STEADY STATE ANALYSIS OF SELF-EXCITED INDUCTION GENERATOR

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ABSTRACT

Induction generators are increasingly used in non-conventional energy systems such as wind, mini/micro hydro etc. In isolated systems, squirrel cage induction generators with capacitor excitation, known as self-excited induction generators (SEIG), are very popular. Steady state analysis for such machines is essential to estimate the behavoir under actual operating conditions. A 5.5KW induction machine excited with symmetrical capacitor bank and loaded with resistive or resistive-inductive load was the subject of investigation. A simple mathematical model is proposed to compute the steady-state performance of self-excited induction generator by nodal admittance model. MATLAB programming is used to solve the proposed model. The results confirms the validity and accuracy of the MATLAB based modeling of self-excited induction generator.

KEYWORDS: Admittance Model, Magnetizing Reactance, MATLAB, Steady State Analysis, Self-Excited Induction Generator