ABSTRACT

Changes in the electrical load in the interconnection system can cause the

voltages between the sources to oscillate, so that each voltage becomes out of sync.

Furthermore, the result is power losses in the system. Therefore, in an

interconnection system between power sources, voltage synchronization between

sources is required. In addition to maintaining system stability, it is necessary to

monitor and control voltage synchronization in the interconnection system between

PV sources and existing sources (PLN).

For photovoltaic systems, the generated power can be used to operate various

types of loads. Utilization of electrical energy through a photovoltaic (PV) system

using a PV panel array capable of converting solar energy into electrical energy.

Such systems are inexpensive and more reliable than other generating systems. PV

Systems are suitable for applications such as battery charging, lighting and water

pumping in remote areas. Solar energy charges the battery (DC supply) which in

turn is connected to a DC-AC inverter which finally operates AC load. The function

of the inverter is to convert the voltage and current waveforms from the battery

bank or from PV to a pure sinusoidal voltage that follows the amplitude, frequency

and voltage of the grid voltage.

In this Final Project research, it has been able to create a prototype of a PV

inverter - Grid voltage synchronization monitoring system for changes in load

which can result in PV voltage oscillation with the Grid (PLN) so that it becomes

out of sync. With the condition of the prototype that has been made, the results

show that the monitoring of the voltage frequency between the grid and the PV is

synchronous.

Keywords: Monitoring, PV, Grid, Voltage.

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