

**BIOGAS IS
OUR PASSION**

PlanET Biogas Group GmbH



THE PERFECT SOLUTION FOR A SECURE FUTURE



Why biogas is worthwhile!

The production of biogas through anaerobic digestion provides plant operators with a calculable source of income, regardless of the weather. PlanET offers its customers advanced solutions that allow for high energy output and help reducing the carbon footprint.

The most important benefits of biogas:

- Biogas provides a secure source of income
- Profitable for industry, agriculture and municipalities
- Biogas can be stored so that the energy is available when needed
- Biogas is a versatile source of energy
- Flexibility in input materials
- The production of biogas is not subject to weather conditions
- Biogas contributes to climate protection

Shareholders Roland Becker, Jörg Meyer zu Strohe and Hendrik Becker at the new PlanET headquarters building in Gescher.



**WE EFFECTIVELY PROMOTE BIOGAS
AS A RENEWABLE ENERGY
TO PROTECT THE CLIMATE!**

COMMUNITY



Making the world a greener place

It all began with the vision of the two company founders Jörg Meyer zu Strohe and Hendrik Becker as pioneers of biogas in the tranquil town of Vreden in 1998. Their idea, which was unusual at that time, was to combine organic residues with climate protection, sustainability and profitability.

This passion for biogas is still the key to the success story today. With more than 400 employees, PlanET is a globally operating organization and an international leader in new construction, repowering, biological support and service for biogas plants.

Quality and innovation have formed the basis of PlanET's corporate philosophy for over 25 years. Even today, this approach is still firmly rooted in the organization.

Working together to make the world a greener place – by generating 100% green energy – that's where our heart is!

From 75 kW slurry and manure plants to 4 MW industrial plants, more than 600 biogas projects have been implemented successfully throughout the world so far. It ensures stable yields and a climate-friendly future.

PlanET values

Value addition

Increasing yields with biogas plants. We create added value for our customers and for us.

Climate protection

With biogas plants and waste management, we are making a sustainable contribution to protect the climate and reducing CO₂.

Respect

Securing regional jobs with mutual respect and responsibility for each other.

FROM PLANT CONSTRUCTION TO SERVICE

EVERYTHING FROM
A SINGLE SOURCE



“All-in-PlanET”

Whether compact agricultural facilities or projects on an industrial scale, you can count on us: We're at your service, from the very first talks, all the way through commissioning.

Consulting

Personally, individually! – Our PlanET biogas experts will advise you on the biogas plant most suitable for your needs, investments and revenues, including profitability calculations that can be used for financing and promotion

Design

Biogas plants that are customized and tailored to the customer's needs.

Planning procedures

Our in-house approval planning department will assist you to find your way through the web of bureaucracy so that your biogas plant can get off the ground in a legally secure manner.



Construction

We will build your biogas plant professionally and safely. We will help you coordinate the overall process in the construction phase.

Commissioning

We will advise you on initial filling and and accompany the quickest possible “start-up”.

Service

Technical and biological service, repowering, remote maintenance, expansion, conversion to biomethane – or simply tips and tricks on “efficient biogas plant” from person to person.

Always a good solution

The right product for every area of application. Agriculture, industries, businesses and municipalities.

- Slurry & manure
- Electricity & heat
- Organic waste
- Flexible operation

Direct and all from a single source

- Conceptual design and construction of small-scale units and industrial plants
- Biogas plants in modular design
- Biological service
- Performance test
- Potential investment concepts

CUSTOMIZED BIOGAS SOLUTIONS

INNOVATION AND TECHNOLOGY



Innovation at its best

Pioneers in biogas since the nineties: From plant engineering to plant optimization or completely new construction, we have developed a great deal of know-how over the years. As one of the world's leading biogas companies, we offer optimal and efficient biogas production.

