



Biogas from agricultural substrates, food by-products and organic waste:
three European case histories towards carbon-neutrality

WORLDWIDE EPCM

- + 12 years of well-proven experience
- + 220 designed and installed biogas plants
- + 300 O&M contracts
- + 80 MWeq. pipeline up to 2022



IES BIOGAS, founded in 2008, is a leading biogas contractor in the field of biomethane.

On July 2018, IES BIOGAS joined SNAM Group, for the vertical integration of the biomethane supply chain in the energy transition and decarbonisation strategy.



LEADER IN THE ENERGY TRANSITION

IES Biogas in Italy and worldwide

HEADQUARTER

PORDENONE (ITALY)

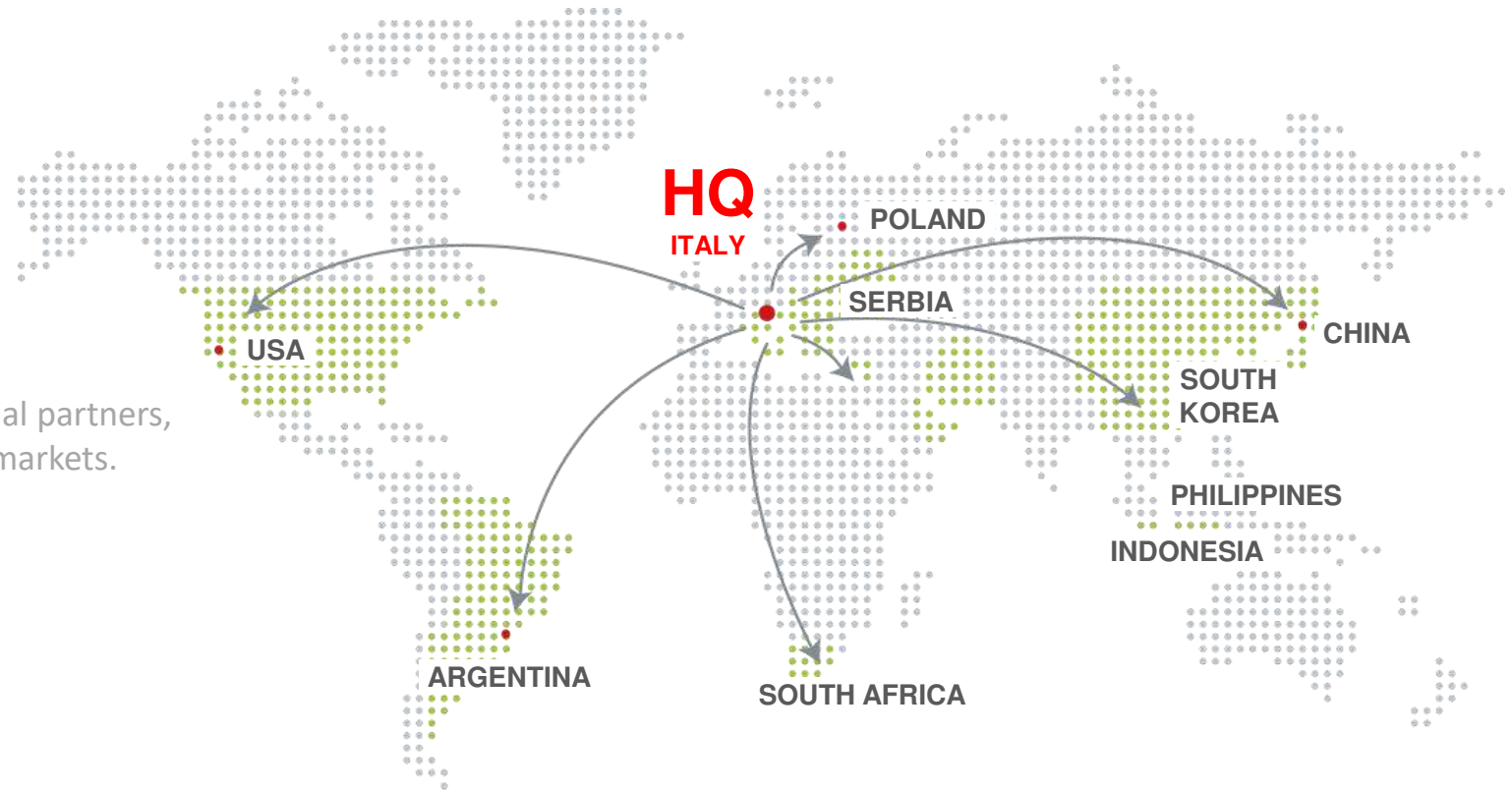
SALES OFFICE

IES BIOGAS in BUENOS AIRES (ARGENTINA)

Thanks to our team and our network of external partners, we cover all major emerging waste to energy markets.

Biogas plants already built in
ITALY, CROATIA, SOUTH KOREA, ARGENTINA, SERBIA, GREECE, INDONESIA, PHILIPPINES

Ongoing projects in
FRANCE, BELGIUM, POLAND, MALAYSIA, CHINA...



TURNKEY DESIGN & CONSTRUCTION

Stable and safe installations, monitored at every stage, before and after.

IES Biogas ensures a complete and precise delivery, assuring the customer a constant presence and support, from design to service and management.

