

Reference list
- Biowaste and kitchen waste -

| Biogas Plant | Location | Year | Input | Digester | Co-generator | Features | Responsibility |
|---|----------|---------|---|---|--|--|---|
| Digestion plant BACKNANG | Germany | 2016 | Separately collected household waste | Horizontal digester 2 x 1,600 m ³ ; Kompogas process | Gas engine 2 x 800 kWel | Damage report on reduced biogas production caused by high ammonia concentration | Expert report |
| Biogas Plant FUKUOKA | Japan | 2016/17 | Kitchen waste, industrial waste | Enameled steel tank 2 x 5,000 m ³ | Gas engine 2 x 1,056 kWel | Biogas plant digesting organic waste: 2 digester, 1 secondary digester with gas holder roof, mesophilic operation | Basic evaluation, pre-, draft- and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up, training for operators |
| Biogas Plant WUHU | China | 2016/17 | Kitchen waste | steel tank, welded 2 x 3,375 m ³ | Biogas upgrading system | Biogas plant digesting organic waste: 2 digester, 1 storage tank (by client), 2 hydrolysis tanks (by client), oil separation with heat recovery system | Basic evaluation, pre-, draft- and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up, training for operators |
| Biogas Plant MCDONNELL (Expansion) | Ireland | 2014/15 | Kitchen waste, animal by-products (ABP), cattle slurry, poultry manure, corn silage | Concrete tank 3,200 m ³ | Gas engine 250 kWel (existing on site) | Expansion of a biogas plant digesting food waste by 1 digester, gas desulphurisation, pump room and equipment | Basic evaluation, pre-, draft and execution planning, additional consulting services |
| Biogas Plant IM BRAHM II (Expansion) | Germany | 2014 | Kitchen waste, pig manure | Concrete tank 2 x 1,200 m ³ | Gas engine 4 x 190 kWel | Expansion of a biogas plant by 1 storage tank and 1 co-generator | Pre-planning, approval and execution planning, consultancy services, supervision of construction, training for operators |
| Biogas Plant DAISEN | Japan | 2013/14 | Pig manure, fats, sewage sludge, industrial kitchen waste | Glas coated steel tank 5,000 m ³ | Gas engine 2 x 370 kWel | Biogas plant digesting kitchen waste: 1 digester, 1 secondary digester with gas holder roof, expansion of an existing biogas plant, mesophilic operation | Basic evaluation, pre-, draft- and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up, training for operators |

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| Biogas Plant QINHUANGDAO | China | 2013/14 | Kitchen waste | Black steel, welded 2 x 3,400 m ³ | Biogas upgrading system, biomethane used for vehicle fuel | Biogas plant digesting kitchen waste: pre-treatment, hydrocyclone, 1 hydrolysis tank, 2 digester, 1 storage tank, digestate treatment, mesophilic process, external heating and cooling | Basic evaluation, pre-, draft- and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up, training for operators |
| Biogas Plant DEQINGYAN | China | 2012/13 | Pretreated chicken manure, biowaste, corn straw | Stainless steel 2 x 2,560 m ³ | Biogas upgrading system, biomethane used in households | Biogas plant digesting organic waste: 2 digester, 2 secondary digester, external gas storage, biogas upgrading and utilisation in households | Basic evaluation, pre-, draft- and execution planning, tendering, consultancy as GIZ project |
| Biogas Plant TONGZHOU | China | 2012/13 | Organic kitchen- and municipal waste, black water | Glas coated steel tanks 4 x 3,100 m ³ | Biogas upgrading system | Biogas plant for digestion of food waste, 4 digester, treatment of digestate, mesophilic operation, gas processing | Basic evaluation, pre-planning |
| Biogas Plant SOUTHERN GERMANY | Germany | 2012 | Biowaste | Concrete tanks 3 x 7,500 m ³ (existing on site) | Existing on site | Pre-treatment and pasteurisation of biowaste for digestion in existing digesters of a WWTP. | Basic evaluation, pre-planning |
| Biogas Plant HELSINKI | Finland | 2011/12 | Biowaste, household and industrial kitchen waste | Glas coated steel tanks 2 x 2,650 m ³ | Existing on site | Biogas plant digesting organic waste: 2 hydrolysis tanks, 2 digester, 1 secondary digester, mesophilic operation, (optional: digestate drying plant) | Basic evaluation, pre-, draft-, approval and execution planning, tendering |

