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EnviTec Biogas



# *EnviFarm* – Biogas plants for agriculture

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Biogas is one of the most important components in new energies thanks to its storability and weather-independent production. It assures plant operators a source of revenue that can be steadily calculated for years – which can be important for the long-term prospect of a farm if nothing else.

## Biogas is an important component in the energy mix of the future



Biogas is a fixed component in the energy mix of the future and hence offers long-term prospects. Other than wind and solar energy, biogas production does not depend on climatic factors. It is thus an all-time reliable source of energy. Biogas can also be stored and converted to energy at any time. As a power source, it can meet both base-load and peak-load requirements.

## Biogas is the most versatile among renewable energies



Biogas can be used diversely – whether as a power source, for directly generating heat locally, for supplying heat via a pipeline or for feeding into the gas grid after processing. No other source of renewable energy is so versatile.

# Biogas is a fixed component in the energy mix of the future and hence a reliable prospect in the energy mix of the future



## Long-term prospects for farms



Many farmers use biogas production to establish a second economic mainstay, thereby ensuring that their agricultural enterprises continue to flourish into the next generation.

Because energy generated from biogas is not subject to price fluctuations, it represents a source of revenue that is reliable over 20 years at least.

## Added value for the region



Decentralised biogas production using independent resources strengthens the added value in rural areas. Using renewable resources effectively reduces the dependence on foreign energy imports, so that revenues

remain in the region. More and more bioenergy villages are showing us how biogas can be used to get the most out of local synergies.

## No monocultures



All types of agricultural raw and residual materials can be used in our biogas plants. This assures farmers a healthy crop rotation and helps them prevent monocultures. Even catch crops, whole-plant silage and energy beets deliver top yields.

## Valuable fermentation residues without smells



If a biogas plant is operated properly, there are no odour nuisances, since the produced gas cannot escape from the closed cycle. The fully fermented end product has a noticeably reduced odour after the fermentation process.

As a fertiliser with a high nutrient content, these fermentation residues relieve farmers from purchasing expensive mineral fertiliser.

# energy mix of the future in the long run.

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← The biogas plant in Nieheim has a power rating of 500 kW<sub>el</sub> and produces approximately 6,500 cubic metres of methane daily.

→ Johannes Seneca, operator of the biogas plant in Nieheim, supplies power to a local retirement home with its waste heat.



→ Sustainable investment for the future: the operation of a biogas plant assures many farmers a second income – biogas is not subject to any price fluctuations and guarantees reliable revenues for 20 years at least.

→→ With the remunerations from his biogas plant, Gavin Davies, operator of a dairy farm in Wiltshire in England, upgraded the complete infrastructure of his farming operation.



# Our technology completely caters to Just like your energy marketing in t

**You can rely on our experience as plant manufacturers and our innovative technologies for producing biogas. As the first all-rounder in this sector, we stand by you not only with a highly-efficient technology, but also with a suitable service offer and marketing of power, bio natural gas and heat. Your plant thus turns into a good investment.**

EnviTec Biogas offers two plant lines, which are equally fully automated, flexible, safe and reliable. We offer standardised technology of the highest quality with both lines, so as to achieve maximum possible efficiency. The main difference between both lines is the size and flexibility of the technical building and/or technology containers.

**CE** Safety is one of the most important factors when constructing a biogas plant. EnviTec is among those few providers who exclusively commission plants with a CE mark. Our technical and biological service always has the safety of all components in mind even during on-going operations and supports you to bring out the best from your plant.

In addition to plant technology, we are also available to help you with the marketing of your energy. The sale of heat and direct marketing of power give you more flexibility as an operator and are a lucrative supplement to the EEG plant.



to your needs.  
the market.



**EnviFarm**   
CLASSIC



**EnviFarm**   
COMPACT

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We offer two highly-efficient plant lines and an all-round service with customised energy marketing concepts:

- + Optimum safety and reliable EnviTec quality
- + Perfectly integrated into the operation individually
- + High efficiency of the plants (up to 9% more gas yield using the patented Kreis-Biogas-Dissolver)
- + CE mark for the EnviTec scope of delivery
- + Technical customer service and biological service from one source
- + If requested, EnviTecEnergy takes over the marketing of power, bio natural gas and heat



← EnviFarm Classic: The classic among the biogas plants scores with its power, reliable EnviTec technology and an extremely flexible input – of course tailored to the requests and requirements of the customers.

→ Small, powerful and green: the EnviFarm compact plants impress with maximum efficiency and minimum installation space. The compact plants are also in no way inferior to larger alternatives in the flexibility of input materials.

# You need just the suitable plant for We can guarantee you the right co

**EnviFarm**   
CLASSIC

## Our standard for maximum demands

Our reliable EnviFarm Classic plants are extremely flexible when it comes to feeding input materials and are customised for your operation and to the special requirements. In addition to using in a pure slurry operation, they can not only be fed with biomass, but also with all types of organic wastes.

The stable and spacious technical building allows optimum temperature control using the innovative ventilation technology as well as weather-independent operation and storage.