PRELIMINARY CONSULTATION

- Technical feasibility
- Economic and financial assessment
- Production analysis and energy audit

PLANNING

- Preliminary design
- Detailed final design, as built
- Technical documentation

IMPLEMENTATION

- Turnkey solutions
- Accurate BOM management
- Precise control of materials and components
- Start-Up and commissioning

MANAGEMENT & AUTOMATION

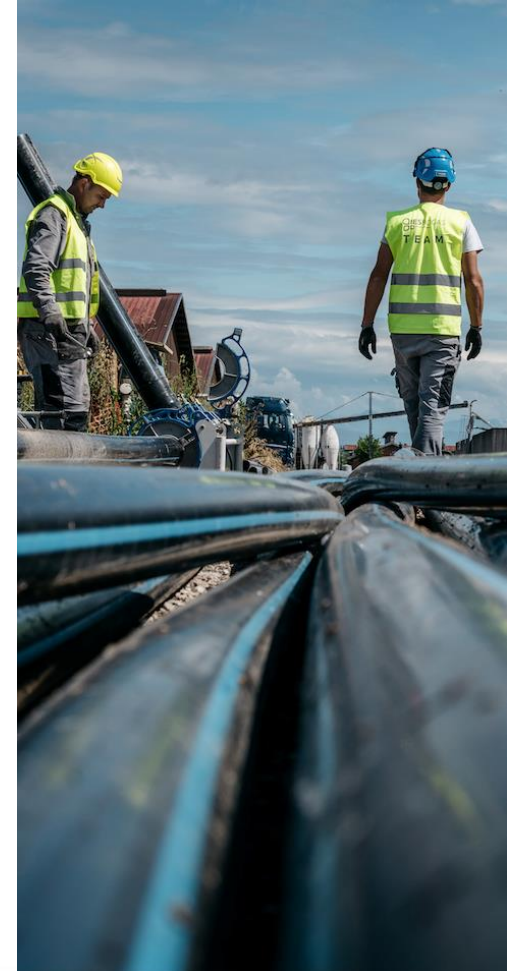
- Remote control and monitoring
- Supervision and management software
- Training of plant personnel

TECHNICAL SUPPORT

- Ordinari and extraordinary maintenance
- Service contracts
- Complete 24/7 management
- Process controls
- Biology and agronomy services
- Laboratory analysis
- Plants revamping

ASSISTANCE FOR FINANCIAL

- Permits and authorizations
- Support for financing solutions



OUR DIVISIONS



**SPECIALISTS IN
CREATING
TAILORED SYSTEMS**

Liquid manure
Solid manure
Energy crops
Agro by-products



**WE TRANSFORM
WASTE INTO RENEWABLE
ENERGY**

Kitchen/domestic waste
OFMSW
Unsorted waste



**FOOD INDUSTRY:
NEW ENERGY
POSSIBILITIES**

Food & beverage
processing waste



**ALWAYS AT YOUR SERVICE WITH
PERSONALISED ASSISTANCE**

Divisione dedicata all'avviamento,
al funzionamento e alla
manutenzione dell'impianto

