Fayoum University

Faculty of Engineering

Department of Electrical Engineering

جامعة الفيوم

كلية الهندسة

قسم الهندسة الكهربية

البحث الثامن

Saber M. Saleh, Asmaa S. Farag, Evaluation of the Control Strategy Performance for Isolated Variable-Speed Wind Turbine Using Different Wind Speed Models at Different Load Cases under Balanced/Unbalanced Excitation, European Journal of Electrical Engineering, Vol. 12, No. 4, August, 2019, pp. 341-353. https://doi.org/10.18280/ejee.210401

المحتويات:

➢ بيانات عن البحث (مكان النشر،.....الخ)

➢ ملخص البحث باللغة الإنجليزية

➢ ملخص البحث باللغة العربية

➢ نسخة البحث المنشورة

بيانات عن البحث الثامن

Paper Title	Evaluation of the Control Strategy Performance for Isolated Variable-Speed Wind Turbine Using Different Wind Speed Models at Different Load Cases under Balanced/Unbalanced Excitation		عنوان البحث
No of Authors	**2**		عدد المؤلفين
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ملخص البحث الثامن

ملخص البحث باللغة الإنجليزية :

The evaluation of the proposed control strategy performance is needed to ensure that, it is applicable. This paper presents a complete control strategy for region two and region three of a stand-alone SEIG driven by a VSWT. This strategy evaluated using realistic and random wind model at different load cases under balanced/unbalanced excitation. In region two for speed range from cut-in to rated speed, the MPPT using torque control strategy is used, while in region three for speed from rated speed to cut-out, pitch control using gain scheduling PI controller is used. Comparison between conventional and gain scheduling PI is presented. For pitch control to clarify the pitch angle required for each speed, a step function is used. The realistic wind speed, the wind turbine, and the SEIG models have been simulated by using the MATLAB/SIMULINK program based on the dynamic equations of each model. The influence of the speed variation on the steady state generated voltage and the rotor speed are studied. A dynamic study indicates that the proposed strategy is stable, fulfillment, and reliable for real time applications.