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Energetical Utilization of Landfill Gas

The Earth's hydrocarbon reserves are running low, and in the atmosphere, the greenhouse-effective carbon dioxide volume is significantly increases. Nowadays more and more attention is given to the environmentally friendly, renewable energy sources.

Biogas is a renewable energy source. Biogases can be divided into two groups, the one of the parts is the synthesis gas, what is formed from the partial combustion biomass, and biogas can be formed during fermentation process, one type of these biogases the landfill gas.

In Hungary, getting out the gas, which is forming in the landfills, under the surface, is happening by wells.

In the landfills in 6-7 months start the formation of landfill gas, it reaches its maximum in 6-7 years, and after 6-7 years it slowly decreasing, and after 15-20 years that's not profitable. 40-50% of municipal waste is organic matter, which is anaerobically degradable, during this degradation, gas is forming. In favorable cases, 7-12 m³ of gas per tonne of waste is generated. Getting out the gas can be happened by compressors, and transferred to gas circuit, and after dewatering and cleaning it can be utilized near the landfill.

My work shows the operating system of MIHŐ LTD's biogas plants on Street Bogács and the utilization of forming landfill gas. With landfill gas, housing of Hejőcsaba is heated, near the landfill, replacing significant part of natural gas. Other profit is provided for the company by a gas-motor, which generates power, and one part of this power is used by the company, other part is sold.

In this work, I used measurement results made by MIHŐ LTD, and I appreciate the gas plants on Street Bogács, in point of view quantitative and qualitative, taking into account the closely related heat and electricity generating system.