

Halilbeyli Biogas Power Plant, Turkey (6 MW)

Stakeholder Consultation Meeting

Halilbeyli Village, 21th September 2020

Non-Technical Summary of the Project

Over the past decade, the Turkish economy grew at an average rate of 5%, which in turn has been a major driver of energy demand and investment in the Turkish energy market. In July 2017, 34% of Turkish electricity production was obtained from natural gas; 31% from coal; 24% from hydropower; 6% from wind; 2% from geothermal; and 3% from other sources¹. Turkey's reliance on natural gas use has grown along with rising oil and gas imports, leaving the Turkish economy increasingly exposed to the volatility in oil and gas prices². Moreover, agricultural production has been decreasing over the years rapidly due to industrialization, urbanisation and dramatic increase in the costs of inputs for agricultural production. For these reasons, it has prime importance that Turkey is able to generate its own energy and agricultural products. In this context, biogas plants can help both energy and agriculture - animal husbandry sectors.

Purpose of Project

The main objective of the "Halilbeyli Biogas Power Plant" is to provide final disposal of animal manure and agricultural wastes generated from livestock activities in the region and to produce renewable energy and organic fertilizers through biogas technologies.

Halilbeyli is located within the borders of İzmir province; due to its climatic and geographical characteristics, it is a district of intensive agricultural activities. Because of its geographical features and its high share of agricultural land, its economy is also largely based on agricultural and animal husbandry activities. However, with the increase in the number of livestock activities, ensuring the safe disposal of the resulting wastes, animal and human health has become a major problem for the producers.

In the light of the detailed technical feasibility studies carried out by the **Evb Biogaz Enerji Üretim A.Ş.**, an investment in a biogas power plant in Halilbeyli Village in Kemalpaşa district has been decided, for the purpose of utilizing cattle manure and agricultural waste generated in the region. The project involves installation and operation of 6.176 MWm/6.000 MWe biogas plant. The project consists of 4 units whose capacities can be expressed as 4x (1.544 MWm/ 1.500 MWe). The project activity generates annually 42,000 MWh electricity. Comparing with baseline situation for electricity system of Turkey, this amount of electricity generation leads around 95,000 tonnes carbon dioxide emission reduction per year. The license of the project was issued by Energy Market Regulatory Authority (EMRA) on 26/09/2019. The generated energy is being fed to the grid at Bağyurdu transmission line.

Within the scope of the project, a biogas plant was established which operates mainly by using cattle manure. In addition, other agricultural and industrial wastes present around the project site are also fed into the digesters as additional feedstocks in order to enrich the feeding menu of the plant and increase its efficiency.

¹ <https://www.mondaq.com/turkey/renewables/782900/energy-2019>

² <https://www.iea.org/reports/energy-policies-of-iea-countries-turkey-2016-review>

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Most of the waste processed in the facility is provided from the livestock farms around the project site. Cattle manure is transported to the biogas plant by totally confined trailers and sewage trucks, specially designed and manufactured for preventing leaks and smell, and for avoiding pollution in terms of dust and odour.

Contribution to sustainable development

While the animal and agricultural wastes in question are decomposed in anaerobic environment (anaerobic fermentation), the methane gas is converted to heat and electrical energy, eliminating the waste that has become an important problem in the region and decomposing the most important greenhouse gas causing climate change, methane (CH₄), which is transformed into electricity and heat energy. Thanks to the project;

- Animal manure is being safely disposed that prevents environmental pollution and threats to public and animal health;
- The project activity contributes to the reduction of Turkey's dependence on foreign energy sources with renewable energy produced by the disposal of animal, agricultural wastes;
- Solid and liquid organic fertilizers that are produced as a result of anaerobic fermentation has a positive effect for the agricultural activities of Halilbeyli Region.
- Employment in the region has increased with the added economic value due to Project Activity;
- Trainings, seminars and certifications on biogas are being provided to the employees;
- Pollution of ground and surface water resources due to animal and agricultural wastes is being prevented by the project activity;
- The Project Activity reduces greenhouse gas emissions by capturing the methane (CH₄) gas, one of the most important greenhouse gases causing Climate Change, and converting it to electricity and heat energy;
- With the Project Activity, Turkey's greenhouse gas emission inventory will be reduced, thus contributing to the national efforts to combat Climate Change.

For any questions and comments concerning the proposed project, please contact:

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