

HYBRIDIZING RENEWABLE ENERGY SYSTEMS IN NIGERIA: A CONTEXTUAL FRAMEWORK FOR THEIR SUSTAINABILITY ASSESSMENT

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ABSTRACT

Humans cannot do without one form of energy or another. Energy is needed to lighten our environment, power our homes, schools, hospitals, offices, businesses, and for industrialization. It is also a known fact that the economic growth of a nation depends on electrical power supply. However, Nigeria has severe electric energy supply problems. Various efforts made by the governments at addressing the problems including privatization of its energy agency are yet to yield desirable outcomes. This study considered independent municipal-based hybridized renewable energy supply system as a feasible alternative. This is premised on the fact that Nigeria is blessed with abundant sunshine all year round. There is also a large vegetative cover all over the country. Although there is no data on the amount and variability of wind in Nigeria, there is a belief that there is also a lot of potential for energy generation from wind. This article is assessing the possibility of hybridizing the various renewable energy sources in Nigeria and evaluating the sustainability of such hybridization. In this study we explored various sources for Nigerian biomass, solar and wind data. We are also examining efforts being made at utilizing these renewable sources for energy production in Nigeria. Furthermore, we are researching various attempts made to hybridize these energy sources for different types of application. We are assessing the sustainability challenges and benefits of hybridizing the various combinations of the renewable energy sources that are abundantly available in Nigeria. We are evaluating these combinations in order to determine the best combination for the region. The study is in progress and it is expected that we will be able to give a good picture on the sustainability of hybridized renewable energy production system in Nigeria.

Keywords: Hybrid energy system, Renewable energy, Sustainable energy.