- FLEXIBILITY
- TAILOR MADE SOLUTIONS
- STRONG TRACK RECORDS WITH HIGH EFFICIENCY RATE
- CONTINUOUS TECHNICAL INNOVATION
- HIGH SAFETY AND QUALITY STANDARDS
- SERVICE AND MAINTENANCE
- IN HOUSE AUTOMATION DEVELOPMENT
- CONTROL SOFTWARE REMOTELY CONTROLLED
- OVER 12 YEARS OF WELL-PROVEN EXPERIENCE

CASE STUDY: BIOGAS AGRI&FARM PLANT

MRAMORAK 1&2 / Serbia – 2* 999 kWe

DOUBLE-STAGE MESOPHILIC PROCESS CHP MODULE FOR ELECTRICITY GENERATION

Raw material: 210 t/d of energy crops and livestock effluent

Corn/Sorghum silage	120,0 ton/d
Pig slurry	40,0 ton/d
Cow manure	50,0 ton/d

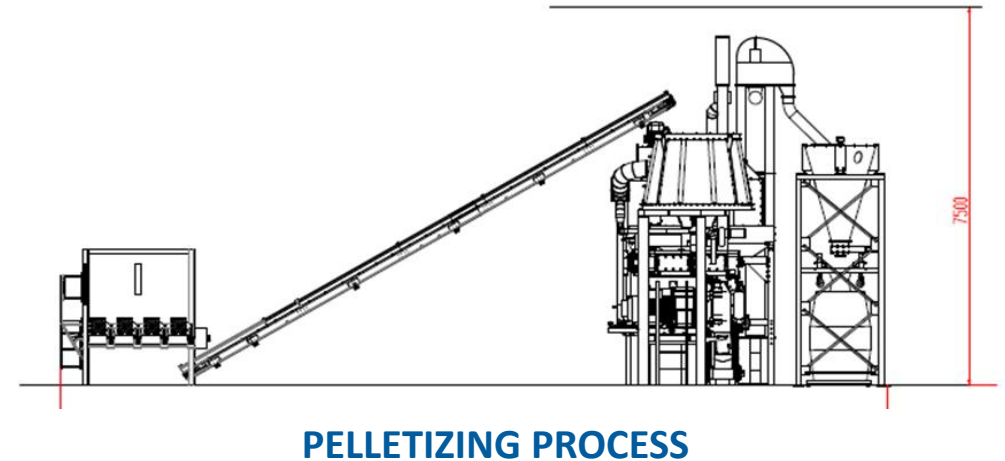
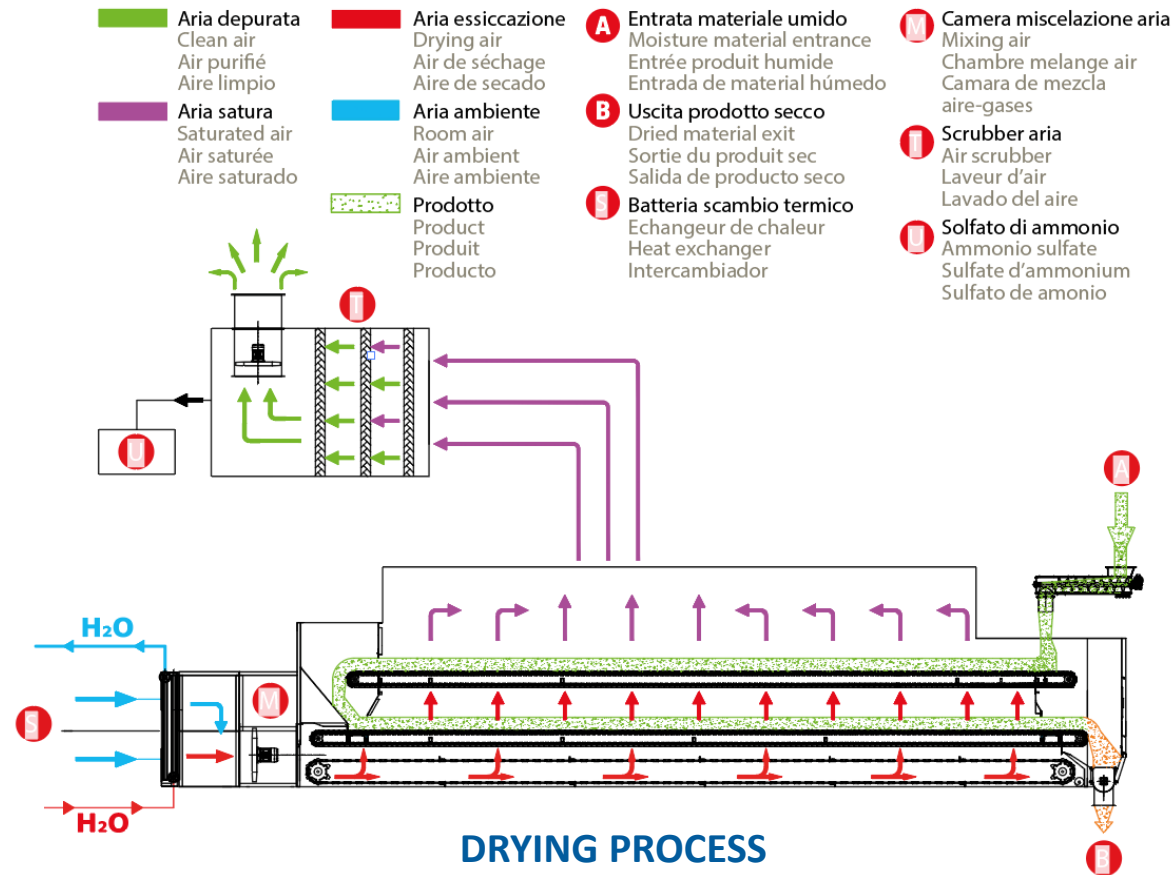
Electric output: 2 * 999 kWe

