

Technology of New Energy Grid Remote Testing Based on Internet + Exploration

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Abstract—The characteristics of new energy are points more, wide distribution. This article in view of the traditional fixed field test cost a lot of manpower and material resources and financial resources of the status quo, put forward by applying Internet technology to realize remote test and intelligent analysis of new energy grid, improve test reliability and working efficiency. Focus on analyzing the characteristics of the new energy grid test process, put forward are the necessary conditions of remote testing, based on the Internet + technology new energy grid remote testing vision technology solutions, and popularization and application.

Keywords-New Energy, Interconnection Test, Remote, and the Internet

I.INTRODUCTION

At present, as the new energy power generation capacity in the increase of the proportion of the power system, their influence on power system is becoming more and more significant. So the randomness and intermittent how to safe and reliable new energy generation (dg) in power system and how to solve the various influence on power system after grid-connected, has become a problem that needs urgent solution. New energy on a large scale grid faces a load of power system, the safe operation of the power system, power quality, such as the main technical problems. Peak shaving problem is mainly due to factors such as wind instability and climate change affect the power output; The safe operation of the power system is mainly due to wind power and photovoltaic output variable and the instant impact, will directly affect the transient stability of power grid and frequency stability; Main power quality problem is the new energy on a large scale grid could cause a voltage level is reduced, so the fan and other electronic equipment for harmonic pollution and hazards, etc.

II.NEW ENERGY GRID TEST STATUS

The main mode of new energy grid test is based on the traditional artificial stationary measurement method: daily management of new energy measuring, regularly or irregularly. Each a detection method has advantages and disadvantages. In general, according to the actual situation of the assessment requirements, the tests on the new energy and power grid can choose different test methods.

Grid-connected special measure, namely to all sorts of new energy, such as solar energy, wind power, hydro power in the grid, before and after measuring the impact of these equipment of power system operation indicators, through the comparison with relevant national standards, to determine

whether it can be put into operation. The test needs to have a definite object, and have a test site and personnel as well as the necessary conditions.

Regularly or irregularly detection, that is, for new energy in the process of grid-connected operation, according to its influence on power system operation, damage degree and the problems found in regular or irregular inspection ways. Regular testing for more new energy power generation in the seasonal variation of the volatile period census on a regular basis, the main purpose is to fully understand the entire network of new energy characteristics of parallel operation level and volatility; Not tested periodically for new energy grid detection problems in state-owned enterprises.

At present, with the application and technical development of the Internet, more and more industry using Internet technology production and management, data transmission, etc. At present a lot of electric power company has used the Internet technology monitoring and management system, set up many aspects of system structure and the problems to provide more rapid response. Obviously using Internet + technology system construction and the access to information has become the key to the success of these systems.

III.NEW ENERGY GRID REMOTE TESTING BASED ON THE INTERNET + EXPLORATION

New energy grid remote testing technology based on Internet + was based largely on modern computer technology and Internet communication technology, power technology, software development technology and data structures such as technology research to establish a new energy grid remote testing technology system platform of the theoretical basis. Through the Internet technology for remote testing methods, including using background testing system in the laboratory to the operation of the new energy grid enterprise field test scheme and parameter input, etc. At the same time for single or multiple test object to set the remote and real-time checking and correction model is established in this paper. Using Internet technology rapid information release and field data analysis ability. The system includes data acquisition, communication, based on the output of the Web visualization analysis part. Which data to collect and to measure the actual new energy sources and network data. Data integration, communications, based on the output of the Web visualization analysis and database records are completed a computer system, based on the data acquisition equipment

and communications between Info Node industrial industry standard protocols of serial port (RS - 422/232/485) Ethernet implementation. One or more of the acquisition device can be connected to a Info Node. Info Node technique, is applied to implement test dedicated database manager or the management of the Web server, application of various special intelligent system in the computer system to finish analysis and extend the functionality. Through authorization for users to access the data stored in the system and its analysis results and support the theory of the standard file transfer structure.

IV.REMOTE TESTING TECHNOLOGY IMPLEMENTATION PROCESS

1) in view of the new energy grid test objects in the connection test equipment, test points according to different test using different sensors to test the target object in accordance with the relevant standards for data collection, research and development the corresponding test equipment and measuring method. The key lies in the accuracy of measuring equipment and sampling frequency and wave record function, etc.

2) the research way and the method of data transmission, main research using the existing network channel here by setting an IP address to new energy grid test data uploaded to the intelligent analysis platform, and in accordance with the corresponding testing standards and requirements for automatic classification and sorting.

3) modeling based on the test requirements and related standards, the original data into knowledge, put forward the useful information from the selected data to generate reports and the corresponding test and analysis results.

V.CONCLUSION

For new energy points more wide, scattered distribution, etc., but its interconnection test is more important, the scene of traditional fixed testing costs a lot of manpower and material resources and financial resources. By applying Internet technology to realize remote testing and intelligent analysis of new energy grid, improve test reliability and working efficiency. At the same time through new energy grid remote testing technology based on Internet + study to establish test platform, can be unified for new energy grid test data integration and management, set up database files, and planning and management of power grid companies and supervision to realize resources sharing.

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