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On the Development of Electric Power System Automation under Electrical Engineering and Its Automation Technology

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Abstract

The application of electrical engineering and automation technology in China's power system is the need of the current development of China's energy industry, and the reform and innovation of automation technology provide a favorable basis for power grid dispatching, production monitoring, fault diagnosis and others in our country. In this thesis, the development of intelligent power system under the condition of electrical engineering and intelligent technology will be studied in depth.

Keywords

Mechanical and electrical engineering Intelligentization; Power system; Power intelligence .

1. Introduction

As the blood of modern industrial civilization in China, electric power has attracted increasing attention with the development of social science and technology and the improvement of national productivity. The application of electrical automation technology in power supply system has realized the intelligent management and scheduling of power supply system, making the operation and management safer, smoother and safer, also greatly promoting the social and economic development and the improvement of modern manufacturing civilization.

2. Electrical Engineering and Its Automation Technology

Electrical engineering and its automated information technology include various modern high and new technologies such as energy and electronic technology network control, intelligent information technology, mechanical - mechanical integration information." The YTZ Series High-pressure Flusher features the following: Fusion of electrical and electronic information technology with a combination of high voltage and soft current and hardware and software. With the gradual application of electrical engineering and its automated information technology in the manufacturing sector, productivity has been greatly improved and industrialized and changes have been made to the mode of production, promoting the vigorous development of our market economy The application of electrical engineering and intelligent technology has become a trend in procedures of modern power generation, they are the key means to realize intelligent power generation. On the one hand, the intelligent operation of power system can improve the stability and reliability of electric energy, while also driving the improvement of electric energy quality and benefit of power supply companies.

3. Characteristics and Application Value of Electrical Engineering Automation Technology

The intelligent technology of electrical engineering is used to obtain specific data parameters of power system workflow, and the big data technology is used to evaluate the overall performance of power system automatically. When abnormal conditions of power grid are

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found, problems can be detected in time and plans and measures can be formulated in combination with actual conditions, ensuring stable and safe operation of power system. Furthermore, the power system is very complicated, so the maintenance work is very tedious and difficult in case of a failure, and it has a risk of security. By adopting electrical engineering automation system to monitor the whole data of power system, some faulty circuits can be detected in time, which significantly increases the efficiency of maintenance and saves the resources and cost for power enterprises. Through the construction of an information management system, power enterprises also can automatically collect and uniformly classify and manage the data and information generated from generators and nearby substations, thus ensuring the unity of information such as the transmission of power resources, power transformation and distribution, which greatly improves the comprehensive efficiency of working in the power system and gives great support to the sustainable development of the power industry. It is necessary to continuously upgrade the technology and optimize the structure in order to promote the scientific and rational application of automation technology in the power system.

4. Electrical Engineering and its Application Analysis under the Condition of Modern Intelligent Technology

4.1. Application of Grid Scheduling Technology

Power grid scheduling technology means that the automatic function of power grid scheduling can be rationalized by the efficient application of various kinds of servers and intelligent management system in power grid scheduling. In power supply system, power automation technologies are used mainly in three ways: First, the safety, stability and efficiency of the power supply system have been achieved depending on its economic regulation technology. Second, automation of equipment load prediction of power system is achieved through timely and accurate detection of relevant equipment operation data and electrical energy production process data. Third, the accuracy, timeliness, scientificity and high efficiency of troubleshooting, judgment and elimination of power supply system faults can be realized by displaying the historical data of relevant power equipment.

4.2. Artificial Intelligence Technology

By means of the computer, the artificial intelligence technology has completed the full acquisition and in-depth analysis of the running data signal in the power system through the fast intelligence of the computer in programming and parsing. This process is called artificial intelligence technology since it is characterized by imitation of the brain's thinking and computational ability. There are a few things you need to know when you use this technology. Firstly, the artificial intelligence technology in the power system must be combined with the actual application of the computer. Thanks to the computer's quick accuracy in data acquisition and parsing, the performance of the main structure and accessory electrical installation components in power system has been completely monitored, thus the intelligent operation level of power system network and related devices has been improved. Secondly, the main use of artificial intelligence technology in power system should be in self-inspection of operating faults of power system, so as to enhance the effectiveness of fault repair by obtaining, feedback and responding to fault signals.

4.3. Power monitoring system

In order to ensure the smooth operation of the power system during its operation, the function of the power system must be closely monitored according to the actual operating conditions of the power system. To this end, it is necessary to ensure that safety inspection data is available and to understand situations that may occur during the operation of the power system. Grid

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prevention efforts are needed to reduce grid problems and minimize the losses of personal life and economy resulting from grid failures. This suggests that monitoring devices should be deployed in power systems when developing intelligent power systems in order to further improve the accuracy of power grid monitoring, maintain the steady operation of the power system, monitor abnormal data in the normal workflow of the system, and finally realize safe and reliable operation, thereby ensuring the steady progress of intelligent operation of the system.

4.4. Corrective maintenance, etc.

Electrical engineering automation technology can also play an important role in maintenance and inspection of power systems. Using electrical engineering automation technology, power system failures can be quickly and accurately located, it takes over most manual tasks, improves maintenance efficiency and ensure personal safety of maintenance personnel. In addition, with this technology, fault information can be collected, providing the information basis of data analysis for subsequent repair operations. By introducing the automation technology, failure conditions can be simulated, allowing data to be compared in a timely manner in the event of a failure, thus avoiding waste of resources. In the course of repair, artificial intelligence system can be used to locate the problem area and transmit the detection data in the area to the control center, thus improving the efficiency of the fault elimination. Automation technology also delivers fault information quickly to technicians, making it easier for technicians to choose the right repair plan, so as to reduce unnecessary maintenance costs and save time spent on repairs, at the same time speeding up power supply and reducing economic losses from power outages.

In the development of intelligent power systems under the condition of electrical engineering and intelligent technology, the State Grid has invested a great deal of money in the research and development of intelligent power systems, and integrates electrical engineering and intelligent engineering technologies into the power industry. The power applications instantly monitor loads and power usage, increase the accuracy and reliability of detection, support theft protection, and reduce unnecessary losses. The smart meter can monitor the user's power supply and maintains the operation of control system by sending an alarm message to the control center when theft is detected..

5. Conclusion

To sum up, the level of intelligent management in China is continuously improving. Therefore, the information and network can be calculated better by introducing power automation technology into the management of power system, so as to relieve the management stress, improve efficiency and meet the needs of human society. Therefore, the application of intelligent information technology must be emphasized in the development of power industry in order to improve the application and management level of intelligent technology in electrical engineering.

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