



BIOGAS PLANT AS A GREEN ENERGY PRODUCER

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INTRODUCTION

The biogas plant uses biogas as its main energy source, which is basically a mixture of combustible and non-combustible gases. Biogas is made by anaerobic fermentation of organic matter. Anaerobic fermentation is the process of decomposition (decay) of organic matter without the presence of air, without the presence of oxygen. In addition to being anaerobic, it is also mesophilic and it is made on about 43°C. The raw material base is a cattle farm, which is an integral part of the system, as well as an agricultural good, within which the plant was built. Biogas is the fuel for the SUS engine that is shaft-connected to the generator(CHP). As an output product, a plant generates two forms of energy - electrical, 999kWh and heat, 1200kW, as well as high-quality organic fertilizer, post-fermentation residue, which, if separated, is divided into liquid and solid phase. The plant delivers electricity to the power system. Heat, which occurs in two forms, hot water in the heat circuit 90/60 and hot air at about 500°C, in equal parts, and about 20% more installed capacity compared to electrical. The process, of course, is heated by own produced heat energy. The rest is available, for the external consumer. The plant is in operation 365 days a year, which means that the process of production and delivery of electricity energy is continuous. The plant is not in operation, only when the grid is in a voltage-free state (island operation is not allowed) and when some of the elements of CHP are planned or emergency out of operation.



Fig. 1. Biogas plant

CONCLUSION

Biogas plants contribute to environmental protection and socio-economic benefits. They represent an indispensable part of a rounded agricultural and energy cycle. They can easily turn useless, unusable into useful. As input, they use substrates and materials, which essentially represent a potential problem and risk for the environment, and as output substrates, they have electrical and other forms of energy. They support the energy stability of the part of the system to which they are connected and strengthen it at the same time. They also represent a source of high-quality organic material that, through long-term application, significantly improves the quality of the soil to which it is applied. In addition to other renewable sources, it is the only renewable source, along with hydro, that has continuity in production.

Key words: biogas, renewable energy, green energy.

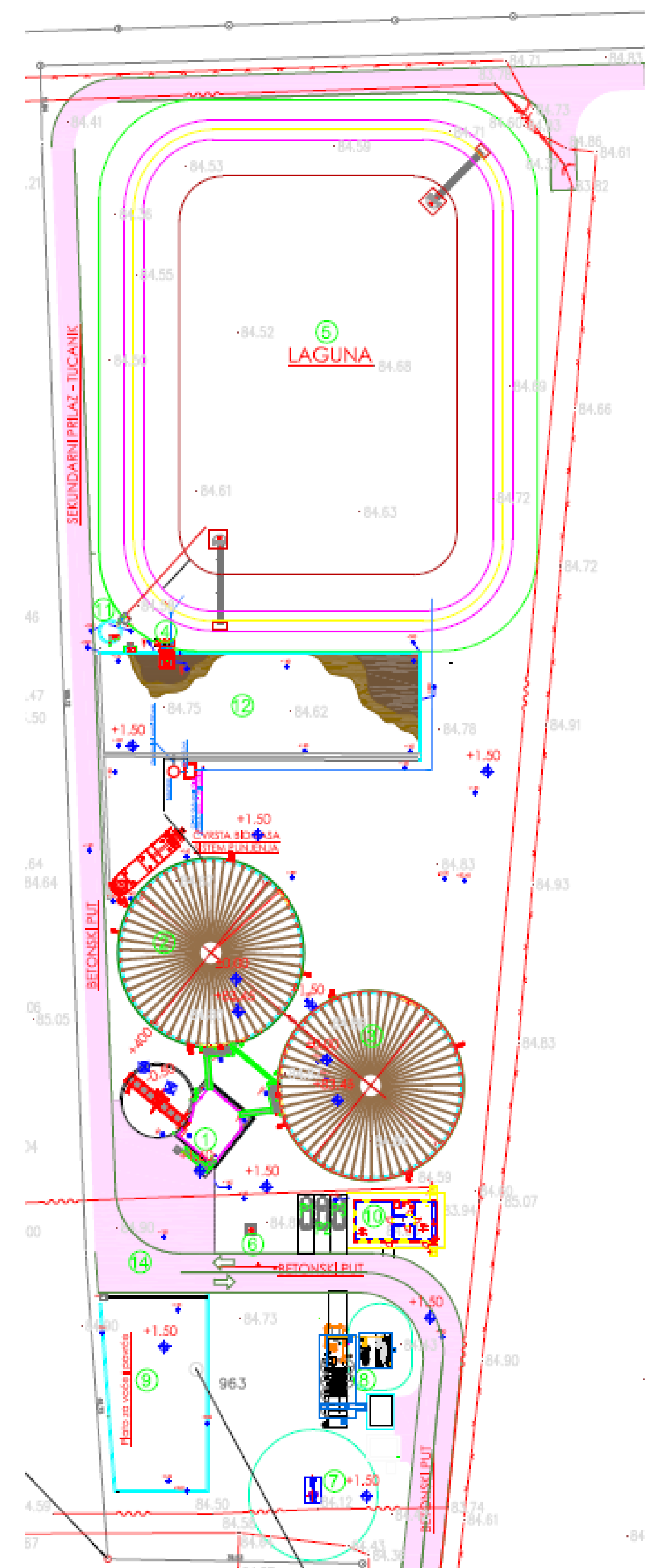


Fig. 2. Structure of a biogas plant