

Discussion on Network Management and Condition-Based Maintenance of Dc Power Supply System

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Abstract: In the continuous development of today's society, the promotion of economic level has enables rapid development to various fields. Among them, the development of electric power enterprises is quite considerable. With the application of computer network technology in today's electric power enterprises, the effect of DC power supply maintenance and management in electric power enterprises has been further improved. In this paper, the network management and condition-based maintenance of DC power supply system are discussed.

1. Introduction

Nowadays, in the DC power supply system supplied by secondary equipment in substations, the development of networking and intellectualization has been more and more rapid, and it has been popularized in a short time. By realizing network intelligence, the internal communication of power system has been realized among different regions. The DC power supply system also realizes the continuous improvement of technical requirements in network management and condition maintenance.

2. Discussion on Network Management of Dc Power Supply System

2.1 Analysis of Basic Structure of Dc Power Supply System

In the actual operation period, the DC power supply system is mainly deployed in a distributed way, collecting and sorting out the operation status information of battery equipment in mainstream systems in various regions, which provides a good basis for the realization of integrated management of the system. Meanwhile, in the substation, the basic structure of DC power supply system supplied by secondary equipment should be clarified in the actual operation process, and then information should be released through WEB. In this way, the intellectualization and network management of the system can be well realized, and real and reliable information can be timely released to the staff of DC substations in various regions.

In DC power supply system, it is mainly composed of two most important parts: data acquisition system and main business system. In these two important systems, data acquisition system can effectively supervise the state of network management in the whole DC power supply system, and at the same time, it can also supervise the number of the system. According to the information to carry out effective analysis, so that the accuracy of information can be effectively guaranteed¹. The main business system mainly integrates and processes the collected information and data, and comprehensively understands the running state of the equipment and system. At the same time, it takes it as the basis to realize a set of scientific and reasonable management plan. Only through the coordination of these two systems can the stability of DC power supply system be well guaranteed.

2.2 Analysis of Network Transition of Dc Power Supply System

In the process of Network Transition of DC Power Supply System, in order to ensure the transformation work well, the following two aspects should be carried out well:

The first step should be establishing system, then, to select the equipment type according to the operation status of DC power supply system, and optimize and adjust the design of other equipment.

On this basis, add C2000N2AI DC power supply, and then access the network. Therefore, the stability and security of power equipment can be effectively guaranteed, and the cost of equipment operation can be further reduced, so that the remote data acquisition and management can be well realized.

Secondly, the on-line expert system should be applied reasonably. In the actual operation of DC power supply system, on-line expert system uses embedded expert cooperation system to analyze real-time information and on-time information in the system, and then find out the problems and potential safety hazards in time, and adopt corresponding strategies to solve and deal with them in time. Only in this way can the stability and safety of DC power supply system be effectively guaranteed. Meanwhile, on-line expert system can also make a comprehensive analysis of the operation status information of power equipment, and make a reasonable system model of power knowledge based on the results². This system can collect and calculate all kinds of information in power equipment, so that the accuracy of calculation results can be effectively guaranteed, therefore, the security and stability of DC power system can be effectively guaranteed. Applying on-line experts to power DC power supply system can effectively connect the running status information of power equipment and database. At the same time, by using this system, the operation status of DC power supply equipment can also be evaluated comprehensively.

3. Maintenance Design of Dc Power Supply System in Network State

3.1 Condition-Based Maintenance Mode of Dc Power Supply under Network State

During the overhaul of DC power supply system supplied by secondary equipment in substation, the operation status of DC power supply system should be taken as an effective basis to realize the establishment of scientific and reasonable overhaul mode. Firstly, the monitoring platform of the system should be formulated reasonably, so that the network management technology can play a supporting role in this platform, therefore, the condition-based maintenance of power equipment can be carried out smoothly. Through the reasonable design of this monitoring platform, centralized management and remote management of power equipment can also be realized. In this process, the staff in charge of management only need to use computers in the monitoring center for remote operation of power equipment, so that they can fully grasp the operation status of power equipment, and be able to find the problems in the operation process in time, and then formulate effective schemes to solve the existing problems in time. By this way, the security and stability of DC power supply system can be effectively guaranteed in the process of operation. With the application of intelligent DC power supply system in today's electric power enterprises, networked, intelligent and unmanned management system has been gradually developed in electric power enterprises. This makes the electric power enterprises achieve remarkable savings in manpower, material resources and financial resources, and lays a solid foundation for the sound and stable development of the electric power enterprises in today's era.

3.2 Practical Application of Networked Condition-Based Maintenance Mode for Dc Power Supply

In the process of practical application, the parameters of DC power supply system and the maintenance of various equipment faults have many contents, such as storage battery, total voltage and regional temperature. In the process of overhaul, we should find out the problems and shortcomings existing in the actual operation, and work out reasonable solutions based on this, so as to effectively guarantee the security and stability of the operation of DC power supply system. Through each link of the maintenance work, we can also effectively understand the voltage situation in the power equipment. Eliminate the faults existing in the operation process, improve the original power DC system, and effectively reduce the occurrence of faults in the operation of the system³.

At the same time, in the actual operation process of the power DC system, we should strengthen the overall maintenance and management of the battery, and clarify its total capacity and load status.

Only in this way can we have a comprehensive understanding of the battery failure problem, and make targeted solutions and countermeasures.

In addition, in the operation process of DC power supply system, the relevant staff should also formulate a new revised model based on its operation status, so as to control the internal of the battery well, so that the phenomenon of resistance polarization can be effectively avoided during the use of the battery and ensure the power straightness, therefore, the current supply system can be carried out safely and steadily.

4. Conclusion

To sum up, with the continuous development of computer and network technology in recent years, network and intelligent management has been widely used in the power system, and in the network management and condition-based maintenance of the power DC power supply system, it has realized the full play of its own functions. Therefore, the electric power enterprises must apply the advanced computer technology and network technology reasonably to ensure the safe and stable operation of the DC power supply system.

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