

Research on Key Issues Concerning the Implementation of Energy Internet Enterprise Strategy

Peisheng Gao¹, Jing Wang², Yong Wang², Hua Wang^{*3}

¹ State Grid Jilin Electric Power Co., Ltd., Changchun, China

² State Grid Jilin Electric Power Co., Ltd., Economic and Technical Research Institute, Changchun, China

³Jiangsu Liangjing Technology Co., Ltd., Nanjing, China

Abstract. The theoretical system of the State Grid energy internet strategy is studied in this paper. This paper combs the scientific connotation of the State Grid energy Internet strategic goal under the dual carbon goal. Combining the policy requirements of state-owned enterprise reform with the requirements of electric power system reform, a systematic and theoretical understanding has emerged. The scientific connotation of the energy Internet strategic system of the State Grid at the current stage is proposed, which provides theoretical support and practical guidance for relevant departments. The result showed that the State Grid energy Internet strategy system formed a complete system, covering all aspects of enterprise development, connecting the foundation, ability, image and achievements of development, and is highly systematic, scientific and adaptable.

1. Introduction

'Leading Internet energy enterprise with Chinese characteristics' is the strategic development goal put forward by the State Grid Corporation of China in 2020. The construction of China's energy Internet is the direction of high-quality development of power grids, and also the fundamental way to achieve carbon peak and carbon neutrality in China. Energy Internet is considered to be one of the cores of the third industrial revolution and an important measure to achieve clean energy substitution and sustainable development. To better promote the implementation of the State Grid Corporation's strategic objectives, guide the planning of the energy Internet, and promote long-term sustainable development, it is of great significance to carry out a more comprehensive, accurate, in-depth scientific and forward-looking interpretation of the connotation of the strategic objectives of the company [1-2].

2. The scientific connotation of 'Chinese characteristics'

'Chinese characteristics' is the foundation of the energy Internet strategy, which is embodied in adhering to the "two consistent" and the organic integration of the Party's leadership into corporate governance, embedding the enterprise Party organization into the corporate governance structure, unswervingly serving the overall situation of the Party and the country's work, taking the road of power grid transformation and development and power system reform in line with national conditions, and fully fulfilling political responsibility, economic responsibility and social responsibility [3-4].

*435395788@qq.com

2.1. Adhering to the purpose of 'serving the people' is the Chinese characteristic of power grid work

Serving the people is reflected in more and higher requirements on power service quality and power grid security, which means that the power grid needs more refined management methods, more prudent and responsible reform steps, and more detailed and comprehensive layout planning. When it is critical, we should always get ready to bear the responsibility of the owner, be brave and be capable to bear it; guarantee due diligence, adhere to the Party's leadership, and follow the Party's line when facing difficulties [5].

2.2. Adhering to the development model of 'unified planning, unified scheduling, and unified management'

This has greatly brought into playing the scale and synergistic benefits of the power grid, in line with the laws of power technology and economy, and has played a decisive role in coping with the challenges from the rapid growth of electricity demand, frequent occurrence of natural disasters, and maintaining the safety and stability of the power system. In the past 20 years, China is the only country in the world to had no large-scale blackouts.

2.3. The decisive role of the power market in resource allocation under the government's macro-control

The government has built an efficient energy supervision system to regulate market operation and power enterprise management. In recent years, China has gradually established a trading system covering multiple time scales and multiple trading varieties, orderly releasing development plans for electricity consumption, the decisive role of the market in resource allocating has emerged, and market openness and vitality have increased significantly.

2.4. Strengthen the control of state-owned enterprises on bigger and stronger power central enterprises

To enhance the control of state-owned enterprises on public power, which is essentially different from the monopoly in western economics, to fulfill the 'three major responsibilities' (economic responsibility, social responsibility, and political responsibility), to better serve the economic and social livelihood, in the operation of the power market, it is necessary to better play the role of the central power enterprises in supporting and guaranteeing. Relying on the hard work of central power enterprises, China has surpassed foreign countries in the field of UHV bushing, which has led to the process of industrialization.

