

# Biogas Technology Suppliers Directory 2018

Interest in anaerobic digestion (AD) is gaining traction in many countries and industry sectors. According to the C40 Cities Climate Leadership Group, a network of the world's megacities committed to addressing climate change, 80 percent of all global wastewater discharged has not been treated with AD and C40 has described biogas as "key" to tackling global methane emissions.

The purpose of the directory is to provide an overview and the table gives a general presentation of internationally active companies and activities. It includes turnkey providers of biogas plants as well those that supply ancillary components and equipment needed for biogas and/or biomethane production. To qualify companies have to be engaged in export and/or have subsidiaries in other regions, the country shown is where it is headquartered. Although comprehensive the listing is not exhaustive neither is it an endorsement. Not on the list? Do not hesitate to get in touch.



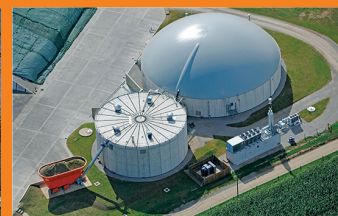
COMPANY	COMMENTS	COUNTRY	WEB
2G Energy AG	Suppliers of cogeneration systems, offers systems with an electrical capacity between 20 kW and 2 000 kW for operation with natural gas, biogas or hydrogen.	Germany	www.2-g.com
4R Group	Innovators in waste science and recycling technologies providing a low risk and cost effective recycling service.	UK	www.4r-group.co.uk
A-Consult	Designs, manufactures and installes precast concrete anaerobic digesters and storage tanks.	UK	www.aconsult.co.uk
Aardvark EM	Provides services for feasibility, planning, permitting, technical and financial due diligence for farmland waste-based projects.	UK	www.aardvarkem.co.uk
<b>AAT Biogas Technology</b>	<b>Offers plant design, process technology and equipment for processing of organic waste and purification of highly contaminated waste water with simultaneous energy production.</b>	<b>Austria</b>	<b>www.aat-biogas.at</b>
AB Energy SpA	Represents cogeneration industry with technologies and solutions able to ensure more energy management, which cut consumptions and waste to the benefit of company competitiveness and the environment.	Italy	www.gruppoab.it
AcrEnergy	Develops, builds, operates and maintains biogas plants that make use of organic agricultural waste including livestock manure, fruits and vegetable waste as well as energy crops to generate biogas.	UK	www.acrenergy.com
ADI Systems	Offers different wastewater treatment technologies.	Canada	www.evoqua.com
Aero Thermal Group	Group of companies experience in providing solutions for the aerospace, motorsports and process engineering industries with waste autoclave and thermal hydrolysis.	UK	www.aerothermalgroup.com
Againity	Provides solution for converting waste heat into electric power in various applications.	Sweden	www.againity.com
<b>Agraferm GmbH</b>	<b>Technology supplier and contractor for AD, biogas, biomethane. For food industry, waste companies or just profitably thinking farmers. Branch BTA International provides hydro-mechanical pre-treatment of wastes and MSW.</b>	<b>Germany</b>	<b>www.agraferm.com</b>
Agrar Plus Beteiligungs-GmbH	Provides energy contracting, biomass district heating systems, cogeneration, and biogas.	Austria	www.agrarplus.at
Agrico Engineering Sales Ltd	Manufactures the digestate treatment and handling equipment, feeding equipment, mixers, pumps and separation equipment.	UK	www.eisele.de
Agrikomp UK	Supplies anaerobic digester systems.	UK	www.agrikomp.co.uk
Agrotel GmbH	Develops, produces and distributes halls, windbreaking solutions and biogas components.	Germany	www.agrotel.eu
Aikan A/S	Produces biogas for energy generation.	Denmark	www.aikantechnology.com
Air Liquide Advanced Business and Technologies	Manufactures biogas cleaning and upgrading equipment, offers gas conversion technologies, gas pump/biomethane compression equipment.	France	www.airliquideadvancedbusiness.com
Alvan Blanch	Develops digestate treatment and handling equipment, feeding equipment, heat exchanger.	UK	www.alvanblanchgroup.com
Ambient Energy LLC	Develops M3RP (Machine - Reuse, Recover, Recycle Process), which is a robust machine that can handle several different feedstock's. The technology is a conversion/transformation system that is known as pyrolysis and depolymerization, which processes carbon based feedstocks (such as roofing shingles) in an oxygen free environment.	USA	www.ambientnrg.com
Amitec Oy	Offers technology, process and material handling solutions.	Finland	www.amitec.fi
Andritz MeWa GmbH	Offers the complete process chain, from supply of the input material, to its disintegration, to feeding it to the fermenter.	Germany	www.bio-qz.de
Aprovis Energy Systems GmbH	Offers project planning and sales, design, electrical engineering, order processing and service and supplies products to all major engine manufacturers.	Germany	www.aprovis-gmbh.de
Aritor	Manufactures pre-treatment feedstock technology and separation equipment.	UK	www.turboseparator.co.uk
Asia Biogas Co. Ltd.	Designs, constructs, finances and operates clean energy projects, centered on anaerobic digestion and biogas production.	Thailand	www.asiabiogas.com
Awila Anlagenbau GmbH	Supplies dosing and feeding systems for biogas plants.	Germany	www.awila.de
Awite Bioenergie GmbH	Develops, manufactures, sells and maintains individually designed process analysis systems for various types of biological reprocessing plants.	Germany	www.awite.com
Balmoral Tanks	Supplies the anaerobic digester systems, digestate treatment and handling equipment, gas storage equipment, tanks.	UK	www.balmoral-group.com
BDI - BioEnergy International AG	The company is suitable for the bioenergetic recovery of difficult industrial and municipal residual and waste products.	Austria	www.bdi-bioenergy.com
Biogest Biogas	Manufactures biogas plants using Biogest PowerRing technology.	Austria	www.biogest-biogas.com
Biotec Sistemi S.r.l	Offers equipment for anaerobic digestion. Supplies turnkey plants for e.g the treatment of Municipal Solid Waste (MSW), Source Separated Organic Waste (SSOW), and more.	Italy	www.biotecsystemi.it
Biothane Systems International	Company having focus on highly efficient, cost-effective biological methods to treat wastewater while creating energy and reducing pollution.	Netherlands	www.biothane.com

