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Abstract. Guided by the general idea of "Let go of two head, hold the middle" of the new round of electric power system reform, seizing market opportunities and forming a competitive advantage have become the key to the transformation and development of large-scale state-owned power generation enterprises. Based on the research of new electric power reform policy, this paper analyzes the prospects of large-scale state-owned power generation enterprises in electric selling business from the perspective of value flow, technology flow and business flow and makes a tentative plan and exploration analysis on the development mode, business process and profit model. Power generation enterprises should be aware that allowing them to invest in electric selling business is a major opportunity, which will facilitate the integration of production and sales, extend the industrial chain and optimize the allocation of resources so that large thermal or low-cost hydropower units can generate more power and improve overall efficiency.

Introduction

In November 2015, National Development and Reform Commission released opinions on the implementation of the electricity sales side reform, indicating that government will open electric selling business to social capital officially and try many ways to cultivate the main body of competition in electric selling market. The establishment of the power sale main body will not engage in examination and approval system, only subject to the entry threshold. The power sale main body can trade on their own initiative with power generation enterprises and can also trade centrally through power trading centers. The transaction price can be determined through independent negotiation by both parties or through centralized matching and market bidding. The opinion clarifies that the electricity sales side reform should develop toward the direction of market-oriented, safe and efficient, clean and low-carbon, and technical and management mechanisms innovation. It also clarifies the responsibilities of the power sale main body and the scope of the relevant business, allows more flexible trading methods of the market participants to play a role in market price discovery and establishes information disclosure and credit evaluation mechanism to strengthen risk prevention and supervision. This paper analyzes the opportunities and challenges faced by power generation enterprises in coping with the electricity sales side reform, and then we propose the development strategy in hopes of providing some reference.

Analysis of the Electric Selling Market Structure under New Electric Power Reform

The release of electricity sales side is one of the key tasks for deepening the electric power system reform, through which China will gradually release users' options and build a number of power sale main body to form a market with "multiple buyers - multiple sellers" pattern and establish a power market system under government supervision so as to achieve the multiple goals of improving efficiency, enhancing services, benefiting users and increasing social welfare. The specific classification of the electric selling company, their respective advantages and participation motivation are shown in Table 1:
<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Participation motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric selling company set up by power grid enterprises</td>
<td>Capital, technology personnel, and marketing services proficiency</td>
<td>Have obvious experience advantage in independent operation of competitive sales business</td>
</tr>
<tr>
<td>Electric selling company set up by power generation enterprises</td>
<td>Exercise price strategy more calm, easy access to government and power grid support</td>
<td>Expand their business space and profit margins, linking production and sale can effectively improve the ability to withstand market risk</td>
</tr>
<tr>
<td>Electric distribution and sales integrated company</td>
<td>Existing distribution network operators have operational experience, easy to achieve off-site expansion.</td>
<td>Have the right to operate distribution network, and can openly accommodate social capital, with good business possibilities</td>
</tr>
<tr>
<td>Independent electric selling company</td>
<td>Formed by social capital, will strong, decision-making process fast</td>
<td>Close to the user, the ideal state is to obtain a large number of customers in some areas to form a new monopoly</td>
</tr>
<tr>
<td>High-tech park and economic and technological development zone</td>
<td>Target customers fixed, can provide targeted sales value-added services</td>
<td>May be engaged in electric distribution and sales integrated business and integrated energy services, easy to form a new monopoly in some areas</td>
</tr>
<tr>
<td>Distributed energy and Microgrid</td>
<td>National policy support, sales side open will promote its development</td>
<td>Mainly rely on policy support, the pace of development and size is constrained</td>
</tr>
<tr>
<td>Water, heat, gas supply and other public service industries</td>
<td>Have customer resources and marketing and service experience</td>
<td>Can be bundled with the existing electric sales business and integrate service and resources</td>
</tr>
<tr>
<td>Energy Services Company</td>
<td>Have the technical and personnel advantages, and a certain degree of user resources</td>
<td>provide one-stop integrated energy service solutions, relying mainly on policy support, the speed and scale of development are constrained</td>
</tr>
</tbody>
</table>

