

DESIGNING AND SIMULATION THE STABLE COMPENSATION NETWORKS FOR BUCK BOOST CONVERTER FOR WIND ENERGY SYSTEM FOR LOW POWER APPLICATION

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ABSTRACT

Because of combustion of fossil fuels global warming caused by environmental problems, the raising prices of crude oils and natural gases. They promote continuous effort to improve energy system and its efficiency. There is a need to search for abundant and clean energy sources due to the depleted and increasing prices of oil. Wind energy acts as an alternative renewable energy source.

Wind energy is used as renewable energy system. Wind generator is used to generate ac voltages. This ac voltage is given to rectifier and then to Buck boost converter. The buck boost converter output is given to battery to inverter and load. Buck boost converter gives constant output which will control by PWM controller and feedback control system. Feedback control system has compensation network with different types and parameters. Depending upon parameters and controlling method, we have to decide stability analysis using Bode Plot. This analysis is carried out by using MATLAB software.

It will be used to design buck boost converter with different parameters which gives constant output. It is helpful for optimizing feedback-loop design for the best transient response while maintaining a comfortable margin for stability. Design for highest gain and bandwidth feedback loop. It is useful to study different controlling methods and comparison. It is used to select switching frequency, power inductor, selecting capacitors and verify the quality of the output voltage, harmonic content of the output voltage.

KEYWORDS: Buck Boost Converter, Compensation Network, Design Parameters, Stability, Wind Energy Conversion System