ASSESSMENT OF THE INFLUENCED FACTORS ON THE INDICATORS OF SPECIFIC ELECTRICITY CONSUMPTION AT INDUSTRIAL ENTERPRISES

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Abstract: *The article discusses the issues of the methodology for calculating electricity and modern methods of accounting for them. The necessary conditions for determining the parameters in the calculation of electricity and their cost are given, as well as recommendations for determining the norms of electricity consumption for the rational use of electricity.*

Key words: *energy indicators; specific rate; operational factors; industrial enterprises; products; electricity consumption.*

In practice, calculations of absolute and specific power consumption are made depending on the influence of the main factors on them - hourly productivity and output. However, in addition to these indicators, a significant number of other factors, both random and episodic, can significantly affect the amount of power and energy consumed. Such factors include the temperature of the environment or products of processing, humidity and size of products of processing, hardness of the material, etc. [1-5].

The use of mathematical methods for the analysis, classification and calculation of energy parameters is characterized, as mentioned above, by a large number of various interconnected energy, technological and operational factors. Well-known methods for determining the characteristics of objects associated with the supply of test signals to the input or a change in the value of the above factors of production also have significant limitations, since often, according to the operating conditions, a change in any factor is not allowed due to the danger of undesirable technological conditions [3 -8].

In solving the problem posed, the question is of paramount importance. What parameters and how many of them should be in the required level? In this case, it becomes necessary to quantify the degree of certainty of the input parameter for a given group of these parameters, taking into account their relationship with other parameters at the input and output of the object.

In this regard, in order to solve the problems of normalization and forecasting of energy indicators, it is necessary to identify them with the identification of patterns of changes in energy technological parameters, taking into account the above production factors.

The solution to this issue includes the development and implementation of the following algorithms:

- selection of energy, technological and operational factors that affect the energy intensity of industrial products;

- assessment of the dominant factors that have the greatest impact on the energy intensity of products;

- assessment of reserves for saving electricity or its additional consumption;

– evaluating the effectiveness of measures to save energy, taking into account the introduction of new equipment and technologies.

As mentioned above, in the production process, as a rule, there are various kinds of deviations from the requirements of the standards of the technological scheme in the manufacture of each type of product. These include:

- the quality of raw materials (size, humidity, the presence of impurities, etc.);

- the mode of operation of the equipment (the presence of unforeseen technological pauses and breaks, the amount of loading of raw materials, etc.);

- characteristics of processed products (grade, dimensions, strength, material temperature, humidity, etc.);

– the quality of the components of the technological process (compressed air, water, steam, etc.);

– quality of maintenance (lubrication, adjustment, ambient temperature and humidity, etc.).

Of these factors, it is necessary to identify those that have the greatest impact on power consumption indicators.

The most reliable results can be obtained by dividing the problem into two subtasks:

1. Conducting expert surveys in order to identify from a variety of factors those that affect energy performance.

2. Building a regression model of energy indicators, taking into account the identified factors.

The application of this method makes it possible to single out the most significant factors from the whole variety of factors influencing energy indicators and give an appropriate assessment to each of them.

The norms of specific power consumption (SEC) can be determined on the basis of the developed mathematical models of SEC, the planned volume of output and the results of the implementation of organizational and technical measures for the rational use of electricity for the forecast period.

At the same time, an increase or decrease in the volume of manufactured products is determined by the corresponding planned structures of the enterprise, depending on the expected conjecture of demand and supply for manufactured products.

As for the results of the implementation of measures to improve the production of energy savings on existing equipment, as well as the level of project implementation, the renewal of the fleet of machines and mechanisms, and the transition to energy-saving technologies, this task should be solved as a result of energy and technological analysis and appropriate

calculations. It should be noted that as a result of the introduction of the expected organizational technical measures, specific power consumption can be reduced or increased due to the introduction of new systems that improve product quality or improve working conditions [9-12].

Based on the foregoing, the calculation of the predicted UEP norms can be carried out in stages:

– assessment of the expected savings in electricity as a result of the introduction of OTM or additional consumption of electricity for their implementation;

– determination of the timing, sequence and obtaining the effect at each stage of implementation.

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