

Analysis on Main Points of Integrated Operation and Maintenance of Intelligent Grid Distribution

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Abstract: With the increasing economic strength of our country and the rapid development of social construction, the economic benefits of the electric power industry have brought a continuous growth environment, and the scope of influence of enterprises in the society has been continuously expanded. If enterprises want to improve their production efficiency, they must give full play to the advantages of power distribution network automation technology, which has been widely used and played a good role in practical operation. For power systems, the construction of automation greatly improves their own stability and security.

1. Current Construction of Power System Automation

Since the reform and opening up, China's electric power industry has been constantly carrying out technological innovation and progress within the industry. The problem that electric power enterprises are thinking more about now is how to find their own industry development position under the clear rules and regulations of the state and the environment of continuous innovation in the electric power market. Nowadays, the power system is facing a huge electric energy consumption economy market, and the strong competitive pressure makes the electric power enterprises have to introduce more advantageous technical means to win the market. However, in terms of the current development level of our country, there are still some shortcomings in the power distribution network, which will require more powerful measures to improve the technology and automation level of the whole industry. Below, this paper will carry out a simple discussion around the smart grid distribution system, and analyze the intelligent construction of the power system.



Figure 1 Distribution automation

1.1. Support Funding Remains Limited

In order to promote the overall construction and development direction of the country's electric

power industry, China has given great support in policy, which has provided the development space for the construction of power distribution network automation. However, there is still a large gap in the actual investment in the development of power distribution automation, and because of the long-term insufficient investment, the automation construction of power system is far behind the overall economic construction of our country. And the lack of funds also makes the distribution of power systems in China's regional unreasonable problems in the distribution of distribution networks, even in some areas of power supply implementation and because of the perennial operation and maintenance strength is not in place, and the situation of transmission interruption, which brings great inconvenience to the daily life of local residents.

1.2. Blind Deployment of New Equipment

China's science and technology has been showing a good form of development, and various new technologies and equipment have been springing up, in the actual work of the power system, there are a lot of new technology, new equipment put into use, but even with new technology, but also need to closely adapt to the actual situation of the power industry, if the lack of overall inspection of the power industry and long-term considerations, then the excessive pursuit of new technology and equipment will lead to the overall development of the power industry and equipment incompatible problems, the future will be unfavorable.

1.3. Excessive Management of Distribution Network Systems

Because of the large electricity demand market in our country, the types of large and small enterprises that want to develop in the market are gradually enriched. In addition, different enterprises have different demand for power information resources, so it is difficult to integrate. Even within the same enterprise, the sharing of power information among the corresponding departments is limited.

The management confusion also easily causes some lawless elements to use the public resources for their own personal gain, brings the benefit harm to the enterprise, also brings the negative impact to the social construction. Therefore, the management of distribution network is actually responsible for the enterprise itself, but also to promote the harmonious development of society.

2. Automatic Distribution Network Deployment Power Systems

2.1. Automation of Detection Techniques

In the field of power system, the most important problem should be the fault of the line, because once there is a large area fault, it will directly interrupt the transmission work of the power system, bring great negative impact to the work and life of the famous people.

In view of the problem of short circuit fault, electric power enterprises should realize remote supervision and remote control by means of the practical application of automation technology, record and upload the system running condition in real time, let the host system of distribution network automation make independent analysis and judgment, find fault occurrence point in time, and fault area, and provide reasonable fault resolution measures for corresponding area problem.

But because the power system in our country is mostly in the form of non-effective grounding, even if the single-phase grounding fault occurs, its voltage value will not have too much influence, and the load of the line will not have a greater impact. In general, the power supply can be restored in one to two hours. Moreover, the grounding arc has the function of self-extinguishing, if there is a problem, it can also eliminate the hidden trouble on its own, so as to ensure the normal operation of the line, as long as it can ensure the smooth operation of distribution operation and maintenance, then even if there is a fault, it can solve the problem in a short time.

