



**DESIGN AND IMPLEMENTATION OF PREDICTIVE
CONTROLLERS ON THE RECTIFIER AND QUASI IMPEDANCE-
SOURCE INVERTER IN A WIND ENERGY CONVERSION SYSTEM
BASED ON PERMANENT MAGNET SYNCHRONOUS
GENERATOR**

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Abstract - Two controllers are proposed in this paper. These controllers have been designed and implemented on the rectifier and quasi impedance-source inverter (QZSI) in the wind energy conversion system based on permanent magnet synchronous generator (PMSG). Model based predictive control strategy (MBPC) has been used at the proposed design for both controllers. Control of parameters such as load current, inductor current and capacitor voltage are the major aim of design of predictive controllers; hence; two cost function (CF) are employed to realize this subject which in those exist objective controls. The MATLAB-simulation and experimental results show that the predictive controllers can be robust and effective in controlling the desired parameters.

Index terms: Predictive Control, Wind Energy, Permanent Magnet Synchronous Generator, Rectifier, Quasi Impedance-Source Inverter.