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BUCK – BOOST CONVERTER FOR EFFICIENT UTILIZATION OF SOLAR PHOTO VOLTAIC ENERGY FOR MULTIPLE UTILITIES

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Abstract

In the present world, nearly 1.5 billion people i.e. more than 1/4th of world's population have no access to the electricity. About 85% of the world's population lives in the villages. As said by the international energy agency the need for energy would increase by 50% more than the present. India being highly populated, the requirement of power is increasing continuously. India is being expected to be the 2nd largest energy consumer by 2025. At present the source for 70% of the power generation in India is coal.Standard of economy of any country is indicated by the percapita utilization of electrical energy. Conventional sources like coal and oil are causing global warming in addition to scarcity and increase in cost. Renewable sources like hydal and wind vary seasonally. In a tropical country like India, exploring solar Photo Voltaic based applications gives advantage of availability of 8 hours a day for more than 9 months in a year. Output of Photo Voltaic cells is dc and stored in battery. As the conventional electric supply system is ac based, Inverter & Step up converters are used. At the utilization level, most of these loads require rectification and step down of voltage levels. Increase in the number of stages of conversion increases complexity, cost and reduces overall efficiency. This Paper proposes to improve the efficient utilization of renewable energy by a single stage converter known as Buck –Boost converter. This converter can provide a wide range of voltage that can be utilized for huge number of applications. Thus thereby reducing the transmission and distribution costs.

Keywords : Photo Voltaic, Buck Boost converter, PWM, Microcontroller

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