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SIMULATION OF THE ELECTRIC POWER GENERATION SYSTEM ON THE BASIS OF DFIG WITH ACTIVE FILTRING CAPABILITITES AND REACTIVE POWER COMPENSATION

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New approaches to reactive power compensation and simultaneous active filtration in the doubly-fed induction machine (DFIM) are considered. The proposed control algorithms are applied to the DFIM with a stator directly connected to the network, and the rotor connected to the network through a converter with a bi-directional energy flow. The main algorithm for controlling the DFIM is primarily aimed at obtaining maximum power at a variable wind speed. Depending on the power of the converter, the power quality can be improved by compensating the reactive power and harmonics of the current of the network. The control of the rotor inverter is aimed at solving the problems of producing the maximum active power captured by the wind

and improving the quality of energy. The control of the line side inverter has the goal of ensuring a smooth control of the voltage in the DC link and providing sinusoidal current in the network. The simulation results indicate that the generation system can operate at its optimal point, and energy quality can be improved. References 8, figures 4, table 1.

Key words: vector control, doubly-fed induction machine, active filtration, reactive power.

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