

COMPARATIVE ANALYSIS OF INTERLEAVED BOOST CONVERTER AND CUK CONVERTER FOR SOLAR POWERED BLDC MOTOR

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ABSTRACT

The global electrical energy consumption is ascending rate, in order to meet the growing demand, there is a need to increase the power generation capacity. Nowadays, solar energy plays an important role due to limited availability of fossil fuels. The efficiency of PV is very low and power output mainly depends on solar insulation level. DC-DC converters play a vital role in many applications such as Solar Electric Vehicle, Solar Water Pumping, which mainly required boosting the lower input voltage. In order to boost the input voltage to BLDC motor and its efficient operation, various DC-DC converter topologies are used. This paper deals with two such topologies such as interleaved boost converters and CUK converter. The comparison has been made between these two topologies based on the performance of converters with resistive load, with BLDC motor and the effect of irradiance. The performance of the system has been validated using MATLAB/Simulink

KEYWORDS: BLDC Motor, CUK Converter, Interleaved Boost Converter, PV Array