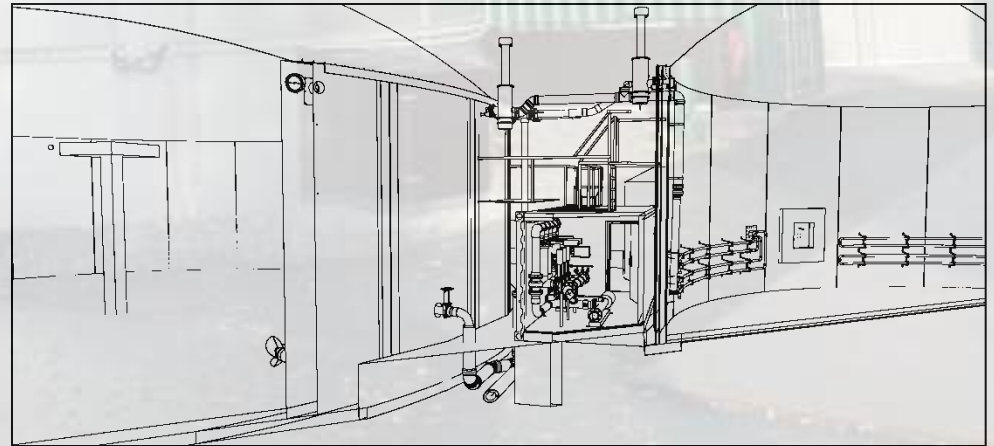


ENSPAR BIOGAS

International Business Development for Biogas



Managing Director
Michael Hannes



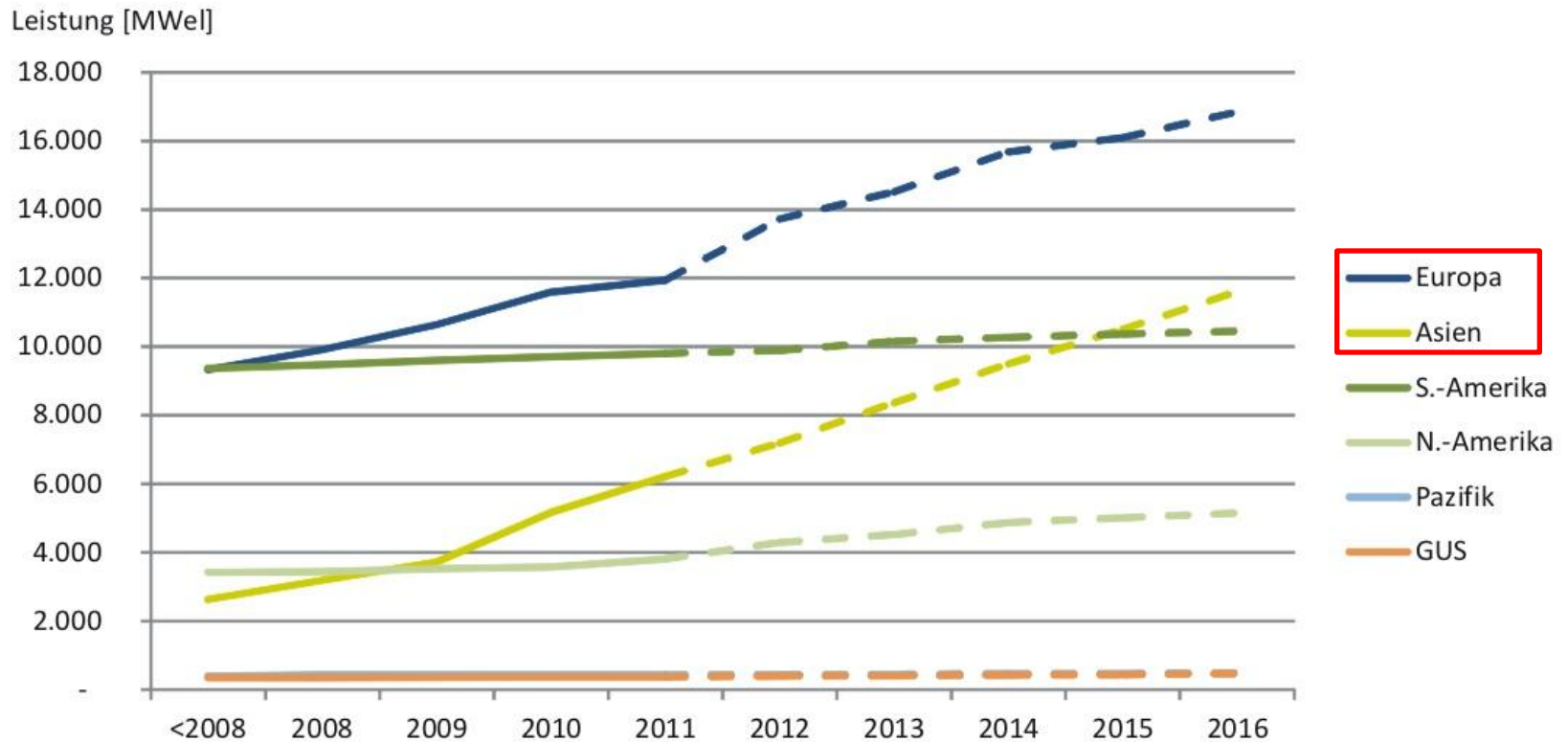
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Göttingen, 14.11.2013

