



# SAS MÉTHA TREIL

Case Study: Biomethane Plant with CO<sub>2</sub> Recovery



# Case Study – The first biomethane plant with CO<sub>2</sub>-recovery in France.

## THE PROJECT

Four farms have formed the operating company SAS Métha Treil near Nantes in France: two livestock farms and two vegetable farms.

For the implementation, the company commissioned agriKomp, which realised all processes of biogas production, purification and upgrading to biomethane in a complete solution.

“Having a single point of contact for the design and construction of the plant guaranteed us a single interface and avoided blame ping-pong between the installers of the different works in case of disputes,” comments Erwann Bocquier, Chairman of SAS.

“We also chose agriKomp because of its expertise in components. The in-house developed and manufactured paddle agitator Paddelgigant® convinced us. In addition, there was the wide range of different tanks and gas storage systems. We visited several plants and this solution seemed to be the best given our requirements.”

The plant commissioned in December 2019 is a biomethane plant of the agriPure® type with a treatment capacity of 250 Nm<sup>3</sup>/h biogas. 120 Nm<sup>3</sup> of biomethane are currently fed into the grid per hour.

The special feature of the plant is the first CO<sub>2</sub> recovery system in France, which perfectly completes the plant design.

„In the spirit of our responsible management, we have decided to utilise our resources completely and focus on feeding biomethane into the grid,” explains Erwann Bocquier.

## UNIQUE PLANT CONFIGURATION IN FRANCE

In addition to the scope of supply of the agriKomp, the operators realised a plant configuration that is unique in France by recovering and utilising CO<sub>2</sub>. A cold distillation process is used to liquefy the separated CO<sub>2</sub> from the biogas upgrading process. The liquefied CO<sub>2</sub> is sold to vegetable farms to improve plant growth in their greenhouses. About 1,500 tonnes are to be produced per year.

“From tomato waste we make CO<sub>2</sub> to improve the growth of tomatoes. This is a positive cycle” , says Aymeric Egonneau, one of the buyers.



### SMOOTH IMPLEMENTATION FOR AN INNOVATIVE PROJECT

“One of agriKomp’s strengths, in addition to its 20 years of expertise, is project management and supervision,” as Bocquier points out.

“From the requirements analysis with holistic feasibility studies to subsidy applications, the agriKomp teams put their know-how at the service of our needs and support every phase of the project, up to construction and after-sales service, for the entire life of the plant. Métha Treil is a true technological innovation and yet it took less than 2 years from the idea to the injection of biomethane into the grid.”

### COMPREHENSIVE CONCEPT TO COVER 10 % OF GAS

Farm manure and silage from the company’s own livestock farms make up almost 95 % of the input, which is utilised in two 1,520 m<sup>3</sup> digesters and a 4,500 m<sup>3</sup> secondary digester. The digesters are heated with a biogas boiler and the recovered heat from the CO<sub>2</sub> liquefier and compressor. The plant is fed with a Vielfraß® solids feeder and connected premix unit.

In detail, 5,880 t of solid cattle manure, 2,800 t of cattle slurry, 6,480 t of intercrop silage and 2,000 t maize silage are used. The input materials are supplemented or replaced by green waste and non-marketable (by-) products from vegetable producers. Depending on the type of vegetable waste, the input materials are adapted. Per year, this substrate mix produces about 2,000,000 m<sup>3</sup> of biogas and about 15,000 m<sup>3</sup> of digestate.

“We don’t grow specific plants to supply the biomethane plant, but rely on closed loop farming,” says Erwann Bocquier, one of the operators.

The resulting digestate is separated with a Quetschprofi® and reapplied as high-quality fertiliser for the plants.

The biomethane produced is fed directly into the nearest GRDF network. Currently, this represents 8 % of the gas consumption of the municipality of Macheoul-Saint-Même. The goal is to produce 10 % of the consumption. This has already been taken into account in the plant design, so that production can be increased in the coming years without construction measures.



# Create Synergies – Everything from a single Source

## UP TO 80,000 EUROS SAVINGS PER YEAR

“It is always interesting to be involved in the entire planning and realisation of a biogas plant, as this enables synergies,” says Nicolas Dromer, head of large-scale projects at agriKomp. With this holistic concept, the operator has only one contact person who guarantees the technical availability of the plant. The clever linking of individual processes increases the efficiency of the entire structure. At the Métha Treil site, a sophisticated heating concept ensures savings.

The recuperation of heat from CO<sub>2</sub> liquefaction and the compressor, as well as the use of raw gas to heat the digesters, enables an additional yield of 1 % biomethane. If one considers these and other measures, such as low consumption of activated carbon in the raw gas conditioning through prior biological desulphurisation in the digester and particularly efficient thermal insulation of the tanks, savings of up to 80,000 euros per year can be achieved.“

## WHAT IS PLANNED FOR THE FUTURE?

“There are many companies in our area that demand green gas,” notes Erwann Bocquier. “Today, the production capacity is 135 Nm<sup>3</sup>/h, but it is planned to be doubled,” says Dominique Pilet.



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