

Asja Group | A success story for a renewable future

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■ INTEGRATED RENEWABLE PLAYER



We produce clean energy

Since 1995 **Asja** has been a leader in power generation from renewable sources and in the reduction of greenhouse gas emissions that cause climate change.

Asja operates in the energy efficiency sector developing and marketing the TOTEM, a high-efficiency micro-cogeneration unit.

Where we are

- **Italy:** Turin headquarters, Palermo
- **Brazil:** Belo Horizonte
- **China:** Shenyang



■ THE ASJA'S 53 OPERATION PLANTS
164.3 MW_e installed power

Italy

- 21 landfill gas plants
- 5 OFMSW treatment plant
(under development/construction)
- 1 vegetable oil plant
- 8 wind farms
(1 of which under construction)
- 14 photovoltaic plants

China

- 1 landfill gas plant

Brazil

- 3 landfill gas plants
- 2 under construction

500,000 MWh
green energy produced

1,100,000 tons
CO₂ avoided

810,000
oil barrels saved

741,000
people enjoying clean lighting
from our green energy



■ ASJA RENEWABLE ENERGY PLANTS

Italy

8 wind farms (1 of which under construction)

80.1 MW installed power



Italy

14 photovoltaic plants

11.6 MW installed power





- WIND FARMS



We generate energy from wind

Thanks to its long-standing experience in the sector of renewable sources, **Asja** designs, builds and operates **wind farms** of any size, extremely **efficient** and **reliable**.



■ WIND FARMS



Asja in-house staff has all the skills that are needed to develop a windfarm project through its various stages:

- Site-scouting
- Feasibility studies
- Wind measure management
- Wind assessment
- Layout optimisation
- Project design
- Environmental impact analysis
- Handling of the permit issuance
- Management of the relations with institutions
- Wind Farm construction
- Wind Farm management
- Due Diligence to evaluate wind farm acquisitions
- Energy sale
- Green Certificates trading



- WIND FARMS

80.1 MW installed power



Wind farm | Matera (Italy)



Wind farm | Fumosa (Tp, Italy)



■ PHOTOVOLTAIC SYSTEMS



We develop excellency

Asja designs, builds and manages performing, reliable **photovoltaic installations**.

Its many years' experience in the field of renewables makes it the partner of choice for all businesses and organizations intending to set up a PV plant in Italy.



■ PHOTOVOLTAIC SYSTEMS



PV plant | Rabbici Sferro Trapani | SICILY - ITALY | December 2010

With its team of **engineers** Asja directly handles all stages that eventually lead to plant commissioning: site scouting, design, permit issuance procedures, relations with stakeholders and negotiation of agreements, plant construction, granting of feed-in tariffs, selling of energy, plant maintenance.



- PHOTOVOLTAIC PLANTS
11.6 MW installed power



PV plant | San Giorgio (To - Italy)



Roof mounted PV system | Rivoli (To - Italy)



PV plant | Fiera Levante (Ba - Italy)



■ LANDFILL GAS PLANTS

Italy

21 landfill gas plants
55 MW installed power



China (CDM projects and power generation)

1 landfill gas plant
3.9 MW installed power



Brazil (CDM projects and power generation)