## Technical special features

### Technical building

- CHP with desired kW output in the sound insulating cabinet
- Gas compressor, activated carbon filter, heat distribution
- Engineering room and office premises

### Feeding system/mixing technology

- Kreis-Biogas-Dissolver, vertical mixer, walking floor or alternative feeding system

## The advantages at a glance

- + Plant design based on demand
- + Flexibility in feeding varied input materials
- + Fully-equipped, spacious technical building with distinct layout, weather-independent use and excellent soundproofing



your company.  
concept.

## EnviFarm

COMPACT

### Big technology, small format

With an output of 75 kW<sub>el</sub> and upwards, EnviFarm Compact plants score with maximum efficiency and minimum installation space. The flexible compact plants require especially little space when installed in steel containers and can not only be used for pure slurry operation, but can also be fed with any type of biomass.

### Technical special features

#### CHP container

- CHP 75 – 1000 kW<sub>el</sub> including peripheral technology containers

#### Technical container

- Insulated 40" steel high-cube container with hood
- Mixing area including Kreis-Biogas-Dissolver and pump technology

- Screw and slide technology
- Control room

#### Feeding system/mixing technology

- Kreis-Biogas-Dissolver, vertical mixer or direct feeding of slurry

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### The advantages at a glance

- + Compact biogas plants in container design from 75 kW<sub>el</sub> upwards
- + Low investment and maintenance costs
- + Easy and time-saving installation using modular prefabricated components – permanently installed technical building not required
- + Uncomplicated approval and quick commissioning
- + System can also be used as a plant expansion



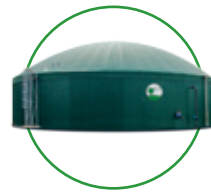
← The service for EnviTec Compact is in no way inferior to that for EnviTec Classic – we attach importance to all-round first-class support.

→ The massive technical building of EnviFarm Classic can be dimensioned and equipped at will.

→ → Inside an EnviFarm Compact – solid technology comes up against minimum space.

# We are very flexible when it comes to the format – but not when it comes to demand.

Technological farsightedness and maximum quality expectations drive us: Whether it's the EnviTec Feedcontrol, Kreis-Biogas-Dissolver or mid-size agitators: EnviTec biogas plants use the newest processes to give you maximum efficiency and profitability.



Use of flexo or double membrane roofs sustainably maximises the yield.



Energy-saving agitators minimise the operating costs – the mid-size agitator brings more thrust in case of less consumption.



Vertical mixer, EnergyJet and Co. guarantee flexible substrate feed.

