New Ideas and Methods of Power System Planning in Market Economy

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Abstract. With the deepening of domestic market economy, power plants and power grid companies are gradually separated from each other. The power generation company and the grid company participate in the power commodity trading in the market together with the users. In market economy, it is of great significance to make plan for power system, which directly affects the local economic development and maximizes the economic benefits of enterprises. There are new influencing factors in power system planning, in which the proportion of uncertain factors is relatively high, so that it upgrades the difficulty of power system planning. Therefore, the author first reorients the power system planning in market economy, followed by the analysis of the new evaluation criteria for power system planning, and then analyzes the ideas and methods of power system planning in market economy.

Keywords: Market Economy, Power System Planning, Power Supply Planning, Ideas and Methods, Reorient

Introduction
After the business power generation and grid is separated, the electricity bills are sold through online bidding. Electric power projects in China have entered a commercial operation mode. With the rapid development of market economy, it is particularly important for power system planning. Enterprises play a vital role in the market economy, and power supply is one of the main factors to ensure that enterprises can successfully maximize their profits. By analyzing the power system planning, the benefits based on investment and return can avoid arbitrary decisions or blind investment. In the market economy, reasonable power system planning helps companies to obtain the best benefits and avoid serious economic losses. Under the conditions of market economy, reasonable power planning can help enterprises obtain the best benefits, avoid serious economic losses, win higher economic, social and environmental benefits, and promote the realization of the sustainable development strategic goals of power planning.
1. Reorientation of Power System Planning In Market Economy

Power system planning has been carried out for a long period of time based on the planned economy system, and the designated way has gradually improved after 2010. Under the traditional planned economy system, the main focus of power work is on how to improve the power supply capacity. It largely requires power companies to increase their speed, accumulate funds, and accumulate benefits in projects. Such a model makes companies have little research on the market. The market economy has gradually developed, and we has gradually established a new economic situation. In this situation, the power grid and the power plant in power companies are in charge of each other and are coordinated with each other to make progress. At this time, the power work needs to be re-planned according to the market economy. Thus it urgently needs to be study the positioning and focus of the power system planning and planning evaluation. From the point of the author, the following four points directly affect the positioning of power system planning.

(1) The actual demand of power market is the basis of power system planning. The local economic structure and power consumption structure have a direct impact on power system planning, so we need to seek new power growth from the changes in development to meet the actual power demand of the society.

(2) The operating speed of the development of power industry is proposed by starting from the economic benefits of the enterprise itself and combining with social benefits. In power system planning, the speed of industrial development must be centered on economic benefits, as well as better corporate and social benefits, so as to unify the national economy. Enterprises must not blindly invest in pursuit of the speed of development, and must not repeat construction, which may affect social benefits and even affect the company's own benefits.

(3) The power system planning actively guides the power market by combining with market planning and market development needs. The traditional load forecast is changed to the actual demand forecast of the market; national departments, government trends, large-scale power users, and the actual use of electricity by residents should all have in-depth research to deeply understand the inevitable relationship between economic development and power changes; active prediction should be made from statistical analysis to improve the timeliness and accuracy of power market analysis.

(4) We should attach importance to risks, think about advantages from pragmatism and competition, and avoid risks to the greatest extent.

2. New Evaluation Criteria for Power System Planning In Market Economy

Under the market economy system, the traditional evaluation standard for power system planning is no longer applicable. The sales volume based on production in the period of power shortage is gradually eliminated by the times, and the modern power supply and demand is gradually changing, and the positioning is also changed. The actual demand of the market determines the power system planning, which also changes the standard for power system planning. The power system planning is changing smoothly and the direction needs to be updated. As far as the evaluation criteria for modern power planning is concerned, the electric power basically meets the actual demand of the market, and the power supply in the future market is greater than the demand. Therefore, we should unify objectives of the planning, control the supply capacity as much as possible, and develop new major projects. However, it is out of line with the market economy to plan only from the power price when the market is opened up, which may cause the market to shrink after rising prices. And it is not conducive to actual development after a vicious circle. The evaluation criteria can be considered from the following four aspects:

(1) The innovation of future power planning. The local economic structure and power consumption structure have a direct impact on power planning, seeking new power growth from changes in development to meet the actual power demand of the society [1-2].

(2) Whether to allocate various power resources from the market value law. For example, in the calculation of electricity price, under the system of market economy, the price will rise when the power supply is insufficient; and the price will decrease if the supply exceeds the demand. The price
forecast signals are fed back to the work, and the development scale and direction are gradually formed [3].

3) The adaptability of power system planning. The development level of power load has changed gradually. At this time, the power company should adjust the power grid construction and power supply flexibly and timely to better meet the actual needs of the market load, which can largely avoid the lack of predictability of work.

4) The competitiveness of power system planning. The future development direction of electric power directly determines the development of power enterprises. From a long-term perspective, we can observe whether power planning is forward-looking and is able to enhance the future competitiveness of power companies. Strategic planning and macro planning are the important proportion in the evaluation.

