Heat to Fuel

General introduction

This project has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement n° 764675

HtF Basic Data

Title: *Biorefinery combining HTL and FT to convert wet and solid organic, industrial wastes into 2nd generation biofuels with highest efficiency*

Acronym: Heat-to-Fuel

Budget: € 5.896.987,50

Type of action: RIA

Duration: Started in September 2017 and will last until April 2022.

HtF Details

Main Category of the Project: Biofuel, Bioenergy, renewable Fuel, Bioeconomy, sector coupling

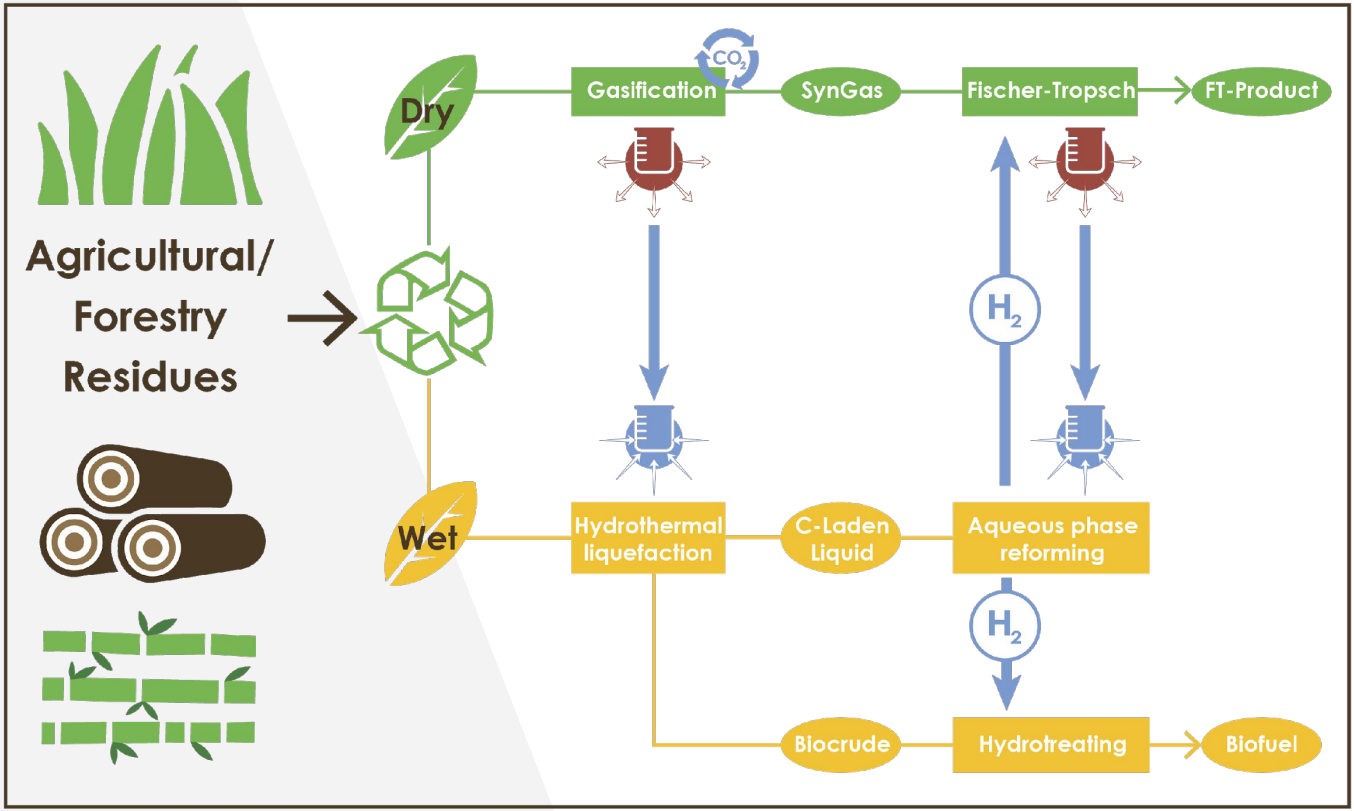
TRL: 3-5

Keywords: HTL (hydrothermal liquefaction), APR (aqueous phase reforming), Fischer Tropsch, DFB (dual fluidized bed) gasification, hydrogen, thermochemical conversion, ministructured reactor

HtF objectives

- Deliver cost-competitive technologies achieving biofuel prices below €1 per litre. This is achieved by a 20% reduction in the operation costs of the biofuel production processes;
- Increase the quality of the biofuel resulting in 5% life-cycle green-house gases emissions reduction from biofuel production;
- Contribute to delivering goals of EU's energy security by increasing the share of local resources used for producing energy, and thus reducing EU's dependency of energy's imports;
- Support local economies by generating 80-100 direct and 250 indirect jobs each time a new Heat-to-Fuel biorefinery is built;
- Prove the technological feasibility and its economic worthiness of the concept acting as a catalyst of future industrial units.

