Development of mathematical models of active power and voltage regulators of wind-driven power plant

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Algorithms for regulating active power and voltage of the wind-driven power plant connected to an electric power system are proposed. Electrical part of the wind-driven power plant consists of the synchronous generator with excitation from permanent magnets, the rectifier with artificial switching of valves and the autonomous voltage inverter. The developed automatic regulators complement the inverter control system. The operational efficiency of the proposed regulators in a wide range of rotation speeds of the wind turbine is shown.

Keywords: active power regulator, voltage regulator, autonomous voltage inverter, wind-driven power plant, wind electrical power station.