Abstract

This paper presents a terminal voltage control of a wind turbine Self Excited Induction Generator (SEIG). The wind turbine induction generator system is proposed to supply an isolated static load under widely varying conditions. The terminal voltage had been regulated by adapting the value of the excitation capacitance from Static VAR Compensator (SVC) using Artificial Neural Network (ANN) controller. The wind turbine operates over a wide range of
operating conditions, which means that the terminal voltage of the induction generator is not constant. Changing the value of excitation capacitance by controlling the firing angle of SVC under different operating conditions can handle this problem. It is proved that SVC in the form of Fixed Capacitor—Thyristor Controlled Reactor (FC-TCR) is used not only provide capacitive excitation for the isolated induction generator, but also it controls its terminal voltage at all different loads with variable speeds of the windmill prime-mover. ANN is used for on-line prediction of the suitable firing angles required to control the terminal voltage of the system under different operating conditions.

Reference

- “Static VAR compensator”, Technical report of task force 2,CIGRE,1986
Control of Self Excited Induction Generator using ANN based SVC


Index Terms

Computer Science

Power Systems

Key words

Self Excited Induction Generator

Static VAR Compensator

Artificial Neural Network