### Analysis of the Prospects of Large-scale State-owned Power Generation Enterprises in Electric Selling Business

#### Prospect Analysis Based on Value Flow Perspective

In 1997, James Martin defined value flow as a series of continuous activities from start to finish that have value to customers together. The customer may be the ultimate external customer, or the internal value flow consumer. Analyzing the prospect from value flow perspective can help us find the advantages and disadvantages in business management. Based on the value flow perspective, we conclude that the prospects of large-scale state-owned power generation enterprises in electric selling business are as follows:

1. After they enter the electric selling market, not only can they ensure an adequate supply of power resources, but also reduce the intermediate purchasing cost of electricity. This will vigorously guarantee the power quality and reliability of power supply within the scope of power sales and provide users with better power services.

2. Through the analysis of user's electricity consumption and demand, combined with Internet technology to build electricity trading platform, they can design the most suitable electricity product for users and push the optimal electricity consumption plan. The user and enterprise can realize two-way interaction to meet users’ diversified, interactive electricity service needs.

3. For power generation enterprises with large assets, wide distribution of business areas and rational power generation structure, the optimal allocation of resources within the enterprise can be achieved through scientific dispatch, the power generation cost can be reduced actively, and the enterprises’ anti-risk and profit-making ability can be enhanced.

#### Prospect Analysis Based on Technology Flow Perspective

Technology flow refers to the spread and flow of technology. The relationship between technical pathways, processes, and intensities is indicated by technology flow. The process, management and
decision-making of technological innovation determine the quality, speed and coverage of technology flows. After analyzing the technical capabilities an electric selling company should have, we conclude that the power generation enterprise has the following advantages in selling electricity:

(1) They can ensure an adequate supply of power resource. A stable and low-cost source of electricity will be its fundamental advantage in the electric selling market.

(2) Customer source advantage. They have been engaged in power generation for many years, and already have some stable customer base, so the price fluctuations can be more flexible and they can get information superiority in the auction. Therefore, in the early days of sales side release, they have advantages in gaining customer base.

(3) They have the ability to make full use of the relevant sales business resources. Such as organizational and coordination capability: its reasonable organizational structure, responsibility system, high-quality human resources can give enterprises a strong organize and coordinate ability to ensure efficient and stable operation; Information processing capability: they can guarantee the stability of business information interaction and realize the data sharing and application, laying a solid foundation for big data analysis; Service capability: they have professional service team and information technology personnel, which can provide energy service providers with energy resources such as cold, heat, electricity, steam and so on to meet different needs of users.

Prospect Analysis Based on Business Flow Perspective

Business flow refers to a series of activities related to meeting customer value. Based on the business flow perspective, the development of electric selling business of large state-owned power generation enterprises have both opportunities and threats:

At present, the potential of China's electricity demand is still huge. In recent years, the rebuilding and transformation of rural power grids, the implementation of the one household one meter system and the large-scale development of the western region have provided a broader market for electric selling enterprises. With the improvement of the income level of urban and rural residents, their purchasing power is enhanced and demands are increasingly diversified, promoting the electricity consumption. At the same time, the acceleration of urbanization and global manufacturing industry's shift to our country has led to the unprecedented development of high-tech industries.

However, they are also facing threats. Electricity recovery process is still very difficult and the failure to collect electricity tariffs in time will result in difficulties in operating funds and bring huge financial risks. At present, China's local electric selling companies do not have the right to develop electric price, which is basically managed by the local government. And the price is rather low, which will certainly affect the enthusiasm of the operators. In recent years, our country has been seeking a strategic adjustment of the energy structure, encouraging the development of nuclear power and wind power industries, reducing the proportion of coal-fired thermal power units, so the market competition is intensified.

Analysis of Development Strategy of Power Generation Enterprises on the Sale Side

Development Mode Analysis

In order to survive in the fierce market competition and grow stronger, enterprises should establish an all-round and comprehensive concept of competition, which is mainly reflected in the following points:

(1) To take electricity production and sales as core business to meet customers’ different demand for electricity. By reasonably forecasting market demand and prices, they can formulate a variety of trading contract combinations such as spot, medium and long-term, and futures to segment the customer characteristics and consumption patterns and provide diversified, personalized and packaged store services to customers such as seasonal, time-based, custom tariff packages.

