

Modeling and Simulation of a Hybrid System Solar Panel and Wind Turbine in the Quingeo Heritage Center in Ecuador

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Abstract : In this article, we present the modeling, simulations, and energy conversion analysis of the solar-wind system for the Quingeo Heritage Center in Ecuador. A numerical model was constructed based on the 19 equations, it was coded in MATLAB R2017a, and the results were compared with the experimental data of the site. The model is built with the purpose of using it as a computer development for the optimization of resources and designs of hybrid systems in the Parish of Quingeo and its surroundings. The model obtained a fairly similar pattern compared to the data and curves obtained in the field experimentally and detailed in manuscript. It is important to indicate that this analysis has been carried out so that in the near future one or two of these power generation systems can be exploited in a massive way according to the budget assigned by the Parish GAD of Quingeo or other national or international organizations with the purpose of preserving this unique colonial helmet in Ecuador.

Keywords : hybrid system, wind turbine, modeling, simulation, Smart Grid, Quingeo Azuay Ecuador

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