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| Biogas Plant WALLRAPP (Expansion) | Germany | 2011 | Pig manure, expired foodstuff (food, bread) | Lipp-Digester 1,100 m ³ | Dual fuel co-generator 100 kWel Gas engine 185 kWel | Expansion of a biogas plant for digesting food waste by 1 secondary digester | Basic evaluation, pre-, draft-, approval and execution planning, additional consulting services |
| Biogas Plant IM BRAHM (Expansion) | Germany | 2010 | Pig manure, horse manure, kitchen waste | Concrete tank 1,210 m ³ | Gas engine 3 x 190 kWel | Expansion of a biogas plant by co-generator, digester and storage tank | Basic evaluation, pre-, draft-, approval and execution planning, tendering, participating in contract awarding process, site management/project controlling |
| Biogas Plant SCHWABEN | Germany | 2010 | Biowaste, cuttings | Concrete tank 2,700 m ³ | Gas engine 526 kWel | Biogas plant digesting organic waste: dry digestion, horizontal digester, sand removal, mesophilic operation | Basic evaluation, pre-planning |
| Biogas Plant EARTH RENU | Canada | 2010 | Kitchen waste, fats, glycerin | Glas coated steel tanks 2 x 5,000 m ³ | Biogas upgrading system | Industrial biogas plant: 2 digester, 1 secondary digester, pasteurisation | Basic evaluation, pre-planning |
| Biogas Plant IFFEZHEIM | Germany | 2010 | Biowaste | Concrete tank 10 x 600 m ³ (garage type) | Gas engine 2 x 600 kWel | Expansion of composting plant by a dry digestion plant. | Basic evaluation, pre-planning |
| Biogas Plant PETERBOROUGH | Great Britain | 2009 | Kitchen waste, canteen waste, expired food products | Glas coated steel tank 2,800 m ³ | Gas engine 800 kWel | Biogas plant digesting organic waste: biowaste treatment, 1 hydrolysis tank, 1 digester, pasteurisation, biofilter, mesophilic operation | Basic evaluation, pre-planning |
| Biogas Plant LISTOWEL | Canada | 2009 | Kitchen waste, market waste, manure, other organic waste | Glas coated steel tanks 2 x 5,000 m ³ | Biogas upgrading system, injektion into grid | Industrial biogas plant: 2 digester, 1 secondary digester, 1 storage tank, mesophilic operation | Basic evaluation, pre-planning |

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| Biogas Plant MCDONNELL (Expansion) | Ireland | 2014/15 | Kitchen waste, animal by-products (ABP), cattle slurry, poultry manure, corn silage | Concrete tank 3,200 m ³ | Gas engine 250 kWel (existing on site) | Expansion of a biogas plant digesting food waste by 1 digester, gas desulphurisation, pump room and equipment | Basic evaluation, pre-, draft and execution planning, additional consulting services |
| Biogas Plant SEATTLE | USA | 2008 | Biowaste | Enamelled steel tank 4,900 m ³ | Gas engine 2 x 536 kWel | Biogas plant digesting organic waste: biowaste treatment system, 1 hydrolysis tank, 1 digester, 1 secondary digester, mesophilic operation | Basic evaluation, pre-planning |
| Biogas Plant PORTA (Expansion) | Spain | 2007 | Pig manure, food waste | Concrete tank 1,360 m ³ | Gas engine 2 x 191 kWel | Expansion of a biogas plant digesting food waste by co-generator and gas cooling | Basic evaluation, pre-, draft- and execution planning, additional consulting services |
| Biogas Plant GÖTTINGEN | Germany | 2007 | Percolate of compost | Concrete tank 1,890 m ³ | Gas engine 254 kWel | Integration of a biogas plant in an existing compost plant incl. heat utilisation | Basic evaluation, pre-, draft-, approval and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up, consultancy |
| Biogas Plant NOYON | France | 2007 | Sewage sludge, fats, food residuals, process water | Glas coated steel tank 3,500 m ³ | Gas engine 716 kWel | Industrial biogas plant: 1 digester, 1 secondary digester with gas holder, digestate treatment with separation and drying of solid phase, mesophilic operation, heat utilisation | Basic evaluation, pre-, draft-, approval and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up |

