Comparison Between Boost and Quadratic Boost Converter for MPPT Technique

Dekar Wangchuk[1]*, Tshering Choden[2], Tandin Tshewang[3], Sonam Dorji[4]
[1,2,3] Student, Department of Electrical Engineering, Jigme Namgyel Engineering College, Royal University of Bhutan
[4] Lecturer, Department of Electrical Engineering, Jigme Namgyel Engineering College, Royal University of Bhutan
* jnec05150002@jnec.edu.bt

***Abstract*—Maximum power point tracking techniques are used to extract maximum output power from the photovoltaic panel. The output power of the array changes with change in insolation and atmospheric temperature. In this paper boost converter and quadratic boost converter is simulated with different duty cycles and the results are compared. Then Perturb and Observe MPPT technique is proposed for boost and quadratic converter to increase the efficiency of the photovoltaic system. The main objective is to trace the maximum power point of the photovoltaic module in order to extract the maximum possible power from the photovoltaic. The proposed technique is simulated using MATLAB/Simulink at dynamic insolation and temperature. The comparison is made on both the system employing different dc-dc converter.**

Keywords—boost converter, MPPT, Perturb and Observe, quadratic boost converter, solar photovoltaic (PV).