SUSCHEM
European Technology Platform
for Sustainable Chemistry

SusChem 2017 Brokerage Event

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Project Proposal by Spike Renewables Srl

Hydro Thermal Liquefaction (HTL) pilot plant (15kg/h)

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Spike Renewables Srl

Spike Renewables S.r.l. is an Engineering Company focused on system engineering that deals with all aspect of a project from design to construction and integration.

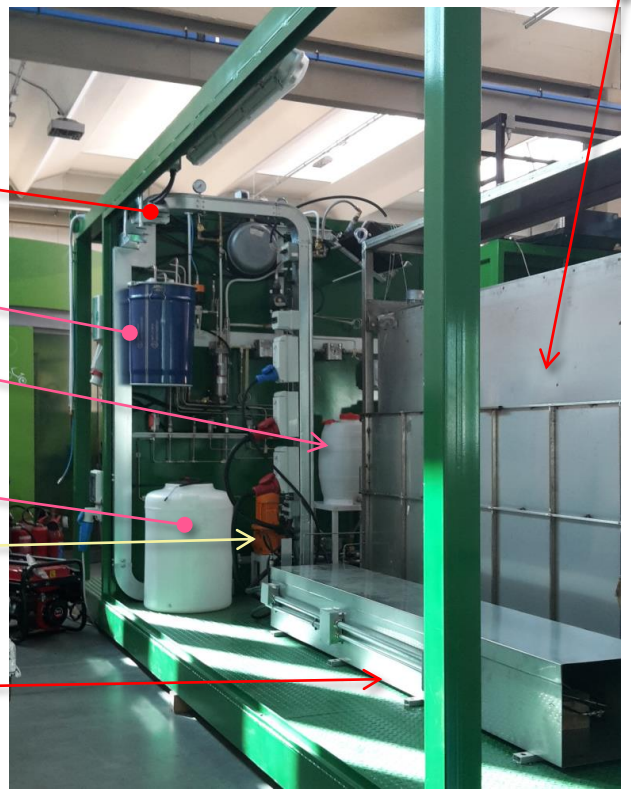
- Focus on renewable energies:
  - Biomass and bioenergy/biofuels processes and plants Engineering
  - Organic by-products thermochemical conversion by HTL and Flash Pyrolysis Patented Processes
  - Heat recovery at high temperature by Molten salts
  - Spike is founder member of RE-CORD (Renewable Energy Consortium for Research and Demonstration), University of Florence no profit Spin-off

  - Ongoing R&D projects:
    - BIOGO-for-production (FP7) - www.biogo.eu
    - SMARTREC (H2020) - www.smartrec.eu
    - LIDIA (Cluster Spring) - www.clusterspring.it

Crude Bio-Oil production by HTL

Biomass Thermochemical Conversion Technologies such as Pyrolysis and HydroThermal Liquefaction (HTL) can directly convert biomass into a liquid biocrude oil. The process outcome biocrude oil is then a chemical intermediate for bio-chemical products or for bio-fuel applications (from renewables resources).

Availability of HTL lab plant capacity 15kg/h of slurry.



EXPECTED IMPACT

The project aims at developing a modular HTL solution to be integrated and validated in an industrial environment (TRL5), on the basis of acquired experience of existing lab plant (TRL4), to produce crude bio-oil at competitive costs. The integration with existing oil refinery will be crucial to access the market and address the issue of downstream bio-oil upgrading.

HydroThermal Liquefaction (HTL) can directly convert wet biomass and organic wastes into a liquid biocrude oil. The reaction takes place in a closed reactor at 200–350 °C and 100–250 bar. The conversion efficiency of biomass depends on various parameters including reaction temperature, retention time, composition of feedstock and adopted catalysts. Because of very harsh process conditions industrial applications undergo various challenges: process fluid is highly corrosive therefore all system components must be built with expensive alloys; high operation pressure (250 bar) together with high temperature (350°C) requires specific components.

EXISTING PROJECT CONSORTIUM/ or LOOKING FOR PARTNERS

Project Consortium in progress; we are looking for a Coordinator.

We are looking for industrial partner that are interested in developing the HTL technology for integration and validation in industrial environments (TRL5), on the basis of acquired experience of existing lab plant (TRL4).

We would exploit the HTL lab Plant for crude bio-oil production in new proposals that may require the availability of this asset (capacity 15kg/h of slurry).

SPIKE RENEWABLES Partner profile:

SME for engineering of innovative industrial and pilot plant design and prototyping;

Availability of pilot plants for bio crude oil production for biofuel/bioproduct research activities and production (HTL – Pyrolysis);

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Contact details for project idea(s) :

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