Research on the Safe and Efficient Utilization of Computer Technology in the Large-scale Development of New Energy Power

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Abstract. New energy mainly refers to various forms of energy other than traditional energy, including wind energy, solar energy, hydropower, geothermal energy, etc. New energy power generation refers to relying on these new types of energy for power generation, rather than relying solely on traditional energy sources such as coal and petroleum to generate electricity. The use of new energy methods to generate electricity can not only realize the sustainable use of resources, but also optimize resource allocation, convert idle resources into usable resources and improve resource utilization. In order to promote the management of power projects in an orderly manner, we need to establish a scientific and effective computer system, so that we can effectively guide the development of power project management and effectively improve its development efficiency.

Keywords: Computer Technology, New Energy Power, Development

1. Introduction

Computer technology is very important to the development of the power industry. Only when power technology is improved can the market competitiveness of power companies be improved and power companies can gain more benefits in market competition. Only in this way can electric power companies achieve longer-term development. To ensure the safety of electric power production, meet people's demand for electric power and better guarantee people's living standards. In the development process of electric power technology, it is necessary to continuously combine advanced science and technology, so that electric power enterprises can better adapt to modern times. The needs of social development must also continue to strengthen the emphasis on power production management to ensure the safety of power production.

2. Overview of computer power technology
The digital construction of computer power systems is the direction of future power enterprise construction. The establishment of a power computer database is a key point in the digital construction process and the establishment of a power computer catalog database is the core of the implementation of digital management[1]. Enter the system according to the category names of files within the enterprise and the complete database catalog can help enterprise managers to better coordinate data and make correct decisions. In addition, the establishment of a database of power enterprise status is conducive for managers to query dynamic information in time, so as to better integrate file catalogs and save classification time.

3. Development and analysis of new energy power

3.1. Development purpose

For the grid planning for the coordinated development of new energy, the purpose is to establish a grid that can reasonably consume new energy, so as to give play to the advantages of new energy emission reduction, energy saving and low carbon. It needs to be reasonably consumed. In order to achieve a reasonable consumption of new energy, it is necessary to ensure that the system will not cause greater cost pressure in the process of consuming new energy and it is required to control the increased operation and investment costs due to the consumption of new energy; at the same time; , It also requires the system to be flexible enough to withstand the violent fluctuations brought about by new energy grid connection[2]. The grid structure of the power grid is different and the ability of the system to absorb new energy is also different. The difference in the grid structure will also affect the operation of different types of flexible power sources. The important technical issues faced in this link include the analysis system's standby level, the analysis system's frequency modulation capability, the analysis system's peak regulation capability, analysis of the absorption capability of new energy, analysis of the transmission capability of the power grid and planning to have a strong absorption capability Of the grid.

3.2. Development features

The power generation output of new energy is characterized by strong randomness. Once the new energy is connected to the grid, once the output changes, it will cause the power grid to fluctuate frequently, which will affect the grid system dispatching, the economy, reliability and safety of the grid system. (1) Impact on the power flow of the power grid. New energy sources such as photovoltaic power plants and wind power, especially large-capacity wind farms, are connected to the power system. The wind farm sends active power to the system and absorbs reactive power, which changes the traditional unidirectional power flow characteristics. It is necessary to study the trend of new energy sources connected to the power system[3]. (2) Impact on the stability of the power grid. If the regional power grid is strong enough, after the system fails, the wind turbine or photovoltaic power station can restore the terminal voltage and operate stably after the fault is cleared and the transient voltage stability of the regional power grid can be guaranteed; if the regional power grid is weak, then Wind turbines or photovoltaic power plants cannot re-establish the terminal voltage after the system fault is cleared and the wind turbines will lose stability due to overspeed operation, which will damage the transient voltage stability of the regional power grid.

4. Power development and application of computer technology
4.1. Choose suitable electrical equipment

Regarding the problems in the power supply system, power workers often use the way of replacing power supply equipment and new power energy-saving technologies, thereby effectively improving the overall performance of the power supply system and avoiding the use of electrical energy due to equipment problems Inefficiency. For example, a power supply company in China uses a 3 kV generator for the power user in its power supply area and uses a special transformer to supply power to it to meet the power demand of the power user. It can effectively promote the long-term sustainable development of this power user and it also reflects the quality and level of power supply services from another aspect[4]. In addition, for the optimization of parallel capacitors, the active power needs to be improved to effectively reduce the load in the grid and reduce the reactive power in the grid power system, so as to reduce the negative effects in the grid system influences. Reduce power consumption and improve the efficiency of power use. The dispatch diagram of the grid system is shown in the figure below.

![Figure 1. Dispatch diagram of the grid system](image)

4.2. Optimize distribution lines

From a practical point of view, the distribution line greatly affects the safety and stability of the power plant and the entire grid system and under normal circumstances, the distance of the transmission line is also related to the loss of electrical energy. The distance between electricity users is relatively short and it is easy to cause power loss in the actual transmission process. Similarly, the distance between power plants and users who need electricity will increase the power load and cause power loss problems[5]. Therefore, in response to this problem, the technical personnel of the power company must change the power supply technology in time and effectively apply the power energy saving technology to reduce the resistance of the resistors in the distribution line and improve the efficiency of the grid transmission. In addition, the power supply line designer should plan the line reasonably, take the shortening of the power supply distance as the design basis, shorten the installation distance of the transmission line, so as to stably transmit power and improve the efficiency of power transmission. The optimization mode of the distribution line is shown in the figure below.
4.3. Development of new energy sources

Generally, there will be a lot of power consumption and power waste in the process of generating electrical energy. From the perspective of how to save electricity, new energy sources can be developed using power-saving technologies[6]. For example, the western and eastern coastal areas of our country can use wind power to convert wind energy into electrical energy; and Xinjiang, which is rich in sunshine, can use solar energy to convert solar energy into electricity; there are also some rivers and big gorges, which can make full use of the turbulent water flow and use the flow of water to generate electricity. These energy sources are all renewable energies, which can replace traditional thermal power generation and reduce air pollution. At the same time, they can meet the different power needs of various regions and the excess power can be transmitted to areas with greater power demand to promote. The rapid economic development of various regions provides sufficient support for the economic and social development of our country.

5. Conclusion

The safety of power production is very important to power companies. Therefore, in the process of power production, power companies must strengthen the management of power production and the management of relay protection operations. Only in this way can the safety of power production be guaranteed. In the daily production process of power companies, it is necessary to continuously strengthen the supervision of power technology, so that problems in the operation of the power system can be found in the first time and effective measures can be taken in time. At the same time, the power company must also establish a. In this way, the hidden dangers in the power production process and the defect database of related electrical equipment are reduced. In this way, the phenomenon of operation errors of the power protection device in the process of discovering hidden dangers is reduced, which ensures that the electric power protection device judges the wrong situation by itself. Once a safety accident occurs in the power system, the protection device can take corresponding measures in time to avoid the loss and harm of the safety accident from being further expanded.

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