

Research on problems and solutions in electrical engineering and automation

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Abstract: With the rapid development of electronic information technology, electrical engineering automation ushered in a new opportunity for development, which can not only improve the operating efficiency and level of electronic engineering, but also play a more positive role in promoting the rapid development of social economy. Although the application of electrical engineering and its automation technology has many advantages, but there are still urgent problems to be solved, so the staff should actively explore a variety of effective solutions, in order to promote the electrical engineering and its automation to achieve high-quality development. In this regard, this paper on the electrical engineering and its automation in the existing problems and solutions to carry out research, for reference.

Key words: Electrical engineering; Automation; Problems; Solve; Path

1. A brief analysis of the problems existing in power system and automatic control

(1) the lack of a good automatic control system

In power engineering, in order to achieve better applications, we must first improve the integration of the system. At present, many domestic power automatic control is still at the level of multi-island control, which can not achieve the goal of integrated power control. The multi-island automation function is single, can not achieve information sharing, can not be connected to each other, can not make full use of the functions and roles of power engineering automation, so the relevant departments must continue to improve the comprehensive ability of power automation.

(2) Lack of consistency in automatic control

Electrical automation is network-based, and its purpose is to build an efficient and fast electrical engineering and automation system. However, at present, many companies have inconsistent network architecture, which brings obstacles to the development of electrical automation. In addition, due to the different enterprises and merchants in the exchange of software products or hardware products, due to the different program interface, it will cause the data transmission and information exchange between enterprises and merchants is difficult to proceed smoothly, and it can not carry out smooth information and data sharing, which makes the electrical engineering and automation system can not play a role in the actual operation.

(3) The automatic technology is subjective

In the process of research and development and practice of electrical engineering automation technology, technical personnel are likely to be influenced by their superiors, and because technical personnel have a great difference in the understanding level of automation technology, the development platform they use is not the same. This resulted in the electrical engineering and its automation technology in the design, implementation and operation and maintenance of the process of cost increases, but also increased the possibility of system errors, thereby increasing the operating cost and system load.

2. The effective path to solve the problems in electrical engineering and its automation

(1) Establish the design concept of energy saving and emission reduction

Energy saving and emission reduction, low carbon environmental protection, low consumption and high efficiency has been the world recognized trend, therefore, the idea of sustainable development into the development of electrical engineering industry, in the design and research of power system and power system automation technology, should be the first priority to save energy. First of all, the energy consumption design of the power project should be based on the specific needs of the enterprise, pay attention to the energy consumption of the technical system, avoid the loss of energy, improve the utilization rate of energy in an effective way, and reduce the operating costs of the system. Secondly, it is necessary to conduct a detailed study on the specific use of power engineering and automatic driving technology. In the process of use, attention should be paid to controlling the unnecessary energy consumption in the process of use, so as to maximize the efficiency of energy use. Finally, to increase the awareness of energy conservation and environmental protection and low carbon emission reduction publicity, on the one hand to enhance the awareness of energy conservation and environmental protection of the relevant practitioners, on the other hand to urge each company as soon as possible to eliminate and upgrade high energy consumption electrical engineering equipment, the introduction of low energy consumption, high efficiency electrical engineering equipment and autonomous technology.

(2) Improve and enhance the safety of the system

At present, China's automatic control technology is applied to the automatic control technology of power projects, and the automatic control technology used is often dependent on foreign countries, which not only brings serious security problems, but also brings huge economic losses. In the case of affordable costs, as far as possible to choose the domestic development of the software, and by comparing its advantages and shortcomings, comprehensive application. This requires the domestic software manufacturers according to the specific

situation of the power project, to modify it, in order to meet the reality, and can better play its function. Strengthen the architecture of the construction system, so that all kinds of data can be stored and transmitted in multiple systems, even if there is a problem in one system, it can be used in another system to minimize the loss. At the same time, it is necessary to strengthen the communication and interaction with other industrial automation systems, and actively learn the advanced experience and effective practices obtained in the system application to improve the application level of power engineering automation systems. At the same time, the problems that occur in other industries should be prevented so that they will not happen again in electrical projects.

(3) Ensure the integrity of automatic control

For electrical engineering, most of its controlled objectives will be affected by many environmental factors, so it is required that the relevant automation equipment in each node to carry out effective control, to ensure that the automation work has a consistent level, in the process of use, each node can fully play its role to ensure that the control object can be effectively changed. For the control technology of electrical automation, when it is controlled, it will affect the effectiveness of the work to a certain extent. For the type of controlled objects, the effect will be different, and the operation process of the equipment will be different. Therefore, in the unified control of automation technology, according to the differences in object types, dialectical unified control should be carried out, so as to ensure that the control results can be consistent to some extent, and at the same time, it is necessary to ensure that the analysis and recording of data are consistent. In the process of equipment operation, there will be a variety of problems, which requires the operator to organically combine maintenance and management, take the initiative to detect and detect the problems in its operation, to ensure that the mechanical failure has been effectively developed, and to carry out high-quality maintenance and improvement, to ensure that the equipment in the automatic operation at the same time, can improve its operating efficiency.

