

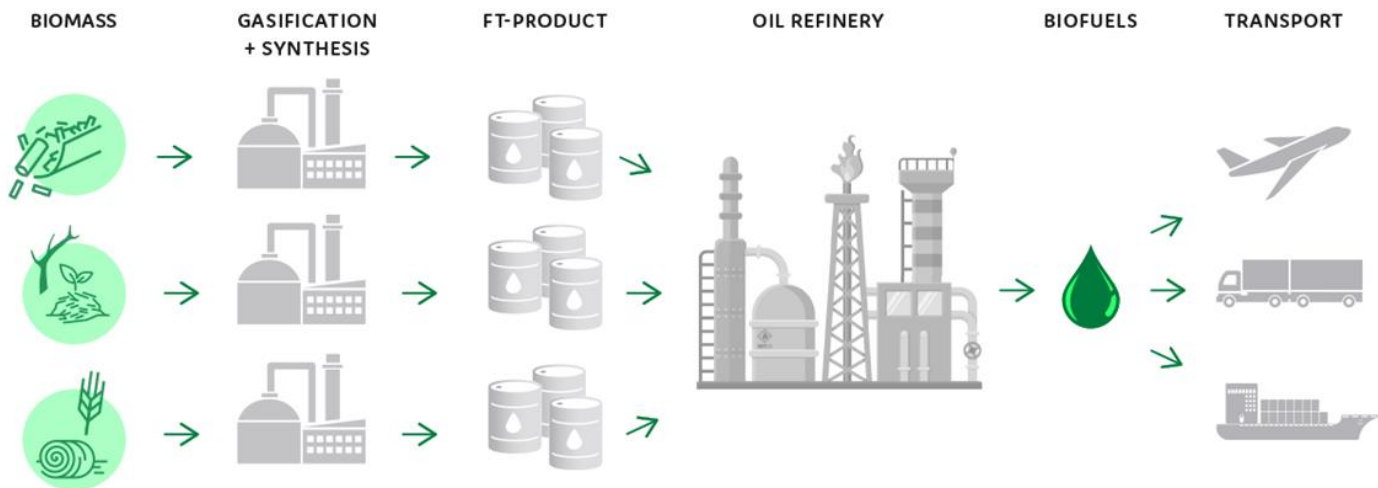
COMSYN

NEXT GENERATION BIO-FUEL TECHNOLOGY

COMSYN

Compact Gasification and Synthesis process for Transport Fuels

Business concepts for advanced biofuel production in Northern Europe

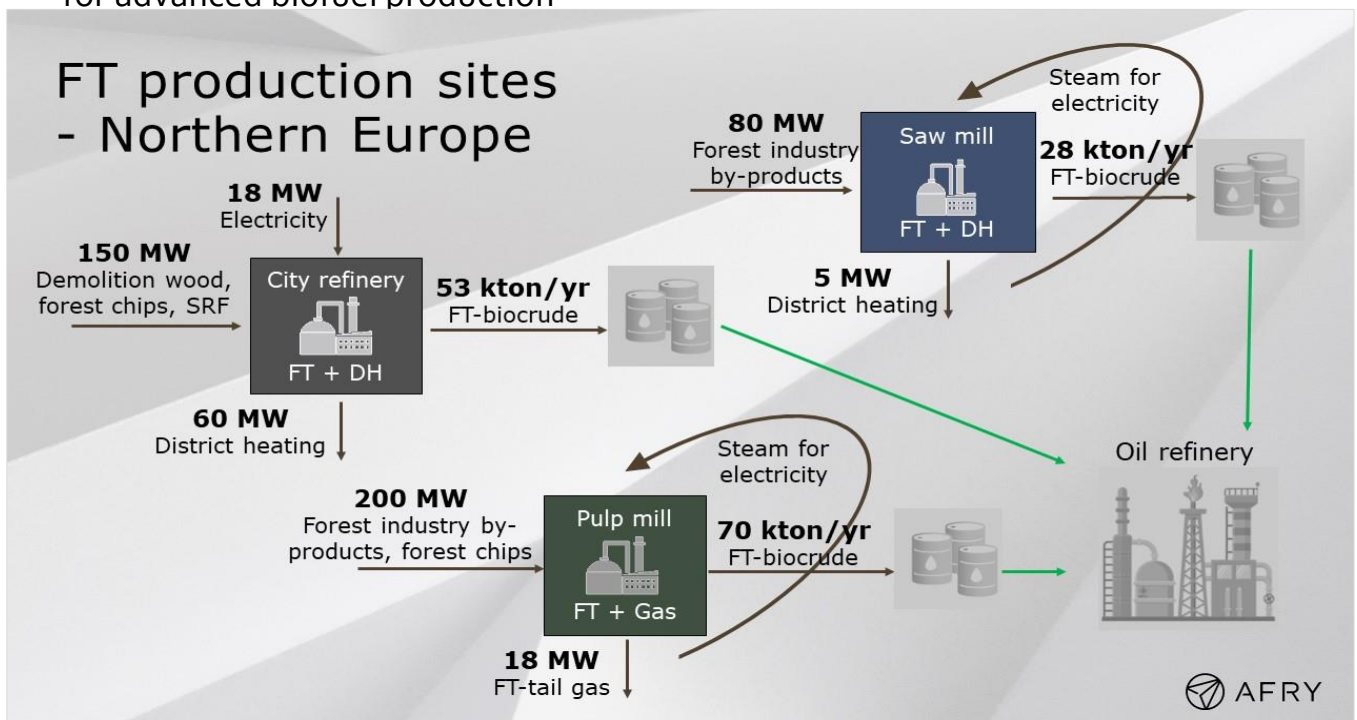


Business concepts for advanced biofuel production in Northern Europe

The COMSYN process concept is a flexible and feasible option to utilize European biomass residues for high-quality transport fuels.

Wood based residues to be utilized in advanced biofuel production

- The business concepts for North Europe have been developed for a city refinery, saw mill and pulp mill sites. At forest industry sites locally generated by-products can be utilized for biocrude production. In city conditions forest chips, demolition wood and SRF are possible feedstocks.
- The renewable district heat can be produced as a by-product of biocrude. At forest industry sites plants can be designed to produce steam for electricity production. FT tail gas can utilized to replace fossil gas/oil used in lime kilns.
- Produced biocrude is a suitable and feasible drop-in feedstock for existing refineries for advanced biofuel production



Opportunities of biorefinery investment

- Low cost feedstocks and possibility for heat or FT-tail gas sales as well as integration with an existing power generating facility are important factors for the economic feasibility of the business concepts.
