

Renewable Power Generation Opportunity from Municipal Solid Waste: A Case Study of Lagos Metropolis (Nigeria)

Abstract

Renewable power generation is increasingly becoming a well-known phenomenon in our modern society. Various research efforts have been rationalized to prove the benefits that could be derived from the utilization of renewable energy resources for electricity. Though, environmental benefits have been the major focal advantage but in the case of municipal solid waste (MSW), socio-economic impact on the society is possible in the form of saving in land allocation for waste management and income generation. Therefore, this study discusses the concept of waste-to-energy (WTE) management in Lagos metropolis as a case study. Lagos state has 20 administrative Local Government Areas with 16 of them forming the Lagos metropolis. The study also significantly accessed the potential of MSW for power generation considering the route of thermo-chemical conversion as an alternative measure to landfilling and open dumping of waste commonly practice in the metropolis. It was found that approximately 442MWe is possible to be achieved using a population benchmark of over 16 million recorded in the metropolis in 2006. Three major techniques for energy generation from MSW are also discussed. Finally the study was concluded on possible investment issues to enhance the resources utilization for energy purpose.