



Technology Collaboration Programme  
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## Newsletter IEA Bioenergy Task 37: 06/2022

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### **FirstBio2Shipping receives €4.3M million (\$4.8 million) funding from the EU**

The FirstBio2Shipping project is to help decarbonise maritime transport through scalable and decentralized production of bio-LNG (or liquefied biomethane). For this, EU granted this funding to the project partners Titan, Attero, and Nordsol. The plant is located at the Attero facility in Wilp, the Netherlands. It will produce around 2,400 tonnes per year of bio-LNG (also called LBG). This funding signifies the EU's recognition of the vital role that bio-LNG will play in the energy transition. It is one of the first projects to receive funding from the Fit for 55 packages. This is because it will supply existing LNG fuelling infrastructure. Bio-LNG originates from organic waste flows, particularly domestic and agricultural waste that is available in abundance. The project will produce six million normal cubic meters a year of biogas. It will also produce 2,400 tons a year of bio-LNG, and 5,000 tonnes a year of bio-CO<sub>2</sub>. The biogas is upgraded and liquefied into bio-LNG by Nordsol's iLNG technology. This technology resolves various challenges in the production of small-scale LNG, including production of high-quality bio LNG (not containing contaminants) with no zero methane 'slip' (not releasing unburned methane).

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### **Scandinavian Biogas expands largest bio-LNG plant in northern Europe**

The Gladö Kvarn plant produces liquefied biogas (Bio-LNG) in Södertörn, just south of Stockholm. Its expansion is to wrap up in the second half of 2023. The plant will produce 220 GWh of Bio-LNG per year, making it the largest of its kind in northern Europe. Notably, the former largest plant is Norwegian Skogn, also owned by Scandinavian Biogas. Scandinavian Biogas will invest \$32 million in the plant. The plant will then liquefy both the biogas from Gladö Kvarn and the biogas from the production plant in Henriksdal in Stockholm. The advantage of the gas liquid is that it only uses one-sixth as much tank volume compared to compressed gas. In the project, Scandinavian Biogas collaborates with Gasnätet

Stockholm regarding gas infrastructure. It also collaborates with Stockholm Water and Waste at Henriksdal in Stockholm. Air Liquide supplies the equipment for liquefying the biogas. The plant is built with proven technology but is the first to be delivered in this size. Swedish environmental agency's program Klimatklivet granted investment support of SEK 135 million (\$14 million) to the project. This is because it provides a large reduction in carbon dioxide emissions by replacing fossil fuels.

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### **Scandinavian Biogas to launch new bio-LNG production plant**

Scandinavian Biogas will start construction of a biogas plant in Grimhult, about 370 km south of Stockholm, in the first half of 2022. In consultation with local farmers, the plant will produce 120 GWh of liquid biogas from manure from 2024. 300,000 tonnes of manure from pigs and poultry in the Grimhult region (an area with a high density of livestock farms) This is the available resource for Scandinavian Biogas' new bio-LNG production facility. It will produce 120 GWh of bio-GNL per year, which is the energy equivalent of 12 million litres of diesel. It is easy to understand why the project has mobilised the local agricultural community and the Swedish environmental agency, which will invest 15 million euros in addition to the 49 million provided by the manufacturer. The stakes are multiple: reduction of the CO2 footprint (which is the case when producing bio-LNG from manure), economic recovery of what is initially considered as waste (possibly spread but posing a problem due to the volumes produced over a small area) and production residues recovered in the form of high-quality organic fertiliser intended for local use and for sale in other regions.

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

Ecospray and the German company Ruhe Agrar, one of the most important agricultural company with locations in Lower Saxony, Brandenburg and Mecklenburg-Western Pomerania formed a pioneering partnership to produce bio-LNG. 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, it will now be possible to equip all agricultural biogas plants with special modules allowing the production of biofuel for road transport. 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"

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### **Bio-LNG in transport: Making climate neutrality a reality**

In the perspective of the upcoming Smart Sustainable Mobility Strategy and revision of multiple important European transport laws, four associations – EBA, GIE, NGVA Europe and SEA-LNG – decided to join forces to demonstrate the great potential of bio-LNG to decarbonise heavy-duty transport and shipping in a fast and cost effective way. They published a joint White Paper providing key facts and figures on several dimensions covering the bio-LNG value chain, from production to infrastructure and usage. It aims at demonstrating the concrete benefits of using bio-LNG as a fuel for heavy-duty transport and shipping, which are sectors where greenhouse gases (GHG) emissions are hard to cut. It further illustrates how bio-LNG can help the European Union to reach its 2030 climate targets and become climate neutral by 2050. The paper formulates key policy recommendations for European policy makers to consider when drafting future strategies and legislation to decarbonise transports.

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### **Renewi, Nordsol, Shell partner up on bio-LNG**

This collaboration aims to contribute to the circular economy and completes the cycle of turning organic waste into a sustainable fuel for long haul transport. Renewi collects organic waste throughout the Netherlands from multiple industries (including retail and catering) and converts it into biogas. Part

of this biogas will be delivered to Nordsol for the production of bio-LNG. Nordsol has integrated and optimized processes into a compact installation that is able to convert biogas into bio-LNG. Shell, a minority investor in Nordsol through Shell Ventures, will distribute the bio-LNG to nearby Shell LNG stations to supply customers with bio-LNG and help them reduce their carbon footprint. Renewi, Nordsol and Shell have signed an agreement to build a Nordsol plant at a Renewi site. The plant is expected to produce the first bio-LNG by mid 2022.

