Analysis of E-commerce Marketing Strategy of Power Enterprises in Jilin Province from the Perspective of Economic Transition

Bing Han*, Meng Cui* and Dan Xu
School of Economics and Trade, Jilin Engineering Normal University, Changchun 130052, China

*Corresponding author email: 1554314667@qq.com, 1278310345@qq.com, 2364146255@qq.com

Abstract. As a new technical means, e-commerce provides a new idea for the reform of power supply enterprises. At present, the power company is in the context of economic transformation. To create a world-class power supply enterprise, it is necessary to keep track of the world's advanced management ideas, methods and means, and integrate the various management services of the enterprise into the increasingly becoming an Internet society. Taking the power supply company of Jilin Province as an example, this paper proposes some improvement schemes for the operation mode of the existing power supply system according to the requirements of the power market for power supply enterprises and the advantages of e-commerce. According to the actual situation of the power supply enterprises in Jilin Province, the network model, structure model and database model of the power supply enterprise, as well as the website design scheme of the e-commerce of the power supply enterprise are designed.

1. Introduction

Since the official implementation of the "Tendering and Bidding Law of the People's Republic of China" since January 1, 2000, with the continuous development of the power industry, large-scale procurement of power engineering equipment and materials has begun to adopt bidding methods. China's electricity market will eventually be fully open, especially the opening of the power supply system is the basic requirement for the realization of the electricity market. At the same time, power companies have generally strengthened the intensive management of material procurement. Take a large-scale power grid company as an example: from 2002 to 2004, the project unit purchased it by itself without any integration; from 2005 to 2008, it implemented two-level centralized bidding and procurement according to the voltage level of the project, and implemented partial integration of the procurement link [1]; The intensive management system of the whole process of the chain, improve the operation mechanism of each business line of material management, pay attention to the overall operational efficiency and service improvement; the development goal during the “Twelfth Five-Year Plan” period is to build a domestic leading and world-class supply chain management system.

Under this circumstance, it is necessary to formulate corresponding e-commerce strategies, namely, strengthen the operation and management of electric power materials, establish an intensive operation and management system covering all regions and comprehensive supervision, and realize through a
centralized e-commerce platform. Traditional single bidding procurement and new management of procurement management, planning management and other aspects to create a special information platform that meets the characteristics of power companies, to ensure the scientific and standardized power efficiency management [2].

2. Power supply enterprise's e-commerce program

2.1. Requirements of the power market for power supply enterprises in Jilin Province

As a new institutional arrangement for power resource dispatching in China, the power market is of great significance for China to implement energy conservation and environmental protection policies, promote energy conservation and emission reduction, and increase the economic benefits of power plants. However, the construction of the electricity market must serve the national macro-control, strengthen the effective link between the research market bidding mechanism and the power generation of major power plants, continuously improve the market opportunity means, and better serve the national macro-industry regulation. According to the structure of the electricity market, the electricity market consists of several parts: independent power generation companies, system operation/market transactions, and users. The relationship between them is shown in Figure 1.

![Electricity market structure](image)

**Figure 1. Electricity market structure**

As can be seen from the market structure chart, the difference from the current operating mode is the increase in trading institutions and retail companies. The power industry restructuring can be divided into horizontal unbundling and longitudinal unbundling. Horizontal unbundling refers to the decomposition of the traditional lumped power industry into independent legal entities that can compete on an equal basis with market factors and rules, and form a competitive entity in the electricity market. The power generation side is reorganized into a number of power generation entities with independent legal personality. The separated power generation companies should be sufficient, and there is no
dominant person who can control the market price, but also take into account the characteristics of the scale of power generation enterprises. The power supply company group has built a number of equal power supply companies with competitive strength to reduce power supply costs and improve power supply quality and service awareness [3]. Vertical unbundling, also known as cooperative functional unbundling, refers to the separation of power generation, transmission, distribution, and sales into competitive, independent entities that establish the necessary boundaries between them to prevent conflicts of interest. Vertical unbundling can also include unbundling of services, such as separation and pricing of primary ancillary services.

In addition to the above-mentioned horizontal and vertical unbundling to form competing and mutually beneficial interests, in order to ensure the normal operation of the electricity market, a corresponding non-profit special subject must be established in the electricity market. (1) Power trading center: formulate the next day spot trading plan, determine the system marginal price, transmission price, etc.; contract management; transaction settlement; transaction information management. (2) Independent system operation center: to ensure the safe and reliable operation of the system; to execute the transaction plan of the power trading center; and to purchase the auxiliary service. (3) Market broker-hacker (broker): It is a purely commercialized interest entity that does not own any electrical equipment, but it has the right to buy and sell electricity. This is because when the scale of power trading reaches a certain level, any member may face hundreds of power producers or suppliers and thousands of power demanders [4]. This is a complex trading network, power generation or electricity supplier and power. Both parties need to open up their markets, sign various power trading agreements, and provide corresponding services.

