Renewable Energy: Energy from Biomass

Factsheet 09

Facts and Figures

Energy from Biomass

Biomass is currently the most important and most versatile renewable energy source in Germany. In general, energy from biomass or bioenergy is the extraction of energy from plants or plant residues, as these use and store solar energy.

Raw materials from which bioenergy can be obtained are, for example, fast-growing woody plants, waste and raw materials from agriculture or industry, or agricultural crops such as rapeseed or maize. The energy can then be obtained through various processes, e.g. physical-chemical processes such as extraction or biochemical conversion processes. The bioenergy itself can then be made available in solid, liquid or gaseous form and used in a variety of ways.

Energy-saving Potential

The available potential for biomass use is clearly limited, so it is estimated that the share of biomass produced in Germany in the German primary energy demand can be increased to a maximum of 10% by 2030. Importing biomass from other EU countries and from overseas seems necessary from this point of view. In 2021, however, bioenergy still accounted for 61%, i.e. the largest share of renewable energies.

Occupational fields & requirements

The fields of occupation in relation to bioenergy are diverse and create many jobs from apprenticeships to engineers, e.g.:

- Engineers and scientists are strongly represented here,
- technicians, electricians, electronics technicians, mechanics and plant manufacturers as well as sales specialists are also in demand

The broad spectrum of requirements goes hand in hand with high training efforts. There are relevant academic courses as well as further training opportunities such as the service specialist biogas.

3 good reasons for the use of biomass in Europe

1. **Diverse application possibilities:** Biomass can be used in many ways, for example for electricity, heat or mobility. It can also be used structurally in textiles or building materials. Converted into biomethane, it can even be fed into the natural gas grid.
2. **Strengthening the regional economy:** Especially in rural areas, it can strengthen the economy. For farmers in particular, it can generate additional income.
3. **Environmental friendliness:** Biomass is considered an alternative to fossil fuels and only releases as much climate-damaging CO_2 as was bound in the plant during growth. Unlike other renewable energies, biomass is not dependent on whether the wind blows or the sun shines. It is renewable and thus regenerative.

Disadvantages of Biomass:

However, biomass is not available in unlimited quantities, as the land for growing the plants is also needed for growing food. This competition for land can also lead to the displacement of small farmers and the loss of valuable ecosystems.

Renewable Energy:
Energy from Biomass in Europe

Factsheet 01

Facts and Figures

3 Country Check on Energy from Biomass

Spain

Currently, only a small part of the available biomass in Spain is used for the production of electricity and biogas, and the production of biogas is also strongly underrepresented in Spain compared to the rest of Europe. However, production could be 60 times higher if all available sources in Spain were used. So Spain offers a hitherto untapped potential here, a lot of money and the construction of more than 2,300 plants would be necessary to reach the absolute maximum potential.
However, in March 2022, the "Hoja de Ruta de Biogás" was published, a roadmap for the development of biogas production in Spain. An increase in production of 3.8 times by 2030 is proposed.

Greece

The natural potential for the bioenergy industry in Greece is high; bioenergy can serve as another important renewable energy source for Greece alongside photovoltaics and wind energy. In 2021, a total of 71 biogas and biomass plants were in operation in Greece.

Slovakia

Due to the weight of agriculture and forestry, Slovakia has relevant residual biomass (estimated at 2.1 million tons DM/year), which could feed into bio-based value chains, including the production of biofuels and intermediates.

Sources:
https://planderecuperacion.gob.es/noticias/el-gobierno-aprueba-la-hoja-de-ruta-del-biogas
https://www.gtai.de/de/trade/spanien/branchen/biomasse-soll-staerker-genutzt-werden-945566
https://www.umweltrat.de/SharedDocs/Downloads/DE/02_Sondergutachten/2004_2008/2007_SG_Biomasse_Buch.pdf?__blob=publicationFile&v=7
https://www.planet-wissen.de/technik/energie/erneuerbare_energien/energie-aus-biomasse-100.html
https://www.energy4climate.nrw/fileadmin/Industrie-Produktion/Der-nachhaltige-Einsatz-von-Biomasse-cr-nrwenergy4climate.pdf
https://www.wilabonn.de/images/PDFs/AFZ/zukunftsberufeerneuerbareenergien.pdf
https://www.german-energy-solutions.de/GES/Redaktion/DE/Publikationen/Marktanalysen/2021/zma-griechenland-2021-erneuerbare-Netzintegration.pdf?__blob=publicationFile&v=6
https://www.etipbioenergy.eu/images/ETIP_B_Fact%20sheet_Slovakia_2021.pdf
https://www.erneuerbare-energien.de/EE/Navigation/DE/Technologien/Bioenergie/bioenergie.html

Supported by:

Federal Ministry for Economic Affairs and Climate Action

European Climate Initiative EUKI

on the basis of a decision by the German Bundestag

This project is part of the European Climate Initiative (EUKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK).'