## BIOGAS

COMPANY	COMMENTS	COUNTRY	WEB
Biotrix Asia Company, Ltd	Offers complete solutions for biogas technologies.	Thailand	www.biotrix.asia
<b>Bright Biomethane</b>	<b>Offers well-proven membrane biogas upgrading systems to upgrade biogas to biomethane. Available in standard capacities from 40Nm<sup>3</sup>/hr to &gt;5 000 Nm<sup>3</sup>/hr. In addition the systems may be used to recover and liquefy CO<sub>2</sub>.</b>	<b>Netherlands</b>	<b>www.brightbiomethane.com</b>
BTA International GmbH	Specialist for the wet mechanical pre-treatment of different kinds of waste and the subsequent anaerobic digestion of the organic fraction according to the BTA® Process for the production of biogas.	Germany	www.bta-international.de
BTS Biogas Srl GmbH	Provider of turnkey biogas power plants.	Italy	www.ts-energygroup.com
Cambi AS	Provides advanced waste and sludge biogas systems, focused on maximizing energy production and minimizing final product mass.	Norway	www.cambi.no
CCI Bioenergy	Provide equipment and technology to convert MSW to energy, using anaerobic digestion.	Canada	www.ccibioenergy.com
Cellwood Machinery AB	Develops, manufactures and supplies machinery and systems for pretreatment of organic waste by superior dissolving and reject separation.	Sweden	www.cellwood.se
Chinese Academy of Agricultural Mechanization Sciences	Provides straw balers, cotton stalk harvesters, straw cutting-rubbing equipments, biomass gasification technology and equipments, and the resource utilization technology of the farm & livestock wastes.	China	www.caams.org.cn
Clearfleau Limited	Supplies anaerobic digester systems.	UK	www.clearfleau.com
Colsen	Operates in the water, energy and environment sector.	Netherlands	www.colsen.nl
Conveco S.r.l.	Designs, develops and builds a complete range of products used for the plants for the extraction, analysis, combustion and/or use of biogas from Municipal Solid Waste (MSW) as well as leachate drainage, control and collection networks.	Italy	www.conveco.com
CTU- Concepte Technik Umwelt AGClean Technology Universe	Dynamic enterprise with vast experience in the fields of thermal waste treatment, waste gas cleaning and energy production from biomass.	Switzerland	www.ctu.ch
DH Industries	Offers cryogenic services, engineering and equipment.	Netherlands	www.dh-industries.com
DMT Environmental Technology	Experienced in the field of biogas upgrading. The company applies advanced membrane technology and delivers innovative technologies for desulphurization and water treatment.	Netherlands	www.dmt-et.nl
Doppstadt Calbe GmbH	Manufactures feedstock pre-treatment technology and separation equipment.	Germany	www.doppstadt.com
Dorset Group BV	Manufactures the belt dryers and produces anything from plug-and-play container solutions up to complete organic fertiliser factories.	Netherlands	www.dorset.nu
DP CleanTech	Manufactures, delivers and services biomass, waste to energy power plants and waste management projects worldwide. Technology solutions include combustion, gasification, AD, FGT, waste processing, water purification and landfill management.	China	www.dpcleantech.com
Dreyer and Bosse Kraftwerke GmbH	Manufactures biogas cleaning and upgrading equipment and CHP engines.	Germany	www.dreyer-bosse.com
DSM Bio-based Products & Services B.V.	Experience in fermentation technology, optimally use the "reactor" to create maximum output. Actively working on major innovations in the biomass utilisation towards renewable fuel or bio-based chemistry.	Netherlands	www.dsmbiogas.com
EConvert Water & Energy	Designs and implements technology for the treatment of industrial wastewater and biogas.	Netherlands	www.econvert.nl
Ecoprotech	Offers solutions for industrial scale anaerobic digestion processes.	Finland	www.envorprotech.fi
Eggersmann Gruppe GmbH&Co.KG	Specialised in the field of mechanical-biological waste treatment. Labelled with the brands KOMPOFERM and BEKON, the plant constructor has developed and established numerous dry fermentation waste treatment sites.	Germany	www.f-e.de
ElectraTherm Inc	Provides small-scale waste heat recovery systems.	USA	www.electratherm.com
Eliopig S.r.l.	Offers turnkey biogas plants.	Italy	www.eliopig.it
Ellmann Engineering GmbH	Supplies anaerobic digester systems, offers biological optimisation, instrumentation, monitoring and control.	Germany	www.ellmann-gmbh.de
Eneco	Manufactures and supplies plant components. Provides control and instrumentation systems, gas control systems, connection to gas grid.	Netherlands	www.eneco.nl
Ennox Biogas Technology	Manufactures cleaning and upgrading equipment, digestate treatment and handling equipment, gas storage and heat exchangers.	Austria	www.ennox.at