Therefore, when the power supply system is fully realized in the power market, it is impossible to operate like the current model, and the power supply companies around the country will form multiple equal power supply companies. Users do not have to go to a power supply company to buy electricity, users will have more choices. You can even go to the market middleman---hacker (broker) to buy electricity. Therefore, the power supply system is now going to change the existing backward office mode, and it is necessary to use the advanced technology of the Internet to improve work efficiency.

2.2. E-commerce plan for power enterprises in Jilin Province

2.2.1. User bank account opening. In order to facilitate the user's electricity application. Before applying for business, users must go to any local bank to open an account and deposit a certain amount of cash. You can open an account on the website of the local power supply system. If the user has a bank account, they can go directly to the website of the local power supply system.

2.2.2. User online account opening. The user registers on the website of the local power supply system and fills in the bank account number in the registration information. If you do not fill out, registration will not be successful. After registration, the user will wait for the approval result. At this point, the software system will automatically connect to the banking system to verify the existence of the account. And extract the information against the information registered by the user.

2.2.3. Submit equipment and wiring diagrams, etc. When the user applies for business, apply directly online and pay the fee online. After receiving the application request, the power supply company sends a person to the user for inspection, and solves the corresponding problem on the spot with the user. After all the inspections have been passed, the staff will submit the equipment list and wiring diagram and approval results on the network to facilitate the next step.

2.2.4. Installation Information Management of Electrical Equipment. The installation project is determined by the user and who is responsible for it. The power supply company has no right to interfere. However, it must be supervised by the power supply company during the installation process. Therefore, during the installation process, the power supply company will send personnel to supervise and manage.
After each inspection of the power company's inspectors, the inspection report is submitted online, and the user can check the inspection results through the Internet, and can also supervise the work of the power supply company.

2.2.5. **Troubleshooting (planning, emergency failure repair).** The fault warranty mainly includes two parts: planned warranty and emergency fault warranty. The dispatcher shall plan the area to be repaired according to the regulations and notify the user via the Internet. When the user encounters an emergency, they can use the online warranty, or they can call the warranty directly.

2.2.6. **User online inquiry.** The user accesses the website of the power supply bureau via the Internet. After logging in, you can query the project progress information, electricity bill information, maintenance information and other information. And you can make complaints and add new services through the network. At the same time, users can also apply for a test form or apply for a test form through the network. The purpose of the program is to truly enjoy the full power service at home. And improve the efficiency of the power supply system and improve the service of the power supply system.

2.2.7. **User online payment.** After the user logs in to the website of the power supply company as himself, he can make an online payment. This saves user’s time.

2.2.8. **User Management System.** It is mainly used to manage user information internally used by power supply companies. The legitimate rights and interests of users are protected from damage.

3. **Establishment of e-commerce platform for power enterprises in Jilin Province under the electricity market**

3.1. **Overall structural design.** For power supply companies, e-commerce generally adopts B/S (Browser/Server) mode. Since the system interacts with the user is not large, the B/S structure is the most suitable structure for e-commerce. However, for an enterprise internal network, a large number of frequently and high-speed interactive application systems are required, and the B/S structure is not necessarily suitable. Adopting the Intranet application model does not necessarily replace the traditional Client/Server structure. From a certain point of view, especially from the recent development, the application boundaries are not clear, and often complement each other and complement each other. In fact, the enterprise MIS adopts the B/S mode and does not require that the application be transferred to the WEB Server, but should be selected according to the situation. Then, the new B/S mode in the application needs to be combined with the traditional C/S mode. In order to apply e-commerce to power supply companies. As shown in picture 2.
3.2. Risk Analysis and Security Requirements

E-commerce conducts business trade activities through the Internet. Its information flow has the commonality of computer network information and its own particularity, including the openness and multi-source of information. Its security requirements must meet the following conditions [5].

3.2.1. Availability. In combination with the definition of the ISO09241-11 standard, the availability here refers to ensuring the effectiveness of the platform's corresponding functions in electronic bidding, suppliers, and contract management, ensuring work efficiency and improving user satisfaction. This security requirement is at risk of service disruption caused by denial of service, data being maliciously or accidentally deleted.

