

NEW

BIOGAS PLANTS

PLANT POWERED BY POULTRY
MANURE FROM BROILERS AND
EGG-LAYING HENS



GOAL ACHIEVED



QIESBIOGAS[®]
NUOVA ENERGIA DALLA NATURA



THEORY ON BIOGAS FROM POULTRY MANURE IS NOT ENOUGH, WE NEED FACTS.

NEW BIOGAS PLANT MAINLY POWERED BY POULTRY SUBSTRATUM OPERATING SINCE JANUARY 2013 .



ASK FOR A GUIDED VISIT OF THE PLANT
WWW.IESBIOGAS.IT

An innovative and efficient biogas plant **Made in Italy**, perfectly integrated into the production cycle, created by **IES BIOGAS**, able to enter into the national grid up to **999 kW** per hour and meet the needs of **3,000 families**, without waste, without odor, to the benefit of the environment and the community. An investment that has successfully completed the cycle of self-sufficiency of the farm Eredi Carioni. At the same time are produced thermal energy for district heating and natural fertilizer quality. So the cycle is perpetuated over time, with a high level of efficiency.

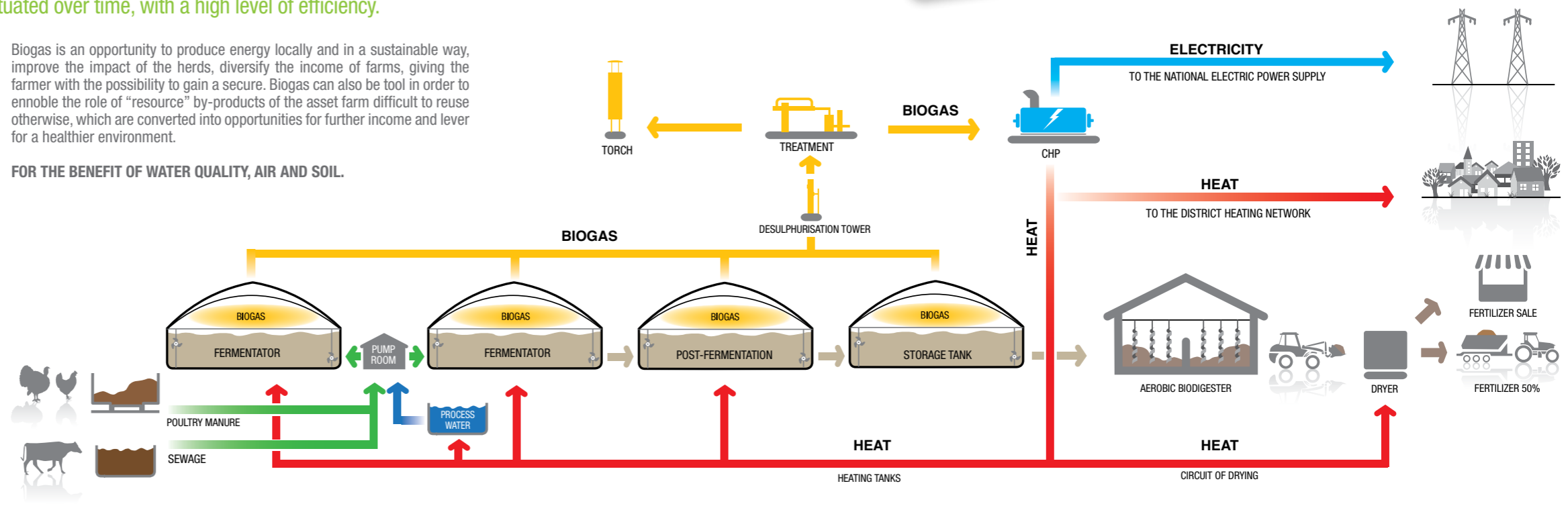
THE BIOGAS IS ONE OF THE ALTERNATIVE SOURCES MORE USED FOR THE PRODUCTION OF RENEWABLE ENERGY. The biogas is the product of the microbial degradation of organic substances in the absence of oxygen, a process commonly called anaerobic digestion. It is a mixture of gases, composed mainly of methane (CH₄) and carbon dioxide (CO₂).