### Turnkey Biogas and Waste Treatment Plants

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COMPANY	COMMENTS	COUNTRY	WEB
Enspar Biogas GmbH	Delivers complete biogas plants.	Germany	<a href="http://www.enspar.de">www.enspar.de</a>
Entec Biogas GmbH	Manufactures anaerobic digester system, biogas cleaning and upgrading equipment, digestate treatment and handling. Offers engineering and process consultancy.	Austria	<a href="http://www.entec-biopower.at">www.entec-biopower.at</a>
EnviTec Biogas AG	Provides systems for production of biogas - including the planning and turnkey construction of biogas plants as well as their commissioning.	Germany	<a href="http://www.envitec-biogas.de">www.envitec-biogas.de</a>
Erich Stallkamp ESTA GmbH	Designs and manufactures stainless steel products Broad range of products consists mainly of stainless steel tanks, pumps, agitators and separators.	Germany	<a href="http://www.stallkamp.de">www.stallkamp.de</a>
ETW Energietechnik GmbH	Offers compact and independent energy solutions. Supplies technology for combine heat and power (CHP) and biomethane plants.	Germany	<a href="http://www.etw-energie.de">www.etw-energie.de</a>
Evonik Fibres GmbH	Manufactures and supplies plant components: gas cleaning gas processing, gas upgrading and separation systems.	Austria	<a href="http://www.evonik.com">www.evonik.com</a>
Exergyn Ltd	Power generation from low-grade heat.	Ireland	<a href="http://www.exergyn.com">www.exergyn.com</a>
Extech GmbH	Provides biomass gasifiers and biogas plant components.	Germany	<a href="http://www.extech-de.com">www.extech-de.com</a>
Farmatic Anlagenbau GmbH	Provides an alternative to conventional waste disposal for agricultural organizations, as well as industry and local authorities.	Germany	<a href="http://www.farmatic.com">www.farmatic.com</a>
Feniks Pro d.o.o	Creates a uniform system, to monitor and manage the facilities from one place.	Slovenia	<a href="http://www.feniks-pro.com">www.feniks-pro.com</a>
Fluence Italy Srl	Planners and manufactures of biogas plants, plants components and consulting.	Italy	<a href="http://www.fluencecorp.com">www.fluencecorp.com</a>
Franz Eisele u. Söhne GmbH u.Co.KG	Supplier of pumps and mixers for the agricultural sector, biogas plants and industrial sector as well as for the municipal sector world-wide.	Germany	<a href="http://www.eisele.de">www.eisele.de</a>
Fraunhofer UMSICHT	Supplies biogas cleaning and upgrading equipment, pre-treatment of feedstock technology.	Germany	<a href="http://www.umsicht-suro.fraunhofer.de">www.umsicht-suro.fraunhofer.de</a>
Gazpack	Develops a unique system for upgrading biogas to green gas. The patented system is unique in its kind. It produces no waste, all outputs of the process are reusable.	Netherlands	<a href="http://www.gazpack.nl">www.gazpack.nl</a>
GM Green Methane Srl	Manufactures biogas cleaning and upgrading equipment.	Italy	<a href="http://www.gm-greenmethane.it">www.gm-greenmethane.it</a>
Green Gas International B.V	Experienced in gas drainage, conversion, treatment and management from various sources such as coal mines, landfills, waste water and biogas facilities.	Netherlands	<a href="http://www.greengas.net">www.greengas.net</a>
Hennlich s.r.o.	Offers energy chains applications, plant dedusting solutions and more.	Czech Republic	<a href="http://www.hennlich.cz">www.hennlich.cz</a>
Hitachi Zosen INOVA AG	Delivers complete turnkey plants and system solutions for energy recovery from waste.	Switzerland	<a href="http://www.hz-inova.com">www.hz-inova.com</a>
Honeywell International Inc.	Power generation experience. Delivered control systems and services to power generation facilities.	Finland	<a href="http://www.honeywell.com">www.honeywell.com</a>
<b>Host Bio-Energy Installations</b>	<b>EPC supplier of (waste) digesters, waste pre-treatment (thermal hydrolysis), biogas upgrading systems, digestate treatment, biomass fired boilers and biomass CHP's.</b>	<b>Netherlands</b>	<b><a href="http://www.host.nl">www.host.nl</a></b>
HRS Heat Exchangers Ltd	Manufactures dewatering equipment, heat exchanger, offers engineering consultants.	UK	<a href="http://www.hrs-heatexchangers.com">www.hrs-heatexchangers.com</a>
IES Biogas s.r.l	Plannes and manufactures of biogas plants. Offers full-system supply and turnkey plans.	Italy	<a href="http://www.iesbiogas.it">www.iesbiogas.it</a>
Innio Power previously GE Energy Jenbacher gas engines	Manufacturers of gas-fueled reciprocating engines, packaged generator sets and cogeneration units for power generation.	Austria	<a href="http://www.gejenbacher.com">www.gejenbacher.com</a>
