

Bioenergy is generated from the renewable fuel biomass and is something like an allrounder among the renewable sources of energy: electricity, heat, and cooling as well as synthetic fuels can be obtained from solid, liquid, and gaseous biomass. As a resource, biomass is available worldwide, can be applied flexibly, is environmentally friendly and, above all, CO₂-neutral.

Future-Oriented and Environmentally Friendly Generation of Energy from Biomass

Biomass is an interesting and important energy resource as the energetic use of biomass only produces the same amount of carbon dioxide (CO₂) as previously withdrawn from the atmosphere by photosynthesis during the growth of plants. Therefore biomass is considered to be largely CO₂-neutral. Moreover, biomass can be applied very flexible and, in contrast to other renewable sources of energy, it is available around the clock regardless of weather conditions. The peculiarity of bioenergy also lies with the broad applicability of the energy products that can be generated and the variety of biomass as a resource and source of energy. Besides the biomass provided agriculturally and silviculturally (e.g. in the form of energy grasses and energy woods), mainly residual materials and waste of biogenic origin are available for energetic use as well.

Among those are:

- animal excrements (liquid manure, feces, dung)
- residual materials from the food and animal feed industry (fruit and vegetable remains, whey, molasses, pomace...)
- biowaste and organic waste (both domestic and industrial)

- crop residues from the agricultural industry (straw, bagasse)
- wood waste (sawdust, pallets, furniture...)
- sewage sludge, digester gas and landfill gas

We are pioneers, technology consultants as well as your experienced partner and problem solver in the field of the processing, refining to biocoal and biofuel or the thermal utilization of biomass and biogenic residual materials, i.e. the entire organic substance accumulated or generated by plants, animals, and humans.

Here we particularly focus on decentralized thermal power plants with cogeneration (CHP) like e.g. biogas plants and biomass power plants, by means of which we can locally supply industrial and commercial areas as well as private homes with electricity and heat in a highly efficient and environmentally friendly way.

Already today, the recovery of energy from locally available biomass significantly contributes to securing the energy supply. Moreover, a decentralized utilization of bioenergy by generating steam/heat and electricity strengthens the local economy and is an attractive point for many users.

We support you in all project phases: from concept development via project planning and execution right up to commissioning and delivery to the customer. With our world-wide experience and our technical expertise from more than 30 years, we ensure optimal solutions from one source for the treatment and energetic use of biomass and biogenic residual materials at all times.

As a company from the Ruhr area, we are familiar with the energy-related challenges of an industrial metropolitan area. However, we also think and act far beyond borders, whereby it is always our goal to act individually and find the best solutions regionally. On the basis of our own operating experiences with biomass-based plants like e.g. biogas plants and biomass power plants, we always develop and implement the optimal power generation, depending on biomass as resource, in a customer-oriented way. With our scope of services, we support industrial as well as municipal customers in the implementation of projects for



the sustainable, highly efficient, and future-oriented provision of electricity, steam, and heat from biomass without having to resort to fossil resources. Our expertise, our innovative strength, and an eye to topics of the future give us and our customers security and competitive advantages.



Project example:

In the context of a GIZ-funded concept study, different approaches for the energetic use of acacia bushes, which threaten approx. 26 to 30 million hectares of Namibian farmland with livestock farming by displacing grazing areas across the country, were analyzed. The entire value chain from the harvesting and treatment via the storage right up to the energetic use of the biomass was considered. Based on these analyses, an expert team of STEAG Energy Services developed various economically interesting solutions like the production of bio-mass-based fuels (wood chips, briquets, pellets, bio-coal) and the implementation of decentralized biomass power plants or innovative hybrid power plants on the basis of biomass and solar thermal energy. Moreover, this project is a good example of how the problem of the increasing distribution of bush plants can be turned into a great economic chance and energy supply for a whole country.

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