

Alternate Power Source for ICT in Rural Schools of Nigeria: Case Study Enugu State, Nigeria

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In a world of computer based testing, lack of ICT skills shuts one out of the tertiary education and limits one's earning power. Education creates an escape route from poverty. Once there was want of information, today we are drowned in the surge of information. Without the basic computer literacy, one finds it almost difficult to function comfortably in society. Primary educational programs for the rural areas cannot by themselves reach out to all the communities without the basic communication infrastructure that would enable these programs to be conveyed. This work highlights the plight of schools in rural areas where the lack of basic amenities is the order of the day. In order to provide ICT to rural areas the primary focus is rural education with the provision of running an Internet Service in an effort to become self-sustainable. This would in turn ensure the development of a critical mass of rural dwellers, enabling them to benefit from better IT driven education. However, a major problem in rural communities is the unavailability of power which hinders progress in rural education. The lack of electricity in many of these communities makes it more difficult to achieve the proposed goals, some rural areas will probably not have access to the grid for many decades and when they do have erratic supply. A survey was carried for a period of five months from February to July 2015 to determine the number of hours of power supply per day to a particular region Nsukka, Enugu State. Along this line of thinking, we look towards the sun to supply the required energy needs. An important advantage with solar electricity is that it makes electricity available in remote areas; there is no need to wait for the extension of the electric grid to get good light. The investment for a solar electric system is high, and the operating costs are low. The intent is to set-up a stand-alone PV system to meet the power needs for the rural schools taking into consideration the minimal power requirements, and that these systems would become more competitive as the costs would decline with time. In order to convert, store and use the energy in the sunrays as electricity a solar electric system is utilised. Solar energy is converted to electrical energy by solar panel made up of transducers called solar cell. These panels are placed on the top of houses for the purpose of obtaining maximum solar energy. This received energy is temporarily stored in a battery via a charge controller and is finally made available for use through the inverter. With the evident erratic power supply, the necessity for an alternative power supply arises. When the electricity supply is running properly via the 'grid', if available, the schools would use this power. However, in the event of blackout or load shedding on the grid, the system would switch to "off-grid mode" drawing power stored in the battery bank to power the schools and using the solar panels to recharge the battery bank.