ABSTRACT

Photovoltaic (PV) power output prediction is an activity that is used to determine the power output of PV in the future. The importance of this activity is that it can be a reference for reducing generation costs and scheduling maintenance plans for Solar Power Plants (PLTS).

In this final project, a system is designed that is used to predict short-term power output in PV. This system uses solar irradiation data and 42 days of power output in off-grid PV mini-grid as the dataset. The dataset obtained from the PV output is processed using the Support Vector Machine method with a Radial Basis Function (RBF) kernel. Based on the dataset used, this study succeeded in testing the best kernel, namely the RBF kernel because it got a smaller error error value than other kernel tests with a Mean Absolute Percentage Error (MAPE) value of 21.082%, Mean Absolute Error (MSE) a value of 0.122, Root Mean Square Error (RMSE) got a value of 0.349 and Mean Absolute Error (MAE) got a value of 0.262.

Kernel testing predicts PV power output for the next 3 days. Using the Support Vector Machine model, with the RBF kernel. This model has a MAPE error value of 5.785 %, MAE of 0.005, MSE of 0.069, and RMSE of 0.063. Therefore, this model can be categorized as very good and feasible to predict short-term power output, namely the next 3 days.

Keywords: Prediction, PLTS off grid, short term, Support Vector Machine.