biogas
eolico
fotovoltaico
biomasse
cogenerazione

Asja Group

biogas basic principles, landfill gas, waste gas and state of art

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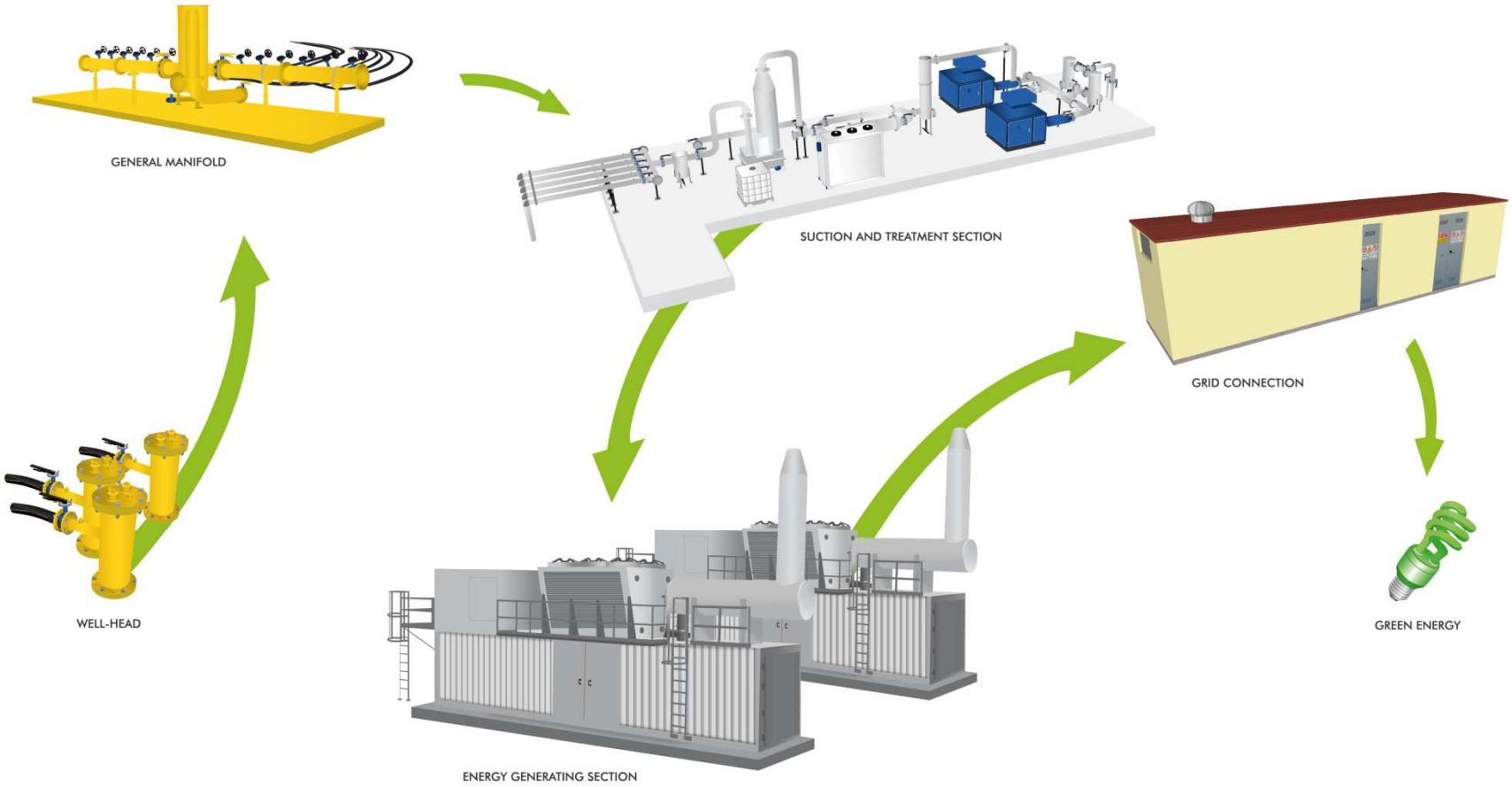
▪ LANDFILL GAS PLANTS

We generate energy from landfill gas

Asja is a major player in the international scenario of power generation from landfill gas generated at municipal solid waste (MSW) landfill sites.

LANDFILL GAS PLANTS



THE DEGRADATION OF URBAN WASTE

Landfill biogas is the product of anaerobic degradation of the organic fraction of solid urban waste.

Composition of biogas	
Methane (CH_4)	35-60%
Carbon Dioxide (CO_2)	30-60%
Oxygen (O_2)	0-2%
Water (H_2O)	2-5%
Other gases: Hydrogen sulphide (H_2S); Hydrogen (H_2); Nitrogen (N_2); Trace amounts of other compounds (mercaptans, ammonia,…)	2-5%

FROM WASTE TO ENERGY

The capture of biogas generated from landfills avoids the release into the air of its most harmful component: methane (CH_4). This gas poisons the atmosphere 21 times more then carbon dioxide (CO_2).