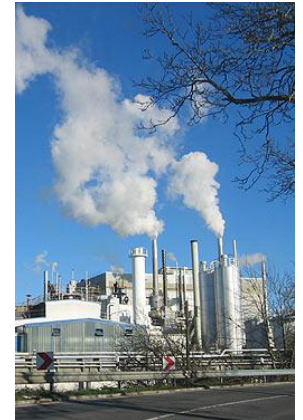
Biogas target markets



Daten bis 2011 z. T. geschätzt, Daten ab 2012 prognostiziert, Quelle: ecoprolog

Stakeholder

- Agriculturals (farmers...)
→ Community of several farmers
- Industrials (brewery, sugar processing, potatoe ...)
- Municipalities (waste disposal, sawage plant...)



Enspar represented worldwide



Opening new markets

- Foreign distribution partners with knowledge about the country / potential customers
- What kind of substrates are available ?
- How are the climatic conditions?
- Company website in foreign language
- Import regulations and customs duty ?
- Feed-in tariff / green certificates available?
- Participation in tenders /Industrial or agricultural projects?



Foreign partners

- Distribution partners with basic knowledge about:
 - Sales work, negotiating
 - Biogas technology
 - Permissions
 - Bank financing
 - Import regulations and customs duty
- Marketing (brochures, fairs etc.)
- Planning, supervision



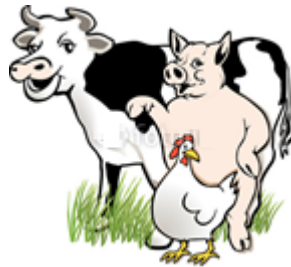
Location requirements

- Permissions for building, feeding-in power etc.
- Sufficient amount of substrate available
- Use / disposal of digestate (fertilizer, lagoon, sewage plant etc.)
- Sufficiently large area to build the biogas plant
- Suitable ground (soil bearing capacity, ground water level etc.)
- Power supply
- Financing



Usable substrates

- Manure of cow, pig, chicken etc.
- Silage of corn, grass, sorghum, lucerne etc.
- Food waste, biological waste, slaughterhouse waste etc.
- Residues from beer brewery / sugar cane processing / Manioc processing etc.



Use of biogas plants

- Focus on waste treatment
- Focus on power production
- Digestate for fertilizer
- Gas for direct heating
- Gas for power and heat or
- Feed in natural gas grid



Feed-in tariff

- > 50 states worldwide already have a feed-in tariff for power generated by renewable energy sources
- green certificates
- Subsidies for „green power“



ENSPAR Scope of supply

- **Construction of complete biogas plants for industry and agriculture**
 - All sizes, starting very small up to several MW electr. power
 - Vessels of stainless steel and reinforced concrete
- **Expansion and Modification of biogas plants**
- **Consulting**
- **Control Technology and Engineering**
 - 3D-design
 - Visualization and control
- **Components**
 - Dosing
 - Gastechology
 - Agitating & Mixing
 - Sanitation / Effluent treatment
- **Waste water treatment**
 - Nitrogen removal by nitrification / denitrification

