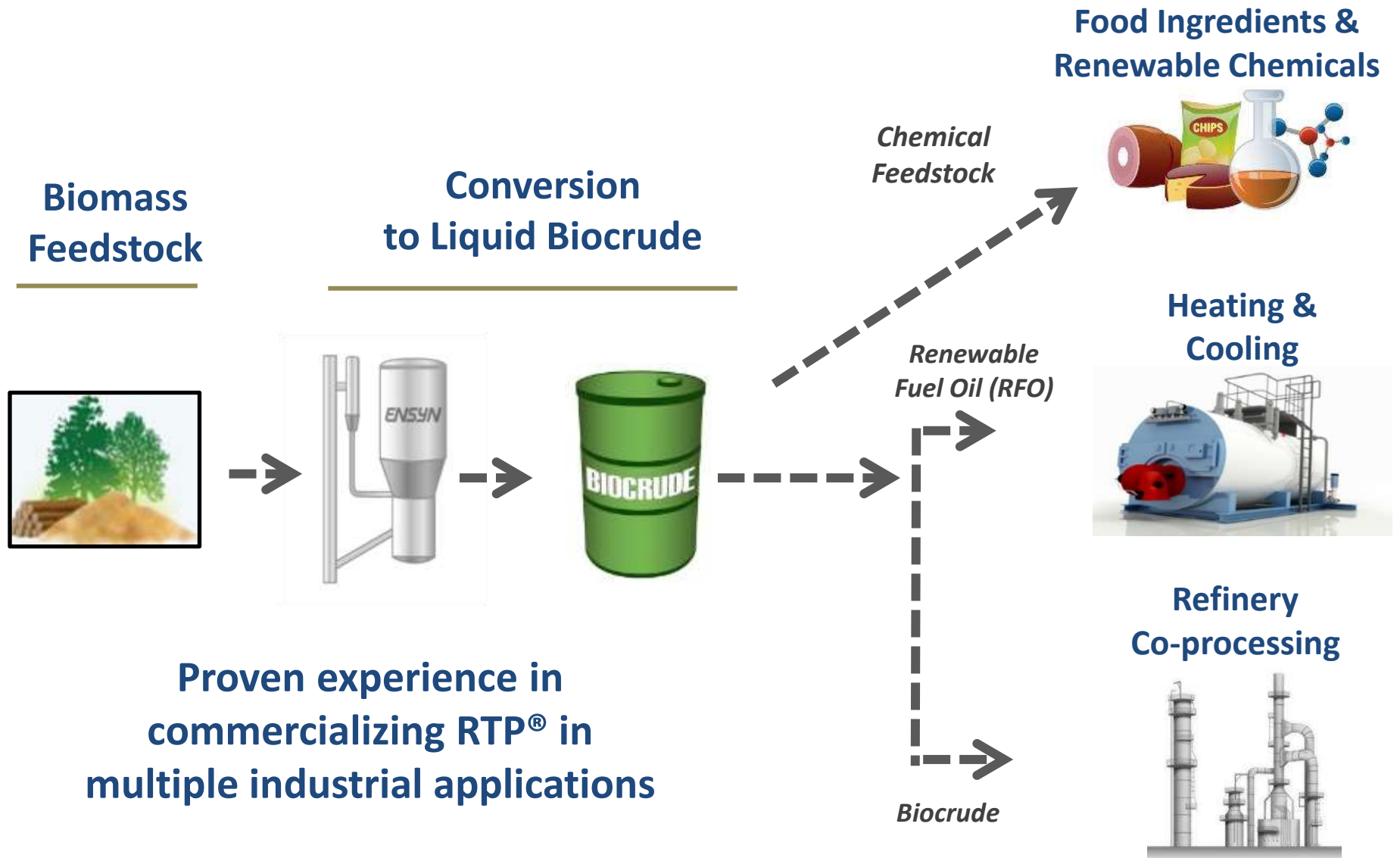
November 28, 2017 Ottawa



Overview

- Product: low-carbon intensity liquid fuels – heating oil & refinery feedstocks
 - Existing heating oil business; steady growth
 - Massive market for refinery biocrude feedstock–transportation fuels
- Pedigree – track record commencing in 1984
- Process - Anchored on Ensyn's commercial RTP process
- Partners: World-class strategic partners in every part of the value chain, including Arbec/Jolina, Honeywell UOP, Fibria, and Tesoro
- Production: Multiple current operations in Wisconsin and Ontario with expansion projects under development in Port Cartier (Quebec), Wisconsin, and elsewhere