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### **Shell starts production of RNG in the USA**

Shell Oil Products US, a subsidiary of Royal Dutch Shell plc, has successfully achieved startup and production of renewable natural gas (RNG) at its first US biomethane facility, Shell New Energies Junction City in Oregon. The facility utilizes locally sourced cow manure and excess agricultural residues to produce an expected 736,000 MMBtu a year of RNG. This milestone is part of a growing portfolio of developing RNG production and distribution assets supporting RNG as fuel for heavy-duty, on-road transport. Shell is convinced that Biomethane has a significant role to play in the energy transition. Shell is developing additional RNG production facilities to be located directly within operating dairies. Shell Downstream Galloway at the High Plains Ponderosa Dairy in Plains, Kansas and Shell Downstream Bovarius at the Bettencourt Dairies in Wendell, Idaho are part of this expanding biofuels portfolio utilizing cow manure as feedstock. Together, these two dairy RNG facilities can produce approximately 900,000 MMBtu a year of negative carbon intensity RNG

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### **Clean Energy Fuels and bp expand RNG joint venture**

Clean Energy Fuels Corp and bp have announced their joint venture (JV) will build on previously announced plans to finance and develop new projects at dairy farms, starting in the US Midwest. Located in South Dakota and Iowa, the dairy farms – with more than 30,000 cows – have the estimated potential to convert methane produced from waste into more than 7 million gallons of RNG annually. The California Air Resources Board (CARB) has given similar projects a carbon intensity (CI) score of weight average of -320 compared to CI scores of 101 for conventional diesel fuel and 15 for electric batteries. Clean Energy has the largest network of RNG stations in the US, at 550 locations. BP's trading organisation transports RNG to California markets and monetizes the environmental credits associated with dispensing the fuel.

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### **bp acquires 29% stake in UK-based Gasrec to strengthen renewable gas production**

bp has acquired a 28.57% stake in Gasrec, the UK's largest dual provider of bio-LNG and bio-CNG to road transport. Gasrec builds, owns and operates biomethane refuelling stations, providing renewable solutions to the heavy goods vehicle industry. bp will supply Gasrec with renewable biomethane produced mainly from organic wastes, such as food and dairy manure. The investment will expand bp's UK footprint in renewable gas production and distribution, adding to its market-leading position in the US. Founded in 2003, Gasrec was the UK's first supplier of biomethane to the road transport sector. Its customers include major retailers, parcel delivery companies and hauliers.

Gasrec's network of 10 biomethane refuelling stations across the UK is capable of refuelling around 1,250 vehicles per day and includes one of Europe's largest gas refuelling stations at Daventry International Rail Freight Terminal. The company is seeking to expand its network.

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### **Shell starts construction of Germany's largest bio-GNL plant**

Shell is spearheading green fuels. At the end of 2021, the group launched its first Dutch plant for the production of bio-NGV, and has now begun the construction of a new site in Germany. This will be located at the Shell Energy and Chemicals Park Rheinland site in North Rhine-Westphalia. The plant will

include a liquefaction unit, a gas processing system, storage tanks and the necessary safety flares. Directly connected to the natural gas grid, the plant will produce bio-LNG which will then be delivered to Shell's various LNG stations across Germany. Scheduled for completion in the second half of 2023, the plant will be able to meet the annual needs of around 4,000 to 5,000 liquefied natural gas trucks.

[More](#) (in French)

### **TotalEnergies and Clean Energy build new biomethane unit**

TotalEnergies and Clean Energy have started construction on their first biomethane production unit in Friona, Texas. The facility will be fueled by an onsite supply of livestock manure to produce more than 40 GWh of biomethane per year. The biomethane will be used as an alternative fuel for mobility, contributing to the decarbonisation of road transport. Clean Energy will distribute the gas through its network of fueling stations, enabling the supply of renewable gas to between 200 and 300 trucks per year. Through the acquisition of an interest in Clean Energy in May 2018, TotalEnergies became the largest shareholder of the US natural gas vehicle fuels company, with a 19% stake today. In March 2021, the two partners set up a 50/50 JV to speed up the development of biomethane production in the US.

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### **TotalEnergies and Veolia Join Forces to Accelerate the Development of Biomethane**

TotalEnergies and Veolia have signed an agreement to produce biomethane from Veolia waste and water treatment facilities operating in more than 15 countries, with the ambition to produce up to 1.5 Terawatt-hours (TWh) of biomethane per year by 2025. This production of renewable gas made from organic waste will be equivalent to the average annual natural gas consumption of 500,000 residents and will avoid some 200,000 tons of CO<sub>2</sub> per year. TotalEnergies will market the resulting biomethane as a renewable fuel for mobility or as a substitute for natural gas in other uses. TotalEnergies is the segment leader in France, with close to 500 GWh of production capacity while TotalEnergies is a global multi-energy company that produces and markets energies: oil and biofuels, natural gas and green gases, renewables and electricity active in 130 countries.

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