July - August 2020
ISSN: 0193-4120 Page No. 5991 - 5995

Research on the Evaluation of Wind Energy Resources Based on Power and Wireless Communication Sharing Tower

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Abstract

With the large-scale increase in the demand for 5G construction, tower companies will encounter great challenges in terms of operator demand acceptance, base station construction and delivery and post-maintenance operations. How to provide sufficient site resources for 5G construction and development, effectively improve resource utilization, meet the 5G business needs of various operators and build a low-cost, high-efficiency and excellent service competitive advantage will be considered by the tower company in the later 5G construction process One of the content. Therefore, the Tower Company can actively focus on technological breakthroughs, vigorously develop innovative products, optimize resource management mechanisms and other methods and measures to face the 5G construction problems, seize the opportunity and further enhance the brand influence of the Tower Company. The use of electric power and wireless communication technology to optimize the analysis of the tower can effectively complete the utilization of wind energy resources.

Keywords: *Shared Tower, Wind Energy, Evaluation;*

1. Introduction

Now my country's mobile communication system is getting better and better. If mobile communication operators want to get more benefits at this time, they need to always improve the quality and security of communication services and upgrade the current network. And maintenance, but also timely update and optimization, so as to always meet the needs of users. The core of the communication network is voice communication, so if you want to improve the quality of the voice service of the communication network, you must have a special device. Although this device can improve the quality, there is still a small shortcoming, that is, it will increase a lot of communication networks. Cost at runtime. Wind energy is an important renewable energy source. It is not only rich and widely distributed, but also one of the most important alternative energy sources. As an effective technology for reducing carbon dioxide, wind power has no greenhouse gas emissions. It is applicable to almost all parts of the world and is in great demand worldwide. However, because wind energy has strong random volatility and difficult to accurately predict, this increases the difficulty of system dispatch control and limits the development of new energy power. It is very important to use power technology to analyze wind energy resources[1].

2. Electricity and wireless communication technology

Mobile communication fully integrates the design

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July - August 2020
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ideas of the computer system into it at the beginning of the construction and this integration improves the transparency and scalability of the system to a certain extent. The scalability of mobile communication is mainly reflected in the expansion of the system scale[2]. But there is another relatively difficult part of the expansion process, which is that the expansion also increases the corresponding cost. The existence of such difficulties keeps the scalability of the system at an unachievable level. So now when our country discovers the mobile communication system, people are thinking of ways to reduce some communication methods, reduce some costs, so that the scalability of the mobile communication system can be gradually improved. Now some countries have come up with some very good methods. This method is to use the cloud function method, that is, users who use mobile communication systems can connect wirelessly to the cloud service when using the application, so that they can Improve wireless communication capabilities while reducing costs. The plasticity of the mobile communication system is to find ways to increase the existing resources through reorganization, in a true sense to adapt to the needs of current users. The wind solar system is in the figure below.

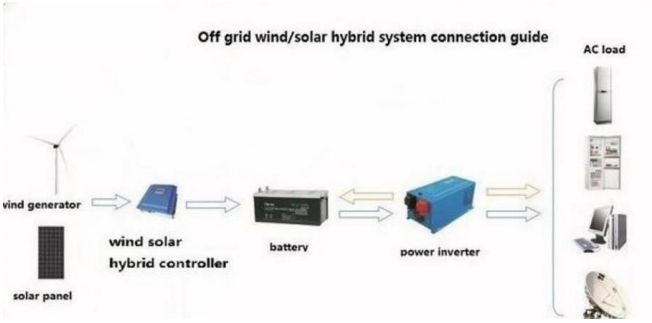

Figure1. Wind solar system.

3. Sharing tower technology

3.1. Construction of communication tower

The construction of the communication tower should consider the regional planning and surrounding building environment and meet the height requirements and range requirements of signal coverage. The height of communication towers in Shanghai suburbs is mainly concentrated between 20m and 42m. According to the planning requirements and building types in the coverage area, towers of different types and heights can be selected. Common tower shapes of communication towers include single-tube towers, beautification towers and angle steel towers. The existing existing communication towers mainly focus on the coverage of operators' 2G, 3G and 4G signals. The 5G construction needs were not considered at the initial stage of construction. Except for the platforms already used by 2G, 3G and 4G signals, the reserved platforms cannot meet the 5G construction of different operators. demand. Figure 1 is a schematic diagram of the distribution of a single-tube tower platform. For a single-tube tower with a height of 42m and a five-story platform, it can solve the operator's current network construction needs, but if the operator needs to add 6 or more 5G on the same tower Antennas cannot meet this construction demand[3]. Compared with existing network antennas, 5G antennas are highly integrated, with small size, small windward area and heavier weight. With the advent of the 4G era, with the continuous expansion of the existing network, the number of RRUs has also increased significantly compared with the 2G and 3G eras. And all RRUs need to be on the tower and there are higher requirements for the load of the tower. Therefore, when building 5G, it is necessary to comprehensively consider various factors according to the tower's carrying capacity. The wind control system is in the figure below.