HtF concept


Agricultural/
Forestry
Residues
Dry
Wet
Gasification
CO_2
SynGas
Fischer-Tropsch
FT-Product
H_2
Hydrothermal liquefaction
C-Laden Liquid
Aqueous phase reforming
H_2
Biocrude
Hydrotreating
Biofuel

Continuous HTL plant RE-CORD

- Plant is in operation since 2019 delivering design parameters for the modeled industrial scale plant

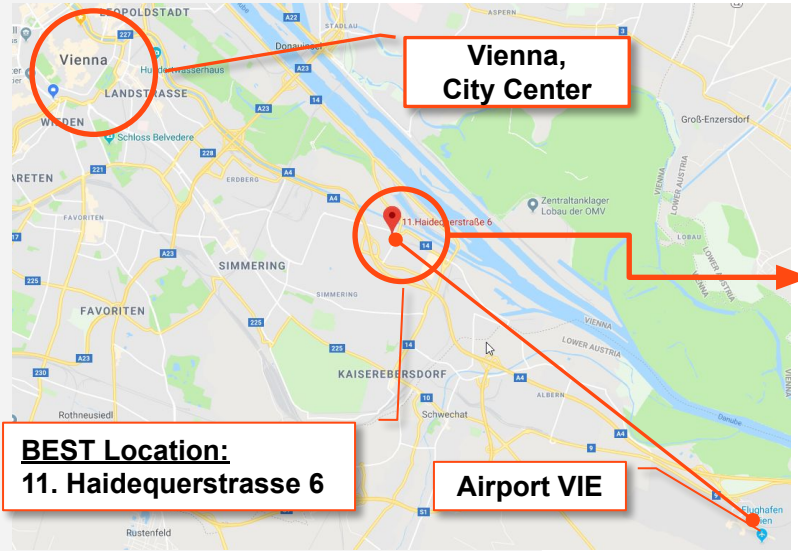
Location change BEST:
increasing research activities

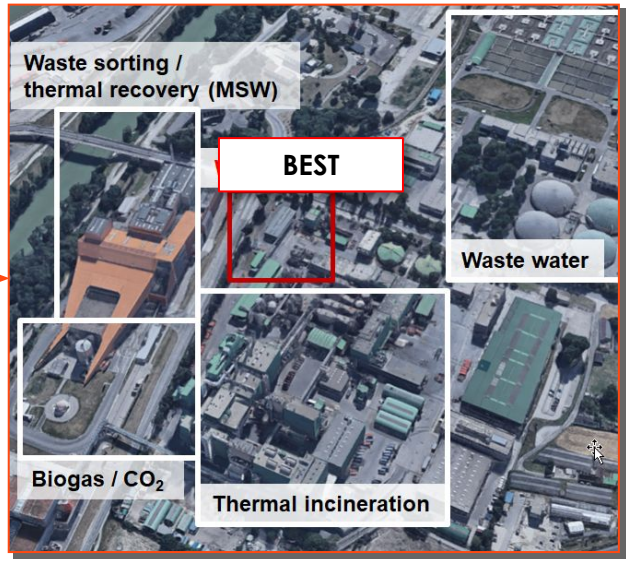
2021 BEST: New research site / gasifier fully operational in Vienna

2019 BEST: Moving all research plants from Güssing to Vienna

BEST Location Simmering (Vienna)

Full-chain demonstration using real syngas





BEST is located in the city of Vienna, halfway between the airport and the city center.

Erection of 1 MW DFB gasifier and FT-demonstration unit

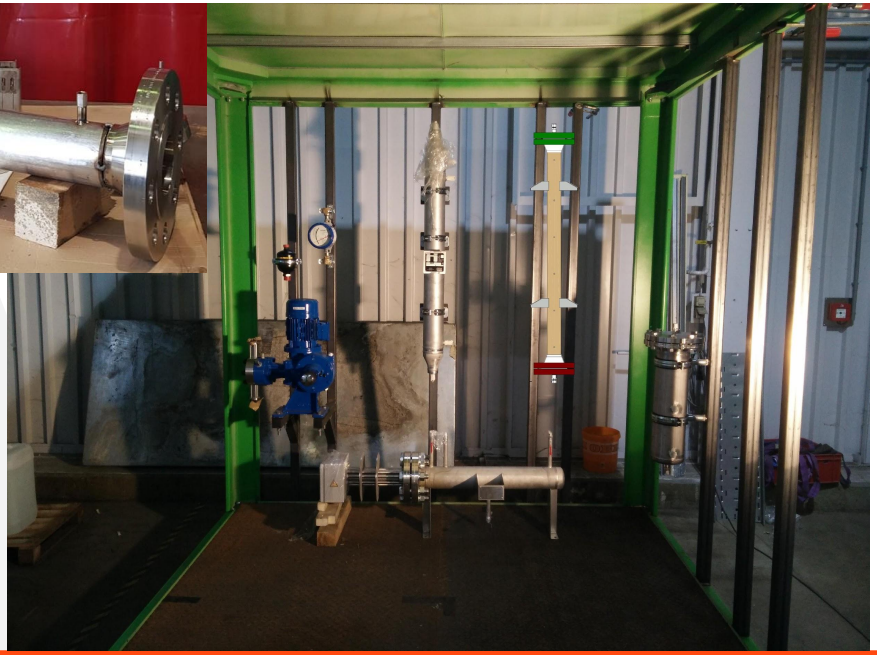
Gasification plant

Whole chain demonstration with ministructured FT-reactor

Gas cleaning & FT-unit

Demonstration APR part

Demonstration continuous APR unit within whole chain demonstration October 2021 – April 2022



Outcomes

- More than 10 peer-reviewed scientific articles
  https://www.heattofuel.eu/publications/
- Site identification and potential for HtF plants in Europe
- Complete Life Cycle assessment
- Newsletters, details about participation in H2020 workshops in social media, etc.
  Join „*Heat to Fuel*“ at Twitter and LinkedIn
- More details are forwarded to the members of the user group at the final workshop in 2022
  Send a request to join the user group to:
  Tatiana Loureiro
  <tatiana.loureiro@r2msolution.com>

THANK YOU