Research of the Role of Think Tank in Power System Deregulation

Wei-hua CHEN* and Sheng ZHANG
China Energy Equipment Co., LTD., Beijing, China

*Corresponding author

Keywords: Power system, Think tank, Deregulation.

Abstract. Electric power industry is the basic and strategic industry. In order to stimulate market vitality and improve the ability of resource allocation, power system reform has been explored. The goal of power system deregulation is to realize marketization. Effective supervision is one of the necessary factors to realize the normal operation of marketization. With the development of power market and the transformation of government functions, some of the existing laws and regulations on power supervision lag behind the pace of power system reform. The emergence of new regulatory matters has also led to the lack of laws, regulations and standards for some regulatory acts. Those will not be conducive to the state's regulation of the power industry according to law. It is also not conducive to the continuous advance of the power system reform. This paper studies the power supervision system under the new form, which provides a basis for promoting the legalization and standardization of power supervision. It will make the supervision work rule-based and law-based.

Introduction

The power industry is the foundation of the national economy which is of great significance to the development of our society and economy. The power industry has economic benefits of scale. It also has a certain nature monopoly property in power transmission. At present, electric power industry is undergoing reform to ensure the sustainable development by introducing a real competition mechanism and resolving the contradictions between power supply and demand. During the "13th Five-Year" period, we should seize the opportunity to advance power system reform [1].

Power system regulation is an important guarantee for the smooth development of the power system reform. At present, with the acceleration of the reform of the government management system, power system regulation is gradually improving. A modern supervision system with perfect functions, effective supervision and balance will be established. At the same time, with the continuous development of power system scale and technology updating, power supervision is also facing new challenges. First, the increase of the size and complexity of the supervisory object puts forward higher requirements for the number of supervisors and professional subdivision. Second, the development of large power grid makes high voltage, long distance, large capacity new power grid. The choice between safety and economy is more complicated, and how to distinguish the appropriate requirements of safety from how to cover up inefficiency through security excuses is another key issue facing regulators. Last, with the deepening of market-oriented reform, the regulators become independent economic entities. There is a lively risk driven by economic interests. It is difficult for regulators to get real and effective data.

In recent years, think tanks have made great progress which has the characteristics of independence, scientificity and systematicness. Think tanks have gathered a large number of knowledgeable and innovative professionals. With the continuous development of the research object, it can conduct investigation and research objectively and impartially, without external interference and interference, and provide practical solutions to the problem. It can be seen that think tanks provide technical
support and personnel guarantee for solving the new challenges in power supervision and will play an active role in power system deregulation.

Above all, this paper firstly summarizes the characteristics of power supervision in major foreign countries, compares and summarizes the development process of power supervision in China, and analyzes the construction of power supervision system at this stage combining with the characteristics of power reform and power grid development in China. Then it summarizes the development of the think tanks in China, analyzes and demonstrates the possibility and inevitability of the active role of think tanks in power supervision.

Power Regulation

**Power Regulation Abroad.** Most countries such as the United States, Australia adopt the independent regulatory model. They concentrates the regulatory functions in one. The regulatory agencies are independent of government departments and have strong authority and neutrality.

With the gradual improvement of power market and the exertion of market functions, the general trend of power supervision system reform in various countries is to distinguish between competition links and monopoly links, relax the economic supervision of competition links, and strengthen the supervision of network access, price supervision, security and environmental protection in natural monopoly links.

In developed countries, under the premise that the power market is mature and the supply of electricity exceeds the demand, the key point of reform is price incentive supervision, so as to improve the business performance of enterprises, improve the operation efficiency of industries, reduce electricity prices and provide a variety of services.

**Domestic Electricity Regulation.** The development of China's electric power supervision is closely related to the development of China's energy management system and the corresponding government management institutions. They are shown in the following table (Table 1).

