BIOGAS UPGRADING TO BIOMETHANE

Best available technique for carbon capture

Italian Technology

GREEN METHANE

ROSETTI MARINO
Group of Companies

Technology

THE BIOGAS UPGRADING PROCESS

The Raw Biogas is pre-treated (depending on the nature of the biogas) and compressed to 8 barg

The CO_2 in the Biogas is then absorbed by a Potassium Carbonate (K_2CO_3) solution in the Absorption Column, leaving depurated Biomethane; Carbonate is converted into Potassium Bicarbonate ($KHCO_3$)

The CO_2 is then released in the Stripping Column, where the Bicarbonate is converted back to Carbonate, regenerating the solution

Finally the regenerated K_2CO_3 solution is recycled into the Absorption Column with no consumprion of Carbonate or other chemicals.

THE PLANT

Compact unit. Skid mounted, in continuous operation

High quality components

Quick assembly

Reduced spacing 3m x 5m x H10m
(for the typical unit with 500 Nm^3/h of Biogas capacity)

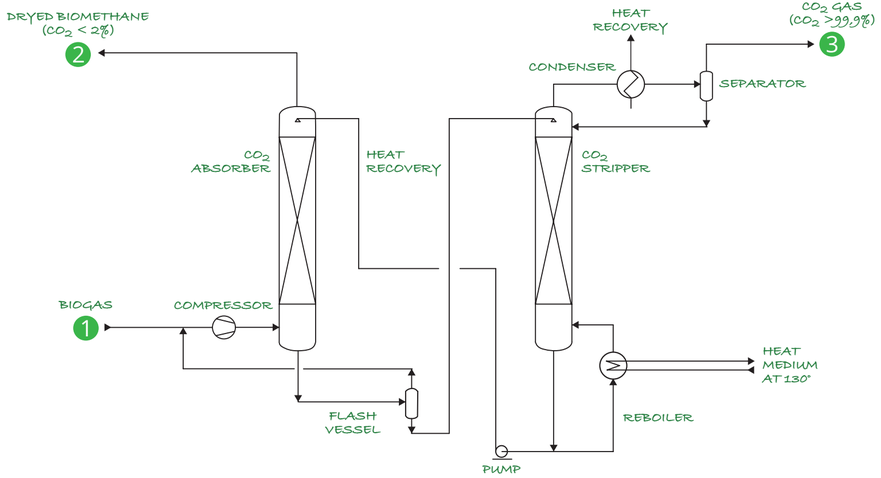
Range of unit capacity (Nm^3/h of Biogas):
500 - 750 - 1000 - 1500 - 2000 - 2500 - 3000 - >3000

Operating capacity range: 20% to 110%

1 - BIOGAS	
Pressure:	any
CO2:	20 - 60 %
CH4:	80 - 40 %
Other gases:	as per grid injection regulations/fuel standards

2 - DRIED BIOMETHANE	
Pressure:	8 barg
CO2:	0.5 - 1 %
CH4:	balance
Other gases:	as per grid injection regulations/fuel standards
Dew Point:	-5 °C @ 70 barg

3 - OFF-GAS	
Pressure:	0 barg
CO2:	99.94 %
CH4:	0.06 %
Other gases:	as per local environmental regulations or CO_2 liquefaction needs



The Biomethane revolution begins in Italy

GM plants for biogas upgrading to biomethane utilise a patented technology referenced for over 60 years in several industrial applications.

It offers the best perfomances, if compared to the other upgrading technologies currently available.

GM IS ECO-FRIENDLY
Methane content in the Off-gas is **less than 0.1%**, with **no need** of Off-gas post treatment

GM IS EFFICIENT
The highest carbon capture rate allows methane recovered from raw biogas **more than 99.9%**

GM CUTS THE ELECTRICITY COST
Power consumption is **lower than 0.19 kWh/Nm^3 of biogas**

GM RECOVER ENERGY
GM recovers **75% of thermal energy** consumed for rigeneration of carbonate solution

GM IS SIMPLE, STRONG AND RELIABLE
Due to the simplicity of the process and the high **quality of the components**, the plant availability is higher than 99%

GM IS GREEN
No hazardous materials are utilised

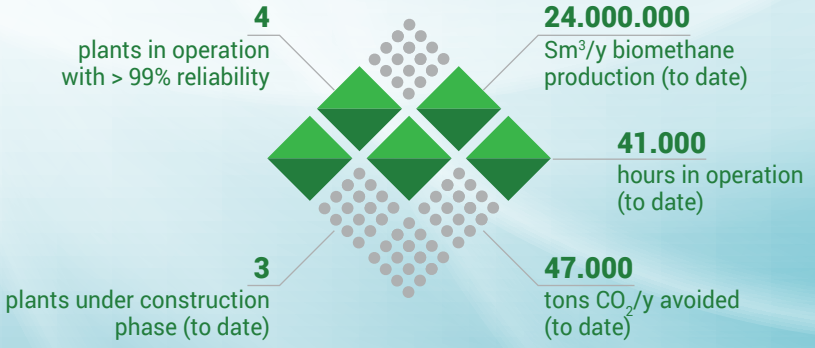
GM IS CERTIFIED
Biomethane produced meets the requirements of **UNITS 11537:2019** and **EN 16723 standards**

Services

Green Methane operating strategy is based on a win-win approach to the customer: data analysis, project definition and viability aiming a social, environmental and economical sustainability of the projects.
GM supports the customers in the preparation of the business plan proposing both technical and financial options to maximize the profitability of the projects.
This approach ensure a seamless delivery throughout the projects definition, authorization and execution phases.

About us

Green Methane was founded in 2013 by two Italian Enterprises: Marchi Industriale Group & Giammarco-Vetrocoke Group;
in 2021 joined Rosetti Marino Group of Companies.
Renewable energies, carbon capture technology, attitude to complex projects handling are now in Green Methane's DNA.



AUTHORIZATION PROCESS

GM supports and partners with the customer through the whole project authorization process

IMPLEMENTATION AND ASSEMBLY

Green Methane upgrading units are supplied on turn-key basis, including the site erection

START UP AND OPERATION

The upgrading plant start-up activities are very important for a proper handover to customer. Operators are deeply trained by our technicians and jointly carry out the biomethane production rump up

AFTER SALE SERVICES

Green Methane provides a customized assistance for the operation and maintenance of the Biogas upgrading unit. Services, predictive and ordinary maintenance as well as plant operation are based upon contracts tailor made on customer needs

Proven and simple technology

More than 400 worldwide applications of CO_2 removal.
The plant is small, simple and reliable.
Find out more about our plants

www. greenmethane.it