

JUSTIFICATION OF THE USE OF PLC TECHNOLOGIES

Dudnikov S. M., Ph.D., associate professor, Telnoi D. S., master's student,
(SBTU, Kharkiv, Ukraine)

State Biotechnological University

Обґрунтовано економічні та технологічні переваги використання PLC – технологій в системі АСКОЕ

An important factor in reducing the cost-effectiveness of power supply systems of industrial enterprises is the imperfect state of schemes for controlling and accounting for the amount of energy used and the level of their exploitation.

From the analysis of the power supply systems of Ukraine [1], it was established that the largest losses of electrical energy (26%) are observed in the network with a voltage of 0.4 kV (Fig. 1).

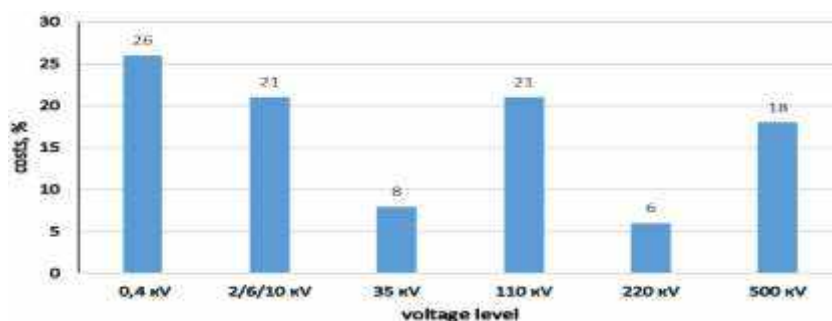


Fig. 1 - Втрати електроенергії в електромережах з різними рівнями напруги.

Implementation of the automated electricity control and accounting system (AESAS) in networks is carried out using the GSM/GPRS network, PLC network, TCP-IP technologies and wired serial interfaces RS-485, RS-232, M-BUS, [2].

The main advantage of PLC technology is the ability to use already existing electrical networks for data transmission.

AESAS analysis showed that the most economically justified and technologically acceptable is the use of PLC technology, taking into account the need for effective protection against electromagnetic interference while ensuring adequate bandwidth.

List of references

1. Qawaqzeh, M., Dudnikov, S., Miroshnyk, O., Moroz, O., Savchenko, O., Trunova, I., Pazyi, V., Danylchenko, D., Iegorov, O., Halko, S., Buinyi, R. Development of Algorithm for the Operation of a Combined Power Supply System with Renewable Sources (2022) 2022 IEEE 3rd KhPI Week on Advanced Technology, KhPI Week 2022 - Conference Proceedings, DOI: 10.1109/KhPIWeek57572.2022.9916372
2. Попадченко, С., Дудніков, С. (2022) «Перспективи розвитку сільських інтелектуальних електричних мереж», Науковий журнал «Інженерія природокористування», (1(23), с. 120-125. doi: 10.5281/zenodo.6824085