Implementation of MPPT Algorithm for Grid Connected PV Module with IC and P&O Method

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Abstract : In recent years, the use of renewable energy resources instead of pollutant fossil fuels and other forms has increased. Photovoltaic generation is becoming increasingly important as a renewable resource since it does not cause in fuel costs, pollution, maintenance, and emitting noise compared with other alternatives used in power applications. In this paper, Perturb and Observe and Incremental Conductance methods are used to improve energy conversion efficiency under different environmental conditions. PI controllers are used to control easily DC-link voltage, active and reactive currents. The whole system is simulated under standard climatic conditions (1000 W/m2, 250C) in MATLAB and the irradiance is varied from 1000 W/m2 to 300 W/m2. The use of PI controller makes it easy to directly control the power of the grid connected PV system. Finally the validity of the system will be verified through the simulations in MATLAB/Simulink environment.