

## **The technical-operating features of the parallel work of the wind power plant (WPP) and the powerful energy system.**

*Ivanov S. A., Kuznetsov A. A., Seleznev Y. G., Pershikov G. A.*

Based on the market research of the wind power equipment, with conditions of the middle-power wind loads for WPP with a capacity of 30 MW the wind turbines with direct drive Lagerway type L100-2.5 MW with a rated power of 2500 kW were proposed for installation. As well as a potential limitation of production of the reactive power (VAR) by operation of the considered type of WPP has been justified.

There were also considered possibilities of operating the WPP converters as sources of the reactive power with the function of reducing the active power losses in the network. Based on the calculations of steady-state conditions in the equivalent power transmission system have been obtained the dependencies reflecting the connection between distance of the high-voltage power line 35 kV and the input bus bars of the substation of the power system, normalized economic current density when choosing power lines wires and restrictions on the output of reactive power of wind farms.

*Keywords: Distributed generation, reactive power, wind turbines, circuit solutions, active power losses, economic current density.*