Focussing on economic viability

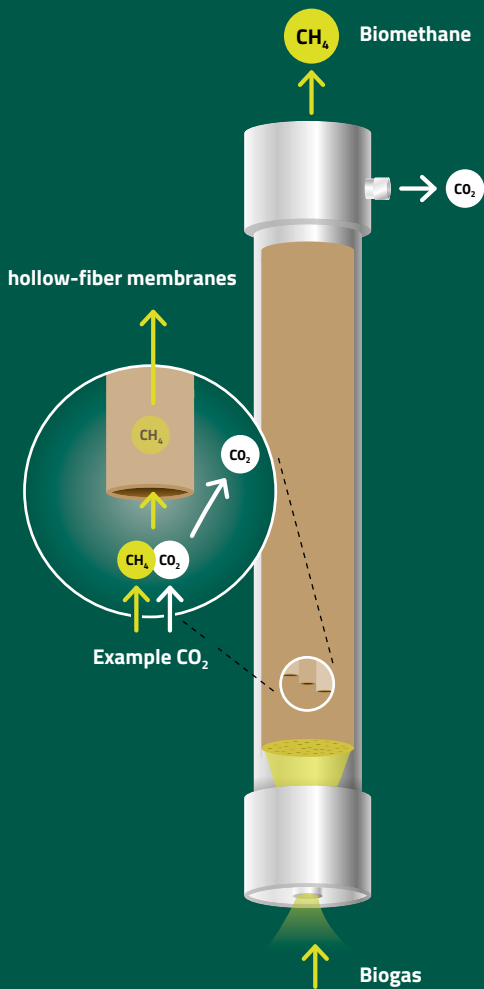
Experience shows that operators profit by our robust, innovative technology.

Modular principle

PlanET biogas plants are marked by intelligent, efficient technology solutions which are all based on our modular principle. All the PlanET modules, such as feeding technology, substrate treatment, tank construction or gas utilization, are first thoroughly tested in our production development department for their suitability to practical application.

Components

System components of the highly developed technology: Whether agitators, input systems, pumps, separators, fittings or our solid feeder / hopper systems - your biogas plant will achieve top performance with PlanET components!



RePowering

We will support you with extensive knowledge in plant operation. Together, we will analyze your biogas plant for strengths and weaknesses and will calculate the risks and future potential

- Secure reliable returns for the system's run-time
- Discover unused plant potential
- Switch to future-oriented substrate flexibility

Process control

- External system control via DSL or mobile communication
- Automatic activation and deactivation of the biogas plant
- Easy retrofitting
- Additional functions possible, such as automated fault alerts

Patented products for the following areas:

- Feeding technologies
- Remote maintenance
- Gas drying and cleaning
- Paddle agitators
- Processing aids
- Separators
- Substrates
- Technical containers
- Overpressure valves
- Visualization software
- Shredding machines

MAXIMUM YIELD FROM YOUR BIOGAS AND BIOMETHANE

ECONOMIC BENEFIT



Selling bioenergy

Do you want to find the right buyer for your biogeneity? PlanET knows how you can get the highest yield from your biogas and biomethane. Discover all the options.

Biogas on the electricity market

We can install the interface to the direct marketing of electricity. Sell your green electricity with maximum profit directly on the energy stock market. We would be happy to advise you.

Become an energy producer with biomethane

You will increase the utilization level and significantly increase the overall efficiency of your biogas plant by processing and feeding biomethane into the natural gas grid. That is the future of biogas production: Promoting the energy turnaround with small modifications of an existing biogas plant. Biomethane production is suitable for new constructions as well as for repowering existing plants.



Selling biomethane to the gas sector



Selling electricity to electricity suppliers



Liquefying CO₂ for the beverage and food industry



Selling Bio-CNG & Bio-LNG to fuel companies

Biomethane as fuel

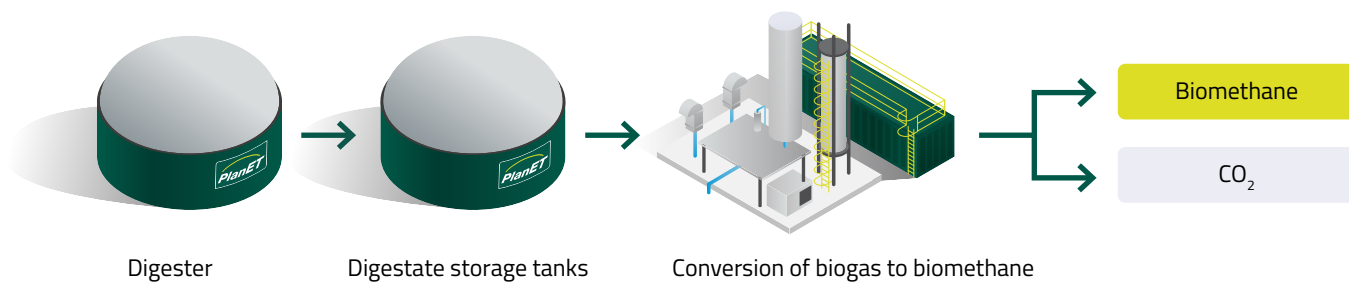
Besides being used for electricity and heating, biomethane is also an alternative to fossil fuels. Biomethane is used in liquid form as bio LNG or in gaseous form as bio CNG. As bio LNG, biomethane is particularly suitable for freight transport, whereas bio CNG is more suitable for cars, the transport of goods and public transport.