<table>
<thead>
<tr>
<th>Time</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>Set up the Ministry of fuel industry.</td>
</tr>
<tr>
<td>1950</td>
<td>The Ministry of petroleum industry and the General Administration of electric power shall be established, and belong to the Ministry of fuel industry.</td>
</tr>
<tr>
<td>1954</td>
<td>The Ministry of coal industry, the Ministry of petroleum industry and the Ministry of electric power industry have been withdrawn from the Ministry of fuel industry.</td>
</tr>
<tr>
<td>1958</td>
<td>Ministry of power industry merged with Ministry of water resources to Ministry of water resources and electric power.</td>
</tr>
<tr>
<td>1970</td>
<td>The Ministry of coal industry, the Ministry of petroleum industry and the Ministry of chemical industry were revoked and the Ministry of fuel chemistry industry was established.</td>
</tr>
<tr>
<td>1975</td>
<td>Cancel the Ministry of fuel and chemical industry, resume the Ministry of coal industry and set up the Ministry of petrochemical industry.</td>
</tr>
<tr>
<td>1978</td>
<td>The Ministry of petroleum and chemical industry was withdrawn from the Ministry of petroleum industry and the Ministry of chemical industry.</td>
</tr>
<tr>
<td>1979</td>
<td>To cancel the Ministry of water resources and electric power and set up the Ministry of power industry and water resources.</td>
</tr>
<tr>
<td>1982</td>
<td>The Ministry of power industry and the Ministry of water resources have been revoked and merged into the Ministry of water resources and power.</td>
</tr>
<tr>
<td>1988</td>
<td>The Ministry of Coal Industry, the Ministry of Petroleum Industry, the Ministry of Water Conservancy and Electricity and the Ministry of Nuclear Industry will be abolished, and the functions of the Ministry of Water Conservancy and Electricity and the Ministry of Nuclear Industry will be centralized to form the Ministry of Energy Industry.</td>
</tr>
<tr>
<td>1993</td>
<td>Revoking the Ministry of energy, restoring the Ministry of coal industry and the Ministry of power industry.</td>
</tr>
</tbody>
</table>
The Ministry of Coal Industry and the Ministry of Electric Power Industry were abolished, and the Coal Industry Bureau, the Petroleum and Chemical Industry Bureau were set up, under the administration of the State Economic and Trade Commission, and the Department of Electricity was set up within the State Economic and Trade Commission.

Withdrawal of the Coal Industry Bureau, the petroleum and Chemical Industry Bureau.

Establishment of the State Electricity Regulatory Commission.

SASAC established.

Establishment of the national development and Reform Commission.

Establishment of the State Administration of work safety.

Establishment of the national energy board.

Under the State Administration of work safety, the State Coal Mine Safety Supervision Bureau is set up.

The State Energy Commission of the State Council was established.

The integration of the responsibilities of the State Energy Bureau and the Electricity Regulatory Commission and the re-establishment of the National Energy Bureau.

China is facing the tasks of developing power, promoting economic development and realizing social development goals. The key point of power reform is to ensure the safe operation of power system, improve the efficiency of power system operation, and attract new investment to support the development of power industry. From the above table, it can be seen that the development of China's electric power supervision is suitable for the reform of the electric power system and the transformation of the functions of government agencies. With the deepening of simplification and decentralization, the role of supervision will be more important.

**Power Supervision System**

**Principles of Construction.** To construct the supervision standard system of China's electric power industry, it is necessary to be pragmatic, closely combined with the development of China's electric power industry, and to be forward-looking, to grasp the direction of electric power system reform; to follow the basic principles and implementation principles of supervision, but also under the general requirements of the transformation of government functions and the reform of electric power system. Adapting to the development of China's electric power industry and meeting the needs of power regulation.

**Route of Building.** From the perspective of life cycle, the power supervision standard system is constructed. The classification method according to the supervision function, the supervision object, the legal effect of policies and regulations is applied to the construction of the framework. Thus, the advantages of various classification methods can be brought into full play. The supervision content is comprehensive. And the supervision responsibility is prominent. Supervision is based on a clear framework of power regulatory standard system.