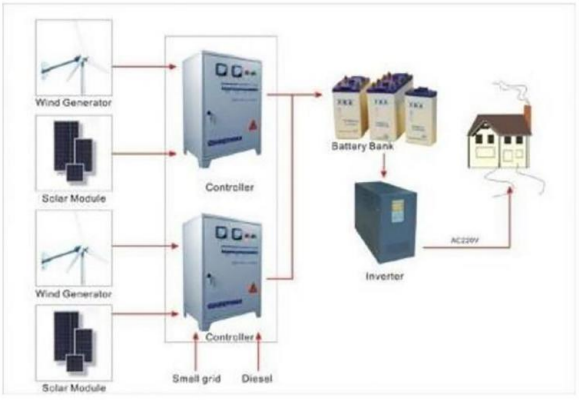

Figure2. Wind control system.

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ISSN: 0193-4120 Page No. 5991 - 5995

3.2. Sharing tower

By deepening stock sharing and new building sharing, one tower has three households and resource utilization is improved, which is equivalent to reducing repeated construction of towers, saving capital expenditures, operating costs and saving valuable social resources such as land, steel and electricity. Through sharing, the marginal benefit of assets is improved and the investment structure is fundamentally changed. Reducing the construction cost of basic telecommunications companies has greatly increased the speed of 4G network construction. China Mobile's network has been in the forefront of the world in just three years, achieving leapfrog development and becoming the largest country in the popularization of 4G networks. After the fixed assets such as iron towers are separated from the three basic telecommunications companies, the relatively stable income of the base station leasing business has a certain attraction for social capital and also helps the entry of emerging social capital[4]. Moreover, after the separation of basic telecommunications companies and tower resources, the mobile network coverage and capacity of basic telecommunications companies have gradually converged. Consumers' experience differences in network coverage between telecommunications companies have become smaller and smaller and the core competitiveness of telecommunications companies has shifted from network advantages. To attract customers by relying on service and innovation. The establishment of China Tower supports weak operating companies and new operating companies to a certain extent, which is conducive to narrowing the gap between telecommunications companies and breaking the original monopoly of basic telecommunications companies with network advantages. Reduce entry barriers caused by the sunk nature of investment costs and promote market entry and industry competition. After being separated from the construction of communication infrastructure such as towers and computer rooms, telecommunications companies can focus more on optimizing business, improving network management capabilities and giving customers a better experience, thereby promoting effective market competition and optimizing market structure. The wind management system is in the figure below.

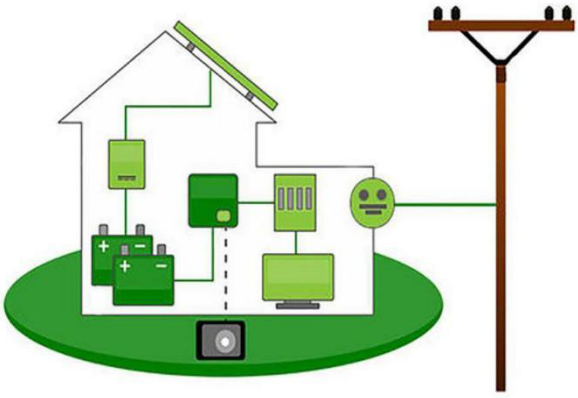

Figure3. Wind management system.

4. Management analysis of wind energy resources

4.1. Wind power market management

my country's wind power market has entered a period of adjustment. In response to the issues mentioned above, the following adjustments have been made: (1) Optimization of wind power generation, using energy storage technology and wind power grid-connected absorption technology to encourage the development of the wind power industry; (2) The state should formulate technology for the wind power industry Standards, restricting wind power companies' standards and gradually optimizing and upgrading the technologies of wind power companies and conducting refined management on them, which greatly helps to integrate with the international wind power market; (3) Gradually transform the planned control of the power market into market control. The main plan control is supplemented by the form, so that the electricity price can reflect the market supply and demand relationship and ensure the sales of wind power products. At the same time, due to the above-mentioned reasons, the cost of wind power will be relatively high in the early stage of development and the state must provide corresponding support policies in the pricing of wind

