



Anaerobic Digestion for MSW Vendor Presentation

2010 BioCycle West Coast Conference

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www.bdi-biodiesel.com

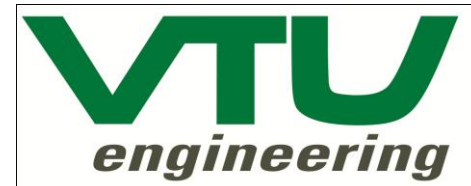
Our future. Clean energy.

Agenda

- Who is enbasys
- enbasys BioGas Technology **ENBAFERM**
- Case Study
 - 350k-400k t/yr Waste to Energy Plant
- Summary



Who is enbasys?



- Owned by BDI-BioDiesel International AG
- Partner of VTU Engineering
- Technology leader in High Load Hybrid Digester technology
- Extensive experience in plant technology
- Global support capability

BDI & Enbasys Headquarters



BDI - BioDiesel International AG
enbasys GmbH.

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www.enbasys.com



Business Activities

**World market leader in engineering and construction of tailor made
Multi-Feedstock Plants for the production of BioDiesel and BioGas.**

Consulting

Research & Development

Engineering

Construction

Commissioning & Start-up

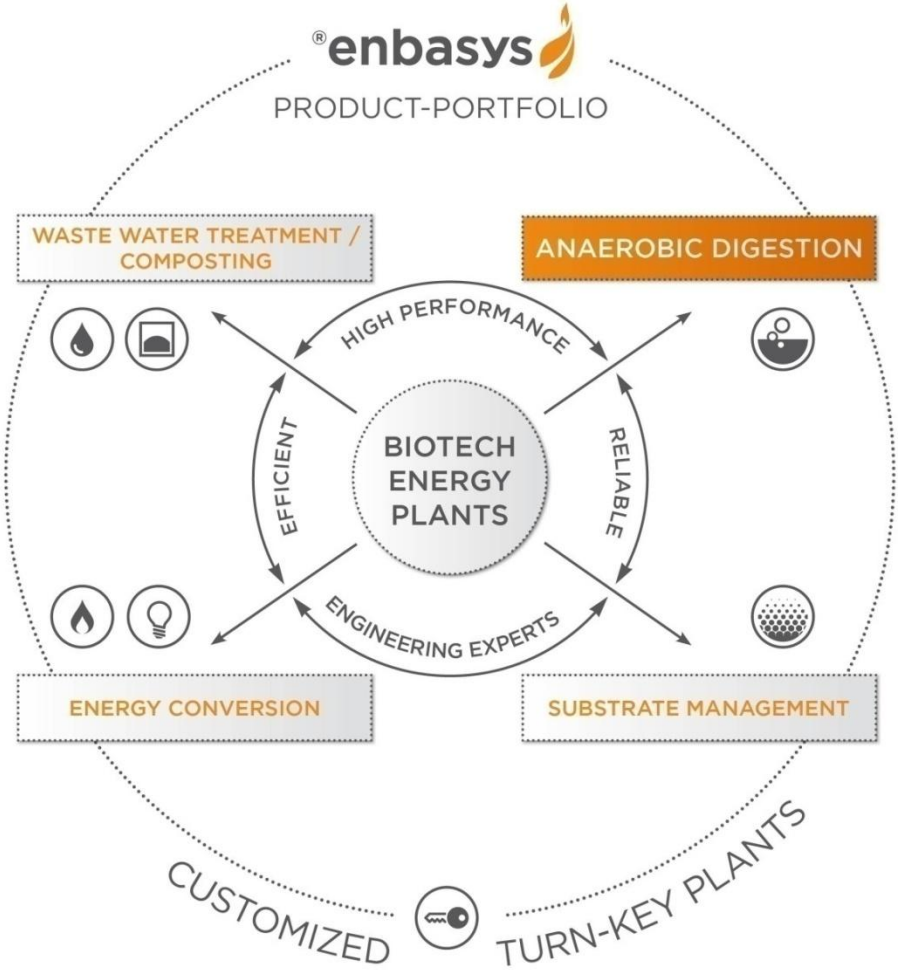
After Sales and Plant RetroFit Services



ENBAFERM BioGas Technology



Greenfield turnkey /
tailor-made
BioGas Solutions



ENBAFERM BioGas Technology

®enbasys: ENBAFERM patented technology

Most advanced economic solution

Complex organic residues – Industrial Multi Feedstock

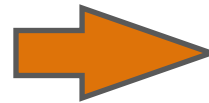
- Organic Waste
- Food Industry Residues
- Biofuel Industry Residues
- ...but also, if available
 - Agricultural Residues and Produce