Ensyn's Business – Forest Biomass to High Value Products

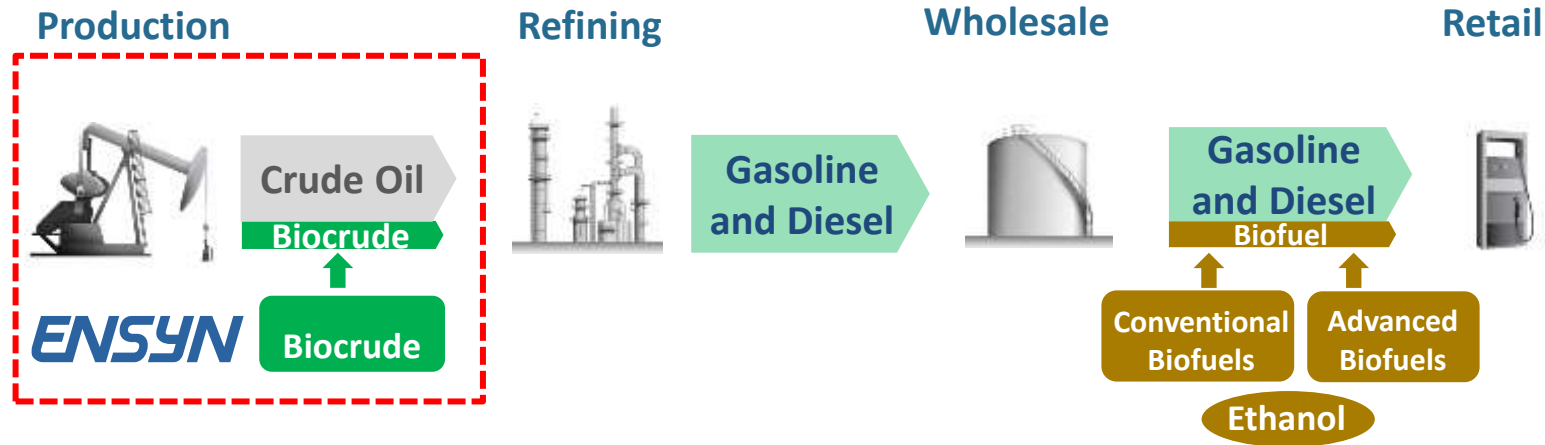


RFO Heating Oil

- Memorial Hospital, New Hampshire
 - ▶ 100% conversion to RFO for 3+ years
- Youngstown Thermal, Ohio, District Heating
- Bates College, Maine
- Additional customers in the queue
- All deliveries generating D-7 RINs
- Strategic alliances with infrastructure & heating oil suppliers



Renewable Biocrude – Refinery Co-processing



Biocrude

- Significant IRR for refiners by reducing compliance costs
- Limited capital investment and limited or no effect on production yields, opex and margins
- Significantly reduces refinery GHG emissions

Biofuel

- ✗ Competes with the refining sector for gasoline & diesel market share
- ✗ Blend wall limits future growth
- ✗ Requires complex, high cost processes to produce advanced biofuels

Massive Market – 3% penetration would support ~ 130 biocrude production facilities

Existing Production – Wisconsin and Ontario Plants

- Wisconsin (5+1) & Ontario
- Ontario (Renfrew)
 - ▶ 70 tons/day nameplate
 - ▶ 3 million gallons/year
 - ▶ Operated since 2006
 - ▶ Dedicated fuel production facility



Production Expansion - Cote Nord Plant, Quebec

- 10 million gallon/yr production consuming 200 tpd biomass
- Ensyn, Arbec Forest Products & Groupe Rémabec
- Located at Arbec's sawmill in Port Cartier, Quebec – forest slash feedstocks
- Product for heating oil customers in the U.S. Northeast
- Fully financed, approx CDN\$ 103 million capex, under construction, commissioning Q1 2018



Cote Nord – Nearing Completion



Cote Nord – Commissioning Q1 2018

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Cote Nord - Alliances

Development Partners

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ARBEC

GRUPPE
REMABEC 

Engineering & Supply of RTP

Honeywell
Uop

 **Envergent**
TECHNOLOGIES
A Honeywell Company

EPC Contractor

AXOR
EXPERTS • CONSEILS

Financing

CELEBRATING
15
YEARS



SUSTAINABLE DEVELOPMENT
TECHNOLOGY CANADA
TECHNOLOGIES DU DÉVELOPPEMENT
DURABLE CANADA

**IQ Investissement
Québec**



Natural Resources
Canada

Additional Production - Late Stage Development

Vienna Project (Georgia)



- 20 million gpy biocrude production facility in Vienna, GA, USA
- Ensyn & Roseburg Forest Products

Aracruz Project (Brazil)



- 22 million gpy biocrude production facility in Aracruz, Brazil
- Ensyn & Fibria Celulose S.A.

Scaling Up – Evolution of Ensyn's Biofuel Business

- Sound technology – based on good science and appropriate engineering
- Decide what terms are acceptable to get through the “valley of death”
- Skin in the game – principals must be personally invested
- Public policy – effective, predictable, quantitative, monetization of GHG emissions / climate change
- Quality Partners with aligned interests ...

Strategic Relationships Across the Value Chain

Feedstock



Conversion to RFO



Refinery Feedstocks



Heating & Cooling



Specialty Chemicals & Food Ingredients





Thank You !!