

## *Original Paper*

# Research on Difficulties and Countermeasures of Power Consumption Inspection in Power Enterprises

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### ***Abstract***

*Under the background of the current rapid economic development, the awareness of electricity safety in all fields of society continues to improve, which puts forward new requirements for the power inspection work of power enterprises. In order to meet the needs of social development and effectively improve the quality of electricity inspection work, power enterprises need to base on the reality, control the work content in the new period, understand the necessity of strengthening and innovating electricity inspection work, and in-depth analysis of the difficulties of electricity inspection work in power enterprises at this stage, and then explore effective measures from multiple perspectives. In this paper, the difficulties and countermeasures of power inspection in power enterprises are studied, and the corresponding views are put forward.*

### ***Keywords***

*Electric power enterprises, Electricity inspection work, Difficulties and countermeasures, Research*

## **1. Overview of Power Consumption Inspection in Power Enterprises**

In the context of the rapid development of the current society, the demand for electric energy by enterprises and residents is gradually increasing, and the power supply enterprises are facing increasingly fierce social competition. In order to obtain more space for development, they need to continue to improve the quality of their own power supply, so as to steadily base themselves on the market and ensure the overall economic benefits. Combined with the actual analysis, the daily work of power supply enterprises, electricity inspection work is its internal after-sales service, related work is also an effective platform to maintain themselves and users, through the implementation of the necessary electricity inspection work to ensure the safety of electricity customers. Therefore, in the new period of power enterprises need to pay attention to power inspection work, and internal enterprise management personnel should also continue to pay attention to the work, can at this stage of power

inspection work in the restrictive factors to find the corresponding solution measures, so as to effectively ensure the safety and stability of the user's electricity, to ensure the legitimate rights and interests of both users and power supply enterprises.

## **2. The Power Enterprises to Strengthen the Power Inspection of the Necessity**

### *2.1 Ensure the Safe Use of Electricity*

At present, there are still many illegal and irregular electricity consumption in society, which has a negative impact on the stable and efficient operation of the power grid, and also threatens the life and property safety of electricity customers. In this regard, power enterprises need to combine the actual and customer demand, regularly carry out strict electricity inspection work, which can largely avoid and eliminate the behavior of irregular electricity consumption, which is also a necessary measure to ensure the safety and stability of the power grid.

### *2.2 Effectively Improve the Effect of Power Inspection*

By carrying out a series of power inspection work, can further improve the quality and effect of management, which means that power enterprises need to pay attention to the management of power inspection. Specifically speaking, the related work covers the power guidance work, power safety publicity work, power supply contract compliance, etc. If the power enterprise ignores the power management work, it is difficult to play the effect of power inspection work, which will lead to human and physical waste, which is not conducive to the development of enterprises. Based on this, in the new era, power enterprises pay attention to the management of electricity inspection and the development of work, which can ensure the introduction of new technology and improve the ability of internal personnel, so as to improve the work effect and promote the development of power enterprises.

### *2.3 To Provide Users with Quality Services*

From the perspective of electricity customers, electricity inspection work is one of the after-sales services provided by electric power enterprises, so enterprises attach importance to electricity inspection work to continue to provide users with quality service. Power inspection work also covers the enterprise to provide users with power guidance work, teach power safety knowledge, management personnel in-depth understanding of user needs, etc., these belong to the power service content. By carrying out the necessary power inspection work, the power supply enterprise can let customers understand the nature of power inspection, effectively deal with the relationship between the two, effectively reduce the conflict of interest between the power supply enterprise and the power consumer, and ensure the legitimate rights and interests of both parties.

## **3. The Difficulties of Power Inspection in Power Supply Enterprises at This Stage**

### *3.1 The Electricity Inspection Technology is Single*

At this stage, the power enterprises mainly use the manual inspection method in the power inspection work, that is, the staff regularly checks the power transmission equipment, electrical components and

so on. The staff can complete the corresponding inspection work in combination with their own experience, but the related work is more and needs to take into account a variety of elements, which makes some electricity safety hazards are not easy to be found by the staff. This means that the current power inspection work mode and form of power enterprises are relatively single, which has been out of touch with China's power system technology, and will also limit the stable operation of power inspection work in power enterprises to a large extent, thereby reducing the accuracy of inspection results.

### *3.2 The Quality of Electricity Inspectors Needs to be Improved*

The overall ability of the electricity inspection staff determines the quality of work, and the staff is an important link between the power enterprises and users. Enterprises also need to pay attention to the improvement of personnel ability in the development. However, according to the relevant information, some power users have a strong sense of prevention, and there is resistance to the power inspection staff, which leads to the relevant power inspection work is difficult to carry out smoothly. In addition, if there is a disconnect between the staff's own ability and the real work, there will be staff who do not understand the new power inspection technology and are not familiar with the work process, which also leads to the difficult to achieve the established work goals.