3. The scientific connotation of "international leading"

In the strategic system of the State Grid, 'international leading' is the pursuit, that is, committed to the comprehensive competitiveness of enterprises in the world's most advanced level in the same industry, the specific performance of the leading business strength, leading core technology, leading service quality, leading corporate governance, leading green energy, and leading brand value, and finally getting the company's hard power and soft power fully demonstrated.

3.1. Leading business strength

The most prominent feature of international leading enterprises is their large asset size and excellent operating performance, including prominent main business, high efficiency of asset utilization, industrial layout and industrial chain structure continuing to improve, good financial performance, strong profitability to international first-class level, and high shareholder returns.

The connotation of leading business strength can be expressed as safety, quality and efficiency indicators in the domestic and foreign industry-leading, outstanding innovation achievements, industry-leading ability, high level of internationalization, enterprise economic, social and environmental value, and an social contribution. The State Grid Corporation of China can take the initiative to find the best balance between social interests and corporate interests, and go out of the characteristic road to form an international model.

3.2. Leading core technology

International leading enterprises have sustained innovation capabilities, including technological innovation, strategic innovation, management innovation, and through continuous innovation to promote enterprise and industry development. The core technology of power grid enterprises is the strong power grid. Power grid planning should be scientific, the structural layout should be reasonable, and resource allocation ability should be strong. Continuously improve the independent innovation ability of power grid technology, guarantee the safe and stable operation of the power grid, improve the ability of disaster prevention and emergency support, promote the development of clean energy, and realize the green development of power grid and power industry.

The connotation of leading core technology can be expressed as scientific power grid planning, reasonable structure, safe and reliable operation, green low carbon, flexible and efficient, so that to build a strong smart grid, a wide range of energy resources allocation ability, disaster prevention, and disaster relief and emergency support ability, and make the information, automation, and interactive level international leading.

3.3. Leading service quality

International leading enterprises provide high-quality external services, and the comprehensive satisfaction of stakeholders is high. Customer-oriented comprehensive services are guaranteed, with a higher third-party evaluation of customer satisfaction; work in harmony with regulators, shareholders, customers, suppliers, communities, and other stakeholders to realize common development; take the initiative to assume social responsibility, and always show a good social image.

The connotation of leading service quality can be specifically described as guaranteeing safe, economical, clean and sustainable power supply, providing standardized and efficient energy-integrated services; advanced service concept, complete service system; good brand image, high stakeholder satisfaction, service quality and efficiency in the international public service industry in a leading position.

3.4. Leading corporate governance

International leading enterprises have clear strategies, efficient strategy implementation, and internal management. According to the characteristics of enterprises to establish a scientific and effective control mode, they have strong group control, give full play to the synergies and overall advantages; their risk management system is perfect and they have strong risk control ability; their level of management informatization is high.

The connotation of leading enterprise governance can be expressed as scientific group control, perfect governance structure, smooth business process, intensive and efficient management; high-quality team, excellent corporate culture; independent innovation ability, enterprise soft power and global resource allocation ability; capability to

build a modern large-scale energy enterprise group with power grid business as the core and coordinated development of related industries.

3.5. Leading green energy

The core of green energy leadership is to promote the low-carbon transformation of energy. The essence is to control and reduce the consumption of fossil energy. Its connotation should be reflected as follows: in terms of the total amount, by improving energy efficiency and saving energy, the total amount of energy consumption should be reduced as much as possible under the premise of meeting the needs of production and life. In terms of structure, on the supply side, clean energy is used to replace fossil energy, and on the consumption side, electricity is used to replace fossil energy for direct consumption, creating a clean energy supply system; as for layout, to adapt to clean energy resources and energy centers reverse distribution characteristics, improve the energy system for a wide range of optimal allocation of resources.

3.6. Leading brand value

International leading enterprises have a wide range of brand influence. Exclusively compiled by the world brand laboratory's 'world brand 500' rankings, the national grid has for 4 consecutive years been ranked in the world's top 500 brands of China, in 2019, it was ranked 28th in the 'world brand 500'. 'World Brand 500' has been released for 16 years. The evaluation is based on three key indicators: brand influence, namely market share, brand loyalty, and global leadership.

