



ENSYN CORPORATION

ABOUT ENSYN CORPORATION

Ensyn Corporation (“Ensyn”), a private US company, is a developer of low-carbon fuel solutions and renewable chemicals sourced from non-food biomass feedstocks. Ensyn’s current focus is on low-carbon fuels, including low-carbon heating and cooling for institutional and industrial customers and low-carbon feedstocks for petroleum refineries for the production of renewable transportation fuels.

Ensyn’s low-carbon energy solutions are based on the production of liquid fuels and energy feedstocks from woody biomass using a fast thermal conversion process. Ensyn’s energy business represents a new application of a core, platform technology that has been in commercial use for many years in the chemicals business.

Ensyn is executing its low-carbon solutions business plan in alliance with world-class industry leaders across the value chain. Ensyn and its partners are now developing two parallel energy initiatives:

- **Heating & Cooling:** Production of low-carbon fuel oil (LCFO) for institutional and industrial customers. Commercial sales of Ensyn’s thermal solutions have been taking place since 2014.
- **Refinery Feedstocks:** Production of low-carbon liquid feedstocks for petroleum refineries to produce renewable transportation fuels and other products. Final commercialization steps are in progress and offtake negotiations are underway.

Ensyn’s proprietary technology, associated know-how and powerful alliances position Ensyn as a leader in the development of key growth sectors for de-carbonization.

ENSYN’S ALLIANCES

Ensyn has established alliances with world-class industry leaders to advance its technologies and business plan.

- **Technology:** Ensyn’s broad technology alliance with Honeywell UOP facilitates engineering and supply of biocrude production equipment to new projects and supports the commercialization of biocrude co-processing.
- **Production:** Production expansion is enabled by alliances with leading fiber producers, including Suzano (NYSE: SUZ), the world’s largest pulp producer, for Brazil and Arbec Forest Products for parts of Canada.
- **Offtake:** Ensyn is negotiating with several of the world’s largest refiners regarding biocrude co-processing, anchoring plans for product sales.



ENSYN’S BACKGROUND

Predecessor Ensyn companies initiated commercial operations over 30 years ago, producing liquids at commercial scale from solid biomass for food chemicals using Ensyn technology. This application successfully continues to this day, with several licensed commercial plants in production.

In the 1998 – 2005 period an Ensyn affiliate developed a heavy oil upgrading technology and sold this application in 2005 to a publicly traded petroleum company at a US\$100 million valuation, providing a liquidity event for its shareholders.

In mid-2005, Ensyn turned its focus to the development of low-carbon energy products, building a three million gallon/year merchant plant for energy products. This was followed by the establishment of a technology alliance with Honeywell UOP, initiation of commercial deliveries of renewable heating fuels and the initial development of biocrude co-processing. In 2018, a 10 million gallon/year heating fuels plant was commissioned by a licensee in Port Cartier, Quebec.

Ensyn is now focused on building out production capacity, with development of expansion projects in Aracruz, Brazil, Maine, USA and Nova Scotia, Canada.

ARACRUZ PROJECT, Aracruz, Brazil

In parallel with co-processing technology development, Ensyn has built a series of powerful alliances with wood fiber producers in North and South America to secure production. In Brazil, Ensyn has a 50/50 joint venture with Suzano (NYSE: SUZ), the world's largest pulp producer. Brazil's massive fiber resources, including fast-growing, FSC-certified eucalyptus, together with Suzano's unparalleled expertise in production at scale and logistics, make the Ensyn-Suzano JV Brazil a valuable source of biocrude.

The first project under the Suzano joint venture is a 20 million gallon/year production plant in Aracruz, Brazil ("Aracruz").



THE COTE-NORD PLANT

The Côte-Nord plant is a 10 million gallons/year (approximately 40 million litres/year) production facility located in Port-Cartier, Quebec, on the north shore of the St. Lawrence Seaway. This facility, controlled by Arbec Forest Products, is operational and is supplying a neighbouring ArcelorMittal iron ore processing plant under a 16 million litres/year offtake agreement.