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| Biogas Plant DUBLIN | Ireland | 2007 | Kitchen- and garden waste, food waste, sewage water | Glas coated steel tank 4,600 m ³ | Gas engine 2 x 500 kWel | Biogas plant digesting organic waste: biowaste treatment system, 1 hydrolysis tank, 1 digester, 1 secondary digester, pasteurisation | Basic evaluation, pre-planning |
| Biogas Plant PORTA | Spain | 2006 | Pig manure, food waste | Concrete tank 1,360 m ³ | Gas engine 191 kWel | First agricultural biogas plant in Spain | Basic evaluation, pre-, draft- and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up |
| Biogas Plant IM BRAHM | Germany | 2004/5 | Pig manure, kitchen waste, horse manure | Concrete tank 1,210 m ³ | Dual fuel co-generator 2 x 190 kWel | Biogas plant digesting organic waste: 1 digester, 1 secondary digester, mesophilic operation, heat utilisation (pasteurisation kitchen waste, heating of buildings) | Basic evaluation, pre-, draft-, approval and execution planning, tendering, participating in contract awarding process, site management/project controlling, start-up |
| Biogas Plant KOGEL | Germany | 2004 | Kitchen waste, canteen waste, packaged food | Concrete tank 2 x 2,800 m ³ | Gas engine 1 MWel | Biogas plant digesting organic waste: 2 digester, 1 secondary digester, 2 storage tanks | Basic evaluation, pre-planning |
| Biogas Plant GROSS MUEHLINGEN (Expansion) | Germany | 2003 | Manure, organic waste | Steel tanks, 2 x 750 m ³ | Gas engine, 730 kWel | Expansion of an existing biogas plant by pasteurisation, storage tanks, hydrolysis tank, process control system for the whole plant | Basic evaluation, pre-, draft- and approval planning, additional consulting services |

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| Biogas Plant HEILIGENKREUZ | Austria | 2002 | Manure, fats, corn, glycerin, kitchen waste, grass, concentrate of fruits, waste of bakeries | Concrete tank, 1,100 m ³ | Gas engines, 511 kWel | Biogas plant for digesting organic waste: 1 hydrolysis tank, 1 digester, 1 secondary digester, heat utilisation in the village | Basic evaluation, pre-, draft-, approval and execution planning of main components, measurement and process technology, start-up |
| Biogas Plant BERLIN-MARIENFELDE | Germany | 1999-2000 | Kitchen waste, fats, depackaged food | Stainless steel tanks 4 x 60 m ³ | Gas engine, 2 x 90 kWel | Biogas plant digesting organic waste: 1 digester, 1 secondary digester | Basic evaluation, pre-, draft and execution planning for buffer- and hydrolysis tank, digesters |
| Biogas Plant Braunschweig | Germany | 1997 - 1999 | Municipal biological waste (OFMSW) | 2 x 1.600 m ³ horizontal digesters | Gas sale | Dry fermentation; Kompogas process | Process design for pretreatment system and digestion system, detailed engineering, optimisation, operation of plant, commissioning. Process development and implementation of sand removal. |
| Biogas Plant Wurzer Kompost GmbH / Eitting | Germany | 1997 - 1999 | Municipal biological waste (OFMSW) | 2 x 1.600 m ³ horizontal digesters | Gas sale | Dry fermentation; Kompogas process | Optimisation and commissioning. |
| Small digestion Plant W&A | Germany | 1997-1999 | Black water, kitchen waste | 6 m ³ | Gas oven | Biogas plant digesting organic waste (blackwater of several houses, vacuum toilets, kitchen waste) by one 6 m ³ digester, modular system | Basic evaluation, pre-, draft- and execution planning incl. pre-fabrication and final assembly, site management/project controlling, start-up (for TBW GmbH) |
| Digestion Plant BEG BIOENERGIE GMBH | Germany | 1997/ 1998 | Biowaste, separately collected in households, sewage sludge | Steel tanks, 3 x 330 m ³ | | Biogas plant digesting organic waste: IMK-process, two-stage with aerobic hydrolysis, sedimentation tank, external gas storage tank | Basic evaluation, pre-, draft- and execution planning for digesters, sedimentation tank, gas holder, process optimisation after start-up |
| Biogas Plant GAERTEC | Germany | 1997 | Kitchen waste, organic industrial residues | Steel tank, 140 m ³ | Dual fuel co-generator, 27 kWel | Biogas plant digesting organic waste: Pilot plant, Freese system | Basic evaluation, pre-, draft- and execution planning, tendering and construction of digester |