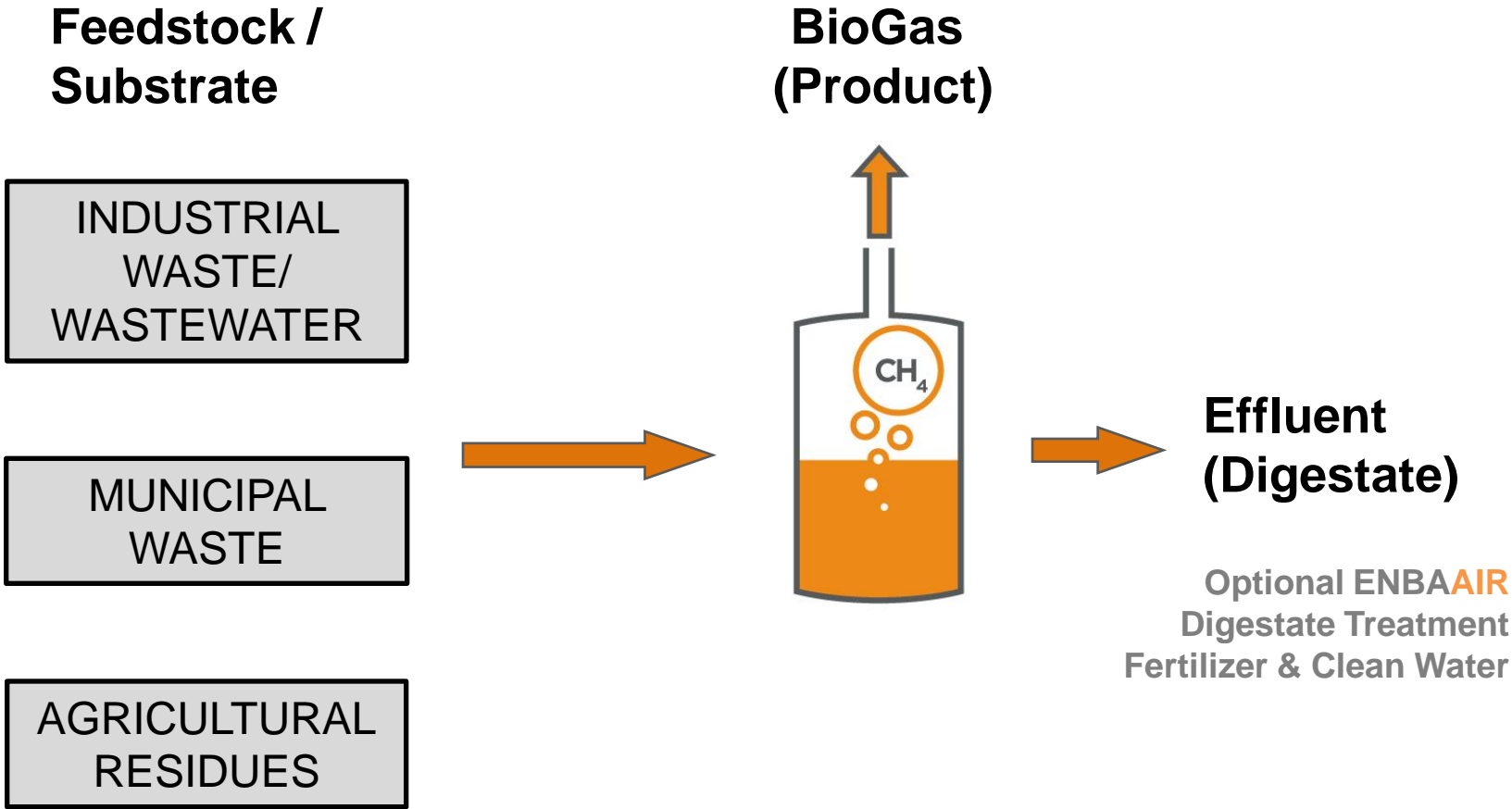
Residues for ENBAFERM Technology



**Substrate
Management
(Waste Treatment)**



ENBAFERM BioGas Technology



ENBAFERM BioGas Technology - Advantages

- **Reliable & Stable** → **high YIELD**
Accepting changing feedstock, max. output guaranteed
- **Fully Automated** → **low OPEX**
No blending or inoculation with other feedstock necessary
- **No co-substrates** → **low OPEX**
No need for slurry or chemicals
- **Compact size** → **low CAPEX**
Seamless integration with industrial plants

Up to 3x throughput compared to conventional systems
Viable & profitable BioGas production

enbasys – Summary of Supply



Substrate
Management
(Waste Treatment)