2.2. Helps Build Powerful Hardware Support Systems

In order to build an effective hardware system, we must make use of the advantages of power system automation technology. By the advanced automation technology, we can realize the intelligent operation of the system operation. As far as the present situation is concerned, the effect

of hardware support applied to power system in practical work is very obvious, and this application, without doubt, is also in line with the development of our country under the new era.

In the process of constructing the hardware support system for the automatic operation of power system, the corresponding technicians are needed to make reasonable prediction of the application scope in the future, and the comprehensive evaluation of each part of the system is needed.

Once the construction of the hardware system is completed, the technicians need to collect the data effectively according to the actual summary of the distribution network, and the purpose of this work is to make the information data more comprehensive comparison work, so that the benefits of the system in operation show the maximum development trend.

For the successful hardware system, there is also a need for staff to monitor the operation of the distribution network in real time, timely detection of problems, reduce the incidence of distribution network failures.



Figure 2 Power generation facilities

3. Application of Distribution Network Automation Technology in Power System in China

Along with the continuous development of science and technology, our country has been able to effectively combine the contact control technology of relay with computer technology, and the fusion of the two technologies is the PLC automation technology in power system.

From a professional point of view, the technology can effectively control the storage within the system, and can also realize the programmable control in the memory. Therefore, if the application of PLC automation technology in the power system, the original problems of the power system will be greatly improved, thus the efficiency of the power system. For example, in the traditional power system, there is generally a problem of poor flexibility, and the use of PLC technology can effectively enhance the flexibility of the power system, and the power system control performance can be deeply optimized, and from this function, the goal vision of reducing energy consumption during the operation of the power system has been achieved. Besides, using PLC automation technology, we can also make more effective analysis and judgment processing for data, and the transmission of data will not be a problem. Once the data can achieve such transmission, then the management of the power grid operation stage will be further optimized.

Besides PLC automation technology, there are many automation technologies that have been applied in power system, such as distribution network automation technology, smart grid automation technology and so on. It can be seen that the application of computer technology in power system is very wide.

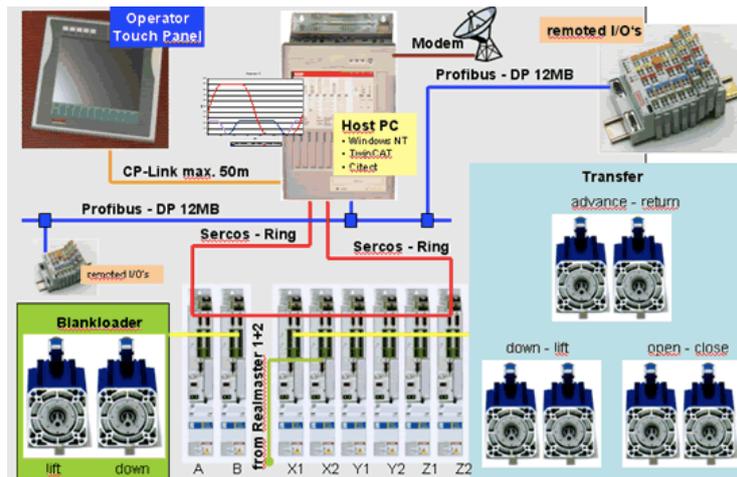


Figure 3 PLC control

4. Concluding Remarks

To sum up, the development of the country's social and economic system and the development of various industries can not be separated from the continuous and stable power energy as the basic guarantee. Therefore, it is necessary to solve all kinds of problems and faults in power distribution network technology efficiently to ensure the power transportation. Especially enterprises, electric power enterprises must be based on the development of their own enterprises in the industry, combined with contemporary high-tech level and computer technology, electronic technology to increase the intensity of automation technology construction, so as to continuously improve the quality and efficiency of power supply work. Only in this way can we promote the healthy development of distribution network automation in China's power system.

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