Jones Celtic Bioenergy	Supplies anaerobic digester systems, biogas cleaning and upgrading equipment.	Ireland	<a href="http://www.joneseng.com">www.joneseng.com</a>
Kinetic Biofuels A/S	Offers a new patented (patent pending) 2 <sup>nd</sup> Generation technology using mainly straw briquettes as raw material enabling biogas producers to more than doubling the biogas production in existing and new biogas plants.	Denmark	<a href="http://www.kineticbiofuel.com">www.kineticbiofuel.com</a>
Kirk UK	Supplies anaerobic digester systems and tanks.	UK	<a href="http://www.kirk-environmental.com">www.kirk-environmental.com</a>
KIS Group	Offers sustainable green technologies for developing biogas and biomass projects.	India	<a href="http://www.kisgroup.net">www.kisgroup.net</a>
<b>Landia A/S</b>	<b>Supplies pumping and mixing solutions to many different industries, with the most important ones being agriculture, wastewater, biogas plants and the fish industry.</b>	<b>Denmark</b>	<b><a href="http://www.landia.dk">www.landia.dk</a></b>
LJM Lind Jensens Maskinfabrik A/S	Manufactures mixer/stirrer for biogas plants for handling slurry and fluids.	Danmark	<a href="http://www.ljm.dk">www.ljm.dk</a>
Lukeneder GmbH	Manufactures biogas cleaning and upgrading equipment, offers biological optimisation, technology for feedstock.	Germany	<a href="http://www.lukeneder.de">www.lukeneder.de</a>
Lundsby Biogas A/S	Delivers complete biogas plants.	Denmark	<a href="http://www.lundsby.dk">www.lundsby.dk</a>
Malmberg Gruppen AB	Environmental technology company in the field of biogas, geoenergy, water treatment and drilling.	Sweden	<a href="http://www.malmberg.se">www.malmberg.se</a>
MannTek AB	Produces and markets products for safe and environmentally friendly handling of aggressive fluids for the chemical and petrochemical industries.	Sweden	<a href="http://www.manntek.se">www.manntek.se</a>
Martin GmbH für Umwelt-und Energietechnik	Construction of waste-to-energy plants. Covers all relevant areas, from erection of plants to support, consulting and service, spare parts supply.	Germany	<a href="http://www.martingmbh.de">www.martingmbh.de</a>
Mavitec Green Energy	Manufactures odour control equipment, separation equipment and more.	Netherlands	<a href="http://www.mavitec.com">www.mavitec.com</a>
Megtec Systems Inc.	Global design, engineering, and manufacturing company providing industrial products and services to a diverse customer base serving a wide variety of market sectors.	USA	<a href="http://www.megtec.com">www.megtec.com</a>
MT-Energie Biogas Technologie	Plannes and manufactures biogas plants, arranging permitting, construction and commissioning support, full-system suppliers of turnkey plants.	Germany	<a href="http://www.mt-energie.com">www.mt-energie.com</a>
MTL Eaton (Crouse Hinds Group)	Offers accurate measurement and optimised production using user-friendly modular gas analyser for the biogas market.	UK	<a href="http://www.eaton.com">www.eaton.com</a>
MWM GmbH/Caterpillar Energy Solutions GmbH	Manufactures gas engines, electricity power plants, and CHP plants. Experienced in development and optimization of gas engines and generator sets for natural gas, biogas and other special gases.	Germany	<a href="http://www.mwm.net">www.mwm.net</a>
Netzsch Pumpen & Systeme GmbH	Manufactures pumps for different industries.	Germany	<a href="http://www.netzsch-pumpen.de">www.netzsch-pumpen.de</a>
New Eco-tec Verfahrenstechnik	Manufactures dewatering equipment, offers digestate treatment and handling equipment.	Germany	<a href="http://www.new-eco-tec.com">www.new-eco-tec.com</a>
Paques BV	Supplies anaerobic digester system, biogas cleaning and upgrading equipment, liquor treatment.	Netherlands	<a href="http://www.paques.nl">www.paques.nl</a>
Parker Hannifin Manufacturing Germany GmbH&Co.KG	Develops, manufactures, applies and sales innovative technical solutions in air and gas filtration, drying, separation, cooling and purification sectors.	Germany	<a href="http://www.parker.com/hzd">www.parker.com/hzd</a>
Pentair process Technologies	Manufactures biogas cleaning and upgrading equipment, membranes, valve and separation equipment.	Netherlands	<a href="http://www.pentair.com">www.pentair.com</a>
PlanET Biogas Solutions, Inc	Specializes in the design, construction, and service of advanced biogas plants.	Canada	<a href="http://www.planet-biogas.ca">www.planet-biogas.ca</a>