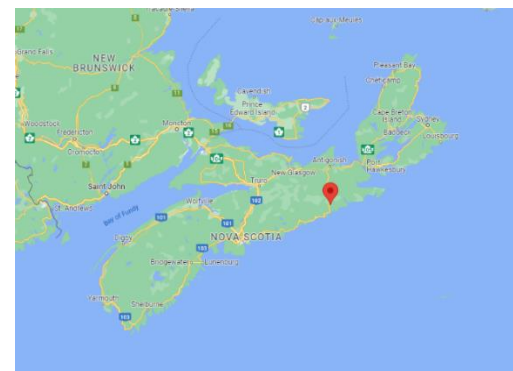
MAINE PROJECT, Maine, USA

In the US, Ensyn is developing a 20 million gallon/year project in East Millinocket, Maine. The project site is a former paper mill, strategically located in a large wood basket, with rail service to the coast for product delivery. The project site has access to hydro-electric power, helping lower the project's carbon intensity.

Feedstock for the project will consist of forest residuals from local sources. Biocrude offtake will be directed to petroleum refineries in the US and Europe for co-processing, and to local heating clients.



Ramping Up Production of Fuel Products to Meet Demand



NOVA SCOTIA PROJECT, Nova Scotia, Canada

The Nova Scotia Project is a 40 million litre/year (10 million gallon/year) low carbon fuel production facility being developed by Ensyn in central Nova Scotia. The facility would use wood residues from local suppliers as feedstock to produce low carbon fuel and would be located adjacent to one of the province's largest sawmills. The sawmill would be a strategic partner and primary feedstock provider for the project.

Biocrude offtake will be directed to petroleum refineries in the US and Europe for co-processing and to local heating customers.





Low-Carbon Solutions for Production of Transportation Fuels

Ensyn and its alliances are developing production capacity of low-carbon feedstocks for petroleum refineries to meet demand. Ensyn's biocrude is at the center of the next wave of low-carbon transportation fuels. Ensyn's proprietary RTP® technology converts solid woody biomass to a liquid biocrude that will serve as a low-carbon feedstock for refiners to produce renewable, low-carbon transportation fuels.

Oil & gas companies, especially in Western countries, are under enormous and growing pressure to de-carbonize to help mitigate global warming. Traditional sources of renewable liquid fuels have been dominated by food-related feedstocks, typically sugars and vegetable oils. Refiners are now aggressively searching for solutions to increase de-carbonization without further compromising the food chain. A primary focus is on cellulosic (woody, non-food) feedstocks. Ensyn's biocrude is uniquely positioned to capitalize on this opportunity.

Ensyn's powerful competitive position in the emerging market of cellulosic refinery feedstocks is based on proprietary technologies as well as powerful alliances with industry leaders, such as Honeywell UOP, and key fiber companies, including Suzano in Brazil.

Ensyn's technology and alliances together provide Ensyn's biocrude with an unequalled ability to enable the supply of large volumes of cellulosic biocrude to refiners in Europe/UK, the USA and elsewhere.

BIOCRUDE CO-PROCESSING - A UNIQUE SOLUTION FOR REFINERS TO LOWER THEIR CARBON INTENSITY

The refining industry is increasingly focused on cellulosic feedstocks as a pathway to further de-carbonization. Ensyn is now working with several leading refiners regarding biocrude supply, logistics and participation in new biocrude production capacity.

Ensyn's biocrude co-processing provides refiners with significant benefits:

- Reduction of carbon intensity
- No interference in the food chain
- Little or no impact on refinery operations
- No impact on refiners' existing strategies regarding ethanol, biodiesel and renewable diesel



BIOCRUDE CO-PROCESSING

Biocrude co-processing involves petroleum refineries using Ensyn's biocrude as a renewable feedstock for the production of on-spec transportation fuels, namely renewable gasoline, renewable diesel, bio-LPG and other blendstocks.

Biocrude co-processing is deployed by feeding Ensyn's biocrude into the refinery's Fluid Catalytic Cracking Unit (FCCU) alongside conventional fossil fuel feedstocks.

