

Biowaste energy



CONSULTANT
ENGINEERS



BIO  **POWER**
H A R N E S S I N G N A T U R E

Organic energy worldwide

Our Mission



Renewable energy sources such as the sun, wind, hydropower and biogas are our resources of tomorrow. Modern biogas production follows the example of nature: the biological and geological methane production process has been taking place for thousands of years, e.g. in the digestive systems of animals. Therefore, the production of methane in an anaero-bic digestion plant is actually the technical implementation of a biological process.

Methane – referred to as biogas – is the product of the de-composition of organic material by bacteria in the absence of light and air. In this process, microorganisms break down the material into their basic components, producing methane – our energy source – as a by-product. The natural methane emissions that take place every day (e.g. in landfills) endanger the climate due to the strong greenhouse effect, contributing to the warming of our planet. The secure production of methane by utilising organic waste in an anaerobic digestion plant helps to curb these emissions.

Modern anaerobic digestion plants, built by BIOPOWER, are designed for the efficient use of various raw materials, known as biomass. The biomass may consist of manure, maize, or organic waste from the food industry (leftovers, abattoir waste etc). Depending on the needs and the individual situation, it is also possible to use an even wider range of raw materials in this process.



Biogas is an opportunity

Diversified Renewable Energy



POWER



FERTILISER



HEAT



BIOMETHANE



With the help of special downstream treatment processes, biogas can be converted into three forms of energy:

Power: By means of the combustion process in a power plant, biogas is transformed into power for private use or for feed-in into the public power grid.

Heat: The gas from digester can be used for cooking or thermal application. This gas can be used inhouse to regulate the use of LPG gas

Biomethane: By means of special procedures, biogas can be upgraded to the quality of natural gas and be fed into the existing local natural gas grid.

Additionally, the digestate, a by-product of the biogas process, is a high-quality natural fertiliser that can be either spread directly on agricultural areas or used in dried form.

Apart from the ecological aspect, the production of energy from biogas also provides attractive economic opportunities.

Sustainable plant concepts ensure a calculable, stable, long-term source of income over decades. SYNOD BIOPOWER delivers the solutions you need for the meaningful and economically successful utilisation of bioenergy.



INDUSTRY



Portable biogas plant

Waste to Energy

Wonderbin's Portable Plants not just fulfil the purpose of managing a waste hygienically and safely, but can also address their energy requirement. In the newest generation of portable biogas systems, waste can be converted into energy in hours!

Unique and created with a strategic design, Wonderbin's ready-to-use, pre-fabricated units provide the ultimate biogas experience :quick assembly, low-maintenance, durability, and convenient. Designed for residences and institutions, these portable plants produce biogas that can take care of 50 – 70 % of energy needs.

They are specifically created to fit into small spaces such as backyards and terraces, customized in standard sizes with different capacities and can be operated by anyone in the home or canteens. The residual slurry can also be used in the garden as manure.



Sl. No	Capacity (cum)	Quantity of max waste (kg)	Quantity of gas in hrs	Quantity of gas LPG equivalent	Quantity of slurry	Height(meter)	Weight(kg)	Area (Square Meter)	Digging required
1	1	3	2-21/2	300gram	3ltr	1.2	50	1.2	No
2	1.5	5	3-4	500gram	5ltr	1.3	70	1.4	No
3	3	10	6	1kg	10ltr	1	120	1.6	Yes
4	6	20	8	2kg	20ltr	1.2	170	2.4	No
5	7.5	25	9	2.5kg	25ltr	1.4	180	2.4	No
6	9	30	5**	3kg	30ltr	1.5	190	2.4	No
7	12	40	6**	4kg	40ltr	1.8	250	2.4	Yes
8	15	50	7**	5kg	50ltr	2.1	300	2.4	Yes

** double burner stove

-  **USER FRIENDLY INTERFACE** -Features convenient sink and plunger for quick and easy food waste disposal
-  **SURFACE MOUNTED-** Allows for easy installation- no need
-  **CONTROLLED GAS PRESSURE--** Delivers consistent and reliable gas flow with the help of specially modified
-  **FIELD ASSEMBLED KIT** - Delivered as a kit for convenient transport and easy assembly



Institutional biogas plant

- Commercial Biogas Plants are designed for commercial spaces that have space constraints or where no civil construction can be done
- These biogas units can fit into the requirements of small canteens, hotels, hospitals and other organisations with limited waste generation
- These ready-to-install units can be used and shifted around according to individual convenience

INDUSTRY



PRODUCTION LEFTOVERS



ABATTOIR WASTE



DAIRY WASTE



RECEPTION SILO



DIGESTER WITH LONG-AXIS MIXER, INTERIOR VIEW



SETTING OF TANK



GAS STORAGE ROOF AND CONTROL UNITS



DOUBLE PROPELLER MIXER



SUBMERSIBLE AGITATOR

Compressed biogas (CBG)

Biogas the All-Rounder - Biogas is an all-rounder: In addition to the conventional use for the production of power and heat, biogas can be upgraded to natural gas quality and be fed into the local natural gas grid as biomethane without any additions. This is a future-oriented, lucrative step towards sustainable, eco-friendly energy supply.

Easy and Flexible Gas Upgrading

In the first stage of the biogas processing, the biogas is pre-dried, scrubbed and desulphurised with active carbon. Before the actual gas separation process takes place, the gas must be compressed to 8-15 bar. Subsequently, the CO₂ and water vapour are separated from the methane. Special adsorption techniques through which the raw gas is forced have been developed for this process stage. This process enables to separate the CO₂, H₂O and CH₄ molecules due to their adsorption behaviours.