### *3.3 Frequent Incidents of Power Theft*

Since entering the new period, many areas in China have resolutely cracked down on electric theft, and many power enterprises have implemented corresponding measures in combination with the actual situation, but the frequency of electric theft accidents is still high. The behavior of stealing electricity is mainly that some electricity customers and enterprises reduce electricity costs by illegal means, so as to reduce operating costs and obtain more economic benefits. This behavior has affected the steady operation of power enterprises to a large extent, mainly because the electric energy stolen by users has not been recorded in the grid line loss and has not been taxed, thus limiting the reform and development of the power system. Not only that, power theft seriously affects the normal security and order of electricity transaction, making regional power enterprises face operational risks, and in some areas, power theft users hide their behavior by changing the current and installing external lines, which makes it more difficult to check the work of electricity consumption, but also increases the risk of electricity consumption.

### *3.4 Line Loss is More Serious*

As an important standard to measure the operation level of regional power enterprises, the line loss rate of the power grid reflects the overall management status and level of the power supply enterprises to a large extent. Power grid line loss and power system electricity and power generation and other links are closely related, if the enterprise can fully implement the power inspection work in the development, and through the way to guide customers reasonable and safe electricity, it can greatly reduce the loss of the power grid. However, in the power inspection work, if there is an unreasonable power metering method, the staff did not check the electricity situation in a full range, it is difficult to give full play to

the power inspection work to limit and control the important role of the power grid line loss, but also make the power safety face greater risks.

#### **4. The Strategy to Solve the Difficulty of Electricity Inspection in Power Enterprises**

##### *4.1 Strengthen the Development of Technology, Choose a Variety of Electricity Inspection Methods*

In order to ensure the smooth development of internal power inspection work, and to further solve the problems related to power inspection, power enterprises need to increase the development of power technology in accordance with the development of The Times. In the development, the electric power enterprises need to pay attention to the training and establishment of the supervision team, so that it can go to the national units of large enterprises to learn according to the actual development of enterprises, so as to master more advanced technology development capabilities, so that these personnel participate in the development of enterprise electricity inspection technology. In addition, enterprises also need to set up a technical team in the new era, regularly organize team members to analyze the internal power inspection technology, and then understand the restrictive factors existing in the relevant work, to realize the innovation and development of enterprise power inspection technology, and then provide technical support for the effective implementation of power inspection work.

Not only that, for the power inspection technical staff, it also needs to adopt a new and diversified inspection method in the actual work. This can improve the work quality of electricity inspection technology, but also to ensure the accuracy and reliability of electricity inspection results, to avoid subsequent work deviations. In the development, power enterprises should not only use the Internet, big data supported by the information power monitoring method, but also introduce more sensitive mono equipment, so as to check more complex power facilities, so as to effectively improve the overall work efficiency and quality, and ensure the accuracy of the inspection results. At the same time, enterprises should also pay attention to the traditional manual inspection methods, so that the missing problems of equipment inspection can be found in time to ensure the efficient development of electric power enterprises.

##### *4.2 Improve the Overall Literacy of the Staff*

Under the background of the new era, the staff of electricity inspection in power enterprises need to have a strong sense of innovation, executive ability and practical ability, and can apply theoretical knowledge to discover and solve related problems. At the same time, they need to have a deep understanding of the working characteristics and use methods of common electrical equipment, can draw a brief system wiring diagram combined with the actual situation of power customers, and can timely discover illegal and unreasonable power theft behaviors according to laws and regulations, etc. In this regard, power enterprises need to focus on the improvement of the overall ability of internal staff and promote their professional development. For the staff, they need to change their own thinking in the development of continuous learning, in-dept h understanding of the importance of electricity inspection work, in the daily work to take the initiative to participate in the organization of various

training work, and continue to improve their own work ability. In addition, the staff should also summarize each electricity inspection work in time, understand the recent incidents of power theft, summarize the relevant laws and regulations and methods of power theft, and fully implement these contents in the subsequent work, so as to improve their own professional literacy. For power enterprises, in the development, they need to focus on improving the ability of internal staff, regularly organize employees to participate in the corresponding training work, to ensure that staff can use the latest means to find problems and solve problems; Electric power enterprises should also organize inspectors to systematically learn the corresponding legal knowledge, so as to lay a good foundation for the smooth development of the inspection work and avoid the deviation of the work.