COMPANY	COMMENTS	COUNTRY	WEB
PlanET Biogastechnik GmbH	Offers core competence in the construction of biogas plants, control techniques, and the construction of solid supply insertions.	Germany	www.planet-biogas.com
Pumpenfabrik Wangen GmbH	Manufactures different kind of high quality pumps that combine high resistancy and reliability with long life expectancy.	Germany	www.wangen.com
Pyreg GmbH	Designs and manufactures carbonisation plants. Leading company in the field of phosphorus recycling from sewage sludge and the production of high-quality biochar, charcoal feed and activated carbon.	Germany	www.pyreg.de
Pöttinger Entsorgungstechnik GmbH	Offers Mobigas modular biogas systems.	Austria	www.poettinger-oneworld.at
Ramboll Group A/S	Offers energy consultants, engineering consultants, environmental consultants, process consultants, project management consultants.	Denmark	www.ramboll.dk
Renecon Energy	Offers energy consultants and trainings.	Nigeria	www.reneconenergy.com
Reregon International AG	Offers design, engineering, construction and operation of biogas plants by means of anaerobic solid-state digestion and waste management & energy concepts.	Switzerland	www.reregon.com
Revis Bioenergy GmbH	Delivers turnkey biogas plants. Offers crop operations, farm waste operations, planning consultants.	Germany	www.revis-bioenergy.de
Rotaria Energie -und Umwelttechnik	Offers waste water treatment and biogas plant engineering and building.	Germany	www.rotaria.com
RWL Water Italia	Supplies anaerobic digester systems, heat exchangers, instrumentation, monitoring and control, mixer/stirrer and pipes.	Italy	www.rwlwater.com
Sandfirden Technics B.V.	Supplier of natural gas and biogas engines based on Scania and AGCO Power.	Netherlands	www.sandfirden.nl
Scandinavian Biogas Fuels AB	Designes and operates biogas plants.	Sweden	www.scandinavianbiogas.se
Schaumann BioEnergy GmbH	Manufactures and delivers turnkey biogas plants.	Austria	www.schaumann-bioenergy.eu
Schmack Biogas AG	Plans and constructs biogas plants optimised for the fermentation of renewable materials.	Germany	www.schmack-biogas.com
Schnell Motoren GmbH	Manufactures CHP engines.	Germany	www.schnellmotor.com
Serge Ferrari	Supplies plant components.	France	www.sergeferrari.com
Strabag Umwelttechnik GmbH	General contractor and technology provider for anaerobic dry and wet digestion as well as aerobic composting, biological drying and RDF production.	Germany	www.strabag-umwelttechnik.com
Stream BioEnergy	Develops the crops, farm waste, food waste.	Ireland	www.streambioenergy.ie
Streisal GmbH	Develops, manufactures and globally markets innovative agitators and mixing systems for biogas plants, wastewater technology and industrial applications.	Germany	www.streisal.de
Three Es S.r.l.	Provides technology for the pretreatment of every kind of biomass for biogas plants.	Italy	www.three-es.it
Thöni Industriebetriebe GmbH	Manufacturer and supplier of AD plants for the anaerobic treatment of organic waste and agricultural by-products.	Austria	www.thoeni.com

