Discussion on the Construction of Power Information and Telecommunication System

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ABSTRACT
In 2008, Beijing Electric Power Supply Company completed the construction of communication operation management information system, which greatly improved the management ability of power communication and provided strong support to the 29th Olympic Games and the 60th anniversary of People's Republic of China. Based on the current situation of power communication network and combined with the requirements both from the construction of smart grid and the development of information system, this paper discusses the process of power information and telecommunication development, analyses key problems and put forward the solutions. With the experience of the construction telecommunication information system of Beijing Electric Power Supply Company, the system architecture and functions are also discussed. It has reference value for the construction of communication operation management system in power system.

INTRODUCTION
Power communication network is the basic physical network, which bears the weight of the production, dispatching, marketing and management of power grid. And it is an important supporting platform for economic operation, ensuring the safety, stability and efficiency of the power grid. Intelligent power grid of Future Ltd. construction and information construction of the company will develop rapidly. The company’s professional supporting for the power communication professional ability put forward higher requirements.

In order to meet the development of smart power grid and information construction. On
the one hand, we should vigorously strengthen the construction of power communication network. On the other hand, we should improve the level of managing the electric power communication network, improving the ability to control the electric power communication network. Therefore, it is very urgent to strengthen the research of the ideas which are about the construction of the power communication network information system.

**SYSTEM CONSTRUCTION STATUS AND PROBLEMS ANALYSIS**

The stage of electric power communication information development. The information construction of power communication is accompanied by the development of power communication network. Through many stages, the management means and modes of power communication network in each stage are closely related to the development demand of power grid development and the scale of network.

- Artificial management stage. Because of the small scale of communication network, less line, the object of communication professional service is relatively simple, and the application is not complicated, so it can rely on manual management of network information. At this stage, record and management of the information of the communication network are mostly in paper file mode.

- Communication network information management electronic stage. After the construction and development of communication network, it has a certain scale, and part of the communication network data has realized been digitized and the record of the network information.

- Communication network management information stage. The power communication network has reached a considerable scale. Communication network carries more diversified services, and the requirement of communication network carrying capacity and service carrying reliability are higher, so it is necessary to realize lean management and scientific dispatch of communication network resources for communication network.

The analysis of the problem

Compared with the growing scale of electric power communication network, the demand of higher and more reliable business support ability of electric power communication network, the construction of electric power communication network management information system mainly has the following problems.

The informatization means of supporting electric power communication network are relatively backward. The support platform for communication network monitoring, communication network resource management and communication network operation and maintenance is uneven, and the system is lack of effective integration, and there is no effective data exchanging and link aging among the systems.
In the communication network resource management, there is lack of effective technical means and supporting platform. Because of the range of the electric power communication network is more extensive, the diversification of business needs and alienation of production. There have some problems in dealing with the management and service of large-scale communication network and the efficiency and timeliness of smart grid transmission, transformation, distribution and application.

In the power communication network operation and maintenance of technical support means, it is still very scarce. For the operation and maintenance of process management, there is no corresponding supporting platform, generally it needs to rely on manual processing, and the efficiency is low.

**KEY PROBLEMS TO BE SOLVED IN ELECTRIC POWER COMMUNICATION INFORMATION SYSTEM**

Power communication informatization is an important technical means to support the needs of the company informatization and all aspects of the smart grid. Compared with the process of enterprise informatization, the process of power communication informatization is obviously lagging behind. From the communication network monitoring and communication network operation management, we need to focus on the following key issues.

- Solve the multi-platform development and integration problems for communication network monitoring and operation management.
- Solve communication resource management in large scale communication network and joint resource scheduling problem.
- Solve the problem of the maintenance process management informatization and unified platform.
- Solve the problem of vertical and horizontal connection between the platform and communication network management system and other business departments.

The above problems are the key problems that restrict the power communication informatization of the company. Without solving these key problems, the information management of electric power communication network cannot really play a role in the management and operation and maintenance of communication network.

**DISCUSSION ON CONSTRUCTION EXPERIENCE OF ELECTRIC POWER COMMUNICATION INFORMATION SYSTEM**

System architecture

Combined with the above analysis, according to the construction status of Beijing Electric
Power Corporation communication network related management and monitoring system. In the process of Beijing Electric Power Corporation power communication informatization construction, the following problems are emphatically solved.

Centralized management and monitoring of multi-vendor devices are implemented in a unified network management interface.

The centralized dispatching management of the whole network resources has been realized on the integrated platform, and realizing the dynamic management of Beijing electric power communication resources.

The unified platform of Beijing Electric Power Corporation electric power communication operation and maintenance has been built, so that the management of power communication network can be closed loop.

CONCLUSIONS

Electric power communication operation and management information work is an important technical means to improve the management and operation of power communication, and it is also an important guarantee for the intelligent construction of power grid and enterprise information construction. Beijing Electric Power Company completed the construction of communication operation management system in 2008, and formed the management information system of power communication network including 3 subsystems of network monitoring, resource management and operation and maintenance management platform. But the power communication management and operation information work is still a long and complex system engineering, which needs to be interconnected in all levels of power communication network intelligent management system. A great deal of work has been done on the data mining, analysis and system application level of the communication network resources at the same level.

REFERENCES


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