**Think Tank**

**Overview of Development.** As a social activity, think tank has a long history in China. And it has hundreds of years of history in the West. In modern times, the deep development of large-scale socialized production, the complication of the competitive environment brought about by economic globalization, the progress of social technology and the development of social informationization make decision-making more and more difficult. At present, think tank has formed a huge industrial sector, and a number of internationally renowned consulting institutions have emerged. In China, the development of think tank industry started late, and the consulting activities have developed rapidly in recent years. A certain scale of consulting service market has been initially formed, which can provide intellectual support for the government, enterprises and other decision-making. Compared with developed countries, China's consulting market is still in the stage of integration and adjustment, and
the development of the consulting market has a certain gap from the requirements of the development of China’s socialist market economy.

**Necessity Analysis.** It is inevitable for think tank to play an active role in power regulation. First, it is the result of social division of labor. As far as individuals and enterprises are concerned, they will face decision-making problems even as large as the state or society. The deep development of socialized large-scale production, the complication of the competitive environment brought about by economic globalization, the progress of social technology and the development of social informationization and other factors make modern decision-making appear new characteristics. The decision-making of a single problem changes to the decision-making of comprehensive research and analysis of economic, technological and social problems. Centralization Unified decision-making develops change to hierarchical and decentralized decision-making at all levels. Decision-making that only considers domestic factors changes to decision-making that must take into account changes in domestic and foreign factors. There are both relatively stable long-term goal decision-making and short-term decision-making with adaptability. The supervision of the power industry has highlighted the above requirements. Under such conditions, as a decision-making support department, the active role of the think tank in power supervision is the inevitable result of the socialized division of labor.

Second, it is the result of ensuring fairness. Ensuring fairness is one of the main purposes of power regulation. At present, the power system is mainly divided into generation, transmission, distribution and utilization. The generation side is mainly composed of five major power generation groups and other power generation enterprises. The transmission and distribution part is mainly divided into the State Grid, Southern China Grid and Inner Mongolia Grid. The user side is composed of a large number of enterprises and individuals. From the above, we can see that the scale and influence of each component are different. The independence of supervision is one of the factors to ensure fairness. As an independent intermediary organization, think tank plays an active role in supervision, which is one of the inevitable requirements to ensure fairness.

Third, it is the result of improving supervision efficiency. The power industry is a technology intensive and capital intensive industry. In recent years, the industry has been developing in the direction of informatization, intelligence and integration. It needs a large number of professional knowledge and comprehensive knowledge, such as power system, high voltage electrical, mechanical structure, electromagnetic field analysis technology, metal materials and insulating materials technology, microcomputer technology, communication technology and so on. Higher requirements for improving the efficiency of supervision are put forward. As a relatively stable and independent operation institution, the think tank mainly engages in technical and policy advisory services, and has a stable composition of personnel. Its technicians can timely grasp the development trend of the latest technology, update the knowledge structure, and convert the experience of personnel into the experience of the organization. Thus it will improve the effectiveness of supervision and management. It can be seen that as an independent intermediary organization, think tank plays an active role in supervision.

**Possibility Analysis.** Think tanks provide a guarantee for playing an active role in power supervision in terms of personnel, professional technology and organizational system.

**Positive Role of Think Tank**

Electricity supervision runs through the whole process of electric power construction, production and operation. Accordingly, the active role of think tank in electric power supervision can be divided into three major parts: beforehand, in-process and afterwards. The main work in advance is to assist the regulatory authorities to formulate appropriate rules and regulations, as the standard of the behavior of the regulatory object and the basis for supervision. The main task in the matter is to assist the conduct being carried out by the supervising object to see whether it meets the requirements of security, economy, fairness and so on. The main task after the event is to conduct a post-evaluation to assess
whether the supervisor's behavior meets the expected requirements. The three constitute the closed loop supervision of the power industry.

Summary
This paper summarizes the characteristics of domestic and foreign power supervision, analyzes the principles and ideas of the construction of the current power supervision system, and constructs the framework of the power system deregulation. This paper outlines the development of think tank in China, analyzes and demonstrates that it is an inevitable choice for it to play an active role in power system deregulation. The think tank structure has the ability to undertake this task. And it can play a positive role in the three main stages of power system deregulation.

References