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COMPANY	COMMENTS	COUNTRY	WEB
Tianjin HI-Tech Enterprise co., Ltd	Designs and manufactures the technology for biogas plants.	China	www.tj-hitech.com/
TNO Energy	Works on the entire biogas value chain from biogas production, upgrading, transport, distribution and valorization.	Netherlands	www.tno.nl
Triogen NL	Manufactures CHP engines, ORC systems, offers energy consultants.	Netherlands	www.triogen.nl
University of Rostock Institute for Biogas, Waste Management and Energy	Conducts scientific analyses, provides expert advice, undertakes development work, compiles appraisal reports on technical and economic concepts, as well as engaging in knowledge transfer.	Germany	www.biogasundenergie.de
Wackerbauer Maschinenbau	Manufactures feeding equipment, offers pre-treatment of feedstock technology and separation equipment.	Germany	www.wackerbauer.net
<b>Valmet Corporation</b>	<b>Global developer and supplier of services and technologies for the pulp, paper and energy industries.</b>	<b>Finland</b>	<b>www.valmet.com</b>
<b>Weltec Biopower GmbH</b>	<b>Provider of turnkey biogas and biomethane plants made from stainless steel (waste to energy, wastewater water treatment plants and agricultural plants) with references in 25 countries.</b>	<b>Germany</b>	<b>www.weltec-biopower.de</b>
Veolia Biothane	Biothane is the anaerobic treatment brand of Veolia Water Technologies and is one of the world's leading companies in the field of biological treatment of industrial wastewater.	Netherland	www.biothane.com
Vitkovic Machinery Group	Engineering group with a strong position in selected segments of machinery production.	Czech Republic	www.vitkovic.cz
Vogelsang GmbH & Co. KG	Manufactures pumping, grinding and spreading technology for the municipal, industrial and agricultural markets around the world.	Germany	www.vogelsang.info
Wolf Power Systems GmbH	Offers combined heat and power modules ranging from turnkey compact systems starting at 18 kW, through to complete system solutions with up to 2000 kW. Experienced in the areas of natural gas, biogas and sewage gas.	Germany	www.wolf-power-systems.de
Wuhan Cubic Optoelectronics Co.,Ltd	Designs and manufactures infrared flue gas analyzer, infrared syngas analyzer, infrared biogas analyzer and automobile exhaust gas analyzer.	China	www.gassensor.com.cn
Wärtsilä Corporation	Develops and supplies gas handling and liquefaction technology.	Finland	www.wartsila.com
Xebec Adsorption Inc	Designs and builds biogas upgrading plants for landfill gas, waste water treatment and anaerobic digester gas.	Canada	www.xebecinc.com
Xergi A/S	Supplier of advanced turnkey biogas plants. Specialize in large-scale plants, with any mix of feedstock, including food waste, straw, manure incl. chicken manure, deep litter, crop residue, industrial organic waste etc.	Danmark	www.xergi.com
Xylem Water solutions AB	Supplies plant components: offers substrate preparation and processing, stirring and pump systems.	Sweden	www.xylemwatersolutions.com
Zorg Biogas AG	Offers engineering services and construction of biogas plants.	Switzerland	www.zorg-biogas.com

