

ABSTRACT

At present electricity is a very important thing for human life. With the phenomenon, currently the Indonesian people on average still use the National Electricity Company (PLN) as the main electricity in their homes. While most of the energy used by PLN comes from non-renewable energy. As is well known, non-renewable energy uses coal. In the future, the use of electricity in the community will be even greater to meet daily needs. And energy from coal is getting thinner. From these conditions, it is necessary to make electricity savings so that the energy use on earth is not wasted.

Photovoltaic technology that converts direct sunlight into electrical energy using semiconductor materials called solar cells (solar cells) is one option that can replace electrical energy sources in Indonesia. Electrical energy available at home certainly has a power capacity that can be received by PLN. Then solar panels are added as the second energy source after PLN. From these conditions, it is necessary to make smart switching as a tool to convert electrical energy automatically as a new way to reduce energy from coal with an electric power supply system on grid. This tool can measure battery usage in real time and AC load in real time to provide information about the use of electric power and in this system provides a choice of energy sources to be used, such as PLN or batteries connected to the inverter automatically. This tool is designed to be able to prevent battery damage because the battery DOD used is 70%.

Keywords : *Electrical energy, Photovoltaic, AC load, measurement system, smart switching.*