(4) Strengthen the management and supervision of power projects

In order to ensure that electrical engineering enterprises can fundamentally strengthen the quality management of electrical engineering construction process, it is necessary to strengthen the control of electrical engineering quality management and engineering construction links, and strengthen the understanding of relevant staff on electrical engineering management. In practical work, to ensure that the construction team has high quality service, and improve the overall level of electrical engineering enterprises, to carry out irregular technical training for the key positions of technical personnel, in order to promote the continuous innovation of technical concepts. In the process of electrical engineering construction, it is necessary to strengthen the professional level of management personnel, better management and supervision, in order to ensure the quality and progress of the project at the same time, so that each stage of the project can be in accordance with the relevant procedures for successful operation. One of the most critical point, is to strengthen the awareness of electrical engineering enterprises and quality management, which is also a method of cultivating high-level employees in domestic companies, in promoting the development of electrical engineering at the same time, to let employees in terms of technology and concept are consistent with the needs of the development of The Times, thus providing a strong guarantee for the development of electrical engineering and its automation system.

(5) Build an independent development platform

According to the current development of domestic power system and automation technology, relevant departments should build an independent development platform to improve the quality and efficiency of power system and automation technology. The characteristics of this platform should be set according to the specific requirements of each company, so as to improve the development of technology, in the whole process to be established under the premise of reducing costs, but also to maximize the advantages of this technology. First of all, when the system is developed, it is necessary to have a clear understanding of the development status and requirements of the company, so as to better adapt to the requirements of different users and optimize it; Finally, the development process of the enterprise is implemented into the system to ensure that the cost and operation are within a controllable range, so as to maintain the development of electrical engineering automation. Independent platform can ensure that the work is not restricted by any platform, can independently carry out their own work, so as to improve work efficiency and quality, so that it can meet all aspects of enterprise production work, promote the development of enterprise electrical engineering automation.

(6) informatization of electric power projects

In order to complete the construction of electrical engineering informatization, it is necessary to add new technologies on the basis of electrical engineering automation. In addition, it is necessary to fully respond to the call for energy saving and consumption reduction, add new materials, and vigorously publicize them, so that network technology and automation technology have reached a higher degree, so as to improve the overall construction level and ability of the whole building. In order to achieve the purpose of information resource sharing, it is necessary to highlight the open characteristics and improve work efficiency. The openness of electrical engineering is an important condition to realize the sharing of information resources, so the use of the interconnection with the computer system can effectively improve the intensity of control and management, so as to promote the steady development of the system. Electrical engineering automation is the guarantee of economic development, can lead the development of social products, can realize the integration of various technologies, so as to build an intelligent development platform; Based on this project, actively promote the development of this project. The development of modernization has further strengthened the conditions of information construction, and also promoted the development of electrical engineering automation, so as to prepare for the subsequent information development.

(7) The application of intelligent technology in electrical engineering design

Originally in the optimization of electrical engineering design, the designer plays the most critical role, in addition to assume the responsibility of system optimization, but also repeatedly carry out many professional experiments, in order to improve the completeness of

the design. When the design is applied to the specific work, a variety of effective measures should be taken to ensure that the control system can run in an orderly manner. This process will not only waste a lot of energy and time of the designer, but also the designer can not control a certain detail flexibly, and the operation level of the electrical automatic control system will be greatly affected. Once there is a serious problem, the designer can not solve it in a short period of time, which will cause immeasurable losses to the relevant departments. Therefore, in order to ensure the completeness and accuracy of electrical automation control system, it is necessary to use intelligent technology to carry out relevant design, which also requires designers to continuously improve their professional literacy, strengthen their sense of responsibility, and treat related work with a serious and rigorous attitude. For example, designers can be based on the overall design perspective, with the help of intelligent technology to achieve the monitoring and management of electrical automation control system. Once there is a problem, the computer will often give a response before the relevant staff, the designer can according to the feedback given by the network system, identify the root cause of the problem, and on this basis to make targeted adjustments, so that the system design can better meet the needs of the development of the field of electrical engineering.

In summary:

All in all, in order to improve the level of electrical engineering and its automation, it is necessary to actively solve the existing problems at this stage and constantly improve the function of electrical engineering automation system. In this regard, you can start from the following links: Establish the design concept of energy saving and emission reduction, improve and enhance the safety of the system, ensure the integrity of automatic control, increase the management and supervision of power projects, build independent development platform, information technology of power projects, application of intelligent technology in electrical engineering design, and then effectively solve these problems, and promote the sustainable development of electrical engineering and automation. Inject inexhaustible vitality into the sustainable development of China's economy.

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