S.E.R: Supply System of Electric Energy in Rural Environment

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Brazilian livestock accounts for 18.6% of the use of the national territory, due to its impact on the current scenario, I propose to use animal manure for the renewable production of electricity. Thus, this project uses an anaerobic biodigester associated with an engine and battery system, capable of supplying electricity to an entire rural installation. The goals are to produce electricity in a sustainable way, reduce impacts caused by the incorrect disposal of organic waste and reduce the use of non-renewable energy matrices that cause negative impacts on nature. The biogas generated in the biodigester is used as an alternative fuel in an internal combustion engine associated with an electric blender that has been adapted to generate electricity and charge a battery. A voltage inverter was used to convert direct current into alternating current, to make it usable in common establishments. To remove carbon dioxide from the total produced in the biodigester and obtain better methane burning, a chemical filter was produced with sodium hydroxide and water, which reacts with carbon dioxide resulting in sodium carbonate that has industrial utility, closing a sustainable cycle that minimizes the emission of waste into the environment. I conclude, from mathematical projections, that the prototype has a final market cost of about US $ 222 dollars. This cost compared to residential solar panels (valued at $ 2343) becomes a low-cost sustainable solution that can be widely used in rural areas to solve problems such as lack of electricity and high consumption of natural resources.

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