THE NEED TO APPLY INFORMATION TECHNOLOGIES IN THE ENERGY INDUSTRY

Barsukova H., Ph.D., senior teacher,
Sumy National Agrarian University

The role of information technology is especially great in the state strategic areas, one of which is energy. After all, the more complex the production, the more acutely it needs more automation of the processes occurring in it.

According to experts in the field of electricity, the development of this industry currently has a number of serious problems, which precludes the efficient operation of all electricity processes. Everything that generates equipment has undergone aging and wear. This can lead to technological failures, accidents.

The most acute problem of stable operation of power grids is called an excessive increase in operating voltage to sometimes completely unacceptable values, while the power industry needs the most continuous, uninterrupted operation. Experts have long argued for the need for global implementation of innovative technologies in the energy sector and full automation of the grid complex. To move to the modernization of power generation companies there is a need to develop high-tech information solutions. Thus, when updating the equipment there is an increase in the degree of its reliable operation, significant fuel savings, as well as reduced consumption of resources for its maintenance.

Automation of technological processes increases the efficiency of production and guarantees the protection of the external environment. Centralized monitoring of the technical condition of power units and other equipment, as well as compliance with industrial safety rules are prerequisites for stable operation of thermal power plants and hydroelectric power plants. The creation of such centralized monitoring systems is possible due to the use of modern exchange protocols allow to connect geographically remote monitoring systems with the main Data Processing Center [1].

The main information tasks of electricity generation are automation of technological processes and control over the installed equipment. Application of the most advanced technologies by the electric generating companies allows to increase efficiency of work, to provide stability of processes and work of the equipment and to increase generating capacities. The use of information technology in the field of energy distribution and energy saving involves the use of the concept of "intelligent energy supply networks". ISE can reduce technical losses in the process of electricity transmission, efficiently use the generated electricity, select alternative energy sources, diagnose and troubleshoot automatic operation, increase the stability of electricity supply and reduce carbon emissions [2].

Methods of operation of such systems are the use of information and communication technologies, automated collection and accounting of information, monitoring of equipment, database management. The use of this type of technology allows you to monitor in real time the processes of transmission, distribution and consumption of electricity. The role of modernization of the system of communication devices and telemechanics, its integration with modern network equipment is growing. Technical equipment of control points, their system integration is an important component of trouble-free operation of power systems.

Energy is actively developing solutions for information technology components. Therefore, the integration of market mechanisms of energy is very actively discussed in the country. The risk is the entry of management companies into the market, which may be small and not professional enough, which may lead to a quality of customer service.

The future introduction of information technology in Ukrainian energy companies is caused by the need to increase the return on capital of equipment in operation. This will lead to the integration of commercial heat metering, which is supplied to all energy resources, and energy distribution companies will use automated payment systems with consumers. The development of IT infrastructure is huge and is based on the creation of automated integrated management systems that support the collection and integration of process information using databases of current time, the formation of IT-model of the object to be managed, the tasks of control, management and analysis of energy equipment based on the appropriate model.

As a result of all the above, we can conclude that the main factor influencing the development of information technology in Ukraine's energy is the need for high-tech reform of this sector of the economy. Thus, the development of IT-technologies in energy, as well as any other industry, will lead to the automation of the whole complex, which will lead to its more efficient in all senses.

Bibliography

1. Гужва В.М**.** Інформаційні системи і технології на підприємствах: Навч. посібник. — К.: КНЕУ, 2010. — 400 с.

2. Пасько Н.Б**.** Інформаційні системи в менеджменті. Практикум. Навчальний посібник – Суми: СНАУ. 2012. – 128 с.