

Media Release, 5 August 2022

HZI to Boost Flexibility of Danish Biogas Plant with Gas Upgrading System

Variable energy generation combining membrane technology and CHP

Hitachi Zosen Inova has been awarded another contract to deliver a gas upgrading unit to Denmark. The client is a farmer from Gråsten in the south of the country who is upgrading his existing biogas plant to generate energy more flexibly in response to market demand. Besides using the biogas to generate electricity, the installation will also use membrane technology to upgrade it to biogas-based natural gas that can be fed into the regional gas grid. The plant, set to be feeding its output into the grid as early as the end of November, will have a raw gas upgrading capacity of 900 Nm³/h.

Gråsten, Denmark. Since September 2018 already the operating company KW Energi A/S, a good 20 kilometres north of the German border city of Flensburg, has been treating organic waste and agricultural residues by anaerobic wet fermentation to produce renewable electricity. Now the capacity of the biogas plant is to be increased and a system added to clean the biogas and upgrade it to biogas-based natural gas.

The supplier of the installation is HZI BioMethan GmbH, a German subsidiary of Zurich-based Swiss greentech group Hitachi Zosen Inova (HZI). Gas upgrading specialist HZI BioMethan designs and manufactures amine scrubbing and membrane systems at their premises and own production facilities near Hamburg.

Convincing Total Package

For the project in Gråsten the membrane-based gas separation process will be used to separate the carbon dioxide (CO₂) and methane contained in the raw gas. The result is biomethane, a renewable natural gas equivalent. The model M900 membrane system can produce a good 4.2 million Nm³ of biogas-based natural gas a year. Calculated according to a rough rule of thumb, this corresponds to the annual heating energy requirements of more than 2,800 four-person households.

In addition to the high-performance, economical plant technology in standard design, including service and maintenance services, HZI's successful bid was also down to a short delivery time of less than ten months. Despite obstacles posed by the current global situation, work on the project is proceeding to schedule, and all augurs well for a factory acceptance test scheduled for the membrane system at the beginning of October. The plant is due to be commissioned in mid-autumn, with plans to feed the first gas into the grid at the end of November.

Popular Technology for Energy Independence

Given the recent efforts of European countries to become independent of Russian gas supplies, there is currently an increased need for alternatives to energy procurement and generation, for which the HZI Group provides a broad spectrum of technologies. For many reasons, biomethane plants are attracting growing interest. "For example, they also provide ways of decarbonising the transport sector," says Jens Becker, Managing Director of HZI BioMethan. "Not least with this in mind, we've standardised our plants in recent years and reoriented our manufacturing and warehousing," Becker explains. Among other things, stocks have been significantly increased. As a result, components and plant parts whose delivery is sometimes impaired by the effects of the coronavirus pandemic and the war in Ukraine are currently available. Standard plants and plant assemblies are also being pre-produced. This enables the company to continue to offer short delivery times when supplying installations of this sort.

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Attachment:

Biogas plant Gråsten.jpg; caption: In October the membrane-based gas upgrading system will be installed at KW Energi's facility in Gråsten

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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