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| Biogas Plant BARZ | Germany | 1996-1998 | Manure, kitchen waste | Concrete tanks, 20 m ³ and 230 m ³ | Dual fuel co-generator, 45 kWel | Biogas plant digesting organic waste: 2 digester, pasteurisation | Basic evaluation, pre-, draft-, approval and execution planning, site management/project controlling, start-up (for TBW GmbH) |
| Biogas Plant Preussag - Noell AG | Germany | 1995 - 1997 | Municipal biological waste (OFMSW), market wastes | | Anaergie process - Vertical 2-stage digester | Dry and wet fermentation | Process design and process optimisation, start up, operation of pilot plant, research. |
| Biogas Plant RoRo-ENERGIE | Germany | 1996-1998 | Biowaste, separately collected in households, residues from breweries | Concrete tank, 1,000 m ³ | Dual fuel co-generators, 2 x 95 kWel | Biogas plant digesting organic waste: pre-treatment for all input substrates, pasteurisation, 1 central located digester, 1 storage tank, other digester decentralized | Basic evaluation, pre-, draft-, approval and execution planning (for TBW GmbH) |
| Biogas Plant BLUEMEL (Kompostbetrieb) | Germany | 1994/1995 | Biowaste, separately collected in households | Concrete tanks, 2 x 800 m ³ | Dual fuel co-generators, 2 x 160 kWel | Biogas plant digesting organic waste: 2 digester | Basic evaluation, pre-, draft-, approval and execution planning, site management/project controlling, start-up (for TBW GmbH) |
| Digestion Plant Technical University of HAMBURG-HARBURG | Germany | 1993/1994 | Biowaste, separately collected in households | Steel tank, 100 m ³ | | Pilot biogas plant: 1 digester, ATF-dry fermentation | Basic evaluation, pre-, draft-, approval and execution planning, site management/project controlling, start-up (for TBW GmbH) |
| Biogas Plant SCHLÖTTER | Germany | 1992/1993 | Manure, other organic waste | Glass fiber tank, 80 m ³ | Dual fuel co-generator, 27 kWel | Biogas plant digesting organic waste: 1 digester, Baader system, gas holder above 400 m ³ manure storage tank | Pre-, draft-, approval and execution planning, site management/project controlling, start-up |
| Biogas Plant v. BODELSCHWING' SCHE ANSTALTEN | Germany | 1991 | Manure, kitchen waste | Steel tank, 100 m ³ | Dual fuel co-generator, 27 kWel | Biogas plant digesting organic waste: 1 digester, gas bag | Assembly of tubes, pumps, mixers, heating and gas systems |