Research on internal control management optimization of power grid enterprises - a case study of China

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Abstract. With the progress of society and the development of science and technology, both enterprises and individuals are inseparable from electricity, and the trend of electricity demand is growing, which is a favorable market opportunity for the development of power grid enterprises. It is of great significance for the operation and development of power grid enterprises to improve their internal control management on the basis of good market opportunities. Combined with the internal control management method, this paper analyzes the current situation of the internal control management of power grid enterprises, and concludes that the internal control management function positioning of power grid enterprises is not clear, the management consciousness is weak, the evaluation system is not perfect and so on. Together with the present situation of China's power grid enterprise internal control management countermeasures and suggestions are put forward. For example, to create a good enterprise internal control environment, improve the internal control system of power grid enterprises, improve the enterprise internal control management evaluation system, integration of power grid enterprise risk assessment and internal control management. In this way, the operation efficiency of power grid enterprises can be improved, so as to promote the healthy development of China's power grid enterprises and seek more benefits for the society.

1. Introduction
Today, the development of the new era, all walks of life are inseparable from electricity, power grid enterprises in the stable growth of the same time, enterprises also need to improve the internal control system to support the operation of the entire enterprise. The internal control management of power grid enterprises can not only guarantee the implementation of every rule and regulation of power grid enterprises, but also discover and adjust the unscientific and unreasonable phenomena in the operation process of power grid enterprises. The internal control management of power grid enterprises is an invisible hand in the development of power grid enterprises. It can touch every aspect of the development management of power grid enterprises. It is an enterprise management method guided by the risk management of power grid enterprises and can promote the operation efficiency of power grid enterprises.

2. Methods
Internal control management is a means of enterprise management, refers to the enterprise in the process of operation in order to achieve the business objectives, reasonable and efficient use of enterprise resources, to ensure that the enterprise in accordance with the normal development and expected objectives of operation to carry out a variety of internal control and evaluation means. Internal control management is a dynamic management process, throughout the operation of enterprises, to ensure the
achievement of enterprise goals. Internal control management not only ensures the realization of the business objectives of the enterprise, but also ensures that the operation of the enterprise is in accordance with the law and regulations, and also ensures the efficient use of various production means and production resources. Therefore, in order to truly implement the internal control management of power grid enterprises and achieve the expected results, it is necessary to have a sound enterprise management system, the corresponding enterprise department assessment methods and standards, as well as a complete supervision system and mechanism, so as to play the role of the internal control of enterprises.

3. Results

Through the analysis of China's 2016 to 2019 China's electricity generation, electricity demand, power grid project construction investment status, as well as the power grid enterprise's internal control management status. It is concluded that power grid enterprises are bound to increase the internal control management and improve the level of operation management, so as to carry out the pace of power enterprises and electricity demand.

3.1. China's electricity generation is increasing year by year

Power generation mainly includes hydroelectric power generation, thermal power generation, nuclear power generation, wind power generation and solar power generation. China is dominated by thermal power generation, followed by hydropower. As can be seen from table 1, electricity generation increased year by year from 2016 to 2019. From 6022.8 billion KWH in 2016 to 7325.3 billion KWH in 2019, solar power generation grew the fastest.

| Year | 2016  | 2017  | 2018  | 2019  |
|------|------|------|------|------|
| Hydropower (Billion KWH) | 11748 | 11931 | 12321 | 13019 |
| Thermal power (Billion KWH) | 43273 | 45558 | 49249 | 50450 |
| Nuclear power (Billion KWH) | 2132  | 2481  | 2950  | 3487  |
| Wind power (Billion KWH) | 2409  | 3034  | 3658  | 4057  |
| Solar power (Billion KWH) | 665  | 1166  | 1769  | 2238  |
| Others (Billion KWH) | 1  | 1  | 0.3  | 2  |
| Total (Billion KWH) | 60228 | 64171 | 69947 | 73253 |

