



Creating an automated program scheme of power supply management based on technological processes

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Abstract: As noted in this article, in connection with the increase in the number of electricity generation equipment based on renewable energy sources and the number of consumers of electricity obtained from them, the sources that produce them, the use of software in the management of technological processes and technical systems It is necessary to combine the efficiency of consumers and control units and autonomous energy systems. Due to the uneven production and consumption of electricity from renewable energy sources under the influence of external conditions, for example, wind, solar radiation, etc., renewable energy sources are an In hybrid mode, where conventional alternators must operate, they will need to be backed up using conventional energy. The best way to reduce energy consumption in combination with renewable energy is by automating the technical program. This increases the power of the power source. In this case, the task of creating a tracking inverter that converts direct current into a current, according to the characteristics of the generator, an alternating current appears experimental studies of a direct current inverter. They control the conversion of mode-linked network signals or microcontroller signals based on an automated software system in reference technological processes.

Keywords: Technological processes, technical software system, software scheme, electric power system, power system automation technology, alternating current, automation scheme.

Introduction

The main reason for the development of alternative energy based on renewable energy sources in the Republic of Uzbekistan is its large size and lack of centralized power supply in many regions of the republic. In the Republic of Uzbekistan, the area of districts not provided with centralized electricity supply is more than 15 percent of it. In such areas, in most cases, it is necessary to attract renewable energy sources for them, and the use of the electrification system is envisaged. That is, renewable energy sources should be considered as autonomous energy sources, a new, rapidly developing trend is the basis of distributed generation. At the same time, it should be noted that there are no fundamental obstacles to the operation of renewable energy sources that are part of centralized energy systems. The methods of electrification of the regions of the Republic of Uzbekistan that are not covered by the centralized power supply network can be as follows: The high cost of construction and maintenance of equipment related to power transmission lines through the software scheme of automation and robotization of technological processes, as well as the risk of failure of power transmission lines and their dependence on the length of transmitted power, have negative features. construction of power transmission lines from a characteristic centralized power supply network. Based on the structure of the technical software automation scheme, the establishment of local autonomous energy production centers using electricity and



heat generators using traditional fuels, such as thermal power plants, diesel and gas generators, which are characterized by: imported fuel, which often significantly increases the cost of heat and electricity. Power supply using renewable energy sources of automated programs in the software scheme of technological processes. universal application, any energy carrier is always available, there is no need for long construction power lines, environmental cleanliness and technical and high prospects of electricity supply have positive features such as economic improvements. It would not be wrong to say that the rapid development of science, technology and economy in the territory of the Republic of Uzbekistan is constantly increasing the standard of living of the population, and their demand for electricity is also increasing. Because technological processes are based on technological parameters in the scheme of automatic system programs, traditional power supply mode is not possible. In order to meet people's demand for energy, relevant enterprises need to upgrade and upgrade the energy system. Electric automation technology is intelligent and multi-functional, and can effectively solve various problems in the power system. The introduction of electrical automation technology in the power system can significantly increase or decrease the efficiency of operation, and several studies have been conducted to effectively reduce the consumption of manpower and material resources and the possibility of human error in power plants. Designing an energy-saving system of electrical automation In the design of an electrical automation system, from the direction of energy saving and consumption to the relevant design work, the rational use of harmonic loss technology, optimization of the power transmission distance, change. power distribution, power grid changes. materials, New transformers and other measures, the use of various tools to redesign and deploy electrical automation systems, electrical automation system to achieve energy efficiency and warranty goals. The trend of electrical automation in artificial intelligence, expert systems, broadband network-based communication, fuzzy control technology and other automation technologies, the development of the network shows digital, digital characteristics. The use of electrical automation systems, technical advantages, the achievement of electrical energy and the reduction of energy-efficient weapons industry. A new era will be able to understand the development of energy-saving energy trends, who can deepen it from the global pattern, and the opportunities of the global energy industry will increase. Switching to an automated system to save electricity: The control device, which is composed of an energy-saving automatic control system and a feedback control system of motor and power source detection, can automatically replenish energy and change and control the necessary data processing. The power-saving automatic control system has a control device that can turn on or off the circuit according to the request of an external signal, whether the parameter changes or does not change, and the change of power parameters is taken into account. is taken. Mainly: DC system and LPS system control generator control and operation, safety power supply system, transformer control and operation, low voltage substation and electric drive monitoring and operation for 380V, demagnetization process, control mode change processes. extensive research is being done on the protection and control functions of the proposed alternating group excitation transformer. Energy-saving automation systems often have a simple operation through the operation button of the control panel, energy-saving automation equipment often works in dynamics, and you can realize real-time data monitoring records and special storage records, a correlation report will be generated. . Energy-saving automation control through frequent frequency control, direct start and star or delta start control, if the equipment is found to be faulty,