Owing to the upstream compression, the separated methane has the optimum pressure for direct feed-in into the natural gas grid in the most cases or to cascade.

One-Stop Provide

Based on its comprehensive experience, BIOPOWER delivers customer-specific solutions under consideration of the respective upgrading volume. The result: Interface-free systems that comprise everything from the AD plant to the entire upgrading technology to the technical and biological customer service



Future energy



BENEFITS

- Methane yield of up to 99 percent through multi-stage procedure
- Intelligent control ensures uninterrupted gas feed-in
- Extremely high plant availability and low maintenance overhead thanks to durable membranes
- Easy to operate
- Quick installation thanks to compact container setup (plug and play)
- Fast start-up of system (3-5 minutes)
- Modular structure enables extensions
- Separation of the molecules without any additional aids such as chemicals or water
- Separation without any further need for heat
- No downstream dryer required
- Feed-in into the natural gas grid possible without additional compressor
- Heat recovery via the compressor
- Seamless overall process

These benefits mean low plant and operating costs for you!

BPG water technologies

Save for future

Waste water treatment – treating water unfit for human consumption – into an effluent that can be returned to the water cycle or reused is an essential step towards ensuring that we maximize the use of this resource. Synod Bioscience applies its globally recognized technological expertise to extract waste water's full value. We help generate reusable water using efficient solutions, by implementing water treatment technologies that not just meet stringent quality standards but also reduce ecological impact.

- Efficient and safe technology
- Environmentally compliant sewage plant operations
- Minimal ecological impact
- Cost-effective and customized solutions
- Treatment by products such as nutrients and fertilizers utilized too

Activated sludge process

Activated Sludge Process (ASP) technology is one of the commonest suspended growth process technology for treatment of municipal waste water.

The activated sludge plant involves,

- Aeration of waste water in microbial suspension
- Solid and liquid separation
- Clarified effluent is discharged
- Excess biomass is wasted
- Remainder biomass is returned back to aeration tank



Sequential batch reactor

An activated sludge process technology, with various treatments occurring over different time periods in a single process, the Sequential Batch Reactor (SBR) is used for different applications, as a stand-alone process or to aid anaerobic effluent treatment. Working within a specific time cycle, BPG renewables sets up process equipment such as pumps, mixers, aerators and decanters that can be linked to a programmable controller which can be monitored and controlled by our plant personnel on-site.

Effluent treatment plants

BPG renewables offers a range of effluent treatment plant option for recycling waste water and its treatment. Our customizable solutions are developed to suit a wide variety of effluents in industries and municipalities and maintain consistency and efficiency. Systems such as biological treatments, physio-chemical treatments, membrane separation and tertiary treatment are implemented to achieve nil-discharge standards as mandated by concerned bodies. Our economical and innovative systems for effluent treatment include organic and wet waste from municipalities, including industrial waste such as drugs, pharmaceuticals, dairy, refineries and textile effluents.

Wonderbin Composters

Composting @ your door step

Wonderbin Composter is a fully automatic Bio-Mechanical Composter and a continuous Organic Waste Converter. It is our most popular product with a proven and sustainable micro-organism based technology. Organic Waste Composter converts the organic waste added to the machine into nitrogen rich compost by reducing its volume by almost 80% of the original. Organic waste includes kitchen waste or anything that comes from plants or animals and is bio-degradable.

This kind of organic waste converter creates compost that is high in nitrogen for use in the agricultural or biofuel industries. We have created the ideal environment for the garbage to decompose and turn into compost as required by microorganisms. These machine requires very minimal power consumption and opex cost is negligible

To suit the needs of the organic waste conversion business, we provide organic waste composters at incredibly low prices.

WC MODEL	QTY OF WASTE	Volume (ltr)	Length	Width	App. Height
WC 50	50kg	1530	2800	1200	1300
WC 100	100kg	2850	3400	1400	1500
WC 150	150kg	4240	4150	1500	1600
WC 200	200kg	4863	4700	1500	1600
WC 250	250kg	6185	3900	1800	1900
WC 300	300kg	7423	4600	1800	1900
WC 350	350kg	7953	4900	1800	1900
WC 400	400kg	9000	4900	1900	2000
WC 500	500kg	11060	5900	1900	2000
WC 600	600kg	12467	6600	1900	2000
WC 750	750kg	15270	6400	2100	2200
WC 1000	1000kg	19723	8150	2100	2200
WC 1250	1250kg	23668	9700	2100	2200
WC 1500	1500kg	26700	8900	2300	2400
WC 2000	2000kg	34090	11250	2300	2400



BIOPOWER Promise

Standard Quality world wide

A promise means responsibility – responsibility towards our customers and our employees, to achieve your goals by means of a successful, cooperative partnership.

“Premium quality worldwide” is our promise, our drive, the challenge we face every day and a standard we strive to achieve in order to establish a solid basis of trust. For this, we have strong propositions:

LONG LIFE

BIOPOWER manufactures fermenters and equipment entirely from stainless steel, thereby guaranteeing an extremely long plant life.

QUALITY

Stainless steel has the further advantage that parts of BIOPOWER can be built with the same high quality standard throughout the world.

EXPERIENCE

With more than 300 designed and installed biogas systems in over 100 countries, BIOPOWER boasts matchless competence and excellent expertise.

ONE-STOP PROVIDER

BIOPOWER has a very high production depth and guarantees top-quality, premium plants



Our clients





Pioneering Sustainability Since 2009

SYNOB GROUP



naturGas
NGC RENEWABLES PVT LTD



Synod bioscience
environmental solutions for tomorrow, today...

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