To produce energy from biogas instead of fossil fuels - the quantity being the same - makes it possible to achieve an appreciable reduction in the quantity of CO_2 produced.

THE PLANT BENEFITS

- Odor abatement.
- Reduced risk of fires.
- Greenhouse gas emissions avoided as no fossil fuel sources are used.
- The greenhouse effect due to the release of biogas from landfill sites is reduced.
- Production of green energy from a renewable source.

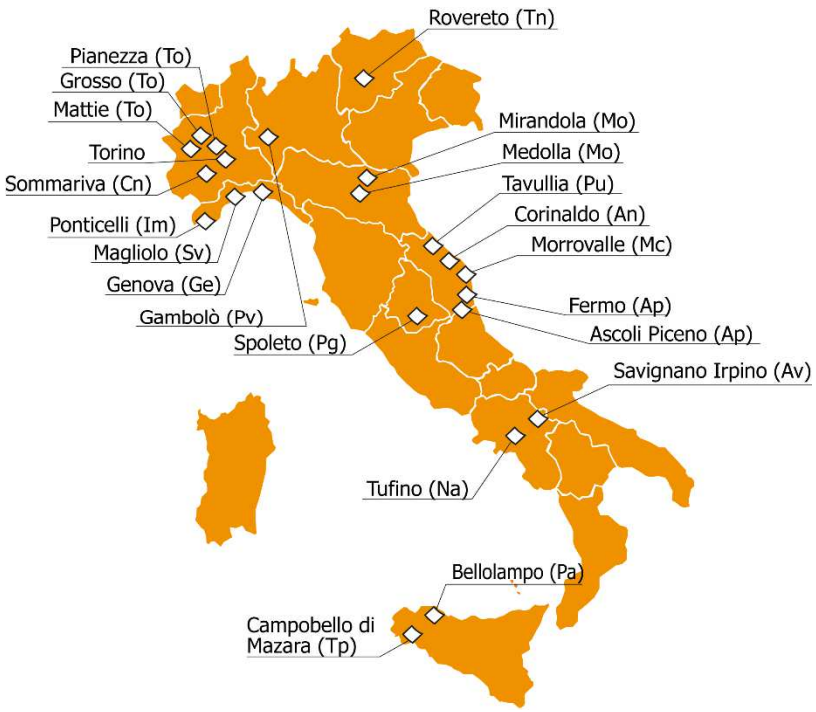
BIOGAS NUMBERS

347,000	MWh green energy produced
1,400,000	ton CO_2 avoided
560,000	oil barrels saved
46	biogas plants builts from 1995
26	biogas plants in operation (1 of which under construction)
72.4	MW installed power

▪ 26 LANDFILL GAS PLANTS
72.4 MW INSTALLED POWER

Italy

22 landfill gas plants
56.1 MW installed power



China (CDM projects)

1 landfill gas plants
3.5 MW installed power

Brazil (CDM projects)

3 landfill gas plants
12.6 MW installed power

OFMSW PLANTS

- 2 plants under construction (Foligno and Pianezza)
  - Plants capacity = 499 Sm3/h Biomethane
  - Plants size = 40.000 t/h OFMSW
- 2 plants under development (Viterbo and Roma)

LANDFILL GAS PLANTS
ITALY

Landfill gas plant | Monte Scarpino (Genoa)

Landfill gas plant | Pianezza (Turin)

Landfill gas plant | Tufino (Naples)

Since 1995 to date, Asja has designed and built 46 biogas-to-energy plants in 12 regions of Italy and it operates 22 of them.

▪ LANDFILL GAS PLANTS
WORLD

Landfill gas plant | Shenyang (China)


Landfill gas plant | Uberlandia (Brazil)

Landfill gas plant | Belo Horizonte (Brazil)

Active abroad, namely in China and Brazil, Asja also works in the framework of the Flexible Mechanisms under the Kyoto Protocol. With its CDM projects in China and South America, in 2015 Asja contributed to abating over 300,000 tons of CO_2. Asja's South American CO_2 reduction projects are currently Gold Standard-certified.

BIOMETHANE FROM ORGANIC WASTE

Biomethane plant (Piedmont - Italy) - detail of the render of the project

A new frontier in biogas-to-energy systems

We build plants producing biomethane for energy generation from:

- the organic fraction of municipal solid waste;
- waste and by-products from the agroindustrial sector.

▪ BIOGAS UPGRADING

BIOGAS
CH_4=50-80%
CO_2=25-45%

PURIFICATION & UPGRADING

BIOMETHANE
CH_4=97-98%
CO_2=2-3%

Biogas Upgrading to high energy biomethane is commonly used to produce SNG (substitute natural gas used for injecting into grid) and/or CNG (compressed natural gas employed as a fuel in transportation).

In this process the most crucial operation is a separation of CO_2 from biogas, which is carried out by technology based on unit operations like absorption or permeation.

▪ ASJA BIOMETHANE PLANTS

FOLIGNO BIOMETANO | FOLIGNO (FG)

ASJA BIOMETHANE PLANTS

PIANEZZA PIANOBIO| PIANEZZA (TO)