JEEE-U (Journal of Electrical and Electronic Engineering-UMSIDA)
Vol 6 No 1 (2022): April, 40-51
Electrical Power Engineering

Pitch Angle Design with Tunning Bat Algorithm (BA) on Wind Turbine Using PID Controller

Desain Pitch Angle dengan Tunning Bat Algorithm (BA) pada Wind Turbine Menggunakan PID Controller

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Increased national economic growth has an impact on increasing electricity consumption in Indonesia every year. If the supply of electricity is not fulfilled and is not in line with the huge needs of the community, it will become a problem. The state must meet the demands for continuous and quality electrical energy needs. In general, coal is a primary energy source that is used as the basic material for power plants operating in Indonesia, coal is a fossil energy source that cannot be renewed and will someday experience a reduction, therefore alternative energy sources for power generation need to be considered. Alternative energy sources such as solar energy, bio gas energy, water flow energy, wind energy. Wind is a renewable natural resource, using the principle of energy conversion, namely by converting wind energy into electrical energy. Artificial Intelligent (AI)-based intelligent control has developed a lot to improve conventional controls to control so that the output voltage is always rated constant at varying loads. From the trials conducted, the results of the running program showed that the tunning system using the BA method obtained the most optimal and stable torque value of 1.04 - 4.75 Nm A_Peak when compared to the standard PID and PID_ZN methods.

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