Technologies for the Energy Transition - biofuels

NEXTCHEM'S PORTFOLIO WILL INCLUDE A NEW HVO TECHNOLOGY (RENEWABLE DIESEL) Focus on US market

NextChem, the company of Maire Tecnimont Group focused on the Energy Transition, will cooperate with Saola Energy to license a technology for the production of Renewable Diesel, suitable for both small bolt-on facilities and large plants. A roadshow to promote the technology on the American market taking off today from Houston.

Rome, 10 February 2020 - **NextChem** announces its alliance with Saola Energy to license in the international market a technology for the production of Renewable Diesel (Hydrotreated Vegetable Oil, said HVO) from vegetable oils and residual fats and starts up a roadshow for its promotion on the American market which is taking off today from Houston with the "National Ethanol Conference", with next steps in Washington in March and Minneapolis in June.

NextChem and Saola Energy will combine their know how and expertise to deliver a comprehensive solution to the marketplace. NextChem will be the licensor of the combined technology and will provide clients with Engineering, Procurement and Construction services and training to ensure successful deployment of the technology. Saola Energy's patented technology consists of a hydrotreatment step followed by isomerization to produce high-quality Renewable Diesel fuel from oils and residual fats. The technology can process at industrial scale a wide range of feedstocks and is ideal to capture the increased value in low-carbon fuels across multiple jurisdictions[1].

Furthermore, the process has a modularized approach and is conceived for capacities as low as 10 million gallons per year (approximately 30.000 ton/year), making it ideal for both smaller bolt-on facilities with access to a limited supply of captive feedstock and larger standalone plants that can aggregate larger amounts of raw materials.
The integration of our technology with existing plants (or bio-refineries) will allow the optimization of their economics via the valorization of byproducts. Companies handling waste oils and residual fats will have access to new opportunities in the market for second generation renewable fuels.

Renewable Diesel (also known as Hydrotreated Vegetable Oil or HVO) and traditional Biodiesel (also known as Fatty Acid Methyl Ester or FAME) are often confused. They are, however, different products. Both can be made from vegetable oils and residual fats, but are produced differently: Biodiesel by Transesterification and Renewable Diesel by Hydrotreating. While FAME presents limits of blending with fossil diesel, Renewable Diesel is a drop-in fuel that meets the petroleum fuel ASTM D975 and EN 590 standards. It overcomes blend limits and is currently used in existing diesel engines without any constraint, and with superior properties in comparison with fossil and FAME. In the marketplace Renewable Diesel commands a substantial premium over FAME.

[1] such as the RED-II (Renewable Energy Directive) in the EU, the RFS (Renewable Fuels Standard) in the USA and California's LCFS (Low Carbon Fuels Standard)

"Renewable Diesel is a valuable solution for sustainable mobility and shows a notable market trend[2] as the fastest growing segment in the biofuels industry. This agreement represents for NextChem an opportunity to improve our technology portfolio in a fast-growing sector and it is also an entry point to the American agri-tech market" said Pierroberto Folgiero, Maire Tecnimont's and NextChem's CEO. "NextChem is looking at technological solutions that, while giving best contribution to decarbonization, are a profitable opportunity for entrepreneurs to strengthen their business or create new ones".

"This collaboration represents a great opportunity to license our technologies worldwide" said Adam Belyamani, Saola Energy's COO. "With this agreement in place, we are able to supply customers with a complete solution for an integrated renewable diesel facility. This will provide a very attractive solution in the marketplace for parties that are interested in both small or larger scale biorefineries".

Maire Tecnimont S.p.A., listed on the Milan Stock Exchange, is a head company of an industrial group leader in natural resources processing industry (plant engineering in oil & gas downstream, with advanced technological and executive skills). With its subsidiary **NextChem** it operates in the field of green chemistry and technologies for energy transition. Maire Tecnimont Group is present in approximately 45 countries, has about 50 operating companies and employs about 6,300 people, plus 3,000 professionals in instrumentation business unit. For more information: www.nextchem.it

Saola Energy LLC is a privately held technology company with extensive experience in engineering, process design, and project execution. It is involved in multiple renewable energy projects and has successfully implemented its patented renewable diesel technology at East Kansas Agri-Energy (EKAE), an ethanol plant located in Garnett, Kansas. This installation was the first of its kind facility that is a co-located renewable diesel plant with an ethanol biorefinery. Saola helped EKAE during the construction, commissioning, and startup phases of its renewable diesel facility. For more information: www.saolaenergy.com

Maire Tecnimont Institutional Relations & Communication
Carlo Nicolais, Ida Arjomand
public.affairs@mairetecnimont.it

NextChem Communication Manager
Ilaria Catastini
I.Catastini@nextchem.it

Media Relations
Image Building
Alfredo Mele, Carlo Musa, Alessandro Beretta
Tel +39 02 89011300 - mairetecnimont@imagebuilding.it

[2] Global demand for Renewable Diesel is expected to grow at a rate around 15% per year between 2020 and 2030, according to various researches. Emerging Markets Online (Global Energy & Bioeconomy Market Intelligence) quoted: "…global renewable diesel production to increase four-fold from 4.8 million tons per year in 2019 to 19.7 million tons by 2030. This rapid expansion of renewable diesel production is being driven by impressive market growth from low carbon fuels standards in California, Oregon, Washington and British Columbia in North America and from an enormous pent-up demand for sustainable aviation fuels in US, EU and Canada" (http://emerging-markets.com/marketresearch/renewable-diesel-2030-summary/)