

Voghera, July 22nd 2021

The solution for the sustainable future of agriculture comes from cooperation.

Ecospray signs a new deal for BIO-LNG production with the German Ruhe Agrar.

The definitive agreement for a pioneering partnership project dedicated to the creation of BIO-LNG was signed on July 15, at the end of a very beneficial meeting. Signatories of the agreement, Ecospray and the German company Ruhe Agrar, one of the most important agricultural company with locations in Lower Saxony, Brandenburg and Mecklenburg-Western Pomerania, recognized as a leader in the production of sustainable closed-cycle energy.

Ecospray will supply a pre-treatment and upgrading system - to convert biogas in biomethane - and a liquefaction system to produce BIO-LNG connected to a suitable cryogenic tank and pump for the trailers off-loading.

Thanks to the technology provided by Ecospray, it will now be possible to equip all agricultural biogas plants with special modules allowing the production of biofuel for road transport. The biogas obtained from the plants is treated and liquefied by this module and the BIO-LNG thus produced can be added to the LNG obtained from conventional natural gas, which has significantly lower emissions than diesel.

"We are really going the extra mile, as with this plant we not only produce biomethane but BIO-LNG, which is ready to be used as fuel for heavy transport. LNG allows 99% reduction of PM10 (particulate matter) and 20-30% of CO₂ emissions, and BIO-LNG is completely carbon neutral, in addition to using waste as an energy source instead of having to dispose of it." Says Giorgio Copelli, Director of Industry and Renewables BU. "Biomethane and BIO-LNG are a double opportunity: transforming waste into BIO-LNG represents a valid resource for heavy transport and a true example of a circular economy which includes all stakeholders in the supply chain."

This deal not only provides Ecospray with the distribution of its technology over a very large and advanced territory for biogas production, but also contributes significantly to the achievement of the EU objective "Fit For 55", requesting the reduction of greenhouse gas emissions by 55% by 2030, a commitment that both companies strongly feel as part of their mission.



“Since industry urgencies have changed, we all need to consider the long-term perspective. Not just regulations but environmental awareness and requests for sustainability provided with the latest technologies, are drivers towards the CO₂ neutral path. – says Stefano Di Santo, Ecospray CEO. “Decarbonization is indubitably the most important priority, and a crucial opportunity too. With Ruhe Agrar, Ecospray has found the strongest partner in Germany and the German market is the most important in the world for the development of the BIO-LNG product”.

BIO-LNG: advantages for farmers and logistic companies

The Ecospray systems are highly innovative, among the first of their kind in Italy to use an innovative patented technology which treats the biogas, purifies it, and manages its subsequent liquefaction for use as automotive fuel.

Capable of producing 2,5 tons of BIO-LNG per day – which is equal to approximately 11,000 km of travel with zero emissions – it represents an alternative method to take advantage of biogas, as opposed to its traditional use in the production of electricity.

The production capacity of the BIO-LNG plants signed by Ecospray is in fact at the basis of the birth of the partnership with Ruhe Agrar: in fact, German farmers are worried that they will not be able to financially support their plants when the federal funding *German Renewable Energy Directive* expires. This is of the utmost relevance today, not just for Germany but for Italian and European farmers as well.

Kunibert Ruhe, Managing Director of Ruhe Agrar, says: “In view of the discussion on CO₂ reduction, the company came up with the idea of using biogas to produce clean fuel; the main difficulty was the low production capacity of the plants. Today, with Ecospray Technology, the right solution has been found to convert agricultural biogas plants to BIO-LNG production, which makes them economically “profitable”. Even after subsidies will expire, biofuel is a cost-effective choice for heavy transport operators as it significantly reduces CO₂ emissions compared to traditional LNG: as they must comply with quotas to reduce greenhouse gas emissions, the more they limit the emissions, the less they spend.”

“We are now entering a very demanding market with respect to technology and the environment,” says Di Santo, “This is the beginning of a journey”. Since there is a human correspondence with Ruhe Agrar representatives, he is convinced of the success of the partnership.

“We are looking forward to the first joint projects with Ecospray. Together, synergies will arise that will move us forward together. We think in the same direction and are pleased



to have found an equal partner who thinks ahead and whose vision we follow" says Kunibert Ruhe.

Ecospray Background



From research to development, Ecospray is specialized in integrated solutions for the green conversion of the maritime and land industries as well as the reduction of dependency on fossil fuels.

Founded in 2005 and part of Carnival Group since 2013, Ecospray operates at global level, offering systems aimed at making industrial processes more sustainable through the cleaning and treatment of pollutants. Today Ecospray is a company offering its technologies as-a-service too, committed to create clean energy for a zero-emission Planet.

Ecospray manufactures compact turn-key systems for the pre-treatment and advanced upgrading of biogas from agricultural plants, OFMSW, water purification sludge and landfills for feeding into the network and biomethane micro-liquefaction systems.

Furthermore, the Ecospray portfolio includes systems for the exploitation of biogas / off-gas - down to 1,5% methane concentration - for heat and power production and conversion systems to produce hydrogen and energy with fuel cells directly from LNG.

Ruhe Agrar Background



Ruhe Company Group is a family business headquartered in the village of Luesche in the state of lower saxony in Germany.

The business group has been founded by Kunibert Ruhe, former CTO and co-founder of EnviTec Biogas AG, who sold his shares after IPO in 2007.

From the administrative company headquarter of Ruhe company group, six agricultural farms in brandenburg, lower saxony and mecklenburg western pomerania are managed. The family business has approx. 140 employees, cultivates 11.000ha of agricultural land, operates four biogas plants with an electrical power of 2,74 megawatts each and supplies 1.000 households with heat from 20 decentralized heating networks.

The business fully tries to close its biological cycles to make a contribution to climate protection. Thus, the production of Bio-LNG from agricultural waste is a logical next step to use the raw biogas for the central production of bio-fuel for trucks.

Ruhe Biogas Service is a spin-off from the operation of the biogas plants.

The business provides solutions for the own biogas plants of Ruhe company group as well as for several external customers.

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