ENBAFERM
Anaerobic
Digestion



BioGas
Treatment



Energy Conversion



ENBAAIR
Digestate
Waste Water
Treatment



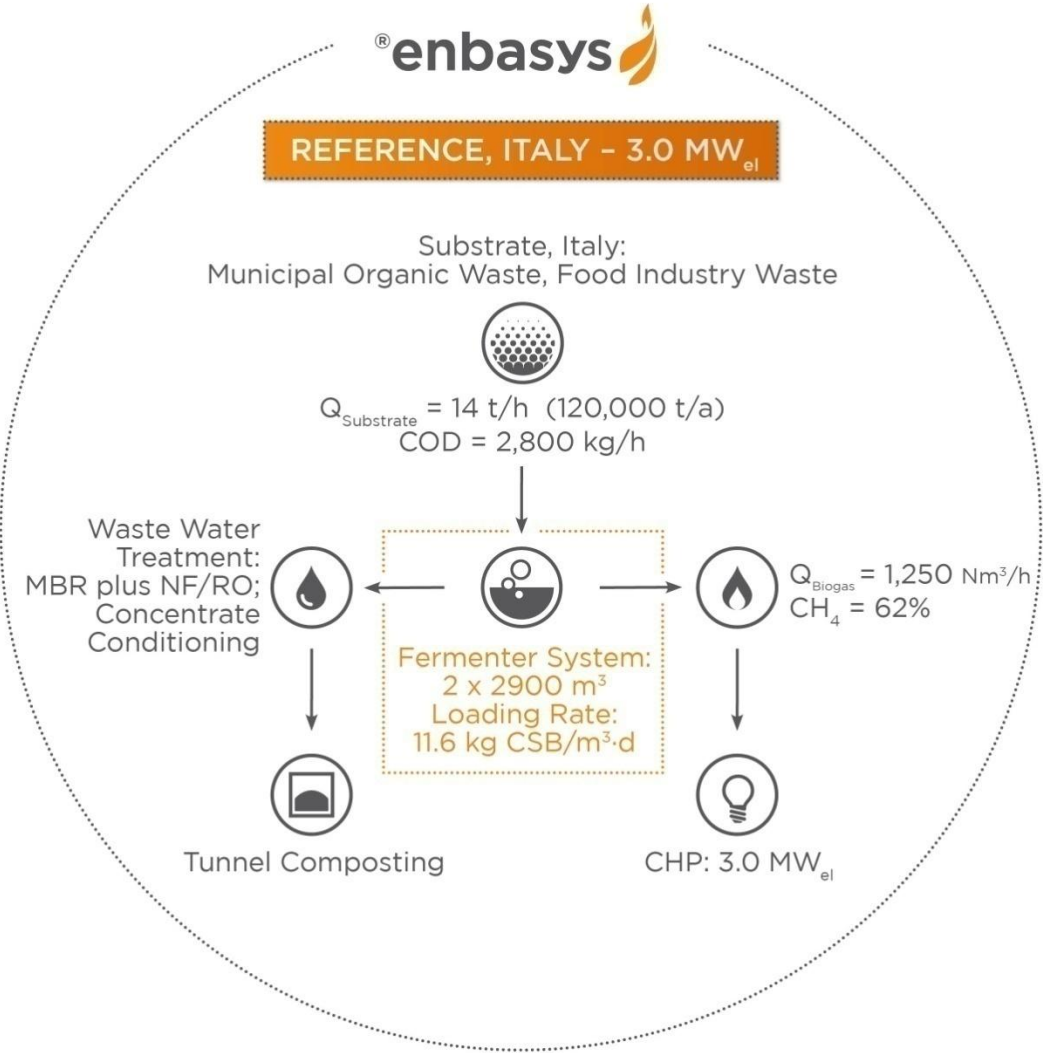
Case Study – Waste to Energy Plant, Northern Italy

- **Capacity: 350,000 to 400,000 t/y organic waste from 3.5 million people (separated biowaste, leftovers, waste from the food industry and green grass)**
- **Organic waste is cut into small pieces, sieved (80 mm) and pressed together and/or processed in a pulper**
- **Liquid phase ~ 120,000 t/y is treated in the ENBA**FERM** Anaerobic Digestion Plant → ~3 MW_{el}**
- **Solid phase for Tunnel Composting**

Case Study – Waste to Energy Plant, Northern Italy



Case Study – Waste to Energy Plant, Northern Italy



ENBAFERM BioGas Technology - Applications

- **Organic fraction of MSW**
- **Breweries**
 - Spent grains & waste water
 - Replace up to 50% of fossil energy demand
- **Rendering Industry**
- **Food Processing Industry**
 - Meat & food packaging
 - Agricultural products, fruits, vegetables
 - Bakeries
 - Dairy products
- **BioFuels Industry**
 - BioDiesel & Ethanol

**Lower production costs and environmental benefits using
®enbasys high load hybrid reactor**

California – Austria: Memorandum of Understanding

- MoU signed in May 2008
- In effect for 5 years
- CA: Secretary of Environmental Protection & Secretary for Resources
- Austria: Federal Minister of Agriculture, Forestry and Environment
- Cooperation in Environmental Protection
- **FOCUS AREAS**
 - Environmental technologies
 - Climate change
 - Energy efficiency and renewable energy sources and technologies
 - Sustainable building
 - Sustainable waste management
 - Sustainable water management





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