Abstract

Wind is the most promising renewable source. However its erratic behavior hampers the output especially when the energy generated is to be stored safely and used as per demands. The paper reveals the charging battery with maximum power point tracking (MPPT) considering battery safety. The main task of wind power charge controller is to control the flow of charge to and from the battery and protect it from over charging and deep discharging. It regulates flow of charge by monitoring the battery voltage and wind variations continuously. The charge controller developed takes care of weak winds while battery charging and improves the efficiency. Upon fully charging the charge controller disconnects the battery from wind panel to avoid excess charging thus the battery life is increased. Further the performance of the wind charge controller is evaluated and the results show that use of PWM technique with MPPT increases the efficiency of charge controller up to 92% under different laboratory conditions as compared to normal charge controllers without MPPT having efficiencies up to 52 to 60%.

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