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GHG SAVINGS CALCULATION: SWITCH FROM ELECTRICITY PRODUCTION TO BIOMETHANE. CASE STUDY

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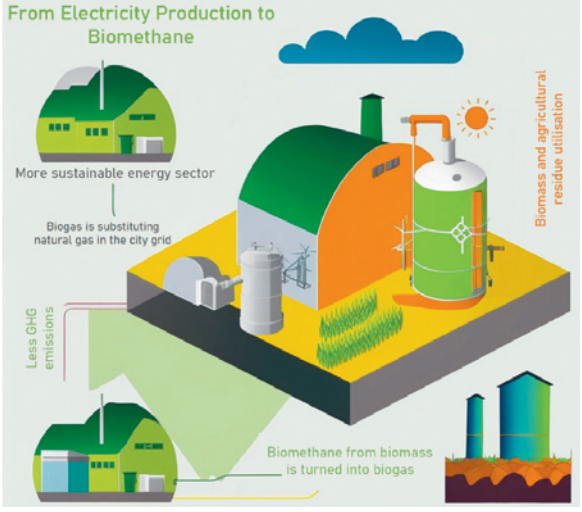
Abstract – Carbon dioxide is one of the main components of greenhouse gases. The amount of anthropogenic CO_2 emissions in the atmosphere reached 37.9 Gt, which is 60 % more than in 1990. The use of CO_2 in the production of valuable products can help to reduce the amount of CO_2 in the atmosphere. Biomethane fuel production could be a successful solution in Latvia as well. The work includes a case study of a Latvian biogas production facility Agro Iecava with a switch from biogas to biomethane production. All calculations are made according to REDcert rules. For biofuel production the Plant uses 13 types of substrates, which is also reflected in the calculation. The work shows a step-by-step algorithm for research and analysis. The experience can be used at other biogas production stations, regardless of its location. The analysis of the Plant shows that switching to biomethane production saves up to 80.34 % of GHG emissions (with an estimated loss during transportation in the network of 1 %). In the worst-case scenario, this amount is 76.34 % (loss from transportation is 5 %), which is also above the minimum indicated in the Renewable Energy Directive.

Keywords – Biogas; biomethane; fuel; GHG; GHG calculation; Latvia



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