

Estimation of Solar Radiation Power Using Reference Evaluation of Solar Transmittance, 2 Bands Model: Case Study of Semarang, Central Java, Indonesia

Authors : Benedictus Asriparusa

Abstract : Solar radiation is a green renewable energy which has the potential to answer the needs of energy problems on the period. Knowing how to estimate the strength of the solar radiation force may be one solution of sustainable energy development in an integrated manner. Unfortunately, a fairly extensive area of Indonesia is still very low availability of solar radiation data. Therefore, we need a method to estimate the exact strength of solar radiation. In this study, author used a model Reference Evaluation of Solar Transmittance, 2 Bands (REST 2). Validation of REST 2 model has been performed in Spain, India, Colorado, Saudi Arabia, and several other areas. But it is not widely used in Indonesia. Indonesian region study area is represented by the area of Semarang, Central Java. Solar radiation values estimated using REST 2 model was then verified by field data and gives average RMSE value of 6.53%. Based on the value, it can be concluded that the model REST 2 can be used to estimate the value of solar radiation in clear sky conditions in parts of Indonesia.

Keywords : estimation, solar radiation power, REST 2, solar transmittance

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020