3 landfill gas plants
12.7 MW installed power



◆ under construction



- LANDFILL GAS PLANTS



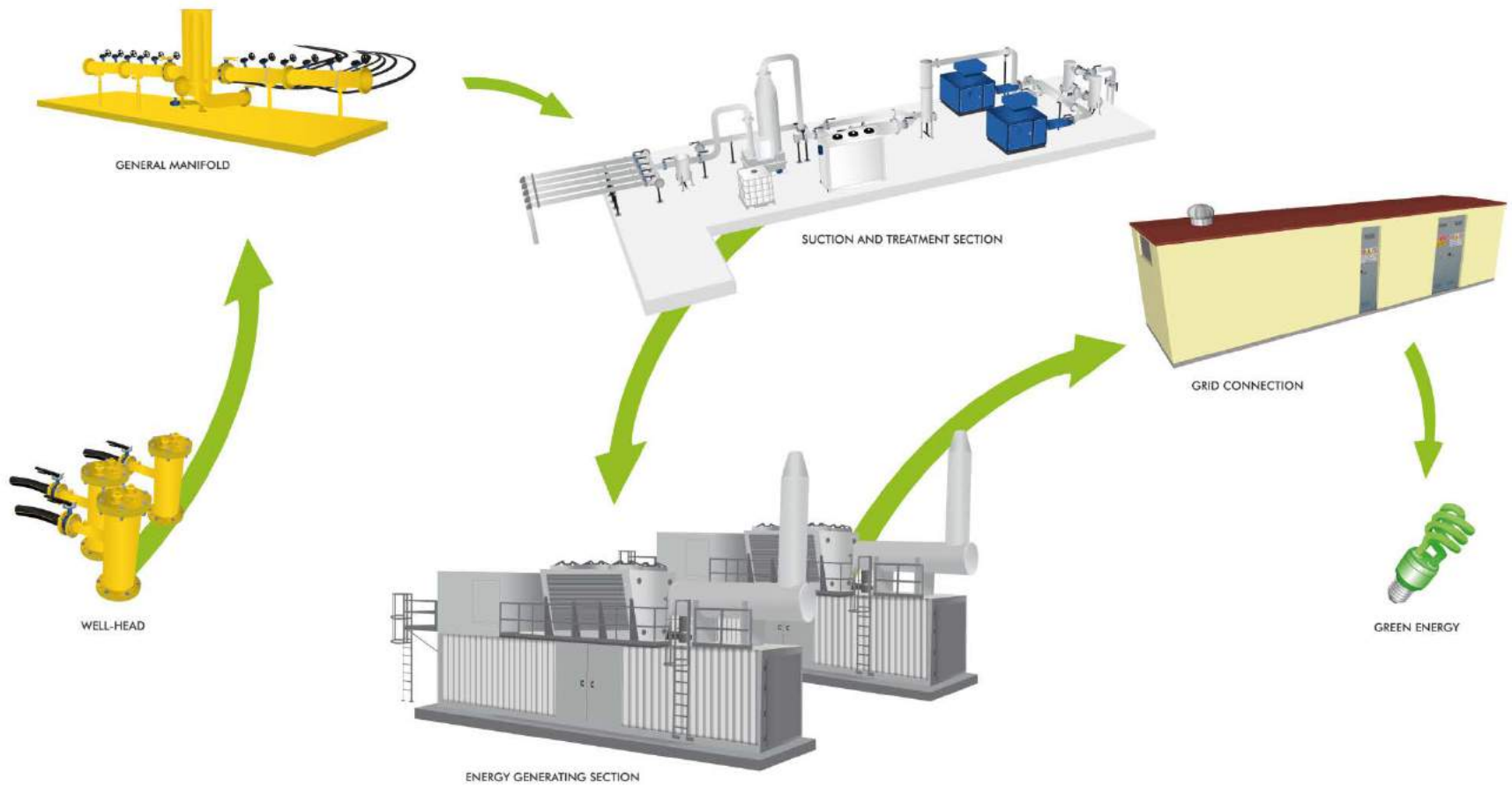
From waste to resource

We generate energy from waste

Asja develops, builds and manages waste-to-energy plants that recover biogas produced by the anaerobic digestion of the organic fraction of municipal solid waste (OFMSW) stored at the landfill.



■ LANDFILL GAS PLANTS





■ LANDFILL GAS PLANTS



The capture of biogas generated from landfills avoids the release into the air of its most harmful component: **methane** (CH₄). This gas poisons the atmosphere 21 times as much as carbon dioxide (CO₂).

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 CO₂ produced.



