DESIGN AND DEVELOPMENT OF PERMANENT MAGNET SYNCHRONOUS GENERATOR (PMSG) BASED ON SVPWM TECHNIQUES USING WIND ENERGY SYSTEM

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ABSTRACT
The aim of this paper is analyze the Variable Speed Wind Turbine (VSWT) configuration is the dominant wind turbine topology available at this moment on the market. To study the performance and analysis of vector control on large wind turbines with the advance of power electronics technology for Permanent Magnet Synchronous Generator (PMSG). The Permanent Magnet Synchronous Generator (PMSG) offers better performance than other generators because of its higher efficiency and less maintenance since they don’t have rotor current and can be used without gearbox, which also implies a reduction of the weight of the nacelle and reduction of costs. The Variable Speed Wind Turbine (VSWT) generator consists of another three parts: wind speed, wind turbine and drive train. The verification study demonstrated the correct implementation of FAST’s furling dynamics. The whole Wind Turbine Synchronous Generator has been implemented in Matlab.

KEYWORDS: Permanent Magnet Synchronous Generator (PMSG), Variable Speed Wind Turbine (VSWT), Pulse Width Modulation (PWM)

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