(2) Actively expand value-added services. Electric selling company grasp a large number of regional energy data, which can not only help to carry out load forecasting, complete the economic dispatching of the power system, but also to carry out demand side management, extensively guide
users to participate. Based on this, cooperation with relevant platform companies such as clean energy service providers and network service providers is especially necessary.

(3) Coordination strategy of internal and external relations: 1) It’s essential to clarify the responsibilities and business relations between existing marketing department and the establishment of a new sales company. Second, sales companies need to establish partnerships with their internal power plants. There are two modes of cooperation. One is that the electric selling company is mainly responsible for long-term electricity sales contracts and power plants carry out spot, auxiliary services and other power transactions. Second, the power plant only serves as a power plant, power sales work is entirely done by the sales company. To reduce the interest conflict between them, power plants can also participate in the sales company. 2) The sales company and the centralized control center need to make clear of the power supply security rights and responsibilities. 3) Sales companies should make good use of trading centers and dispatch centers. The trading center can provide fair, standardized and high-quality power trading services for them. The dispatching center is in charge of the economic dispatching and management of the power and plays a key role in the power transmission.

Business Process Analysis

We can build sales business process mainly from the user research, price model building, power product design, power supply, power marketing five aspects. User research is to carry out user's power characteristics, power load, power demand and other statistical analysis; Price model building is to analyze the power consumption of users and the various costs incurred in the course of selling power, and then establish the price model with the goal of maximizing economic benefits and minimum environmental pollution. Power product design is through the design of power products, launching the power products that meet customer needs, enhance user satisfaction, have market competitiveness and bring profit to the company; The power supply plan is formulated according to the power products, sales contracts and user load forecast results selected by the users, so as to ensure the production and purchase of power will meet user needs. Electricity marketing is mainly complete the power product’s promotion, sales, settlement, management and other work. Sales business process is shown in Figure 1:

Profit Model Analysis

Electric selling company can consider the following profit model: First, electric wholesale. A sales company buys electricity outside to earn a spread. Second, make use of its own power plant to earn electricity service fee. Third, earn integrated energy service fee, which includes quotations, distribution, operations and maintenance services. Fourth, as China's electricity market development and the gradual introduction of electricity financial derivatives, contract for differences trading model will be widely used in power plants and electricity users.

In the electric selling market, the first competition is user competition. Only by winning the user, can they occupy the market, sell electricity and services, and achieve market returns. And users can not only choose the power supplier, but also choose the price and quality of service. Therefore, there are two main competitive routes for enterprises to enhance their profitability:

On the one hand, price to win. Strengthen internal management, implement lean manufacturing, utilize technologies such as power generation assets owned by the enterprise, reduce the overall cost of high-quality power supply and strive for price advantage. The key to winning the price is to
leverage the advantages of customers, information, data and other resources it owns. Besides, further research is needed on the unique advantages of providing quality electricity.

On the other hand, service to win. Companies can take the cost leadership and differentiated marketing, differentiated services and other competitive strategies to enhance profitability. Cost leadership strategy refers to gaining market share by lowering production and operating costs, and providing a lower premium power value-added service price than independent electric selling companies. The advantage is that power generation enterprises have the price competitiveness, even if the company’s sales price of electricity equal to or lower than the independent sales company, there is still room for profit, low-cost can be converted into high-yield. Differentiation strategy refers to the electric selling companies provide differentiated high-quality power value-added services to meet user-specific needs, establish user loyalty, and bring value to the business.

Conclusions

In the long run, with contradiction between the rigid growth of power installed capacity and the rapid decline in electricity demand becomes increasingly sharp, the electricity market competition will be further exacerbated. Whether the traditional power generation enterprises can withstand the marketization shock brought by the new electric power reform depends on whether they can benefit from advantages and avoid disadvantages. In the early stage of electric power system reform, there is an opportunity for electric selling company to layout and exploit market. Power generation enterprises should continue to optimize the asset structure, improve the ability to deal with market risks, broaden the scope of business operations. During the period of loose and tense electricity supply, the establishment of a sales company helps to preempt the electricity market. Through the trading and service activities, enterprises can achieve profit and loss and pros and cons complement and achieve the comprehensive utilization of resources. It can be said that this is a key boost to the business expansion of large power companies and the diversification of profit models.

References


