

Feedback on MeMo deployment on the Métha Bel Air methanization unit (86)



Client Presentation

Our customer is one of the first French biogas units, designed to produce green energy from agricultural by-products, for sustainable and responsible agriculture.

With a nominal electricity output of 880 kW, its annual electricity production is about 7 million kWh, the equivalent of the electricity consumption of 1000 inhabitants.

Its methanizer is supplied by 27,000 ton/year (75 ton/day) of agricultural by-products (cow manure, hog manure, grain manure and glycerin).

Its collaboration with BioEnTech began as part of the MAPPED project, which was initiated with four other partners: Engie, INRA, IRSTEA and Akajoule. The goal? To remove the main technical barriers of the methanization chain by integrating intelligent digital tools on the units in order to optimize their energy and environmental balance, but also to strengthen their profitability.

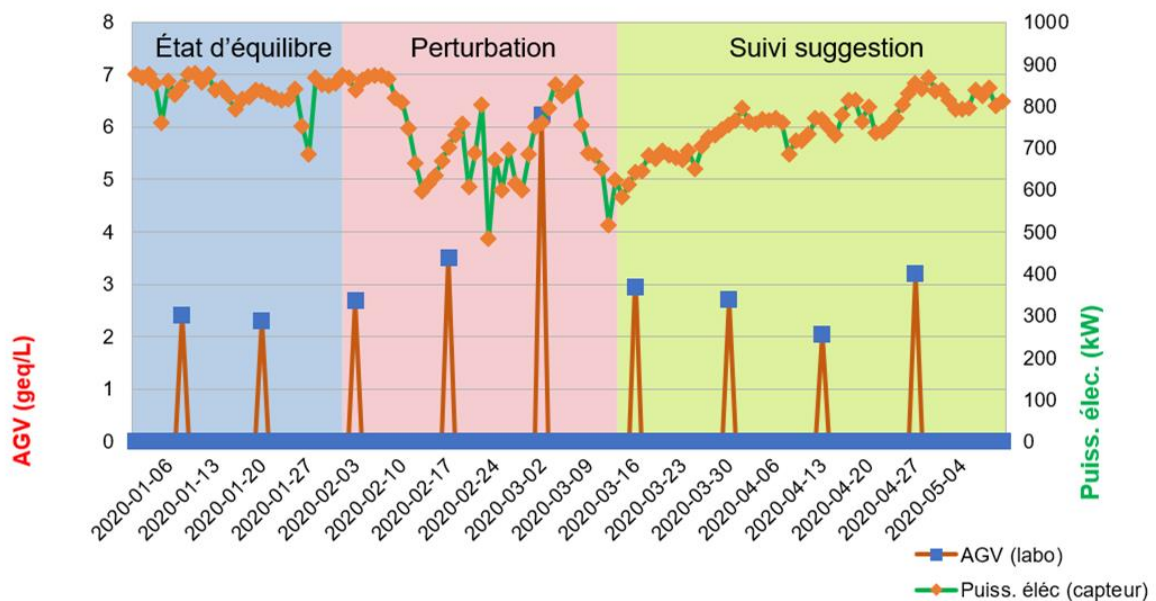
Christophe Fouché, President and Manager of SAS Métha Bel Air

« I have always thought since the beginning that it would be very interesting/ indispensable to be able to follow our biology at a time T. We have experienced several times a decrease in biogas production and therefore of electricity production without understanding what was happening. I heard about the MAPPED project, and I wanted to join this modelling approach right away. »

Site Issue

Due to a tendency to acidify as a result of an accumulation of undigested material in the digester, the unit suffered a sharp drop in production. The operator then needed to quickly regain optimum load and target 880 kW of power generation (Fig. 1). Memo was able to accompany the operator by providing constant-recipe feed suggestions during this period.

Evolution of biological state and electricity production



Analysis results

The difference between the quantities actually incorporated and the suggestions for incorporation given by Memo averaged 13% over the entire period (fig.2). The suggestions showed more stability over time compared to the actual very variable power supply.

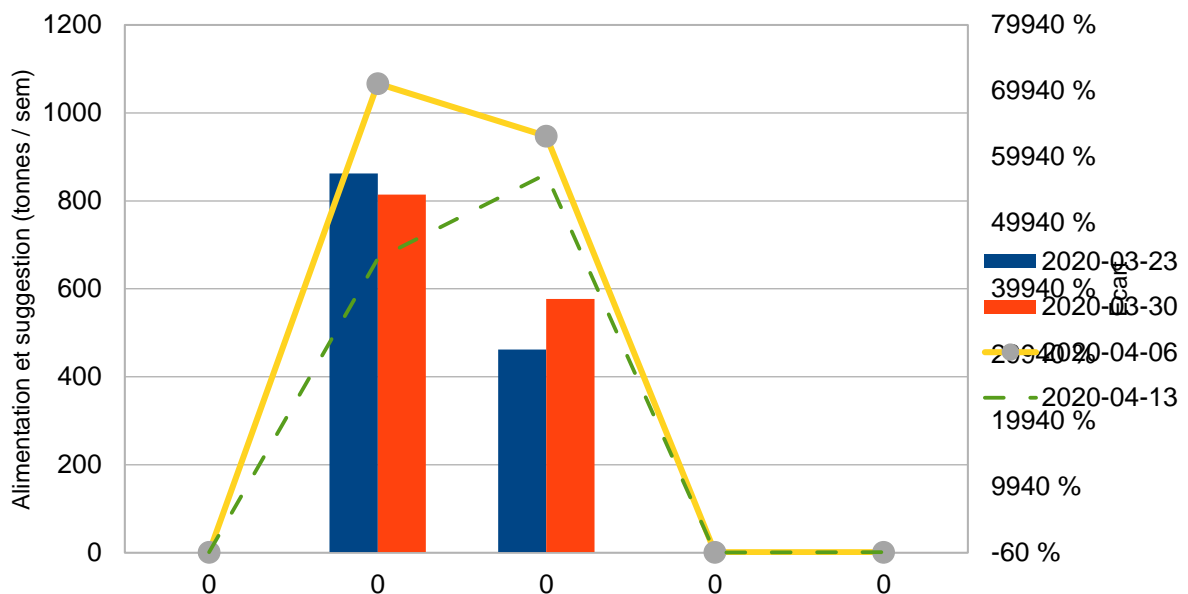
Methane flow increased from an average of 168 Nm³/h in the first week to 209 Nm³/h in the last week, an increase of +24%.

The electric power produced from an average of 671 kW in the first week to 815 kW in the last week, an increase of +21%.

With a feed-in tariff of 0.221 €/kWh and a 97% real injection, the increase in the power output increased from 103 k€/month of the first week to 125 k€/month of the last week, reflecting an increase of 22 k€.

Conclusion

Comparaison alimentation réelle et suggestion Memo



Memo’s suggestions helped the operator to increase the load of its methanizer, and thus the electrical production of the facility, while avoiding new risks of inhibition. By modelling the biology of the digester and its predictive character, MeMo provided the operator with a reassuring framework for decision-making regarding power supplies. Thus, the suggestions made by MeMo were considered consistent by the operator and in line with its experience of several years of piloting.

Christophe Fouché, President and Manager of SAS Métha Bel Air

« When we invest millions of euros in a methanisation unit, we must know what is happening in our digester at every moment. [...] I think that MEMO will allow us to control our unit as closely as possible and above all avoid losing a lot of money in the event of a big biological problem. Prevention is a cure! »