

THE SUSTAINABILITY ASSESSMENT OF BIOGAS POWER PLANTS IN TURKEY

Our modern world needs energy more than past due to the increased population and economic growth. Yet, the production of energy is responsible for 87% of global greenhouse gases (GHGs) emissions since 2020. Thus, the planet earth is suffering from the consequences of GHGs causing changes in climate and weather patterns at global and regional scales. Many actions have been taken to stabilize the end of the concentration of GHGs in the atmosphere and to achieve the world's GHG emissions to decline toward net-zero. For example, European Green Deal aims to get net-zero GHG emissions with a circular economy model by 2050. United Nations has released Sustainable Development Goals (SDGs): 17, which demand significant development challenges for all countries. Biogas power plants can be an effective alternative for generating environmentally friendly green energy from organic wastes by reaching the aims of one of the biggest challenges, i.e. net zero-emission and SDGs. Indeed, World Biogas Association demonstrates that the waste global biogas industry can lead countries in effort to reach a 10% percent decrease in GHG emissions by 2030. Despite being limited, our country has also investments on biogas power plants, with a total biogas capacity of 748 MW by 2020. Yet, the implementation of biogas power plants in Turkey face several sustainability challenges. To illustrate, the availability of stable and enough amount of feedstock, the regular maintenance of the digesters, and the management of digestate are some of the challenges. This study is aimed to assess the sustainability of the biogas power plants operating within the Turkey boundary. Surveys, questioning the technical, environmental, and economic situation of each plant to be visited will be prepared and then evaluated with the selected analysis method. The results are expected to reveal the gaps and the opportunities in the biogas sector while presenting the prior actions to take in reaching a sustainable operation.

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