

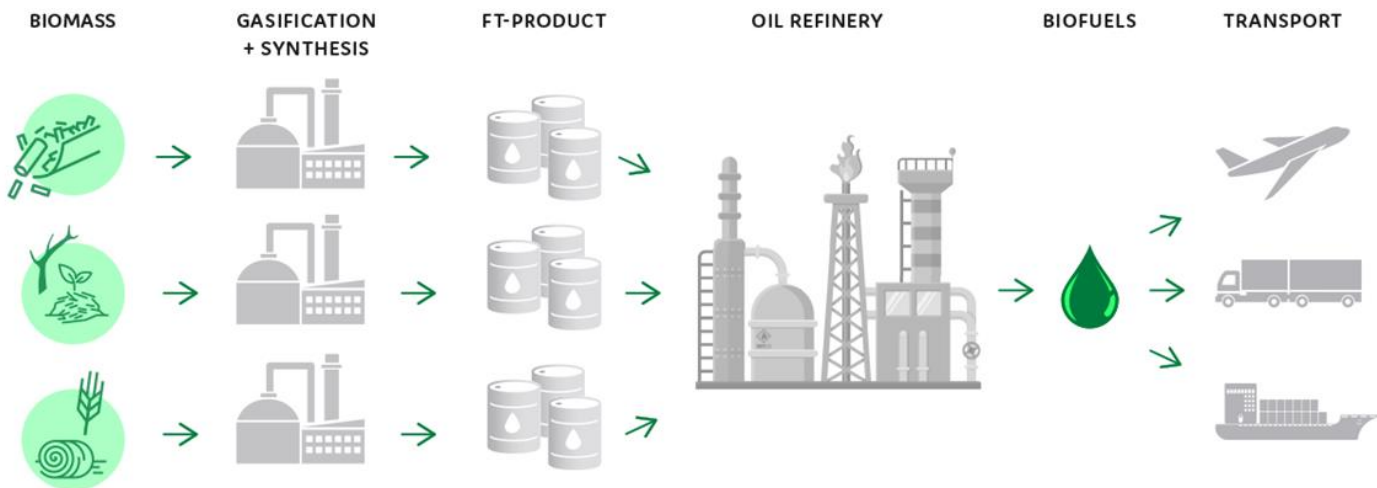
COMSYN

NEXT GENERATION BIO-FUEL TECHNOLOGY

COMSYN

Compact Gasification and Synthesis process for Transport Fuels

Business concepts for advanced biofuel production in Central Europe

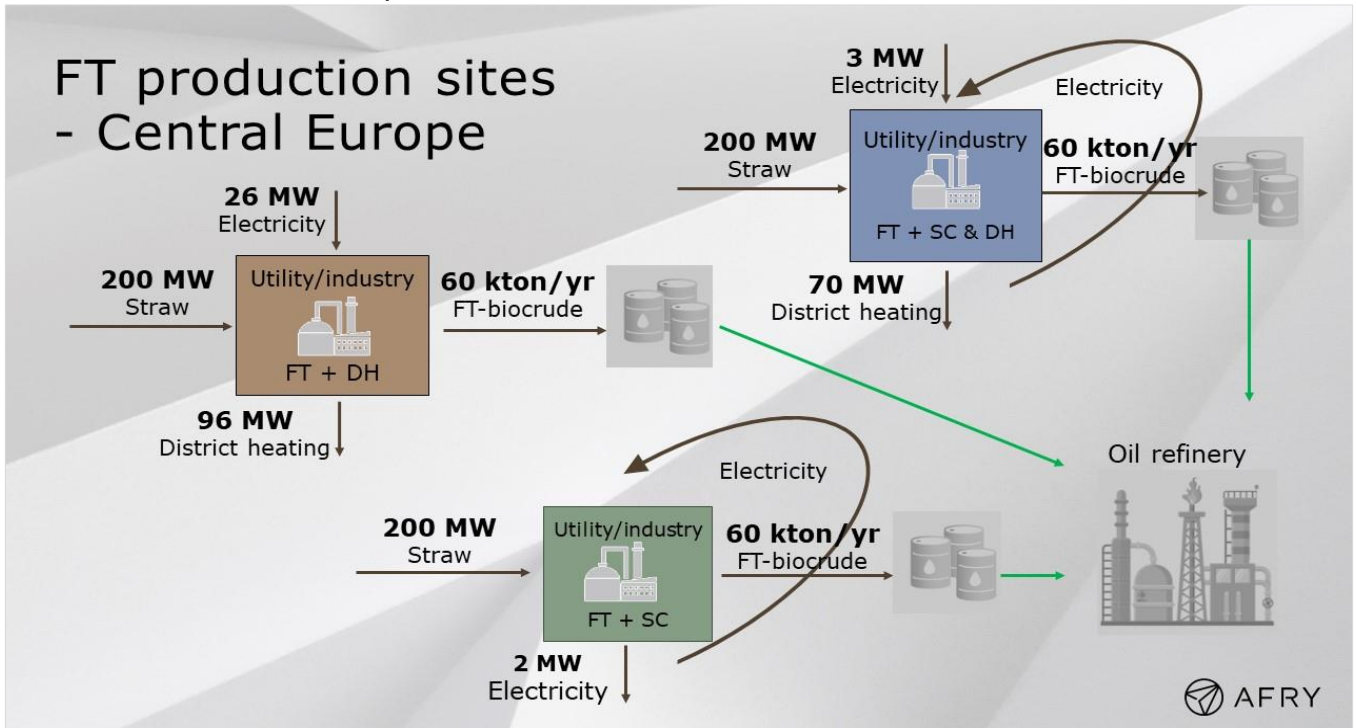


Business concepts for advanced biofuel production in Central Europe

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

Straw to be utilized in advanced biofuel production

- In Central Europe locally available straw can be utilized as a feedstock for biocrude production. The plant capacity is defined based on availability and cost of straw.
- Renewable district or process heat can be produced as a by-product for local utility company or industrial facility. This heat could replace the current fossil fuel based heat production. The process can also be designed to produce electricity for own consumption and even for sales.
- Produced biocrude is a suitable and feasible drop-in feedstock for existing refineries for advanced biofuel production



