



Global Bioenergies and an industrial consortium including Sekab, Neste Engineering Solutions, Repsol and SkyNRG receive major EU funding to demonstrate the production of isobutene-derived gasoline and jetfuel from wood

European grant amounting to €13.9 million, of which €5.7 million for Global Bioenergies

Industry consortium led by Global Bioenergies and bringing together Sekab, Graanul Invest, Neste Engineering Solutions, Repsol, Peab Asphalt, SkyNRG, Ajinomoto Eurolysine, IPSB, TechnipFMC and Linz University

Aim at converting softwood residues into isobutene derivatives for use in gasoline and jetfuel

Evry (France), 14 May 2018 - Global Bioenergies today announces the start of a 3-year project to demonstrate a new value chain combining its Isobutene process with technologies developed by Sekab and Neste Engineering Solutions, two of Europe's leading technology developers. The aim is to convert currently poorly valorised softwood residues into second generation renewable isobutene for subsequent conversion into gasoline and jetfuel. A €13.9m grant agreement was signed with INEA on behalf of the European commission.

Biomass is frequently considered as an alternative feedstock to fossil oil in order to address the issues of climate change and resources depletion, and also to strengthen energy independence of European nations. However, such substitution is far from trivial and innovative processes are needed to efficiently convert residual biomass into drop-in fuels and chemicals.

The present project, gathering renowned industrialists from various fields, sets the foundations of a first-of-a-kind biorefinery converting residual wood to high performances drop-in renewable gasoline and jetfuel. With an estimated forestry residues potential of about 145 million tons per year, the European Union has the potential to support the deployment of hundreds of such biorefineries.

Peep Pitk, Head of R&D at Graanul Invest declares: "We are thrilled by the opportunity to be part of industrial consortia which focus on softwood residue streams valorisation in novel value chains and end-use markets. We believe it to be important to kick-start the biomaterials market with high sustainability standards, as it will add strong value to the softwood residues on long term basis."

The 11 project partners coming from 8 EU-member States have signed an agreement with the Innovation and Networks Executive Agency (INEA) which manages the Secure, Clean and Efficient Energy societal challenge of the Horizon 2020 program. INEA's mission is to support the Commission, project promoters and stakeholders by providing expertise and high quality of program management.

The project was selected under the name REWOFUEL (N°792104), in the frame of the European HORIZON 2020 program for research and innovation, following a very selective and competitive process led by independent experts.

The objective is to demonstrate the new value chain at cubic meter scale by combining the technologies and know-how of participants as follows:

- Residual softwood supply and processing by Graanul Invest AS (Estonia)
- Softwood conversion to hydrolysates by Sekab, using its CelluAPP® technology (Sweden),
- Hydrolysates fermentation to bio-isobutene by Global Bioenergies (France and Germany),
- Bio-isobutene conversion to fuel components by Neste Engineering Solutions (Finland),
- Preliminary engineering of a wood-to-isobutene plant and overall integration with a fuel conversion unit by TechnipFMC and IPSB (France),
- Evaluation of Gasoline applications by Repsol (Spain)
- Evaluation of Jetfuel application by SkyNRG (Netherlands)
- Valorisation of the lignin side stream by Peab Asfalt (Sweden)
- Valorisation of proteins from the dried killed residual biomass by Ajinomoto Eurolysine (France), and
- Assessment of the sustainability and environmental benefits by the Energy Institute at the University of Linz (Austria).

Jonas Markusson, Innovation Manager of SEKAB declares: "The REWOFUEL project has great potential to become an alternative value chain to existing biofuels and to create new uses of European residual forestry resources. All parts of the process - the extraction of sugars from wood, the conversion to bio-isobutene, lignin-based chemicals and the production of gasoline and jefuel - are well developed and are all cutting edge."

Marita Niemelä, CTO at Neste Engineering Solutions, declares: "We are very excited in tailoring our next generation NExETHERS and NExOCTANE technologies to wood-derived bio-isobutene in order to demonstrate the production of sustainable 100 % renewable fuel components. We regard this project as a great opportunity for showing how a genuinely synergistic European partnership can bring to the market drop-in high performance fuel components derived from forestry residue materials."

Adriana Orejas, Director of Technology Downstream at Repsol declares: "We promote advanced biofuel research projects that use raw-materials coming from non-food sources which have a high technological content and reduce carbon intensity. At Repsol, we are resolutely committed to sustainability. It is essential to generate value today and in the future to society and, therefore, to our Company."

The program covers a total budget of €19.7 million. Non-refundable grants totalling €13.9 million will be provided by the European Union, with the remainder being contributed by the participants. Global Bioenergies will be the coordinator of the project, and receive funding amounting to €5.7 million. Additionally REWOFUEL will be supported by numerous industrialists including Air France and Safran.

Marc Delcourt, CEO of Global Bioenergies concludes: "While we make progress on our first commercial project based on sugar beet-derived sugars, this new grant from the H2020 program further supports our strategy to diversify the feedstocks usable in our Isobutene process, and thus opens the door to the deployment of our technology in many new geographies."

This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 792104



About GLOBAL BIOENERGIES

Global Bioenergies is one of the few companies worldwide, and the only one in Europe, that is developing a process to convert renewable resources into hydrocarbons through fermentation. The Company initially focused its efforts on the production of isobutene, one of the most important petrochemical building blocks that can be converted into fuels, plastics, organic glass and elastomers. Global Bioenergies continues to improve the performance of its process, operates an industrial pilot, has started operations at its demo plant in Germany, and is preparing its first full-scale plant through a joint venture with Cristal Union, named IBN-One. Global Bioenergies is listed on Alternext, Euronext Paris (FR0011052257 – ALGBE).

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