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power. We can learn from foreign countries' pricing subsidies that adopt a dual policy of fixed electricity prices and mandatory grid entry prices[5]. In Denmark, environmentally sustainable wind power is encouraged and certain economic subsidies are given and corresponding taxes and fees are levied on thermal power generation and CO emissions. Encourage wind power users to gradually develop from self-sufficiency to integrating into the national grid for sales. Germany attaches great importance to wind power and adopts a policy of flexible use of minimum protection electricity prices to encourage the use of wind power. As the scale of the wind power industry expands and income increases, the minimum protection electricity price is reduced year by year. At the same time, the flexible use of encouraged electricity prices, the evaluation of wind resources of different wind farms, in the form of controlling the length of time the encouraged electricity prices are used, a certain degree of economic subsidies to users who use wind power, to achieve the goal of reducing the gap in wind power revenue. Spain's incentives for wind power are quite different. The price of wind power is linked to the national benchmark electricity price and increases every year. Since the end of the 20th century, my country's domestic wind power grid price has remained high, all higher than the price of thermal power generation. Under this form, the development of wind power has been greatly hindered. Therefore, while we are improving wind power technology management standards, the country should learn from foreign pricing strategies in terms of wind power pricing and adopt some flexible policies to encourage the sustainable and steady development of wind power. The wind generator system is in the figure below.

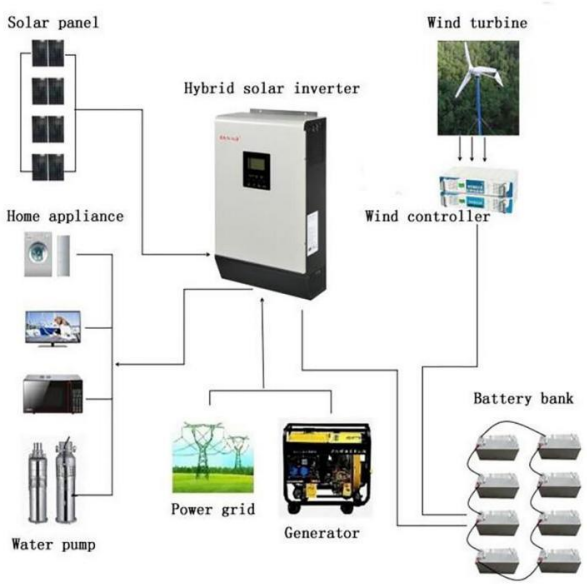

Figure4. Wind generator system.

4.2. Wind power operation monitoring

The monitoring of the operating status should be implemented for a long time in the subsequent daily operation process. The monitoring content includes the failure rate of the WSN node, the various power parameters of the node itself, etc. and it is required that all management parameters must be included in a unified verification framework[6]. As various new computer technologies have been developed, there are big data technology and cloud computing technology. Among them, big data technology can be applied to the monitoring process of the node's operating status. The test items are the power load borne by the node and the operating parameters of the node itself. As well as the failure of the node area, all these parameters are required to be processed by the cloud computing system and fed back to the power dispatchers and the operation status monitoring personnel of the WSN node system. When it is found that the failure rate of a node is much higher than that of the entire system For other nodes, it can be determined that there is a defect in the node system. You cannot think that the fault has been cleared only after the simple node replacement work, but analyze the reason why the node has the fault and do Good professional handling. The wind monitor system is in the figure

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below.

Figure5. Wind monitor system.

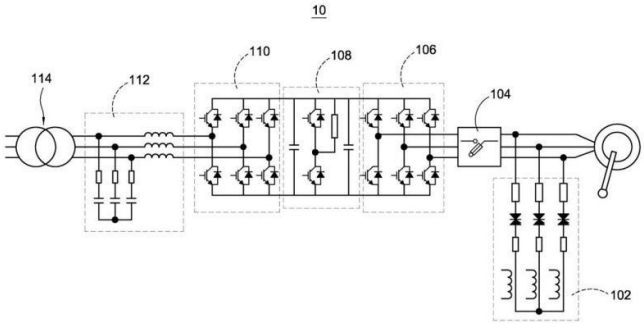

Figure6. Wind system.

5. Conclusion

In the actual power and wireless communication tower foundation construction process, various influencing factors must be considered comprehensively. In addition to the most basic basic knowledge, the construction personnel must fully understand the working environment of the power and wireless communication tower through site surveys, especially It is necessary to pay attention to the existing complex situations and take effective and effective countermeasures. This paper analyzes the influencing factors of power and wireless communication tower foundation quality in detail and proposes corresponding preventive measures for the weak links of the basic quality of transmission lines, which can effectively improve the basic quality of power and wireless communication towers, thereby ensuring that power and The wireless communication tower can operate smoothly and deliver sufficient electric energy for electric users.

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