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A REVIEW ON IMPROVEMENT OF POWER CONTROL METHOD IN MICRO GRID FED BY RENEWABLE ENERGY GENERATING SOURCES

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ABSTRACT

Micro grids are quickly becoming a great success for the future of electricity. The notion of the micro grid combines several micro sources without interfering with the functioning of the larger utility grid. The DC and AC networks of this hybrid Micro grid are powered by photovoltaic and wind generators. Both AC and DC Micro grids may couple with energy storage devices. A micro grid powered by a combination of renewable energy sources, such as wind and solar is shown and controlled in this project. The wind energy conversion machine is a doubly fed induction generator (DFIG), and it is coupled to a battery bank through a DC bus. Solar power is efficiently converted utilizing a DC-DC boost converter from a solar photovoltaic (PV) array and then evacuated at the common DC bus of DFIG. With the line side converter's droop characteristics implemented, voltage and frequency may be regulated using an indirect vector control. A battery's energy level is monitored, and the frequency set point is adjusted accordingly to prevent excessive charging or discharging. When wind power is not available, the system can still function. Maximum power point tracking (MPPT) is a feature of the control algorithm used by both wind and solar energy blocks. All conceivable operational scenarios have been accounted for in the system's design, making it fully autonomous. An external power supply is included into the system and may be used to charge the batteries whenever needed. The feasibility of wind and solar energy, imbalanced and nonlinear loads, and a depleted battery are only some of the scenarios simulated in this paper, along with the corresponding simulation findings.

KEYWORDS: *Battery Energy Storage (BES) System, Micro Grid, Power Quality, RenewableEnergy (RE) System, Solar PV Energy, Wind Energy*

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