The connotation of leading brand value can be expressed as establishing a sound corporate image recognition system, effective implementation of brand strategy, brand culture has achieved remarkable results, has a well-known unified corporate brand or series of product brands in the international arena.

4. Scientific content of 'Energy Internet Enterprise'

In the national grid strategic system, 'energy Internet enterprise' is the direction, representing the higher stage of power grid development. The process of building energy internet companies is the process of promoting the interconnection and sharing of power grids to energy, and also the process of upgrading traditional power grids with Internet technology. Use advanced information support technology and value creation system to achieve flexible and convenient access and interaction of new energy vehicles, energy storage, multi-type load and other multi-subjects, enhance renewable energy consumption capacity and energy market value of end users. Specifically, the energy internet is composed of three systems: an energy grid system, an information support system, and a value creation system.

4.1. Energy grid system is the physical basis of energy internet

The energy grid includes four links: energy production conversion, distribution, consumption, and storage, involving distributed energy, heat pump, energy network, multi-energy load, multi-energy energy storage, and other key equipment, carrying energy flow, covering energy infrastructure from energy production to energy consumption, and taking electricity as the center to realize flexible conversion and interoperability of various energy sources such as electricity, gas, cold, and heat.

4.2. Information support system is the nerve center of energy internet

Information support includes three links: information collection, information communication, and data analysis, involving advanced information technologies such as intelligent sensing, 5G communication, and data mining. It is an important support for the energy internet to achieve horizontal 'electricity-gas-cold-heat' complementary coordination and vertical 'source-network-load-storage' integration and interaction. The information flow is a digital intelligent system covering information collection, transmission, processing, storage and control of all aspects of energy development and utilization and related social activities. It uses internet technology as a means to improve the resource allocation, security and intelligent interaction capabilities of energy networks.

4.3. Value creation system is the carrier to realize values of energy internet

Value creation includes four contents: energy supply and demand management, operation control, energy trading, and integrated services. It is the core of the energy internet and integrated energy service business. It realizes value co-creation and sharing with a focus on enabling traditional business, promoting new business forms, and building industry ecology.

The connotation of energy internet enterprises can be expressed as follows: relying on the flexible conversion and interoperability of various energy sources, optimizing and improving the comprehensive energy utilization efficiency, renewable energy consumption capacity and clean energy consumption ratio, supporting the clean and low-carbon transformation of energy and power. Relying on digital communication and energy trading in the fields of power grid extension, comprehensive energy, green transportation, and digital economy, etc., it empowers traditional businesses, generates new formats, builds behavioral ecology, and realizes the full excavation of energy value.

5. Case of strategic implementation results: State Grid Jilin Electric Power Co., Ltd.

5.1. Economic value.

The main operating indicators were better than expected, with 64.18 billion kilowatt hours of electricity sold, up 3.61% year on year, including 20.619 billion kilowatt hours of electricity sold by county companies, up 7.94% year on year. The asset liability ratio was 58.45%, a year-on-year decrease of 1.32 percentage points. The total labor productivity is 442,500 yuan/person • year. 34 measures to reduce the cost of electricity were introduced to benefit 98600 households and 178 enterprises. The analysis of Power Index for Resumption of Work was regularly promoted to provide objective and accurate data support for the government.

5.2. Comprehensive energy services.

The first batch of provincial energy big data centers were built and 25 data products were released. Undertake the construction of photovoltaic power generation projects of FAW Hongqi and NBD Group headquarters, with a comprehensive energy income of 515 million yuan, up 200% year on year. Build 10 data center stations, win the bid to build 200 towers sharing 5G base stations, and officially unveil the "5G+Energy Laboratory".

6. Conclusions

The energy internet strategy of the State Grid has formed a complete system, covering all aspects of enterprise development, linking the foundation, ability, image, and achievements of development, with strong systematicness, scientificity and adaptability. The strategic objectives are clearly defined, accurately described, and rich in connotation. It not only embodies the common characteristics of excellent enterprises but also has distinct company characteristics. It is a strategic goal with complete systems, internal unity and strong vitality. By deepening and improving the specific target connotation, it can keep pace with the times and get better adapted to the requirements of the company's future long-term development.

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