

GEEP Project – Energy Saving in a Poultry Farm by using Biogas

Chicken farm becomes self-sufficient in energy from chicken manure

The poultry farm has a population of around 500,000 egg layer chickens and around 100,000 broilers for meat. The resulting chicken manure (around 50 tons/day) is stored in lagoons on the site. The aim of this project is to use the chicken manure through the installation of a biodigester, producing biogas that would be used in a special Combined Heat and Power (CHP) generator set to produce the heat and electricity needed on the farm.

Feeding this manure into a biodigester the resulting biogas is of the order of 90 m³/ton of manure with a calorific value of 6 kWh/m³. Burning this biogas in a CHP engine, the generated electrical energy, of the order of 2,500 MWh/year, and heat energy, of the order of 2,700 MWh/year, makes the poultry farm self sufficient in its energy needs. At the same time there is no release of the methane (20 times more harmful than CO₂) into the environment.



The Company

Main activities	Egg and chicken meat
Region	Georgia

Project Goal and Main Investments

Project goals	<ul style="list-style-type: none"> On-site electricity generation by burning biogas On-site heat generation Poultry Farm becoming self sufficient in energy Capture of the greenhouse gases released into the atmosphere from the lagoon storage of the manure
Main investments	<ul style="list-style-type: none"> Installation of a biodigester Installation of a CHP engine Changing the heating system of the farm from gas into hot water
Investment size	Approximately USD 1.8 M

Expected Results

Operational results	<ul style="list-style-type: none"> Self sufficient on electrical energy Self sufficient on thermal energy Selling the excess biogas as fuel for the cars Extra income from the CDM -for 7,000 tones of CO₂ /year Extra income from selling the remaining sludge as fertilizer
Investment profitability	<ul style="list-style-type: none"> Annual savings of almost USD 280,000 Payback period of 5.5 years Over 14% IRR on the investment

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