Hitachi Zosen INOVA

Media release, 23 July 2018

HZI BioMethan Builds Gas Upgrading Plant for Hamburg's Waste Water Treatment Plant

Hitachi Zosen Inova BioMethan GmbH (HZIB) has been awarded the contract to build a biogas upgrading plant to process digester gas from waste water sludge into biomethane. The plant will be built on the site of the waste water treatment plant in the port of Hamburg and poses particular construction challenges on the manufacturer due to the maritime environment.

Thanks to a sustainable energy policy, Hamburg's waste water treatment plant is able to cover its entire electricity and heat requirements on a self-sufficient basis, using waste water sludge and digester gas in addition to wind and solar energy. Surplus electricity and heat are fed into the public grid or supplied to the business premises and workshops of a neighboring company. Around 10% of the sewage gas is already upgraded to biomethane and fed into the natural gas grid. This share is now to be increased by constructing an additional treatment installation on the Köhlbrandhöft site.

Expertise to Meet Special Requirements

The contract for this special project was awarded to Zeven-based Hitachi Zosen Inova BioMethan (HZIB). The project poses particular challenges in terms of corrosion protection, as the gas treatment plant will have to contend with the salty air, the high air humidity and the brackish water of a maritime environment. Added to this is the challenging composition of the feed gas from the waste water sludge digesters.

HZIB scored highly on a number of counts in the public tender and finally convinced the client, HAMBURG WASSER, thanks to their profound expertise in the field of gas upgrading technologies. HZIB builds economically efficient plant technology based on the pressureless amine scrubbing technology with flexible processing capacity. This was a key consideration when it comes to dealing with the project's nominal volumetric gas flow rate fluctuating between 600 and 1,500 Nm^3/h.

The contract covers a gas transportation skid comprising pressure rise and cooling, a condensate shaft, activated carbon filters for the removal of H_2S and VOC, foundations, the upgrading unit by means of amine scrubbing with a capacity of up to 1,500 Nm^3/h of raw gas, and an adsorption drying unit. The biomethane produced will be fed into the local natural gas grid and will be available for households as well as for industrial facilities.

Another factor is the physical proximity of the project partners, which will facilitate rapid project delivery and quick response times for on-site work.

The project started earlier this summer. Assembly will be finished by mid-April 2019, with the project completed two months later.

Images:

Klärwerk Hamburg.jpg

The new gas upgrading plant is being built on the site of the Hamburg municipal waste water treatment facilities (photo: *HAMBURG WASSER*)

About Hitachi Zosen Inova BioMethan:

Hitachi Zosen Inova BioMethan GmbH (HZI BioMethan) is one of the leading providers of gas upgrading systems on the basis of two processes for separating CO_2 from biogenic gases.

The company was established in early 2015 following an asset deal to acquire MT-BioMethan GmbH, a pioneer in the production of biomethane using CO_2 separation and gas feed-in. HZI BioMethan combines its expertise with many years of practical experience underscored by numerous references in Europe. The company is part of the HZI Group, augmenting its portfolio of biological energy recovery from waste.

Pressureless amine scrubbing is an efficient, heat-led process that makes effective use of waste heat from CHP facilities or gas boilers. As a complement to this, HZI BioMethan also offers a power-driven process using membrane-based gas permeation in three stages. Both technologies deliver highest methane purity and minimize methane slip.

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