#### *4.3 Implement Anti-power Theft Measures*

In order to reduce the impact of power theft on the development of enterprises, power enterprises should strengthen the selection of power consumption inspection, and adopt a variety of ways, such as TV media, newspapers, Internet, etc., to widely publicize and expose. First of all, enterprises can publicly expose the phenomenon of power users defaulting on electricity consumption or stealing electricity, so that the majority of power users can deeply understand the evil behavior of defaulting on electricity consumption and stealing electricity, so that enterprises and power customers can understand the relevant legal knowledge, improve their anti-theft awareness, and make them participate in the relevant work. Secondly, the enterprises should encourage the users to report the illegal behaviors of electricity consumption through Internet messages, mail delivery and other channels, so as to effectively curb the spread of illegal electricity consumption and power theft. For the informants, the enterprise can give certain rewards, in order to encourage the majority of power users to actively participate in the report, and make contributions to the construction of a harmonious electricity environment. On the one hand, the reporting management mode of this reward can reduce the work burden of the power management department and ensure the economic benefits of the power supply enterprises; On the other hand, giving rewards to whistleblowers can help enterprises establish a good image and promote the development of power supply enterprises.

Not only that, power enterprises should also improve the work system of electricity inspection. In the process of solving the difficulties of power consumption inspection, perfecting the power consumption inspection system is a very important step. On the one hand, the power enterprise should establish a standardized responsibility system, and clearly stipulate the responsibility content and scope of each power inspection staff, so that the staff can have rules to follow in the actual power inspection work, so as to better complete the work. On the other hand, enterprises should also establish a strict supervision system, through the establishment of a special supervision group to maximize the effectiveness of the supervision system, and then standardize the work of staff inspection behavior, improve the efficiency of electricity inspection work. To sum up, power supply enterprises should take a variety of measures against illegal power consumption and power theft, including increasing the intensity of power inspection, exposing and training illegal power users, encouraging power users to participate in the

report, and improving the power inspection system. These measures aim to standardize the behavior of electricity consumption, improve the awareness of electricity safety, promote the development of power supply enterprises and build a harmonious electricity environment.

#### *4.4 Multi-angle Approach to Reduce Line Loss*

First, in order to ensure the accuracy of power measurement, enterprises need to strictly check the power meter box of power users and accurately calculate the power measurement results. The accurate operation of the power meter box is crucial to the accuracy of the grid line loss accounting. Second, in order to improve the operation efficiency of electric power enterprises, we will actively take effective measures, such as installing reactive power compensation devices in places where the power line loss is serious, in order to reduce the line loss of the power system, and appropriately improve the operating voltage of the power system. Third, the staff needs to carefully check whether the user's power meter box uses the current transformer, and the certificate of its ratio and Angle difference is audited. Fourth, in order to ensure the scientific, reasonable and correct power measurement, we will use the way of checking the power ratio, and take targeted measures to reduce the line loss.

#### *4.5 Implement the Technical Plan of Differentiated Electricity Consumption Inspection*

In addition, in order to effectively alleviate the conflict of interest between power supply enterprises and users, enterprises need to formulate flexible and more targeted inspection management plans based on the actual situation, so as to take appropriate power supply services according to the needs of users, so as to improve work efficiency, effectively improve the economic benefits of power supply enterprises, so that the legitimate rights and interests of both parties to the contract can be preserved. To be specific, power inspectors should fully consider the actual needs of power users and credit rating and other factors, to adopt differentiated service strategies to accurately meet the needs of different power users. For example, the operation capacity of different power supply enterprises have certain limitations. If the power supply equipment fails, such as the main line tripping caused by abnormal meters, some power users may not cooperate with or even contradict the normal work of the power supply enterprises, which will have a negative impact on the corporate image of the power supply enterprises. In this regard, the power supply enterprise must attach great importance to the treatment of the meter failure, regularly carry out the inspection and maintenance of the meter, reduce the frequency of failure, and actively maintain the good corporate image of the power supply enterprise. At the same time, for high-voltage customers, electricity inspection staff should carry out regular visits and communication, and actively promote the relevant knowledge of electricity, and provide customers with scientific and reasonable electricity plans to help them better understand and use electricity. This differentiated service strategy not only helps to improve the service quality and efficiency of power supply enterprises, but also can effectively enhance the satisfaction and trust of power users, and further consolidate the competitive position of power supply enterprises in the market. Therefore, the power inspectors should flexibly adopt differentiated service strategies according to the actual situation to meet the needs and expectations of different power users.

### Epilogue:

Since entering the new period, improving service quality and strengthening power inspection are important development directions for power enterprises. According to the relevant survey data, there are many questions in the inspection technology, method and system in the current power system inspection work in China, such as backward inspection technology, single inspection method, imperfect related system, and internal personnel quality to be improved, etc. These factors restrict the development of power enterprises themselves to a certain extent. At the same time, it also affects the production and life of power users. In order to improve this situation, power enterprises need to deeply analyze the relevant restrictive factors in the development, and then start from the perspective of innovative inspection methods, improve internal staff literacy, and implement anti-theft measures to build a new pattern of electricity inspection work.

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