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STOCHASTIC MODELLING OF A HYBRID RENEWABLE ENERGY SYSTEM

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Abstract

This paper discusses the issue of modelling a hybrid renewable energy system for a micro-grid connected to a bulk power system. The objective of the work is to create a tool for assessing the feasibility of an energy hybrid system operation with an appropriate control strategy to ensure its efficiency. A hybrid of a solar, a wind and an energy storage device was examined. The integrated model uses statistical indices of solar irradiation and wind speed data to simulate power flow in the system. As the microgrid load demand is variable, power interchange with the

bulk power system is managed by a power system supervisor. The control strategy and the load profile of the microgrid must be used to estimate the correct size of the hybrid system storage system. The proposed model was subjected to a case study. References 9, figures 8.

Key words: Modelling, microgrid, hybrid energy system.

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