Novikova A. N., Shmarago O. V., Danilevskiy S. S.

Lightning protection of extra high-voltage overhead lines in areas of high ice load.

The operational rate of lightning proofness of 500 kV overhead lines without ground wire was obtained based on analysis of experience of the line with incomplete ground wire protection. It was discovered that for extra high-voltage overhead lines deprived of ground wire the distribution of insulation flashover due to lightning discharges between outer and inner phases appreciably differs from that one obtained using the equidistant principle. It was suggested for extra high-voltage OHL passing through the areas with high ice load protected with surge arresters without ground wire to develop a special tower type realizing a triangle phases suspension where outer conductors are higher than the inner one.

Key words: extra-high voltage overhead lines, lightning protection, ice load, lightning activity, operational experience, lightning proofness, surge arresters, conductor's arrangement.

Novikova Alexandra Nikolaevna, Head of Section Lightning Protection High Voltage Technique Department of the Scientific and Technical Center of Unified Power System (STC UPS).

E-mail: novikova_a@ niipt.ru

Shmarago Oksana Vladimirovna, Researcher of High Voltage Technique Department of the Scientific and Technical Center of Unified Power System (STC UPS).

E-mail: shmarago@yandex.ru

Danilevskiy Stepan Sergeevich, engineer of High Voltage Technique Department of the Scientific and Technical Center of Unified Power System (STC UPS).

E-mail: paniipt@rambler.ru