3.2. China's overall electricity demand is rising year by year

China's overall electricity demand is increasing year by year, mainly for primary industry, secondary industry, tertiary industry and urban and rural residents. As can be seen from table 2, in the past four years, the overall trend has been on the rise year by year, from 5971 billion KWH in 2016 to 7225.5 billion KWH in 2019. Among them, the secondary industry accounts for the highest proportion of electricity demand, reaching 4936.2 billion KWH in 2019, accounting for 68.32%.

| Year | 2016  | 2017  | 2018  | 2019  |
|------|------|------|------|------|
| Primary industry (Billion KWH) | 1093  | 1175  | 747  | 780  |
| Secondary industry (Billion KWH) | 42567 | 44922 | 47881 | 49362 |
| Tertiary industry (Billion KWH) | 7973  | 8825  | 10838 | 11863 |
| Domestic electricity consumption for urban and rural residents (100 million KWH) | 8077 | 8703 | 9697 | 10250 |
| Total (Billion KWH) | 59710 | 63625 | 69163 | 72255 |

3.3. China's investment in power grid construction is declining

The construction of China's electric power projects includes the construction of power supply projects and power grid projects. In table 3, from 2016 to 2019, the investment in power engineering construction
shows a declining trend in the first three years, and rises to 340.8 billion yuan, 290 billion yuan, 278.7 billion yuan and 313.9 billion yuan respectively in 2019. They are 340.8 billion yuan, 290 billion yuan, 278.7 billion yuan and 313.9 billion yuan, respectively. The overall investment in power grid construction has declined, from 8,840 yuan in 2016 to 799.5 billion yuan in 2019.

Table 3. China's investment in power construction from 2016 to 2019

| Year       | 2016  | 2017  | 2018  | 2019  |
|------------|-------|-------|-------|-------|
| Power supply engineering construction (100 million yuan) | 3408  | 2900  | 2787  | 3139  |
| Including: Water and electricity | 617   | 622   | 700   | 814   |
| Thermal power | 1119  | 858   | 786   | 630   |
| Nuclear power | 504   | 454   | 447   | 335   |
| Wind power | 927   | 681   | 646   | 1171  |
| The solar energy | 241   | 285   | 208   | 189   |
| Power grid project construction (100 million yuan) | 5431  | 5339  | 5374  | 4856  |
| Total       | 8840  | 8239  | 8161  | 7995  |

3.4. The internal control management function positioning of power grid enterprises is not clear
Most employees of power grid enterprises believe that the internal control construction of power grid enterprises is a specific affair of a certain department within the enterprise. To a large extent, the employees of the power grid enterprises believe that the internal control of the enterprise is only the specific work of the financial department or the human department, and the financial department or the human department should formulate and implement the internal control system of the enterprise. In such a premise, to a great extent, is not conducive to the construction of enterprise internal control and related internal control work. In addition, the power grid enterprise management for enterprise internal control system of authorization has certain limitations, can not fully support the establishment of the internal control system, largely affected the enterprise internal control in the execution of a enterprise internal hard to depth, and lack of necessary supervision mechanism of enterprise risk management and accountability.

3.5. The consciousness of internal control management of power grid enterprises is weak
In the face of the possible risks in the internal control of power grid enterprises, the management of power grid enterprises did not carry out effective assessment and active response, and did not minimize the risks to the greatest extent and control the risks to the minimum, so as to reduce the impact of the risks on the production materials and production resources of power grid enterprises. In addition, the risk of some managers in the enterprise the management level of consciousness is poor, think the current power grid enterprises to develop smoothly, the external environment is superior, but insufficient power grid enterprise internal development, power grid enterprises internal control consciousness, at the same time, the internal control management institutionalized, standardization, informationization level is low, increasing the difficulty of enterprise internal control.