Opportunities of biorefinery investment

- Securing supply chain for low cost feedstock and possibility to sell process or district heat 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 200 MW biorefinery is estimated to about 1.6EUR/kg (WACC 10%).
- The process can be adapted for different heat and power market conditions with multiple possibilities for dimensioning the heat and power production capacities.
- The technology and concept is feasible for demonstration phase as a next step towards commercial advanced biofuel production from straw.

COMSYN

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

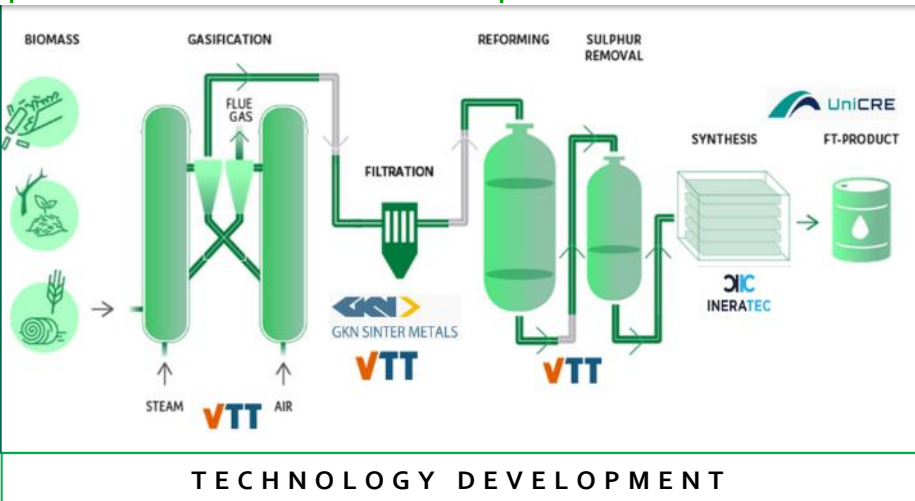
COMSYN project develops modern, intensified reactors, which have high production rate compared to equipment size. Gasification is a process of choice for the initial biomass transformation to a gas stream. Synthesis is used to convert the gas stream to hydrocarbons, which we upgrade in an oil refinery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