- The break-even sales price of biocrude to oil refinery depends on the plant capacity and energy integration possibilities. Feasible biocrude sales price for 150-200 MW biorefinery is estimated to about 1.5 EUR/kg (WACC 10%).
- The technology and concept is feasible for demonstration phase as a next step towards commercial advanced biofuel production from woody residues.

COMSYN

COMSYN is an EU funded international project with partners from Finland, Germany, Czech Republic and Italy.

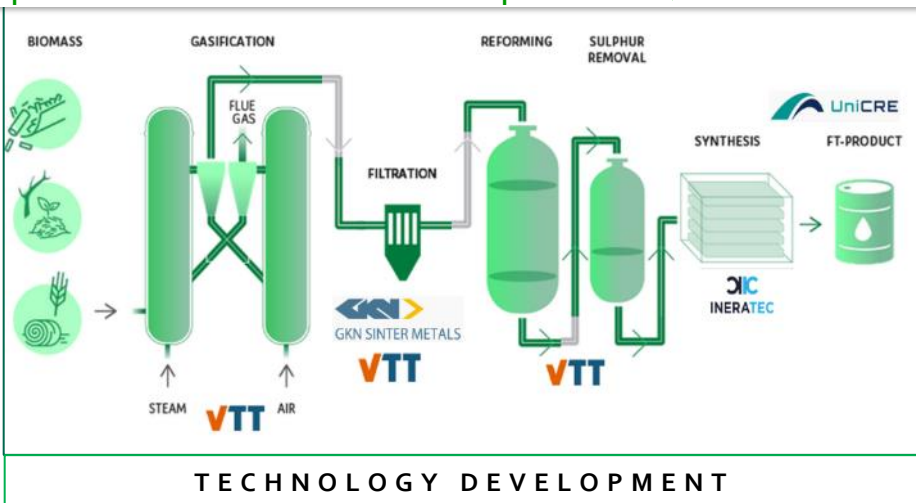
COMSYN project develops modern, intensified reactors, which have high production rate compared to equipment size. Gasification is a process of choice for the initial biomass transformation to a gas stream. Synthesis is used to convert the gas stream to hydrocarbons, which we upgrade in an oil refinery to Transport Fuels.

OBJECTIVES

Diversify biomass raw materials base
Increase filtration temperature
Improve technology for oxygen feed
Improve synthesis gas cleaning
Intensify Fischer-Tropsch technology
Upgrade biocrude in an oil refinery.
Screen the most advantageous possibilities for commercial plant.

IMPACT

Cuts down raw material costs.
Improves process thermal efficiency.
Oxygen plant is not needed.
Chemical processing is not needed.
Decreased investment costs.
Decreased production costs.
Concept ready for commercialization.



Reduction of biofuel production cost down to 0.80 €/L

COMSYN PROJECT

- Duration: May 2017 - April 2021, 4 years
- Funding of EUR 5.1 million from EU Horizon 2020 Competitive Low-Carbon Energy call 08-2016
- Coordinator: Johanna Kihlman, VTT, Finland



CONSORTIUM, 7 PARTNERS

