Biogas plant, Germany

Contact person: Mr. Müller, phone: +49 261 402 296

Service area	Contract value	Project duration
Biogas	ca. 16 million €	2010 - 2012

Project description:

Biogas plant for the utilization of renewable resources.

Annual substrate quantity: 53,000 t/a

Further project data:

- Storage facility for substrates: 20,000 m³
- Substrate reception hall and technical building: 10,000 m³
- 2 digesters: 8,000 m³
- 2 final tanks: 7,000 m³
- storage tanks for fermentation residues: 15,000 m³
- Separation of fermentation residues
- Centrate storage tank, total volume: 400 m³
- Biogas treatment plant to feed 700 Nm³/h biomethane into natural gas network

Purpose:

- Energy production

Our services:

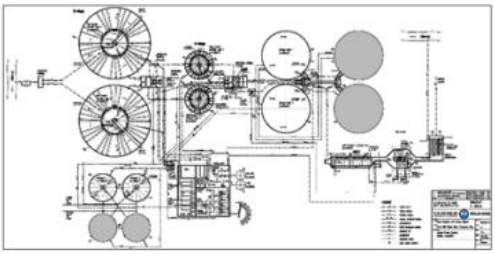
- Evaluation of basics
- Preliminary design
- Basic design
- Approval planning with application for authorization
- Detail design
- Tendering
- Construction supervision
- Documentation

Client benefits:

- General engineering from one source for all civil engineering, mechanical engineering and electrical engineering
- Production of biogas
- Revenue from electricity

Wastewater treatment at the leather factory, Turkey

Service area	Contract value	Project duration
Wastewater treatment	ca. 32.5 million €	1997 - 2000



Client benefits:

- Achieving the effluent standards according to environmental permit

Project description:

Basic design for a WWTP of leather factories in industrial parks and for this site including mechanical treatment, buffer tank, two-stage biology according to AB-process and anaerobic sludge treatment and sludge drainage.

Further project data:

- Engineering client: ENKA TEKNIK

Purpose:

- Treatment of industrial wastewater from a textile and leather producing industrial area for approx. 15 production facilities

Our services:

- Basic Design
- Tendering
- Project management

Inter-municipal industrial park
Biogas from industrial manure and renewable resources, Germany

Contact person: Dr. Schneider, phone: +49 177 447 61 39

Service area	Contract value	Project duration
Biogas, Digester	ca. 18 million €	2010 - 2013

Project description:

Biogas plant for the utilization of industrial manure (cow manure, pig manure, dry chicken dung, kitchen waste) and renewable resources; maximum substrate quantity: 160,000 t/a

Approx. 21 million m³/a biogas are produced and feed into the natural gas system after treatment. The other part of the gas is used in a combined heat and power plant (1.2 MW_{el}).

Further project data:

The construction phase comprised the following measures:

New construction of:

- 8 digesters with a total volume of 25,000 m³
- Substrate reception building with an enclosed space of 5,000 m³
- 2 final sedimentation tanks with a gas storage capacity of 4,000 m³
- Buffer and storage tanks
- Gas treatment plant including desulphurization and production of bio-methane
- Combined heat and power plant for self supply
- Exhaust air treatment plant as regenerative thermal oxidiser
- Digester treatment plant

Purpose:

- Voluntary self-commitment of the operator to act according to the highest environmental and sustainability standards

Our services:

- Authorisation Procedure for BImSchG (Federal Immission Control Act)
- Detail design for the constructions
- Tendering for the constructions
- Construction supervision

Client benefits:

- Comprehensive engineering know-how and biological/chemical know-how
- Experience with the planning and structural implementation of such plants

Sludge treatment and Co-fermentation at Industrial park, Germany

Contact person: Mr. Junker, phone: +49 305 293 23

Service area	Contract value	Project duration
Sludge treatment and Co-fermentation	ca. 1.2 million €	2005 - 2007

Project description:

New construction of a Co-Fermentation to use sludge and liquid organic wastes (Co-Substrates)

Further project data:

- Two digesters with 2 x 10,800 m³
- Machine building with 12,000 m³
- Two sludge basins with 2 x 2,000 m³
- Modification of the existing waste water basin to a sludge liquor-nitrification basin of V = 6,000 m³
- Gas drying, gas cleaning, gas compression
- Combined Heat and Power Plant (CHP) with a total heating performance of about 15 MW.
- Steam boiler plant for 3,000 kg/h
- Transformation of an existing waste water basin into a turbid-water-nitrification-basin with V = 6,000 m³.

Purpose:

- Treatment of excess sludge from the wastewater treatment plant and fluid waste from industrial park
- Production of electric energy, steam and heating energy

Our services:

- Research project in pilot plant
- Civil engineering
- Structural engineering
- Mechanical and electrical engineering
- Local on-site supervision

Client benefits:

- Reduction of sludge volume from own wastewater treatment plant
- Production of energy
- Revenues from waste treatment

Wastewater treatment plant, Turkey

Service area	Contract value	Project duration
Wastewater treatment	(protected)	-

Project description:

Reconstruction and extension of the WWTP up to 1,192,000 PE:

- Extension of the intake pumping station and inlet group
- Extension of the mechanical treatment stage
- New construction of the activation tank as well as cascade denitrification with turbo compressor
- New construction of the final sedimentation
- Doubling of the anaerobic sludge treatment capacity
- Utilization of the digested gas in a combined heat and power plant, 1.9 $MW_{el.}$
- New construction of sludge dewatering

Further project data:

- Wastewater treatment simulation
- 3D planning
- Reconstruction/new construction measures during ongoing operation
- Working language: English

Purpose:

- Extension of the wastewater treatment plant with biological treatment
- Anaerobic sludge treatment and gas utilization

Our services:

- Preliminary, Basic, Approval, Detail design
- Tendering
- Operation manual
- Co-ordination of the project members
- Construction and local site supervision
- Training of the staff

Client benefits:

- General planner
- Modern wastewater treatment plant with biological treatment
- Biogas production and electricity generation
- Guaranteed operating costs for a period of 10 years
- Simulation of the wastewater treatment system by means of a modelling software