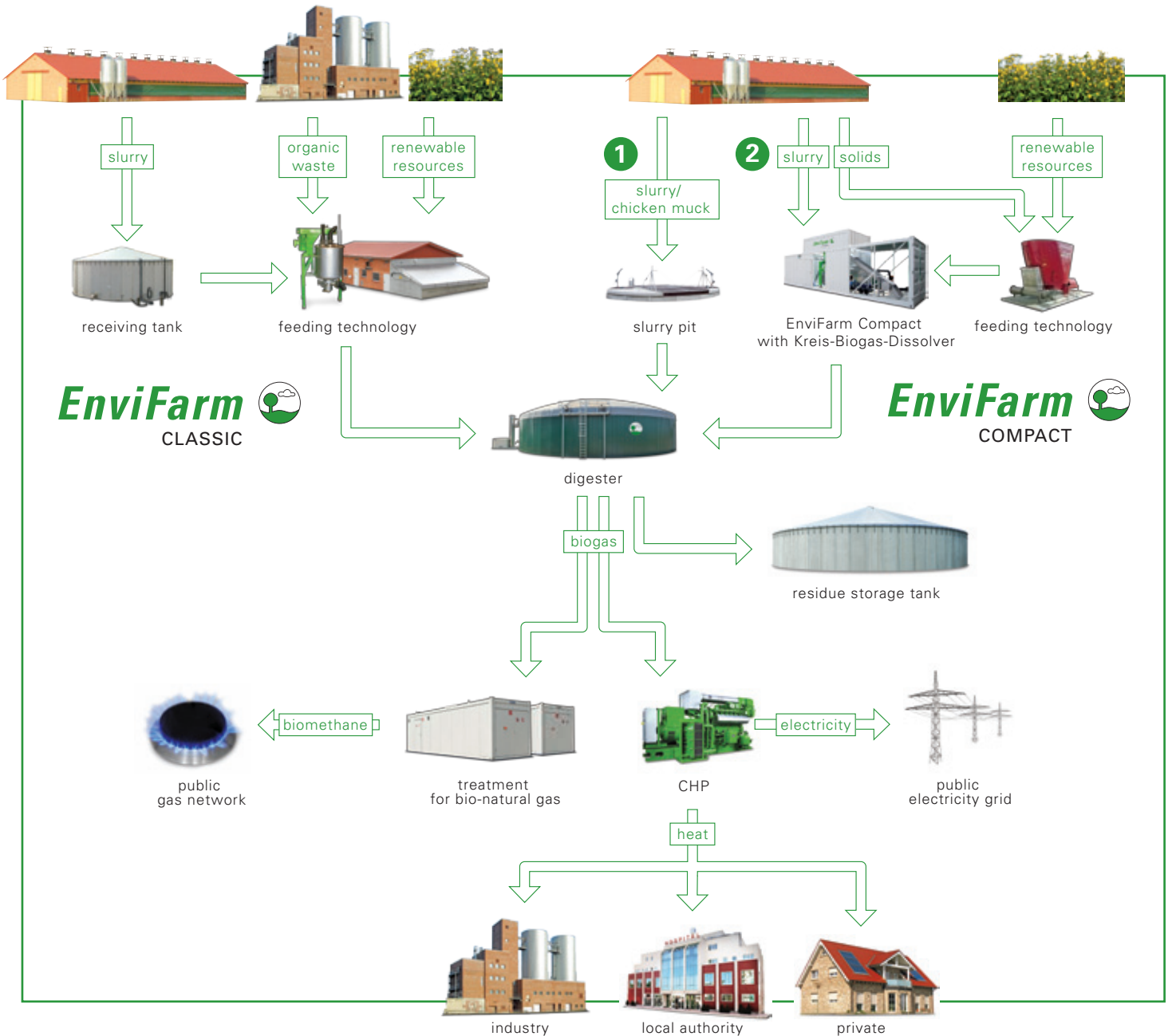


Honoured as the "machine of the year", EnviTec Feedcontrol saves valuable input materials.



The patented EnviTec-Kreis-Dissolver optimally breaks down input materials, thereby increasing the biogas output by about nine percent.





Those who opt for a biogas plant have learnt early on that it is not only the scope of such a project that presents a challenge. Even an intelligent energy concept and cooperative integration of the vicinity and environment require an intensive discussion. Three successful operators with completely different models relate how these components can be converted into a successful concept.

High efficiency and competitive edge thanks to free-of-charge waste heat

**LOCATION** Wöbbelin/Germany

**CAPACITY** 2 x 526 kW<sub>el</sub>

**IN OPERATION SINCE** 2005 and 2007

**INPUT MATERIALS** Manure, renewable resources

**FEATURES** All the waste heat of the biogas plants is used for heating the farm's greenhouses and buildings.

The first 500 kW<sub>el</sub> biogas plant was constructed in 2005 on the Denissen farm together with EnviTec. The next plant was commissioned in 2007. Together they generate approximately 1,000 kW<sub>el</sub>. The plants are operated with silage from maize and slurry. The farm comprises approximately 1,000 ha land, 620 dairy cows and 600 young cattle and can thus independently supply power to its plant. By heating with the free-of-charge waste heat, the Denissen farm can market its products without depending on the weather and thus earlier than other providers.

## Clever investments, innovative con of the environment – successful m

→ Rudie Denissen runs a highly-efficient, approximately 1,000 ha farm in Mecklenburg West Pomerania in Germany. Denissen relies on priority to be able to offer competitive products in reliable quality: He grows asparagus on heated fields or strawberries in the polytunnel. The heat required for this is provided by both his biogas plants.

→→ For Gavin Davies, operator of a dairy farm in England, the biogas plant is an advantage not only from the financial point of view. He also greatly profits from the fact that the slurry generated and thus the smell are both reduced.

→→→ The 249 kW<sub>el</sub> plant in Casaleto Ceredano, Italy is a good example that shows that even small plants are extremely efficient in the slurry operation.



## Integration of the environment – flagship project for entire region

**LOCATION** Stowell Farms, Wiltshire/England

**CAPACITY** 499 kW<sub>el</sub>

**IN OPERATION SINCE** 2012

**INPUT MATERIALS** Manure, grass and maize silage, feed remains

**FEATURES** Processes the slurry of 500 herds of cattle into high-quality fertilisers.

Gavin Davies, dairy farmer in Wiltshire in England, equipped his 1,315 hectare farm with an EnviTec biogas plant in 2012. The investment was worth it: The farmer generates more than 700,000 British Pounds as revenue per year due to the compensation. It was thus possible to invest in the infrastructure for his operation: Cowsheds as well as milking plants and also training rooms were renovated. Davies places great value on transparent agriculture near the point of sale and offers regular open days for this reason.

## A small slurry plant in Italy – ecologically useful and profitable

**LOCATION** Casaleto Ceredano, Lombardei/Italy

**CAPACITY** 249 kW<sub>el</sub>

**IN OPERATION SINCE** 2010

**INPUT MATERIALS** Pig slurry, maize meal

**FEATURES** The power is fed into the public grid. The heat generated is used for heating the fermenter.

The 249 kW<sub>el</sub> biogas plant has been operating in Casaleto Ceredano, Lombard since October 2010 and uses approximately 45,000 cubic metres of slurry annually, which is produced from about 25,000 pigs. Stabilised and energetically optimised with less quantities of maize meal and feed remains, the farmer can use his organic wastes in an ecologically useful and economically profitable manner in his own plant by feeding all the generated power into the public grid at a high feed-in tariff. The fermentation residue is spread on the surrounding fields as a high-quality fertiliser.

# Concepts and integration of farmers in the biogas market.



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