- LANDFILL GAS PLANTS
80.1 MW installed power



Landfill gas plant | Monte Scarpino (Ge - Italy)



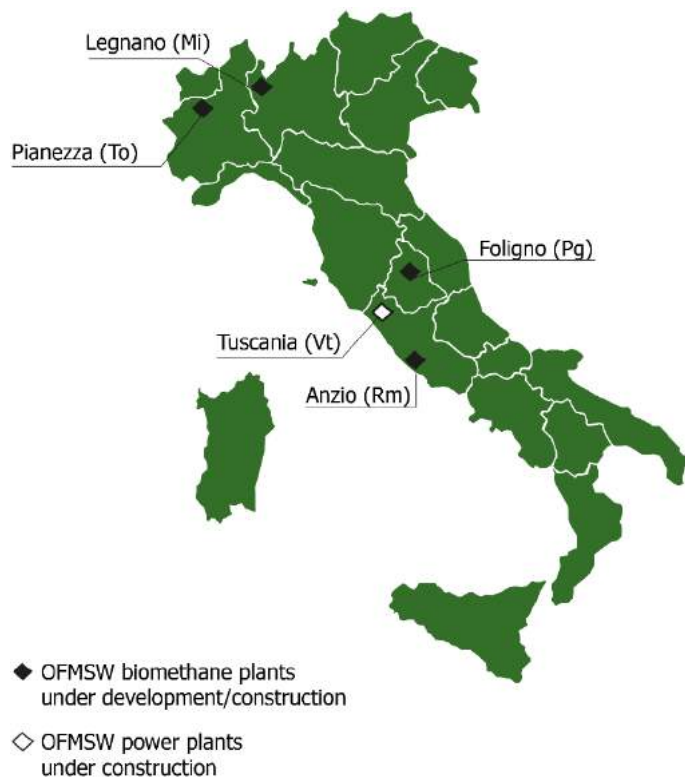
Landfill gas plant | Shenyang (China)



Landfill gas plant | Belo Horizonte (Minas Gerais - Brazil)



- OFMSW ANAEROBIC DIGESTION PLANTS
BIOMETHANE AND ELECTRICAL ENERGY



A new frontier in biogas-to-energy systems

Asja designs, builds and operates plants to produce **biomethane** and **electrical energy** from the organic fraction of municipal solid waste and waste and by-products from the agroindustrial sector.



■ OFMSW ANAEROBIC DIGESTION PLANTS

A new frontier for Asja

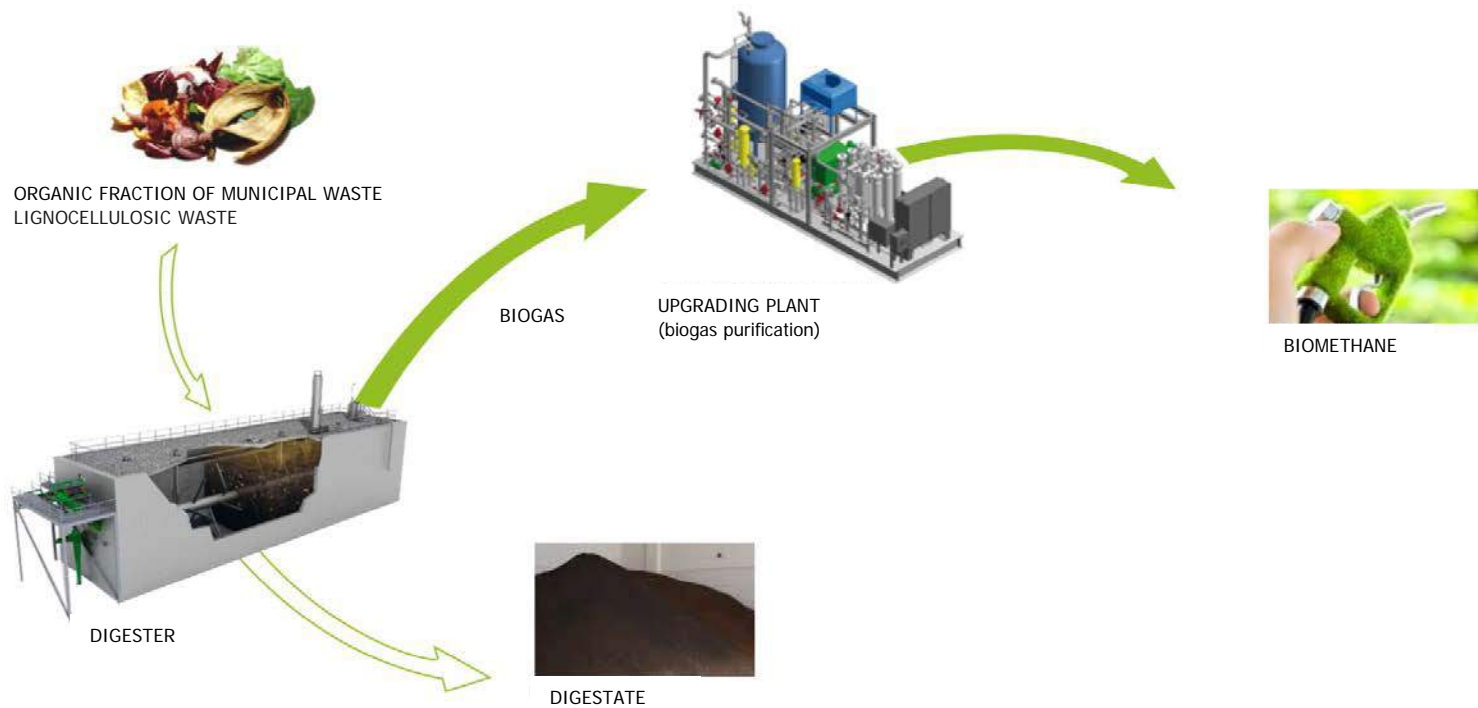
With its expertise gained in more than 20 years of activity and with more than 60 biogas plants designed, built and operated, Asja **is diversifying its development** by focusing on organic waste recovery plants through the anaerobic digestion and composting process. These plants utilize organic waste such as **OFMSW** (Organic Fraction of Municipal Solid Waste), **scrap** and **pruning** of public greenery and **waste/by-products** derived from agricultural and agro-industrial chains to produce **biomethane** and **compost**.