Ensyn and its refining alliances have carried out hundreds of trials and demonstrations, including several demonstrations in operating commercial refineries. These trials have established that biocrude co-processing has little or no impact on refinery operations up to at least 5wt% biocrude in the total FCCU feed. The gasoline and diesel produced from biocrude co-processing has been approved for sale in the US by the US government.

Biocrude co-processing requires minimal infrastructure at the refinery to implement, typically limited to dedicated storage, pumping, piping and a bespoke injection system.

Ensyn Biocrude is deploying biocrude co-processing in alliance with Honeywell UOP.



ENSYN'S LOW CARBON FUEL OIL (LCFO) – A UNIQUE LOW-CARBON SOLUTION FOR INSTITUTIONAL, COMMERCIAL AND INDUSTRIAL ENTITIES

Institutional, large commercial and industrial entities have limited options for cost-effectively lowering the carbon intensity of their thermal (heating and cooling) operations.

Ensyn's LCFO offers the opportunity for operators to significantly lower their greenhouse gas (GHG) emissions by up to 85% while leveraging their existing infrastructure and without impacting the food chain.

Low-Carbon Thermal Solutions for Institutional and Industrial Customers

Ensyn's LCFO is a renewable, low-carbon, liquid fuel for heating and cooling produced from solid biomass. Ensyn's proprietary know-how includes the ability to convert solid biomass to LCFO (using Ensyn's RTP technology) and know-how associated with its deployment.

Ensyn and its alliances have been producing and delivering its proprietary low carbon heating solutions on a commercial basis since 2014. Production has taken place at a three million gallon/year plant in Renfrew, Ontario as well as a 10 million gallon/year plant in Port Cartier, Quebec with deliveries focused on customers in the northeast of the US. Plans are underway for further growth of production capacity to meet growing demand. Production facilities using Ensyn's RTP technology are being engineered and supplied under a technology alliance with Honeywell UOP.

The use of Ensyn's low-carbon fuel generates substantial compliance and regulatory value, including under the US Federal Renewable Fuel Standard (RFS) program as well as under several US State programs.

Ensyn's fuel has been used commercially or demonstrated at commercial scale in a wide variety of thermal platforms, including large institutional and commercial boilers, district energy plants and industrial boilers and furnaces. Ensyn is deploying its low carbon fuels in alliance with Preferred Utilities.



ENSYN'S HEATING CUSTOMERS

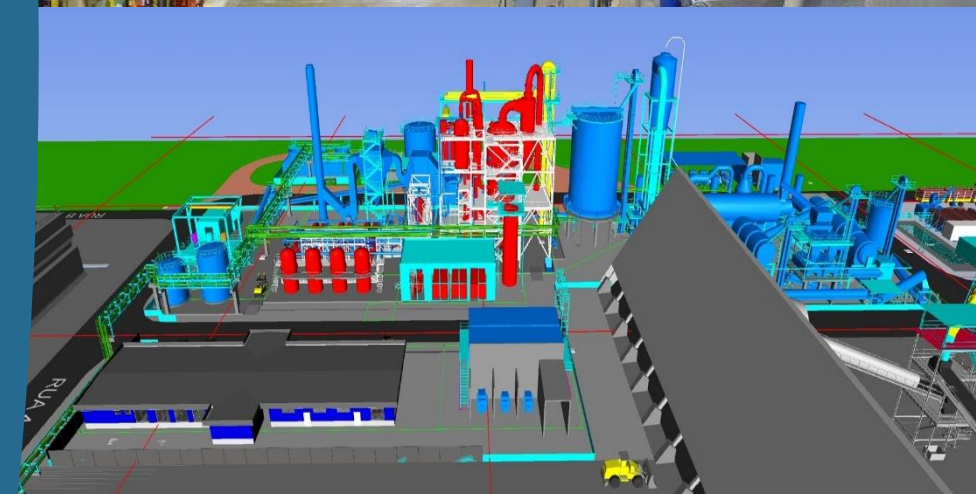
Ensyn's target heating customer base encompasses a range of institutional, large commercial and industrial entities:

- Hospitals
- Universities, Colleges
- District Energy Plants
- Industrial Plants, including metals and mining



In 2014 an Ensyn affiliate signed a commercial contract with Memorial Hospital, North Conway, New Hampshire. This contract has allowed Memorial to switch 100% of its heating needs to Ensyn's fuel. Deliveries under this contract have taken place since August 2014. This contract has allowed Memorial to lower the GHG footprint from its heating operations by an estimated 85%.





