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Bioenergie Geest and Hitachi Zosen Inova Establish Company to Produce Bio-LNG

German biogas producer Bioenergie Geest GmbH & Co. KG and Swiss greentech firm Hitachi Zosen Inova have established a company in Apensen, Germany, which will construct an installation producing 2,100 tonnes of bio-LNG from sustainably generated biogas annually by the end of 2023. The green fuel and the associated greenhouse gas quotas will be sold on the German vehicle fuel market, thus contributing to the decarbonisation of the transport sector.

Apensen, German. At the end of April the German biogas producer Bioenergie Geest and Swiss cleantech company Hitachi Zosen Inova (HZI) signed a contract to establish the joint venture company Apensen Verflüssigungs GmbH & CO. KG.

Flagship Project in Apensen: Upgrading Biogas to Produce Organic Fuel and Liquid CO₂

Since 2011, Bioenergie Geest GmbH & Co. KG has been successfully operating a fermentation plant in Apensen, Lower Saxony, and a biogas upgrading unit supplied by the predecessor company of the current HZI BioMethan GmbH. Here biomethane is produced on the basis of renewable raw materials and fed into the grid. This classic plant design is now being further developed. This will involve switching the substrate fed into the plant to 80%-plus sustainable feed materials such as slurry and manure, as well as enhancing the existing gas upgrading unit by the addition of new systems for liquefying methane and CO₂. The power for the new components is to be generated by the plant's own existing combined heat and power unit.

In the future the 32 GWh/a or so of sustainable raw biogas will be used to produce around 2,100 tonnes of organic liquid gas for the vehicle fuels market. A by-product will be more than 4,000 tonnes of liquid CO₂ used a substitute for fossil-based CO₂ in industry. Upgrading the biogas will considerably reduce greenhouse gases: it will be possible to claim and sell over 20,000 annual tonnes of CO₂ equivalents in the form of greenhouse gas quotas (GHG quotas) under the new German legislation. The entire production chain is thus not only carbon neutral, but has a negative carbon footprint.

Greenhouse Gas Reduction the Main Driver of the Business Case

It is precisely these reductions in greenhouse gases, calculated and traded in the form of GHG quotas, that will enable the investment in the cryogenic liquefaction technology needed for the process. The basis for this is the European Renewable Energy Directive (RED II), which imposes concrete obligations on member states such as making the fuel mix increasingly green. In Germany this target is pursued by means of greenhouse gas reduction quotas within the Federal Immission Control Act. The law obliges distributors of fossil fuels to reduce their carbon footprint by 25% by 2030 (in relation to 2010). Recently this requirement has triggered considerable demand for sustainable biofuels and the associated GHG quotas.

Two Ideal Complementary Partners

For Bioenergie Geest the new partnership marks the continuation of a successful, longstanding cooperation to produce and process biomethane. "And it all revolves around regionalism, active climate protection and close cooperation with farmers," emphasises Sven Plorin, one of the managers of Bioenergie Geest GmbH & Co.KG.

From the point of view of the Zurich-based global plant engineer and technology provider HZI and its wholly-owned subsidiary HZI BioMethan (HZIBM) in Zeven, the creation of the company with Bioenergie Geest is an important step in establishing their new gas liquefaction solutions in their home market of Germany. "For us the circumstances in Apensen and the partnership with Bioenergie Geest are the ideal opportunity to demonstrate our expertise in liquefaction at an extremely well-run biogas plant more or less on our own doorstep," explains Jens Becker, CEO of HZI BioMethan, a wholly-owned subsidiary of HZI based in Zeven in the German state of Lower Saxony.

The plan is to start construction on the plant in Apensen in the course of this year, enabling the production of pure bio-LNG to commence towards the end of 2023.



Picture: German biogas producer Bioenergie Geest GmbH & Co. KG and Swiss greentech firm Hitachi Zosen Inova have established a company in Apensen, Germany, which will construct an installation producing 2,100 tonnes of bio-LNG from sustainably generated biogas annually by the end of 2023.

About Bioenergie Geest

Since its commissioning in 2011 the biogas plant operated by 29 farmers between Apensen and Grundoldendorf in Lower Saxony has served as a lighthouse project in the rural district of Stade. It's outstanding not just in terms of the technology installed, but also because of the way it puts the principle of circularity into practice. So far the entire feed material required has been supplied by the partners, who have then used the fermented digestate as fertiliser on their farms. Nothing is wasted in energy terms either, with the biomethane produced going into the natural gas grid, the electricity fed into the electricity grid and the heat generated used in the production facility itself. Increasing the use of slurry and manure as feed materials avoids the associated emissions and harnesses them for energy instead.

You will find more about Bioenergie Geest at www.bioenergie-geest.de

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About Hitachi Zosen Inova

Zurich-based green-tech company Hitachi Zosen Inova (HZI) is a global leader in solutions for energy transition and circular economy including Energy from Waste (EfW) and Renewable Gas (RG), operating as part of the Hitachi Zosen Corporation Group. HZI acts as a project developer, technology supplier and engineering, procurement and construction (EPC) contractor delivering complete turnkey plants and system solutions for thermal and biological waste recovery. Its solutions are based on efficient and environmentally sound technologies, are thoroughly tested, and can be flexibly adapted to customer requirements. HZI's Service Solutions Group combines its own research and development with comprehensive manufacturing and erection capabilities to provide support throughout a plant's entire plant cycle. HZI works for customers ranging from

established waste management companies to up-and-coming partners in new markets. Its innovative and reliable solutions have been part of more than 1,600 reference projects worldwide.

Find out more about HZI at www.hz-inova.com.

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