* Plant for the production of biomethane (Piedmont)
detail of the render of the project



■ OFMSW ANAEROBIC DIGESTION PLANTS PROCESS FLOW DIAGRAM





■ OFMSW ANAEROBIC DIGESTION PLANTS KNOW HOW

Business development process follows tree different pipelines

▶ GREENFIELD

Industrial or agricultural areas
(even disused to be redeveloped /
reconverted) on which to design,
authorize, build and operate a new
plant

▶ BROWNFIELD

Acquisition of plants:

- Under authorization process or
authorized ready to built
- operating composting plants with
the anaerobic section yet to be
authorized
- integrated (AD + C) in operation

▶ PUBLIC TENDER

- Public tender participation
- Project Financing proposal



■ OFMSW ANAEROBIC DIGESTION PLANTS OUR PLANTS IN NUMBERS

SLIDE 1/3

FOLIGNO (PG) - UMBRIA

Authorized waste treatment capacity

OFMSW: 40.000 ton/y

Green wastes: 13.500 ton/y

Hourly production of biomethane

457 Sm³/h

Annual production of compost

15.353 ton/y

Processes

Anaerobic digestion | composting | biogas
upgrading

ANZIO (RM) - LAZIO

Authorized waste treatment capacity

OFMSW: 36.000 ton/y

Green wastes: 14.000 ton/y

Hourly production of biomethane

399 Sm³/h

Annual production of compost

6.000 ton/y

Processes

Anaerobic digestion | composting | biogas
upgrading



■ OFMSW ANAEROBIC DIGESTION PLANTS OUR PLANTS IN NUMBERS

SLIDE 2/3

LEGNANO (MI) - LOMBARDY

Authorized waste treatment capacity

OFMSW: 40.000 ton/y

Green wastes: 12.400 ton/y

Hourly production of biomethane

457 Sm³/h

Annual production of compost

15.600 ton/y

Processes

Anaerobic digestion | composting | biogas upgrading

PIANEZZA (TO) - PIEDMONT

Authorized waste treatment capacity

OFMSW and agro-industrial by-products:
40.000 ton/y

Hourly production of biomethane

465 Sm³/h

Annual production of compost

6.400 ton/y

Processes

Anaerobic digestion | biogas upgrading



■ OFMSW ANAEROBIC DIGESTION PLANTS OUR PLANTS IN NUMBERS

SLIDE 3/3

TUSCANIA (VT) - LAZIO

Authorized waste treatment capacity

OFMSW: 40.000 ton/y

Green wastes: 10.000 ton/y

Gross annual electricity production

6.500 MWh/y

Annual production of compost

15.600 ton/y

Processes

Anaerobic digestion | composting |
electrical energy production





- OFMSW ANAEROBIC DIGESTION PLANTS



10.531 families

that we can satisfy with our
biomethane



2.221 cars

that we can refuel every day
with our biomethane



12.710

tones of oil saved



■ OFMSW ANAEROBIC DIGESTION PLANTS ENVIRONMENTAL AIMS



Long-range vehicular traffic

The installation of the plant within the area of competence:

- supplies locally the means of transports through a biomethane refuelling station
- decreases pollution with local and global benefit

CO₂ reduction

- Direct emissions: 20% less than gasoline and 5% less than diesel

NOx reduction

- Lower particulate emissions and NOx emission levels



- OFMSW ANAEROBIC DIGESTION PLANTS



Biomethane production plant from OFMSW (Foligno, Pg - Italy)





- ASJA ASSET MANAGEMENT



O&M + biogas and PV plants management

