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Biofuels: An Alternative Resource for Mitigating Primary Energy Shortfalls in Nigeria

C.N. Anyanwu, I.S. Eze, O.U. Oparaku, V.K. Sharma, G. Braccio, L. Contuzzi

Abstract

The present communication examines the techno-economic feasibility of integrating biofuels, particularly biogas, bioethanol and biodiesel into the primary energy mix in Nigeria and dwells on the viability of small, community based electric power plant based on biogas from animal manure as well as size optimization of biodiesel plants in Nigeria. Cost analysis indicates that electricity generation from biogas is environmentally benign and sensible for an integrated farm unit. It is however, not economically feasible in the case of commercial power generation in view of the fact that 1 kWh of biogas derived electric power would cost between €c (12 – 20), which is slightly higher than the present cost of power produced by the state-owned power utility board. Biodiesel plants of more than 20,000 T/y capacity running on cheap vegetable oil feedstocks are associated with relatively lower overall production costs and are likely to be more profitable.