IMPROVING THE ENERGY EFFICIENCY OF THE LIGHTING SYSTEM OF THE COMPANY LIMITED LIABILITY COMPANY "ELECTRO ENGINEERING".

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Annotation: *Efficient use of resources in the economies of all countries, especially energy and energy carriers, is a global problem. According to forecasts, the demand for energy resources in the world will grow by 1.5 times by 2025, and the share of organic fuels as an energy source will exceed 90% by 2030. The growing demand for energy, especially from developing countries, with a shortage of resources, will exacerbate competition in world markets, which will significantly affect price dynamics and its determining factors.*

The article [1] presents the results of a study of energy consumption of a large group of educational institutions, energy costs increase by 15-20% annually. The main share of expenses falls on thermal and electrical energy. As in general education institutions, and in the entire group of public administrative premises, the cost of electric lighting accounts for a large proportion of the cost of total energy consumption.

Let's consider the main measures to reduce the cost of electric energy (EE) for lighting using the example of LLC "Electro Engineering".

For newly created and reconstructed lighting installations (LI), it is necessary to determine the quantitative and qualitative parameters. Overestimation or underestimation of the parameters of the LI leads to adverse consequences, decreased performance, fatigue, irritability, loss of visual acuity. According to SP 52.13330.2011, it is necessary to ensure:

- normalized illumination levels on the work surface (for functional rooms – from 300 to 500 lux, depending on the category of visual work);
- cylindrical illumination (50-150 lux);
- combined UGR discomfort index (18-24);
- light ripple coefficient (10-15%).

In the premises of public buildings, as a rule, a general lighting system should be used. It is allowed to use a combined lighting system where visual work of the A-B category is performed, while the illumination from the general lighting should be at least 70% of the normalized values.

When designing electric lighting, special attention should be paid to:

- the choice of effective lighting devices (LD) with the necessary light distribution and the necessary design;
- the use of high-efficiency light sources (IS) (fluorescent lamps (LL) T5, LED light sources);
- the use of effective start-up control equipment (PRA);
- improving the optical characteristics of the OP amp;
- systems that reduce the useless use of artificial lighting.

In addition, during the reconstruction of the OP, it is necessary to take into account that the structure of its cost indicators consists of [2]:

- capital expenditures on lighting equipment – 10-15%;
- installation and maintenance costs of OP – 15%;
- the cost of EE is 70-75%.

Thus, it is obvious that attention should be paid to the energy and lighting parameters of the lamps, and not their cost.

The consumption of EE can be reduced due to the competent choice of lighting devices with the necessary light distribution, design, and optimal suspension height [2]. At the moment, a luminaire with fluorescent lamps (LL) is widely used for lighting public spaces. When choosing lamps with LL and other light sources, special attention should be paid to optical efficiency, the higher it is, the better.

Thus, it is currently possible to introduce modern luminaires with highly efficient ICS with a luminous efficiency above 100 lm/TUE with a payback period of 2 years.

In addition, with the introduction of modern, high-quality lighting devices, we thereby indirectly invest in improving productivity, since with proper lighting, efficiency and mental activity increase. Also, due to the savings of EE, CO_2 emissions are reduced during its production and, thereby, improving the environmental situation of the environment.

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