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IMPROVING THE BRAZILIAN ELECTRIC SYSTEM RELIABILITY THROUGH ENERGY FROM WASTE AS A DECENTRALIZED SOLUTION

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ABSTRACT

This paper describes a project to generate electrical energy through heat treatment of solid waste of cities (garbage), using the technology of pyrolysis.

Keywords: waste energy, renewable energy, sustainable development, electrical energy, public health.

INTRODUCTION

It will be demonstrated in this article the technical feasibility of this technology solution economically applied to the Brazilian reality. All this effort aims to establish a sustainable environmental solution for the waste generated by the Brazilian cities, and execute the requirements of the new Brazilian plan solid waste (PNRS). There are other applications of this technology to treat land decontamination, hospital waste and industrial waste, and reverse logistics, which will be developed and evaluated, as new environmental solutions for the implementation of the experimental unit. As a result of this project will generate a benchmark for environmental operation of pyrolysis plants in Brazil, fulfilling regulatory requirements for environmental licensing. This will be the first plant using this technology in commercial operation in Brazil. The implementation of this project will provide for Brazilian cities, an integrated management plan (PMGIRS) for municipal solid waste generated in these locations, so that they can get revenue for the city government, through the sale of electricity generated from waste, and make the correct disposal of municipal solid waste. The result of this project is being understood by the Brazilian Regulatory Agency of Electric Energy (ANEEL), as a new alternative source of power generation, increasing the capacity and reliability for Brazilian energy system. The Brazilian Ministry of Environment sees as an environmental solution to the critical problem of waste in Brazilian cities.

One of the largest generators of electric power in Brazil, known as Eletrobrás Furnas, is along with ANEEL, are funding this research project and experimental development. In view of this company and the regulatory agency, this will be a new source of renewable energy and a new business model, to produce energy in a decentralized manner.

RESULTS AND CONCLUSIONS

The results from project, reported by article, are shown in three issues below:

- Pilot plant operating and validating the heat treatment technology by way of pyrolysis technology, as a solution for waste treatment, decontamination and reverse logistics.
- Terms of environmental reference established to facilitate obtaining environmental licensing to pyrolysis equipment operation, approved by environmental agencies.
- Feasibility of the economic cost of generation of electricity, steam and other applications of synthesis gas, product of heat treatment of MSW(municipal solid waste), through its revenue in green markets and compensation of environmental liabilities.

This study shows that it is technically and economically feasible, the use of municipal solid waste to produce electricity in Brazil, mainly due to Brazilian electric sector's new legislation (mini generation up to 1 MWe)

It creates a new opportunity also to solve the final disposal of urban waste in Brazil.

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