3.6. The internal control evaluation system of power grid enterprises is not perfect
Due to the lack of internal control or the unreasonable system of internal control in power grid enterprises, it is impossible to timely adjust the system of internal control in the process of enterprise operation, which leads to the maladjustment between the internal control system and the development of enterprises. At the same time, there is still a lack of top-level design of internal control in the enterprise, the distribution between the management is not clear, and there is also a lack of effective internal control assessment system and supervision mechanism, which aggravates the difficulty in the implementation process of internal control.
4. Conclusions and recommendations

The analysis results show that although the development trend of power grid enterprises is becoming more and more obvious, there are some problems in the internal control management, no matter from the national level, people's livelihood level, economic level and so on. For example, the internal control management function localization is not clear, the internal control management consciousness is weak, the internal control evaluation system is not perfect. At present, the environment is favorable. Power grid enterprises should strengthen their internal control and management while seizing the huge development opportunity. Therefore, relevant Suggestions are put forward.

4.1. Power grid enterprises to create a good enterprise internal control environment

The industry characteristics and development of power grid enterprises according to their own characteristics, combined with the power grid enterprise standards and the corresponding laws and regulations, establish management method is suitable for the development of the enterprise internal control, define functions of the internal control department, determine if the internal control system in the design department, the executive branch and the functions of the supervision of the internal control system. The management of power grid enterprises should combine the internal control of enterprises with the strategic requirements of enterprises, and require all employees to pay attention to the internal control and management of enterprises. Power grid enterprises carry out professional training courses to let all employees understand the internal control business process and other issues, and actively cooperate with the internal control of enterprises. Power grid enterprises through the "internal assistance, external open source" training method to complete the internal control of the enterprise staff to learn, so that each enterprise staff has a clear understanding of internal control and understanding, in the whole enterprise to create a suitable environment for the enterprise internal control operation.

4.2. Improve the internal control system of power grid enterprises

After the establishment of a good environment for internal control, power grid enterprises should gradually improve the internal control system in the development process to ensure the execution of internal control management. In the development of enterprise internal control management system, to ensure that the internal control management system is reasonable and highly developed, to ensure that the internal management system can be involved in the development of various departments of the business, etc., but also to avoid the conflict between departments because of the system. Meanwhile, the internal control of power grid enterprises shall establish corresponding internal supervision and management departments to supervise the implementation of the internal control system of power grid enterprises. Finally, the internal evaluation departments of power grid enterprises shall be established to ensure the legitimacy of the operation of power grid enterprises and the controllability of costs.

4.3. Improve the evaluation system of enterprise internal control management

In order to give full play to the practical and effective role of the internal control system of power grid enterprises, power grid enterprises need to improve the management and evaluation system of internal control. To be specific, a special internal control department and professional positions of power grid enterprises shall be set up first, and the enterprise internal control office, enterprise internal control inspection team and mobile station can be set up. Secondly, to strengthen the responsibility of the internal control position, all the staff of the power grid enterprises and the management department of the power grid enterprises are required to participate in and take actions to ensure the effectiveness of the internal control management of the power grid enterprises. Finally, the evaluation system of enterprise internal control is improved. Power grid enterprise's each rules and regulations, all the employees need to adhere to, and according to the actual working situation of evaluation, evaluation feedback and continuous improvement process, to ensure that the power grid enterprise internal control evaluation system and the perfect combination of enterprise performance management, in developing the continuous improvement of enterprise internal control evaluation system of the enterprise forward development.
4.4. Integration of power grid enterprise risk assessment and internal control management

In the development of power grid enterprises, the management of the enterprises shall, according to the development characteristics of power grid enterprises, formulate corresponding early warning of risks related to the development and operation of power grid enterprises, so as to timely and quickly identify risks, manage risks and deal with risks. Subsequently, the results of the risk assessment of the power grid enterprises are combined with the internal control of the enterprises to jointly deal with the possible internal risks, external risks, as well as the risks of the entire industry and the entire economic system. When faced with risks, enterprises should comprehensively consider various factors in the development of enterprises and internal control management regulations, and choose appropriate measures and means to deal with the risks faced by power grid enterprises.

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