ENSYN'S TECHNOLOGIES

Ensyn has a series of proprietary technologies and associated know-how related to the production and deployment of low-carbon fuels produced from cellulosic feedstocks. Ensyn's anchor technology, RTP[®], converts solid woody biomass to high yields of liquids using a fast thermal process. Ensyn is the global leader in this technology classification.

Ensyn's intellectual property is anchored by a robust portfolio of patents covering a range of significant aspects of the RTP process as well as related applications. Ensyn's patent strategy aligns with Ensyn's business focus on continuous development. As innovations and improvements emerge, new patents are filed.

In addition, with over 30 years of commercial operations and technology development, Ensyn also has accumulated significant know-how associated with biocrude production and its applications.

Ensyn has a broad technology alliance with Honeywell UOP related to:

- **RTP technology:** Ensyn's joint venture company with Honeywell UOP supplies licensing, engineering and RTP equipment to projects developed by Ensyn and its alliances worldwide.
- **Biocrude Co-processing:** Honeywell UOP helps interface with refiners and provides refiners with equipment and services for co-processing deployment.



Ensyn's technologies are global leaders, enabling commercial deployment at scale

LOGISTICS

Ensyn and predecessor companies have over 30 years' experience in handling, storing and shipping biocrude. Biocrude can be shipped by truck, rail and ship. Transportation and storage requirements include the use of lined or stainless-steel containers, similar to many chemicals.





POWERFUL MARKET DRIVERS

There is growing worldwide momentum to reduce carbon emissions. Over 110 countries have set net zero carbon targets by mid-century. Powerful legislation is being implemented to work towards these targets, especially in the USA, the EU and the UK. Petroleum refiners are under enormous pressure to de-carbonize and are focused on new, non-food sources of renewable feedstocks.

In addition, the war in the Ukraine and the resulting disruption to the energy markets has once again focused attention on energy security and the importance of renewable fuels.

- **Europe:** The EU Member States and the UK are in the process of instituting powerful legislation in support of low carbon initiatives. This is expected to create a massive market for Ensyn's biocrude, with demand expected to increase sharply between now and 2030.
- **USA:** The US has established Federal legislation (under the RFS program) supporting low-carbon fuels and many US States are enacting separate (stackable) legislation that together provide powerful market drivers for Ensyn's biocrude.
- **Canada:** Ensyn's energy initiatives for both heating/cooling and refinery feedstocks are qualified activities for the generation of compliance credits under the newly implemented Canadian Clean Fuel Regulations (CFR).
- **Refiners:** Leading refiners in the USA and Europe are increasingly focused on the potential of co-processing cellulosic biocrude as an option to meet their regulatory requirements.

Pressure to reduce carbon intensity growing across the globe

KEY COMPLIANCE & REGULATORY RECOGNITION

Ensyn's liquid energy products benefit from recognition by several key regulatory bodies, including the following:

- **ASTM:** Ensyn's biocrude properties are superior to ASTM D7544 specifications for pyrolysis liquid.
- **The US Renewable Fuel Standard (RFS):** Ensyn's LCFO is in commercial use, generating D7 Renewable Identification Numbers (RINs) under the RFS program.
- **Renewable Energy Credits/Certificates (RECs):** Ensyn's LCFO is in commercial use, generating RECs with several states having initiated programs.
- **US EPA:** The US EPA has approved gasoline and diesel produced from Ensyn's biocrude for commercial sale in the US.



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