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## Agraferm biogas plant for sugar industry, this time in India



Germany-based Agraferm GmbH, a turnkey and technology provider for biogas systems and parent company of the treatment specialist for organic wastes, BTA International GmbH, has announced that it has received the next order in the sugar industry. This time, the project is located in India, Uttarakhand, and will utilize sugar cane press mud to achieve in a first phase 1.5 MWel. power. The digestate will be used as fertilizer for soil improvement. The construction

starts in spring 2019. The new project also is Agraferm's first project in India and in a timely manner, considering the actual big biogas initiative of the Indian Government. India has about 500 sugar mills, each one in average being good for 1.5 – 2 MW power.

– Such mono-fermentation in food industry is one of our strengths, built on the deep understanding of the digestion process itself, which also is valuable for vegetable oil mills, abattoirs and other said Eike Liekweg, Managing Director of Agraferm. The respective counterpart for solid inputs such as paddy straw has already earlier been awarded Best Practice by the German Government. Already in 2017, the turnkey construction of a 5 MWel. biogas plant for British Sugar (AB Group) in the UK had been successfully completed. This plant processes over 100 000 tonnes pressed sugar beet pulp per year.

BI103/6210/AS

## Italian biomethane (incentive) done right

In August 2017, Italy-headed biogas technology developer and supplier, BTS Biogas Srl revealed that it had signed a landmark agreement with Biogas Refinery Development (BRD) for the construction of four biomethane plants in Italy pending new legislation and tariff incentives for biomethane-to-grid. Michael Niederbacher, CEO of BTS Biogas, remarked then that the deal marked the real start of its “biogas done right”, an opportunity for all the technical and biological pathways to utilise the “enormous potential” of agricultural wastes available in Italy.

In March this year, the European Commission (EC) gave its approval under EU State Aid rules to the Italian support scheme for the production and distribution of advanced biofuels, including advanced biomethane. The scheme, which came into effect in July this year, supports the production and distribution of advanced biofuels and advanced biomethane for use in the transport sector.