3. Thoughts and Methods of Power System Planning In Market Economy

Power companies should change their perspective and create new planning methods. Under the background of market economy, power grid companies and power generation companies occupy the position of market participants when they cooperate to organize power work. In the future, it is likely that the power companies will gradually separate from the grid companies, and they gradually form their own configuration and resources, and finally fully participate in all corners of the power field. Transmission field still occupies the position of natural monopoly in China. The power allocation of a city has a direct impact on the power grid companies in the city. The government or relevant departments will supervise the power grid and macro-control the market demand. The power grid company should also provide fair and open services to form certain interests and basically meet the needs of operation and power grid expansion. In this situation, power companies need to actively change their attitude and create new planning methods to better implement power system planning. Power grid enterprises should be more clear about their responsibilities and scope of work [4]. The owners of power grid projects are diversified, but the unified planning of power grid cannot be changed. According to the national regulations and the actual arrangement of the government, the power grid company has actively worked out and improved the ideas which are basically in line with the power planning, and forms the method of power system planning. After doing a good job in the preliminary forecast work, including the forecast of power demand and that of energy and resources, we can better consider the development of the balance of power supply and demand in the future. Then, the best power planning method is obtained through comprehensive consideration of local power supply planning, social environment, investment and financing planning.

Power companies analyze actively the uncertain factors in the market economy and explore new ideas and methods of power system planning. The traditional power planning work is to configure the appropriate power supply and combine with load growth to meet the actual supply demand. However, under the modern market economy, changes in the power market have caused major changes in power planning. In the end, social benefits are still the core pursuit of power companies, but the purpose of grid investment has changed. After market reforms, maximizing the benefits of grid operation and construction has become the final result. Therefore, the benefit after investment in the electricity market has become one of the decisive factors in grid planning. Faced with such uncertainties, the technical objectives of power grid planning have changed: to minimize costs and remaining power, and to reduce capacity constraints on the basis of ensuring that transmission needs of the market are met to directly reduce the market power of the power plant [5]. Market dominance accounts for the highest proportion of the entire uncertain factors, for instance, power planning and load changes are full of unknowns. Power supply planning has a direct relationship with the local market economy. Load changes are caused by changes in electricity prices. The elastic change shows greater uncontrollability under the market economy. In addition, there are uncertainties in the power flow of the system. In the market economy, users have freedom in power selection. The relationship between supply and demand gradually makes the power system complicated. There exists large-scale long-distance transmission, and it is also prone to occur grid congestion. What the power companies
have to focus on when making power system planning is how to measure the balance between the increase of transmission lines and the full utilization of the existing transmission capacity [6-7].

Various attempts are made to improve the ideas and methods of power system planning that can be considered from grid investment, electricity price, and grid planning. Grid investment is monopolistic, but it is also an investment based on the market, so the competitive electricity market is worthy of recognition. On the premise that the power grid is safe and reliable, that whether other investors can participate in the power grid planning can bring new patterns to the power system planning and obtain better benefits. The pricing method of electricity prices should be reasonable with amortized pricing, marginal transmission, regional prices, and contract prices. Whether there is a more appropriate pricing method among these charging methods is worth considering deeply, which can help the current power in China better. Transmission network planning directly affects the future development of the electricity market, which also has a positive impact on the local market economy. Generally speaking, in the market economy, engineering and economy can be conducted in-depth evaluation to formulate planning methods and prescribe uncertain factors, so that the transmission network settings of power system planning can be well achieved. Power supply planning and changes of system power flow are the main influencing factors in the future. It is difficult to analyze these uncertain factors in detail, so reducing the analysis is a method worth paying attention to [8-9]. The development of the energy industry has a far-reaching impact on society, and it will also have varying degrees of negative impact on the natural environment. In the power development plan, we must adhere to a sustainable development strategy, taking into account environmental, technological, social and economic factors, etc. Based on the development strategy of the national government, various factors are weighted on this basis, and the final power planning plan is determined and measured. From the perspective of technical and economic factors, it includes the cost of energy development and operating expenses. From the perspective of the natural environment, it includes the use of non-renewable resources, land resources, and water resources in energy development. From the perspective of socio-economic factors, power planning needs to follow two principles. One is the social impact of power planning on enterprises, and the other is the benefits and consumption costs of power planning on the entire social economy. Common measures Indicators include health status, immigration status, household income and expenditure, etc. Combining environmental, technological, social and economic factors, and dividing the weights into scientific and reasonable analysis, can realize the determination of the best power planning scheme under different goals, and it is also conducive to the realization of the sustainable development strategic goals [10-12].

4. Conclusion
In the market economy, the intuitive task faced by power companies is how to meet the demand of the market and even obtain the maximum benefits with minimum cost. In the market economy, it plays a decisive role in the development of power enterprises that how do they coordinate and unify the four aspects of power generation, transportation, distribution, and power supply, and give full play to their competitive advantages and realize an open power market. In order to optimize new ideas and methods of power system planning, the power companies should actively change their perspective and consider from the market demand to continuously reduce the impact of uncertain factors and finally improve the ideas from the power grid investment mode, transmission network planning and pricing method.

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