SIMULATION OF A SINGLE PHASE INTER-TIE GRID CONNECTED INVERTER

This project report is presented in partial fulfillment for award of the Bachelor of Electrical Engineering (Hons)

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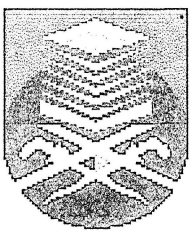

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ABSTRACT

This thesis presented a report on the performance of the grid connected inter-tie inverter. The information reported in this thesis includes the detailed analysis on the simulation progress based on the bridge topology using the PSIM simulation software. The system utilizes a single phase grid-connected inverter which can draw power from a solar energy input to be interfaced with 240V and 50Hz frequency as indicated in Malaysia.

The output voltage of the topologies required must be in sinusoidal waveform using the IGBT's as the power switching devices implemented through photovoltaic (PV) single-phase grid-connected inverter topologies, based on the bridge topology. In the same time, issues regarding to the output voltage and current with related to time at certain modulation index also being discussed.

The relationship and consequences of the inverter operating in both lead and lagging modes are demonstrated by using phase shift technique. The arguments are supported by the relationship between power and phase angle displacement.

Finally, this thesis also outlines the issues regarding with the operation of inverter using phase shift techniques, investigate on the Total Harmonics Distortion (THD), the incorporation of the filter and the feedback element which is Proportional Integrator (PI) and the limiter. The arguments are supported and verified using the PSIM simulation software.

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