

ABSTRACT

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Study Program : Electrical Engineering
Title : Parallel PLTS Modeling for the At-Taufiq Al-Islamy Islamic Boarding School Hall Building, Tasikmalaya City

Parallel Solar Power Generation (PLTS) modeling for the electrical energy needs of the At-Taufiq Islamic Boarding School Hall Building is carried out using a manual calculation of Power requirements. The amount of Power requirement is measured directly at the location and is carried out per day, and simulation trials are carried out using the superposition method. This method is done by testing the voltage sources one by one and then combined. collecting data, namely data on potential solar radiation and load data in the At-Taufiq Islamic Boarding School Hall Building, Tasikmalaya City. Load consumption measurement data within one day. After the data and variables that support the simulation. And determined the configuration and planning of the PV mini-grid system that was simulated using Simulink. The first Simulink modeling is done by measuring PV. The type of PV used in the simulation is PolyCrystalline. With the Canadian Solar CS5A PV module which has a Maximum Power specification of 200.09 Watt. Has 72 Cells per module. And able to issue a voltage at a maximum point of 37.4 Volts. The current that can be issued in this module is 5.35 A. The simulation is carried out based on what is shown in Figure 4.3 with an irradiation of 1000 m²/day and a temperature of 25oC. Calculations using the linear regression method in determining the total Power requirement of the At-Taufiq Al-Islamy Islamic Boarding School Hall Building for the next 10 years, the results show that in the next 10 years the total Power required for the Hall Building tends to increase by 7.43%, the modeling results are in the form of graphs. measuring voltage, current and Power from PLN and from PLTS. The graph of the PLN measurement has a voltage of 220 Volts, 18 A, and 4000 watts. For the results of PLTS obtained results of 200 Volts, 15 A and 3000 Watts.

Keywords: Linear Regression , PLN, PLTS, PV Canadian Solar CS5A, Simulink, Solar Radiation Potential