the operator can immediately carry out chain inspection . The range of energy-efficient design technologies for electrical automation in industry, agriculture, and defense is vast. The healthy development of energy-saving design technology of electrical automation will lead to great progress in the economic development of our country to meet the demands of more and more people for electricity. professional knowledge and real life are closely related to each other, recently more automated management technology, gradually improved. The development of energy-saving electrical automation design can help improve people's living standards. The technological process of organizing energy consumption in autonomous systems of renewable energy sources should be flexible by turning on and off different power modes, creating or using them in hybrid mode, that is, energy sources from traditional resources and renewable energy sources. use in distribution mode. From the point of view of the organization of electricity supply, the hybrid mode of operation is the most difficult for the electrical system: power generation from renewable energy is used when the energy sources and peak load conditions in the electrical supply system are insufficient. . A short-term increase in consumption may occur, for example, during the start-up of powerful electric motors or due to a certain technological process. The process of generating electricity from renewable energy sources is the first step in a long journey in the end user's energy supply chain. After obtaining electricity from renewable energy sources, it must be converted for further storage and storage. Creating an autonomous hybrid power supply system that combines alternators (such as diesel generators) and renewable energy sources of alternating current (such as wind turbines) and direct current (such as solar panels) will improve performance. includes. In order to use electricity produced by renewable energy sources, it must be converted to meet the needs of energy consumers. DC-AC inversion usually occurs as specified parameters. The inverting parameters are determined by the customer's requirements or the renewable energy source generator is connected to the grid through the inverter. When investing, it is mandatory to perform the necessary parameters by the inverter, because if the equipment operating at the received voltage is not suitable, the parameters of the alternating current obtained at the output may fail. When connected to the generator network, a current with different parameters from the current network can start the operation of the backup generator in the user mode, which does not lead to an increase or decrease in the total power supply. In practice, it is not unusual for a power-saving inverter to operate without a reference voltage, and this is not a grid problem. To solve this problem, a microcontroller is installed in the device, which sends signals for control and inversion when there is no voltage in the reference network. In this case, the frequency and the angle of change are generated by the signals generated by the microcontroller. In the practical organization of power supply from several sources of electricity production, not only parallel operation at load is used, but also separate operation at low load and in cases where the power of one of the sources is insufficient (or). In this case, the inverter should be automatically switched from one operating mode (control signal of the reference network) to another (microcontroller signal) or back. When starting the inverter, the signal from the reference network comes first, because in this case it is necessary to coordinate the parallel generators and ensure the operation of the common network for the common load. If the signal is received, the signal from the microcontroller must work, the reference network is lost, in this case the angle of change of changes does not play a role, because the generator is unique. Switching signals should be provided by the device's own logic, which should be derived from the microcontroller to increase



the reliability of the device. For example, at the Moscow State Technical University, an automated inverter circuit for switching between reverse control signals was developed and tested. The main scheme of automation is the main technical project document, the degree of automation of this technological device and shows the principle. It is in the early stages of creating a management system all accepted principle solutions are represented. Drawing control object, control, adjustment, program control, signaling, about tools used in blocking, protection and automation should give an understanding. Usually warning, blocking and protection expanded in special drawings. Management in principle drawings bodies and technological devices along with communications drawings, automation tools, various technological units interactions between devices and automation tools are shown schematically. Automation issues are solved using technological tools devices selected for these devices, determining initial data tools, information exchange and processing tools, service means of introducing and disseminating information to employees and aids included. Automation systems in the process of creating a technical project size, building foundations and technical means implementing them justifying the selection of complexes, as well as automation it is necessary to determine the approximate prices of the systems. Also, technical technological processes and basic technological equipment at project stages automation compliance issues are reviewed and, if necessary, in order to create suitable conditions for automation, measures will be taken to modernize or reconstruct them. Preparation of panels and remote controls for creation of working drawings, selection and ordering of automation tools and devices, as well as it was enough for construction and assembly work the tasks of the technical project are defined and described in detail. Dimensions and composition of working drawings of automation systems, construction and assembly works and allows to carry out assembly work in modern ways to cover the use of blocks prepared outside the field need.

Conclusion

Current state of automatic energy saving control. The power saving automation control system is mainly centralized monitoring mode, remote monitoring mode and fieldbus monitoring mode. It is often easier to use a centralized control mode, and the maintenance of various functions of the system is concentrated on the processor and then works with it; remote monitoring, mainly with energy-saving cable, saving installation cost, high reliability, main application in small system monitoring. Fieldbus monitoring methods are often designed for system design, this monitoring often adds the benefits of remote monitoring, but can also significantly reduce the amount of work used. Currently, the advantage of centralized control and centralized management is its ease of use and maintenance. Centralized control mode is to concentrate all the functions of the system on the processor and then process it. Development trend of automatic control of electricity saving. the development of energy-saving design technology of electric automation is an indispensable feature. Before the technology matured, the development of energy-efficient design, electrical automation technology took a detour, but today, energy-efficient automation technology is combined with large-scale data, and the technology development time has already reached real production. applied. welcome. The computer used to save electricity in local or general management will become the main focus of electricity automation control. Virtual reality technology and video processing technology will have wider applications as science and technology drive the rapid development of automation. The state of the automation control system will



improve significantly, for example, computers, network technology and multimedia technology have the prospect of wide application.

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