Liquefied CO₂

CO₂ is a by-product of the biomethane upgrading process. It can be used in the production of food and beverages, in the chemical industry, slaughterhouses and in greenhouses.

The bottom line is your profit

Get in touch with us to benefit more than just financially from the advantages of a sustainable future.



OUR SERVICE FOR OPTIMIZED PERFORMANCE

PlanET BIOLOGICAL SERVICE



From the analysis to interpretation

Advice on optimal utilization and operation is essential for any biogas plant operator, because a biogas plant is not a standard product, a biogas plant is individual and unique.

Expert Check

Variations can occur in the biological process and therefore in gas production, depending on the amount and quality of the substrates.

Regular analyses enable our trained staff to ensure a smooth process and continuously optimize the utilization of your plant.

Optimize your biogas plant

Do you know what additional potential your biogas plant has? As experts, we can help you determine and interpret your operating data, from substrate types or quantities, recirculation, gas/electricity production, right up to gas quality, and make analyses of the current state of your biogas plant. You will receive detailed statements on the actual state of your plant, as well as suggestions for optimization.



On the basis of these results, we will work out specific recommendations and proposals on how you can stabilize the performance and further increase the production of your plant. It may involve adjusting your choice of substrates or optimizing the supplements (micronutrients, enzymes). We will help you get the most out of your plant without having to make any structural changes.

PlanET biological service provides plant operators with optimal advice.

Any questions about our services? Feel free to contact us!

Biological Service

- On-site support in the biological process and in process engineering.
- Upon request: Sampling from digesters, secondary fermenters and digestate tanks and taking substrate samples.
- Analyses of samples in our own laboratory.
- Compilation of trend curves to assess process status and plant profitability
- Analyses to assess the energy content and process compatibility of inputs.
- Support in the commissioning of biogas plants and major audits
- Provision of operational logs.
- Consultation by phone.

POWERFUL ARGUMENTS

OUR REFERENCES

AGRICULTURE



planet-biogas.com/vr-tour/
→ **Beaulieu**

Video



We are available locally and provide our customers with sustainable solutions. The following is a presentation of selected references:

BIOMETHANE PLANT Beaulieu France

SCEA Couvé & Fils is a biomethane plant that provides more than 4,000 homes in Argentan with electricity and heat.

Substrate

Swine manure, cattle manure, grass silage, energy crops/green rye, liquid manure (can be pumped).

Facts and figures

- Digesters: 2 x 26/8 m (4,247 m³ each)
- Digestate tanks: 1 x 32/8 m (6,434 m³)
- Solid feeding: 2 x Vario 96 m³
- Biomethane production: 125 Nm³/h with membrane process

INDUSTRY



planet-biogas.com/vr-tour/
→ **Lethbridge**

RECYCLING PLANT Lethbridge Canada

This is the largest biogas plant in western Canada and unique in the whole of North America in terms of design and technical implementation.

Substrate

Animal residues, waste from food production, cattle slurry, solid cow manure, chicken dung and wastewater from food production.

Facts and figures

- Preliminary tanks: 2x 14 m/8 m, 1x 7 m/7 m
- Digesters: 3x 25 m/8 m (3,926 m³ each)
- Digestate tanks: 1x 30 m/8 m (5,645 m³)
- Solid feeding: 1x Vario 74 m³ incl. PlanET eco® flushing solution
- CHP output: 2x 1,425 kW_{el}
- Biomethane production: 1,000 nm³/h with PSA



Berthold Kaß-Kuhmann
Borken, Germany

I'm up to my ears in work with the cows and pigs. So the biogas plant simply has to keep running, and that works really well.

LIQUID MANURE PLANTS **Kaß-Kuhmann** Germany

The farmer Kaß-Kuhmann produces power and heat with slurry and manure from 250 dairy cows and 800 pigs.

Substrate

Liquid and solid cow and pig manure

Facts and figures

- Digester: 20/6 m
- Digestate tanks: 32/7 m
- Solid feeding : BioMix MultiRotor
- CHP output: 99 kW_{el}



Video



planet-biogas.com/vr-tour/
→ **Kaß-Kuhmann**

LIQUID MANURE PLANTS **Bioenergy village** **Schlöben** Germany

Heat for the whole area. Climate-neutral, regional, independent – that's how the people of Schlöben wanted to heat their buildings. Consequently, the community cooperated with PlanET to set up a 795 KW_{el} biogas plant. The 250,000 Euros that were previously spent on energy costs every year now remain in the region.