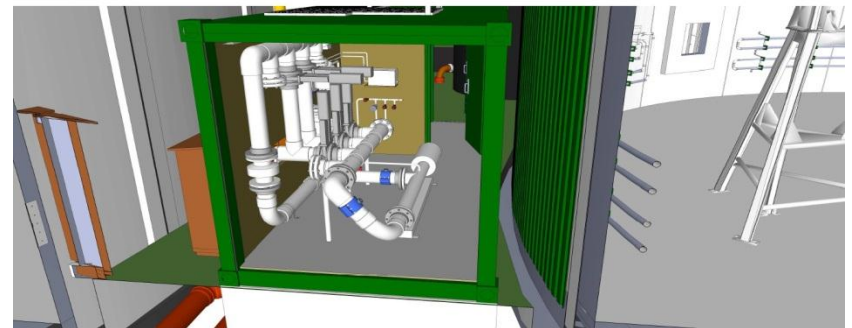
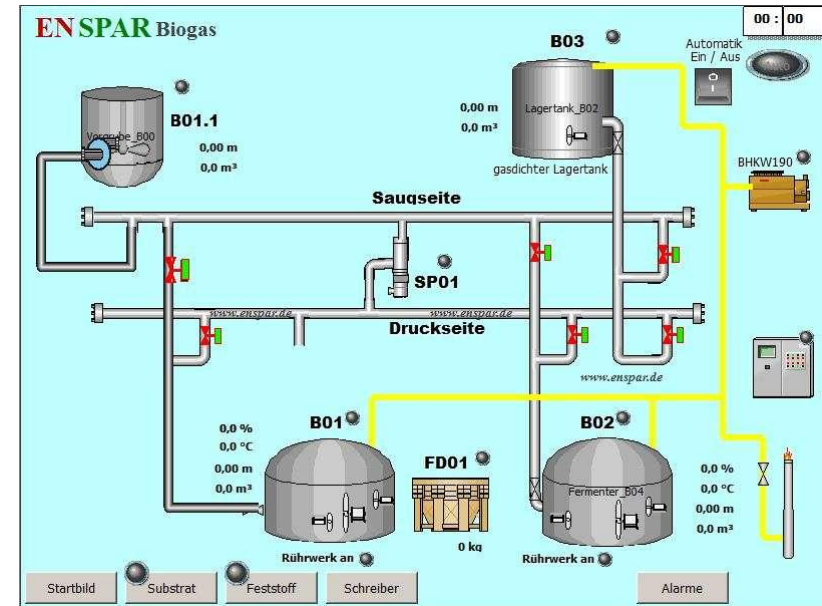
Control Technology and Engineering

- **Control & Visualisation**

- Plant control by understandable process visualization
- professional PLC
- Simple and intuitively to use

- **3D design**

- Designing and preconstruction of General lay-out and key components by 3D-construction design program in-house,
- Generation of standardised and personal solutions



Components

- **Dosing, Mixing, Agitation**
 - combination of *Low-speed* and *High-speed* agitators
 - Pumping unit as a liquid dosing-system for feeding several fermenters and as a equipment for pumping liquefied solids
- **Gastechnology**
 - Biogas-flares for save and environmentally friendly combustion of biogas in case of electrical blackout