Annual production of electricity:
17.200.000 kWh (grid feed-in)

Construction time: 5 + 5 months



Solid digestate valorization



CASE STUDY: BIO-CH₄ FOOD INDUSTRY PLANT



AF BIOENERGIE / Italy - 1100 Sm³/h

DOUBLE-STAGE MESOPHILIC PROCESS Aerobic Treatment - UPGRADING station

Raw material: 660 t/d by-products of the dairy industry

Whey	322,0 ton/d
Glicerate waters	13,0 ton/d
Soapy paste	24,8 ton/d
Primary flotates	60,0 ton/d
Buttermilk	120,0 ton/d
Milk	40,2 ton/d
Yogurt	20,0 ton/d
Concentrates	60,0 ton/d

Bio-CH₄ output: 1100 Sm³/h (≈4,5 MW equiv.)

Annual production of biomethane:

9,40 mln Sm³/y (inject to national gas grid) **equivalent to:**

+ **159 mln km** travelled in a year by natural gas vehicles.

+ **6.379 cars** a year fuelled

+ **7.300 tons** of oil saved per year

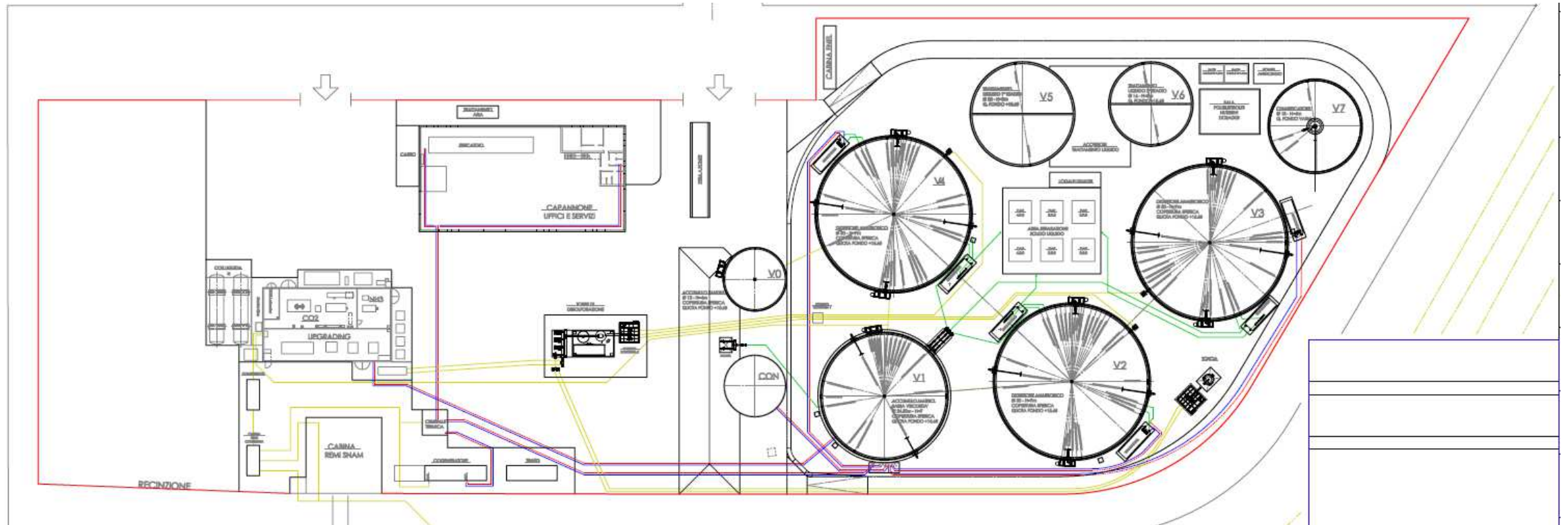
- **18.340 t** of fossil CO₂ into the atmosphere avoided per year

Construction time: project in progress



CASE STUDY: BIO-CH4 FOOD INDUSTRY PLANT

AF BIOENERGIE / Italy



CASE STUDY: BIO-CH₄ WASTE PLANT

ENERSÌ PLANT / Italy - 350 Sm³/h

OFMSW pre-treatment system
AD SEMI-DRY BIOMETHANE PLANT
Composting area
UPGRADING station

Raw material: 100 t/d OFMSW

Bio-CH₄ output: 350 Sm³/h (≈1,5MW equiv.)

Annual production of advanced biomethane:
3,6 mil. Sm³ (inject to national gas grid)

3.6 mln Sm³/y of advanced biomethane is equivalent to:

- + 64 mln km travelled in one year by natural gas vehicles.
- + 2550 cars a year fuelled
- + 2800 tons of oil saved per year
- 7,349 t of fossil CO₂ into the atmosphere avoided per year

Construction time: 12 months (on going project)



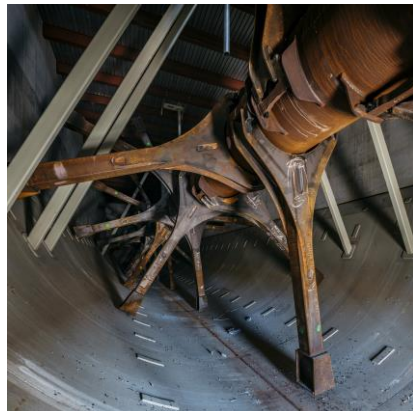
CASE STUDY: BIO-CH₄ WASTE PLANT

Semi-dry process

These systems are known as plug-flow digesters: the advancement of biomass is only related to the input of fresh biomass and the extraction of exhausted digestate.

The high viscosity of the digestate keeps plastic and sand in suspension: the pre-treatment system associated with this type of plants is less complex than that required for wet plants.

The outgoing digestate has a dry matter generally higher than 20% and lends itself well to be mixed as it is, with structuring materials to be sent directly to the aerobic composting treatment.



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01

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02

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03

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04

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