

عنوان مقاله:

A MATLAB / SIMULINK BASED FAULT ANALYSIS OF SMALL HYDROPOWER PLANT

محل انتشار:

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خلاصه مقاله:

ABSTRACT Renewable Energy Sources (RES) are well – defined as energy sources, that are in abundance within the natural surroundings and are much inexhaustible. In addition, hydroelectricity (HE) is a vital part of world renewable energy supply and hydropower remains a bulk source of electricity generation because of its environmental friendliness in nature. Modeling is the analysis of the non-linear models which represents the fundamental parts of the hydropower plant (governor, turbine, servomotor). This paper studies accurate and elaborate hydraulic turbine and governor models and its implementation in MATLAB/Simulink combined with the Simscape Power Systems (SPS). An effort has been created to develop a plant model and examine the suitability of controllers during a governor model for fault incidence within the system by means Simulink based simulation. The Ziegler– Nichols tuning methodology was applied for specifying the gain coefficients of the governor (PID-PI) under 50% of load demand from the plant. Also, MATLAB/Simulink gave the chance to record and compare the figures of the plant with PID & PI controllers through simulation tests within the commonest cases (three-phase fault, load demand variation) with a view of finding out the potency and therefore the stability of the system.

کلمات کلیدی:

Renewable energy, hydroelectricity, fault incidence, PID & PI controller

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