

ANALYSIS OF REDUCTION OF COGGING TORQUE VALUE USING THE SLOT SKEWING METHOD IN FRACTIONAL SLOT NUMBER (FSN) GENERATORS

Wika Abdi Darmawan

5190711008

Electrical Engineering Study Program, Faculty of Science & Technology

University of Technology Yogyakarta

Jl. Ringroad Utara Jombor Sleman Yogyakarta

E-mail : email.mahasiswa@gmail.com

ABSTRACT

The need for electrical energy continues to increase along with population growth. the use of new and renewable energy is very important to be encouraged to support electricity needs. One of them is by utilizing wind energy. Wind can be used to drive a turbine which is coupled to a generator. Permanent magnet synchronous generator (PMSG) is a type of generator that is often used in the utilization of wind energy. The main components of the PMSG consist of three components, namely the stator, rotor and permanent magnet. The interaction between the components causes ripple or often called the cogging phenomenon. Cogging is what makes PMSG not work perfectly. This study discusses the effect of shifting the rotor angle on PMSG which is commonly called the slot skewing method on decreasing the value of cogging torque on PMSG and increasing the percentage efficiency of the fractional slot number type generator. Silicon steel, Permanent magnet synchronous generator 24 slots 10 poles (PMSG 24s10p). The result of decreasing the cogging torque value obtained is 0.22 Nm with the addition of the slot skewing parameter. The efficiency percentage value also increased by 10-14% after a shift in the rotor angle of 150 which is the slot skewing parameter

Keyword: *PMSG, Slot Skewing, Efficiency and Cogging torque*