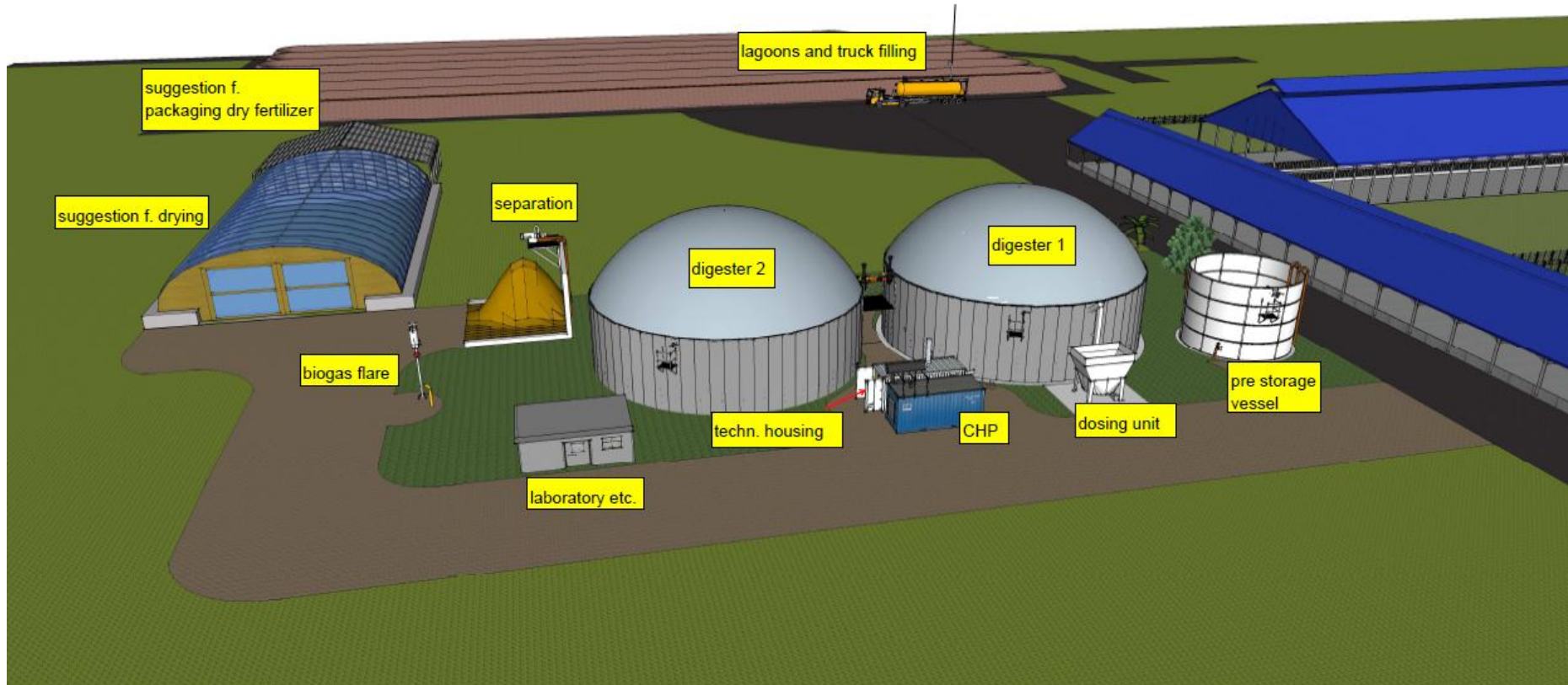
Exceptional advantages

ENSPAR biogas plants and components ...

- High quality...
- High level of prefabrication ...
- Modular and expandable ...
- Variable combination ...
- Working solutions ...
- Consistant remote-support ...

... and by a clear packing volume (...almost ...) anywhere arrangeable

Example



References



Sample Northern Germany

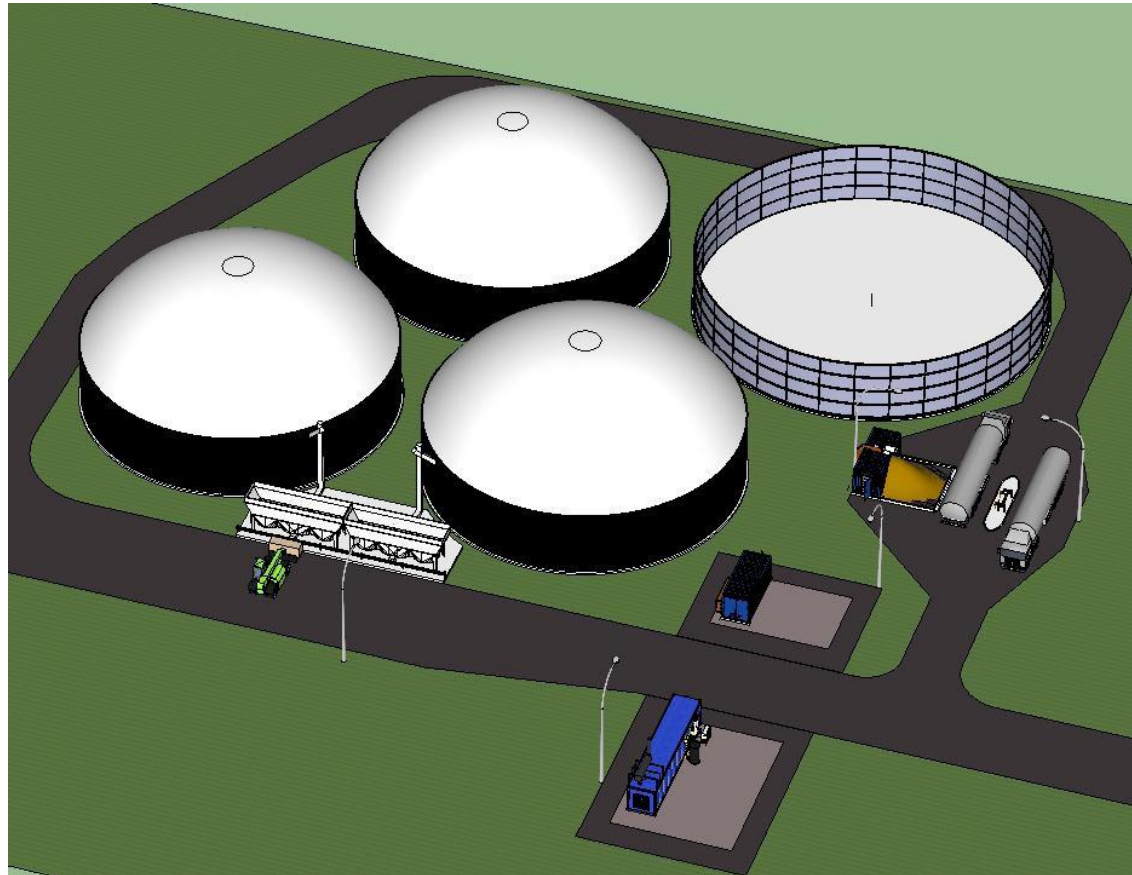
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References



Sample East Germany

References



Sample Project (Croatia)

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