Asja offers a full service for biogas and PV plants management, assisting customers with its long experience and competence.



■ CERTIFICATIONS



All our plants are certified

ISO 9001 / Quality: company process optimization to ensure an ever-increasing fulfilment of client requirements.

BS OHSAS 18001 / Health and Safety: ongoing improvement in the protection of workers health and safety in the performance of their job activities.

ISO 14001 / Environment: commitment based on awareness and respect for the environment, with a view to prevent and reduce pollution and to constantly improve.

Reconta Ernst & Young: financial statements audit.



■ MICROCOGENERATION



Choose TOTEM

TOTEM
asja group

We invest in energy efficiency

Asja manufactures and markets high-efficient heating, cooling and distributed power generation systems:

- **TOTEM microcogenerators** that produce heat and power while respecting the environment
- **TOTEM Full-Thermal** systems, an integration of TOTEM with a heat pump to produce just heating or heating and cooling.

22 to 50 kW heat / 10 to 25 kW power - 128x79.5x192 cm



■ ASJA -CO₂

CERTIFICATE OF
ECO-SUSTAINABILITY



We curb CO₂ emissions

Asja avoids the emission of about 1,100,000 tons of CO₂ every year.

Carbon credits generated by Asja plants are RINA* and Gold Standard** certificated.



* for renewable energy plants built and operated in Italy

** for renewable energy plants build and operated in Brazil and China



■ ASJA RESEARCH & DEVELOPMENT



We invest in the future

Asja believes that research is fundamental for its work, hence its main activities in the field:

- **AsjaLab:** lab-based research into anaerobic digestion of waste and by-products;
- **Biomethane:** biogas upgrading technology studies, development and application;
- **Micro-cogeneration:** development of energy-efficiency projects.



■ PARTNERSHIP



RENEWABLE ENERGY SOLUTIONS
FOR THE MEDITERRANEAN



RENEWABLE ENERGY SOLUTIONS FOR AFRICA

Elettricità Futura: the main association of the Italian power sector, representing the companies that produce electricity both from renewable and fossil sources.

RES4MED: platform for public-private dialogue in light of the renewable energy potential and growing energy demand of Southern-Mediterranean countries.

Res4Africa: association that promotes the deployment of large-scale and decentralized renewable energy solutions in Sub-Saharan African markets.



■ CORPORATE SOCIAL RESPONSIBILITY

We are active partners in [Museo A Come Ambiente](#), an interactive museum aiming at environmental awareness education and dissemination.

We support modern art through [Sandretto Re Rebaudengo Foundation](#).

Every year we award the best documentary among the ones competing in the [Cinemambiente Film Festival in Turin \(Italy\)](#).

We take part to the [World Environment Day](#) with initiatives aiming to improve environmental awareness.

We support the [Poligrow Foundation](#) in the implementation of social and environmental projects in disadvantaged areas of Colombia.



MACA - A come Ambiente Museum of Turin

green
energy
by asja