The **poultry manure** and **slurry** from neighboring stables are entered daily into the two fermenters. Here they remain for about 100 days and then go into the storage tank covered. The process and then type a "dual-stage" and occurs at a temperature of 38-42 degrees (mesophily conditions). The technology to "double-stage" allows you to have a fermentation process secure and resilient but especially ensures retention times appropriate. The coverage of storage in addition to ensuring a complete degradation and therefore an effective exploitation of biomass used, allows a greater reserve of biogas and allows for better desulfurization (removal of the H₂S). Desulfurization and of biological type for injection of very small amounts of oxygen. The internal structure and a net offer a good surface for the colonization of bacteria. The biogas produced is conveyed to the cogenerator that produces electricity and thermal energy. The first is transferred to the public network, the heat instead is reused in part for the fermentation process, in part because of the district heating of the stables and offices. At the end of the fermentation process is obtained the digestate, a liquid material, completely odourless, high value for cultivation, with improved features with respect to the starting material.

The digestate undergoes a process of solid/liquid separation: the solid that has the consistency, the appearance and smell of a "humus", is distributed in the fields with a wagon manure spreaders or sold to specific users as the gardens-florists.

Biogas is an opportunity to produce energy locally and in a sustainable way, improve the impact of the herds, diversify the income of farms, giving the farmer with the possibility to gain a secure. Biogas can also be tool in order to ennoble the role of "resource" by-products of the asset farm difficult to reuse otherwise, which are converted into opportunities for further income and lever for a healthier environment.

FOR THE BENEFIT OF WATER QUALITY, AIR AND SOIL.



PLANT POWERED BY POULTRY MANURE FROM BROILERS AND EGG-LAYING HENS

- | | |
|---------------------------------------|----------------------------|
| 1) FERMENTER 1 | 14) DESULPHURISATION TOWER |
| 2) FERMENTER 2 | 15) TREATMENT BIOGAS |
| 3) POST FERMENTER 2 | 16) RE COGENERATED |
| 4) STORAGE TANK COVER | 17) TORCH |
| 5) WATER STORAGE TANK | 18) OIL STORAGE |
| 6) PRE-TANK MIXING | 19) CONDENSATE WELL BIOGAS |
| 7) PUMP / TECHNICAL ROOM | 20) WEIGH |
| 8) LOADING SYSTEM MATERIAL SHOVELABLE | 21) WEIGH STATION |
| 9) BIOFILTER | 22) ARCH OF DISINFECTION |
| 10) STORAGE AREA | 23) FIRE PROTECTION |
| 11) DRYER | 24) ELECTRICAL SUBSTATION |
| 12) BIODIGESTER AEROBIC | 25) MILL AREA |
| 13) CONCENTRATED SILO | |

INSTALLED ELECTRIC POWER: 999 kW

A TWO-STAGE PROCESS MESOPHILIC

Pre-tank:	n.1	Ø 11,5	h=4,7m
Fermenters:	n.2	Ø 28,0	h=6,0m
Post-fermenter:	n.1	Ø 28,0	h=6,0m
Storage tank covered:	n.1	Ø 28,0	h=6,0m
Biomass Load:	n.1	hopper 60 mc	
Biodigester aerobic	n.2	modul 20 x120m	

PIANO DI ALIMENTAZIONE GIORNALIERO

Turkey litter::	17,8 ton
Poultry litter:	21,9 ton
Poultry from laying hens:	9,6 ton
Straw:	2,7 ton
Cattle slurry:	12.3 ton
Process water:	65.0 ton

ENERGY YIELD

Annual production of electricity:	8.400.000 kW
Annual production of biogas:	4.200.000 mc
Average concentration of methane (CH ₄) in biogas:	52-54 %

GROUP OF CO-GENERATION

Manufacturer:	AB Energy
Model:	Ecomax 10 Bio

MOTORE

Manufacturer:	GE Jenbacher
Model:	J 320 GS-C25

