

Project scope

The Pilot-SBG project (SBG = synthetic biogas) is a research and demonstration project for the production of renewable methane, which is to be used as a climate-friendly fuel in the transport sector. Therefore, the DBFZ planned a pilot plant on a technical scale, which is now in construction with planned operation start up in Q1/2023. In the pilot plant previously unused biogenic residues, by-products, and wastes are to be converted to renewable methane. The core processes of the plant are anaerobic digestion with subsequent catalytic methanation. The former is executed in two lines to compare

the performance different reactor designs. The main objective is to increase the methane yield using the carbon dioxide from the biogas process and externally supplied hydrogen. For pre- and post-treatment of substrates and digestates hydrothermal processes (HTP) and a separation cascade are intended to enhance the product portfolio of the whole plant by separating valuable by-products. Accompanying investigations include feedstock potential analysis, assessments as well as a comprehensive feasibility study for plant concepts on a commercial scale.

Pilot plant challenges and outlook

In 11/2019 the plant manufacturer which was commissioned for the realisation of the pilot plant started the engineering process. The plant installation began in 06/2022 and commissioning is set to start in 10/2022. In the following three years, the research platform will perform production campaigns with urban and agricultural residues for the Federal Ministry for Digital and Transport.

Besides the implementation of innovative technologies (e.g. new reactor designs, HTP) some of the modules are well researched and state of the art, commercially. Combining them to one process chain as well as handling difficult input streams (e.g. straw) is still to be shown, which makes it an important task for successful upscaling. The pilot scale will allow production and design changes with reasonable financial and time investment, but is still a good replication of the commercial process. The equipment will be closely monitored regarding durability and maintenance, which helps to develop repair strategies and to identify bottlenecks beforehand.

The operation of the pilot plant is accompanied by a number of comprehensive research topics (e.g. biogas cleaning, catalyst robustness, process water recycling etc.).

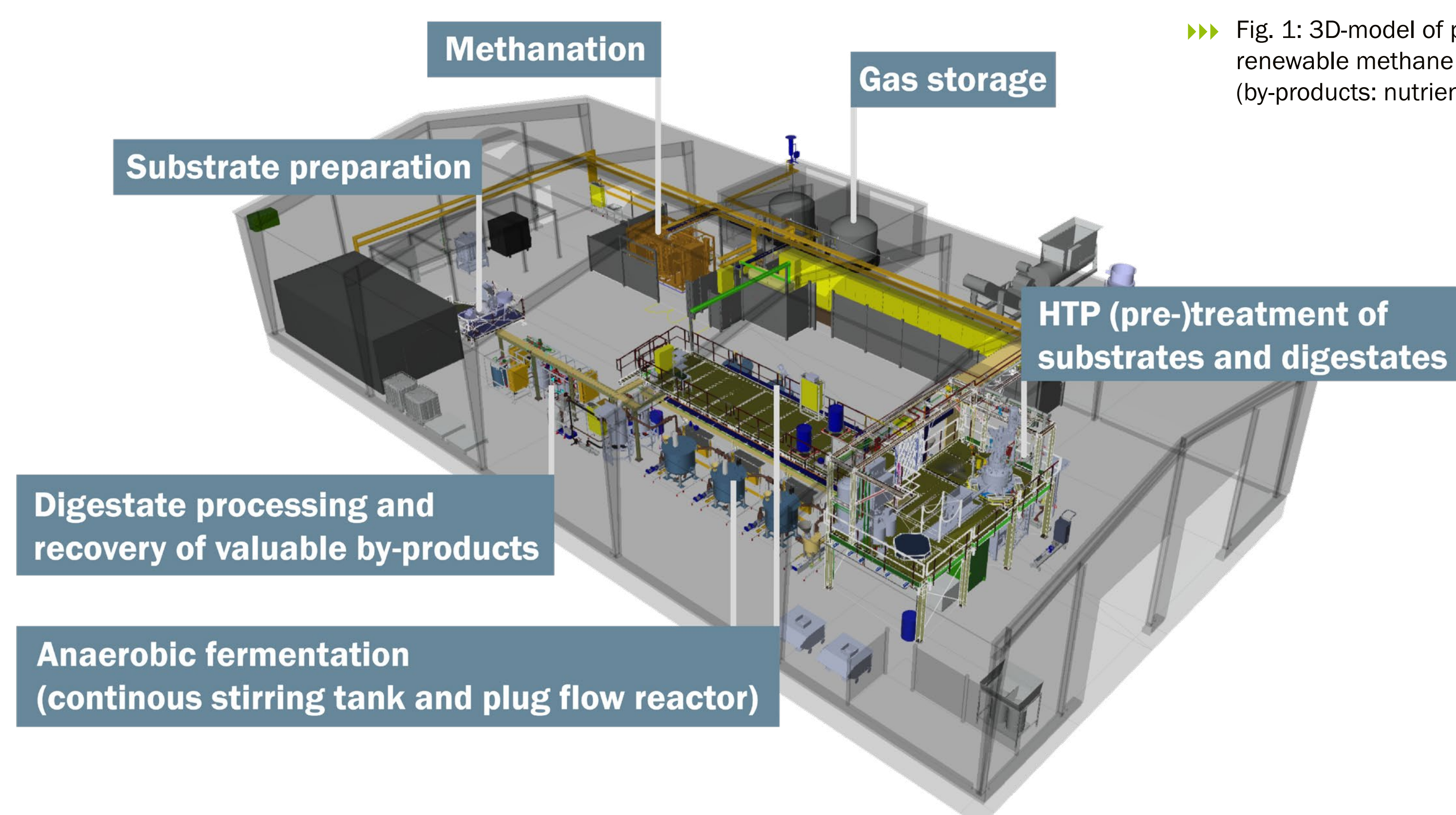


Fig. 1: 3D-model of pilot plant for renewable methane (by-products: nutrients, bio-char)



www.dbfz.de/pilot-sbg

Scan with your mobile device for more information about the pilot plant and the Pilot-SBG project

Fig. 2: HTP reactor with input screw conveyor

Fig. 3: Construction progress (anaerobic digestion line 2 with a plug flow reactor in the center of the photography)



Initiated by



Federal Ministry
for Digital
and Transport