– At last the Italian biogas market is re-starting also on the agricultural front. After years of waiting and commissioning biomethane projects in countries like the UK, we now have such projects in Italy. There are many advantages for the agri-industrial sector, municipalities as waste management and of course for BTS Biogas with a very strong agricultural experience, said Michael Niederbacher, CEO of BTS Biogas.

The scheme has an indicative budget of EUR 4.7 billion and will run from 2018 until 2022. Transport fuel retailers, who are obliged by law to include a certain percentage of advanced biofuels and biomethane in their fuel blends, will finance the scheme.

Italy's total gas demand in 2016 was just over 70 billion Nm<sup>3</sup> of which 92 percent was imported. The target is to reach 1.1 billion Nm<sup>3</sup> biomethane

annually, about 7 percent of the total.

– There are about 1.2 million natural gas vehicles (NGVs) in Italy and basically all use compressed natural gas (CNG). Italy is behind on reaching the 10 percent biofuels in transportation by 2020, so it makes good sense to stimulate biomethane production and tap into the existing market and infrastructure. Every Nm<sup>3</sup> of biomethane helps the local economy too, remarked Christof Erkert, Sale Manager, BTS Biogas.

Under the scheme, producers of advanced biomethane and biofuels receive a premium that allows them to compensate for these higher costs and compete with fossil fuels in the transport sector. The premium can be increased if producers also make investments to improve the distribution and liquefaction of advanced biomethane. The level of the premium will be updated annually in relation to the production costs to ensure that producers are not overcompensated.

– As a whole the new scheme is good and to reach the target we would need 300-400 plants of the average Italian biogas plant size. However, of the 10 or so plants currently planned or under construction including our projects, none are farm biogas power retrofit projects, all are new projects using urban or industrial biowaste, said Christof Erkert.

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## Belgium's first ever biomethane-to-grid plant operational

The gas-to-grid installation at Energy Conversion Facility 'IOK Afvalbeheer' in Beerse, Belgium has successfully produced Belgium's first sustainable biomethane and injected into the natural gas grid of net operator Eandis. The installation represents a double first for Bright Biomethane, the biogas upgrading arm of Netherlands-headed bioenergy technology providers HoSt – the first project for the company in Belgium and the first biomethane plant in the country.

The biomethane system uses membrane technology to upgrade the biogas to 91 Nm<sup>3</sup> biomethane per hour. According to the company, the Bright Biomethane system is an easily expandable system, ensuring that enough biomethane is produced in the future to provide gas for around 1 000 families.

The biogas is produced from the anaerobic digestion (AD) of garden, fruit and vegetable waste (GFV) from more than half million residents of the Kempen area. IOK Afvalbeheer currently produces renewable bioenergy in two ways: 75 percent of the biogas is used in a combined heat and power (CHP) unit with the heat and electricity that used by the biogas plant and the upgrading system. The remaining 25 percent of the biogas is upgraded to biomethane for injection into the national gas grid.

In the future this will shift towards an increase of biomethane. Instead of 91 Nm<sup>3</sup> low-calorific biomethane (L-gas), 242 Nm<sup>3</sup> high-calorific biomethane (H-gas) per hour will be produced.

## Flexible biomethane system to Veendam, Netherlands

In the Netherlands, Bright Biomethane has been awarded the contract for the construction of the new 600 Nm<sup>3</sup> per hour biomethane installation with membrane technology for Bio-Energy Veendam in Veendam, northern Netherlands. Construction of the installation, to produce biomethane with natural gas quality, is expected to begin in February 2019.

– In this project, we engineered a flexible, multifunctional biomethane system, which can easily alternate between two methane concentrations of the biomethane and with or without THT odourant injection to give the biomethane the distinctive gas smell, said Maarten Holtkamp, Sales Director.

According to Holtkamp, this flexible biogas upgrading system is necessary, because the biomethane with 97 percent methane concentration without THT odourant is supplied directly to the neighbouring factory of magnesium salt producer Nedmag. Biomethane with a methane concentration of 89 percent with THT odourant can be supplied to the gas grid to guarantee receipt of biomethane when Nedmag is not able to do so.

Initially the system will have a capacity of 600 Nm<sup>3</sup> per hour but will be expanded in the near future to 1 000 Nm<sup>3</sup> per hour.

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