

The Use of Energy Efficiency and Renewable Energy in Building for Sustainable Development

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Abstract : High energy consumptions of urban settlements in Nigeria are escalating due to strong population growth and migration as a result of crises. The demand for lighting, heating, ventilation and air conditioning (LHVAC) is becoming higher. Conversely, there is a poor electricity supply to both rural and urban settlement in Nigeria. Generators were mostly used in Nigeria as a source of energy for LHVAC. Energy efficiency can be defined as any measure taken to reduce the amount of energy consumed for heating ventilation and air-conditioning (HVAC), and house hold appliances like computers, stoves, refrigerators, televisions etc. The aim of the study was to minimize energy consumption in building through the integration of energy efficiency and renewable energy in building sector. Some of the energy efficient buildings within the study area were identified, the study covers there major cities of Nigeria namely, Abuja, Kaduna and Lagos city. The cost of investment on the energy efficiency and renewable energy was determined and compared with other fossil energy source for conventional building. Findings revealed that the low energy and energy efficient buildings in Nigeria are cheaper than the conventional ones. Based on the finding of the research, construction stake holders are strongly encouraged to abandon the conventional buildings and consider energy efficiency and renewable energy in buildings.

Keywords : energy, efficiency, LHVAC, sustainable development

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