A Simple Power Electronic Interface for Grid Connected PV System Using Multilevel Inverter with Hysteresis Current Control

C.Maria Jenisha
Department of Electrical and Electronics Engineering,
National Institute of Technology, Tiruchirappalli,
Tamilnadu, India
mariajenisha91@gmail.com

N. Ammasai Gounden
Department of Electrical and Electronics Engineering,
National Institute of Technology, Tiruchirappalli,
Tamilnadu, India
ammas@nitt.edu

D.R. Binu Ben Jose
School of Electrical Engineering,
VIT University,
Chennai, Tamilnadu, India
binu418@gmail.com

T. Saigopal
Department of Electrical and Electronics Engineering,
National Institute of Technology, Tiruchirappalli,
Tamilnadu, India
saigopal88@gmail.com

***Abstract*-A power electronic interface for grid connected photovoltaic (PV) system using boost converter and multilevel inverter (MLI) has been proposed. The variable dc voltage of the PV array ranging from 60V to 80V is fed as input to the boost converter and the duty ratio of the boost converter is adjusted to obtain the required output voltage of 175V. The boosted voltage of the PV array is given to the MLI, which has the advantage of reduced number of switches. The triggering pulses for IGBT switches in the MLI are given by using Hysteresis Current Controller (HCC) technique. This control strategy is effective to make grid current sinusoidal and to achieve unity power factor. The proposed scheme is simulated in MATLAB/Simulink and the results are presented. Experimental model of this scheme is developed and the results are compared. This work uses 5 PV panels of 21V, 5A each in series.**

***Index Terms*- Grid connected Multilevel Inverter, Hysteresis Current Controller, PV array.**

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