3.2.2. Confidentiality. Since e-commerce is established in an open network environment, information such as bidding and bidding is transmitted over the Internet and stored in a computer, and corresponding technologies are needed to ensure the authenticity and integrity of the information, and to prevent risks including interception, tampering, and the like. The former can be an attacker sniffing through a network eavesdropping tool, obtaining business information from a packet with insufficient encryption strength, and then modifying the data, or after the computer is invaded and implanted with malware, the corresponding information is sent to the actual participant to bring in funds. A hidden danger of loss or reputation damage.
3.2.3. Identity legality. The participants of the platform include bidders, bidders, management supervisors, review experts, etc., and their respective rights are different. The platform should provide a mechanism for identity authentication between the two parties to ensure the legality of the participants and only complete the corresponding rights. Work. The bidding website needs to cooperate with the power company and the government management department to establish a comprehensive and accurate supplier database, improve the accuracy of the online bidder's qualification review, safeguard the interests of the bidder, and prevent the risk of the identity of the participants being forged.

3.2.4. Non-repudiation. In the process of bidding, there may be cases where the tender issued by the enterprise has been tampered with, or the enterprise denies the bidding behaviour and the content of the tender, or the tender containing the confidential content is sent to the forged server. This requires digital certificate authentication technology to circumvent this. Class risk.

4. Analysis of e-commerce marketing strategy for power companies

4.1. Innovative ideas

With the use of global Internet technology and the vigorous promotion of energy, the requirements for the management of power base enterprises are becoming more and stricter. The responsibility and obligations of power base enterprises are becoming heavier and heavier, and the construction goals of environmentally friendly development have been increased. This requires power base enterprises to fully recognize the current development situation, fully analyze and explore the current market environment and development situation, change the traditional old ideas, reject the unsuitable ideology, and dare to
innovate. Keeping pace with social development, we will regard party building work as the core of development, and actively explore the form and content of marketing management by using modern new media technologies and Internet technologies. In addition, it is necessary to establish a failure system related to continuous improvement, ensure the various business activities of the power infrastructure enterprises to proceed in an orderly manner, carry out power marketing work according to the business scope and marketing policies, adapt to the development needs of the market, and continuously enhance their own market competition [6].

4.2. Customer service as the center, accept the management of the marketing department
Customer service is divided into different charging windows in different areas to form a unified charging standard, which is responsible for the collection of various operating expenses. Electricity price standards are closely related to the vital interests of the people. People are paying more and more attention to the system of paying attention to electricity price standards. Traditional pricing standards have many drawbacks, and the cost-plus pricing standards have been unable to adapt to the current social development rules. Therefore, relevant departments have conducted in-depth analysis and exploration on the current actual situation and market environment, and redefine the pricing form. At the same time, in order to protect the vital interests of the people, relevant departments must access the process of electricity price formulation, receive supervision and management of the marketing department, and ban some illegal and unreasonable pricing forms and methods to ensure the reasonableness of electricity prices.

4.3. Innovative power marketing management system to improve the service level of power marketing
The power industry is an independent economic entity and a basic industry of China's national economy. Power marketing management plays a vital role and influence in the survival and development of power companies. To a certain extent, the quality of service of power marketing is directly related to electricity. The economic benefits of the enterprise. A good service level can improve the economic efficiency of the enterprise, so it is necessary to improve the corresponding services and improve the market competitiveness and comprehensive strength of the power companies. Therefore, it is necessary to carry out innovation and reform on the power marketing management system. Firstly, comprehensively analyze and predict the market development status and future development trends, understand and master the internal laws of market development, so as to make timely adjustments to the power market and business operations. We will make scientific and reasonable planning for the future market situation, formulate and adjust production and operation targets such as power generation and electricity sales, and timely adjust the power marketing strategy that does not meet the development needs according to the market development trend, and expand the sales market.

5. Conclusion
The e-commerce of bidding for power engineering business can greatly improve the efficiency of bidding. The strategy of intensive management of the whole process of grid material supply chain has spawned the first-level deployment of e-commerce platform by grid companies. The importance of security is self-evident. In the entire power marketing management activities, we need to focus on user needs and continuously improve the service system to ensure good service quality for users. Faced with the rapid development of e-commerce and the major opportunities for economic transformation and reform, Jilin Province's power companies actively participate in research and practice, and promote the integration of e-commerce and traditional marketing methods to achieve their own development.

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