Substrate

Cow dung and cattle manure

Facts and figures

- Preliminary tank: 200 m³
- Digester: 2,945 m³
- Secondary fermenter: 3,694 m³
- Digestate tank: 3,000 m³
- CHP output: 3 Pilot injection CHPs with 265 kW_{el} each

MUNICIPALITIES



Further references and success stories can be found on our website.



PLANET BIOGAS GROUP

COMPANY DATA



870⁺

BIOGAS PLANTS
SET UP WORLDWIDE

150⁺

BIOMETHANE PLANTS
SET UP WORLDWIDE

400⁺

EMPLOYEES
WORLDWIDE



PlanET International

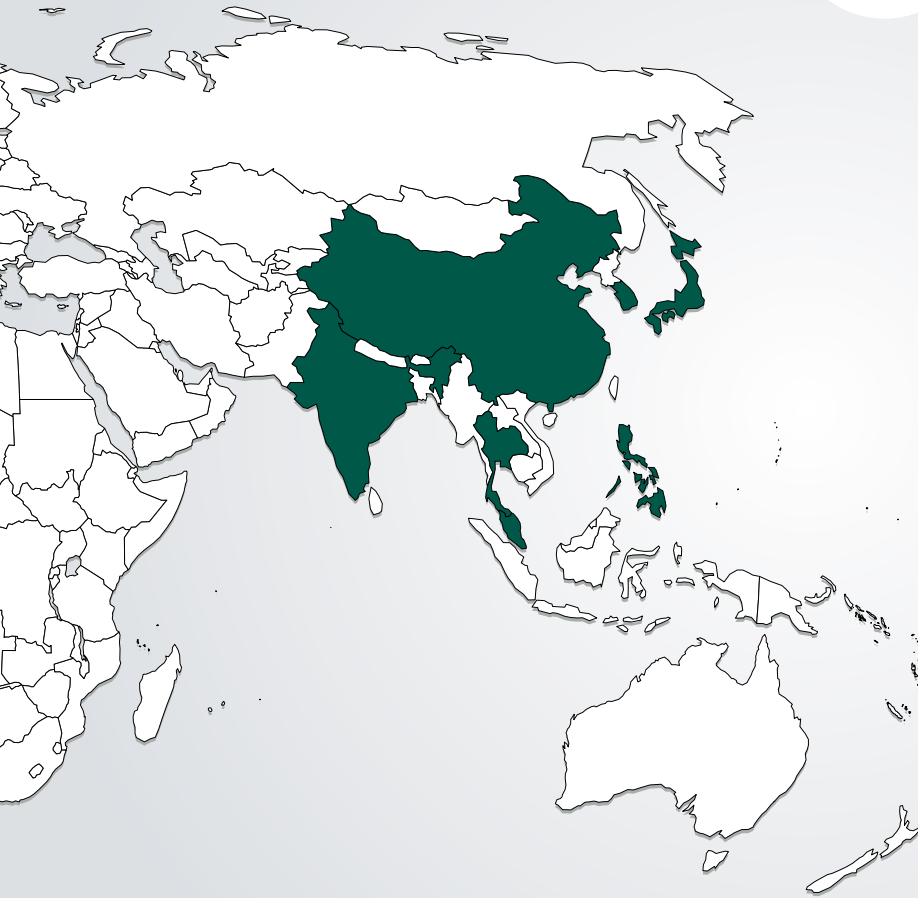
Since it was founded, the PlanET Group has established itself on an international level. Whether in Germany, France, Canada, USA, Italy and Brazil, our worldwide projects have familiarized us with the developments on the market. That enables us to contribute to better, more sustainable energy supply.



PlanET Group

- A group of 15 companies
- International sites
- More than € 100 million in sales
- Our own biogas plant operation
- Numerous awards

Find out more
about PlanET online.



25+

YEARS OF EXPERIENCE IN
THE BIOGAS INDUSTRY

1998

FOUNDATION OF
PlanET BIOGASTECHNIK

100%

PASSION FOR BIOGAS AND MODERN
ENVIRONMENTAL TECHNOLOGY



Research projects

PlanET participates actively in scientific cooperation projects dedicated to the efficient use of biogas resources. Our customers benefit from this commitment: PlanET's products and biogas plants will continue providing optimum efficiency based on the latest scientific findings.



PlanET Group headquarters

Our new company headquarters in Gescher are naturally climate-neutral. The energy supply at the site is entirely based on renewable energies: Geothermal energy, biomethane, photovoltaics. There are 18 charging stations where customers and employees can recharge their cars. We are committed to sustainability. Join us.



Get in touch!

We look forward to hearing from you.



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