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## ADVANCED UPGRADING

### LIFE CYCLE COST (LCC)

**Life Cycle Cost** takes into account both the **investment cost** and the **operating costs** in the entire life of the project: it is therefore **the most important paragraph** in the selection between the different technologies.

**GM plants have the lowest LCC**; main reasons are:

A) They allow the highest revenues as they **recover more than 99,9%** of the methane present into biogas.

B) **They have the lowest energy costs.**

C) **they have the lowest, and above all certain, operation and maintenance costs.**

**The lower LCC of GM plants** compared to competing technologies must be determined case by case; Compared to membranes technology saving, in most cases, **exceed one million Euro**, already starting from plants treating 500Nmc/h of Biogas.

### GM TECHNOLOGY

It is an **evolution of the water technology (acqua 2.0)** as a potassium carbonate saline water solution is used that in a first column captures the  $\text{CO}_2$  becoming bicarbonate and in a second column releases it returning carbonate, without therefore consumption or loss of salt.

### METHANE SLIP

**Biomethane** to benefit of incentives must be **sustainable**; as the methane has a **greenhouse effect** equal to **28 times** compared to  $\text{CO}_2$ , it is necessary that the **methane losses in the atmosphere are very low.**

**GM plants** are **“Advanced Upgrading”** as they have methane **losses less than 0,1%**, **without** the use of **post-treatment plant.**

In **Germany** since May 2012 is in effect the **limit of 0,2%.**

### TURN KEY PLANTS AND AFTER SALE SERVICES

GM supply **pretreatment and upgrading plants on “turn key” basis.** GM plants receive **raw biogas from digesters and return biomethane in compliance with Snam network code.** In addition GM assist Customers on operation and maintenance with a first class **After Sale Service.**

GM exploit two Partners experiences and structures: **Marchi Industriale**, who has been working in Italian industrial chemistry for over 100 years, and **Giammarco Vetrocoke**, who has been licensee for more than 60 years of the potassium carbonate process (+360 applications worldwide).

REQUEST THE SIMULATION OF YOUR PROJECT FREE OF CHARGE TO [info@gm-greenmethane.it](mailto:info@gm-greenmethane.it)