

Research on the Development Pattern and Technology of Competitive Business Ecosystem of Power Grid Enterprises in New Energy

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Abstract: In recent years, the epidemic continues to spread internationally. The tasks of "six guarantees" and "six stabilities" are arduous. Power Grid enterprises urgently need to accelerate the transformation and upgrading of competitive businesses in new energy, improve quality and efficiency, stimulate vitality, support the company to cultivate new growth points and give full play to the driving force of the new energy and power industry chain. Considering the existing research lacks analysis on the development pattern and technology of competitive business ecosystem under the new energy development situation, this paper innovatively applies the logic method and technology of deriving the competitive business pattern, defines the development orientation of the competitive business of power grid enterprises, and puts forward the development pattern and technology of the competitive business of power grid enterprises, which will significantly guide the business transformation and upgrading of power grid enterprises and cultivating ecological advantages in new energy.

1 INTRODUCTION

Under the background of energy and power digitization and marketization, based on the energy grid and information system, the competitive business of power grid enterprises is a key business carrier to rely on and support the leading industries of power grid enterprises and promote the creation of energy Internet value. It is a key force to support the high-quality development of power grid enterprises (Meng, Cheng, Liu, 2021). Overall, the implementation of the strategy of power grid enterprises puts forward higher requirements for Comprehensively Strengthening the strategic support of competitive business. The development of competitive business should not only provide high-quality resources such as technology, equipment, assets, data and talents for the high-quality development of power grid enterprises and power grid, but also support power grid enterprises in promoting the reform of the energy industry and responding to external demands Play the role of "great power and heavy weapon" in implementing the national strategy (Wood, 1998).

2 DEVELOPMENT ORIENTATION OF COMPETITIVE BUSINESS OF POWER GRID ENTERPRISES

2.1 Development Concept of Competitive Business of Power Grid Enterprises

In the future, the requirements to competitive business of power grid enterprises as the carrier of energy Internet value realization will be more prominent and clear (Scott, 1995). Competitive business should not only efficiently support the construction and operation of energy Internet, but also undertake the important task of supporting power grid enterprises to fulfil their three major responsibilities and drive collaborative innovation of upstream and downstream enterprises. It is urgent to change the relatively closed business philosophy in the past, grasp the three key words of "support, opening and contribution", and promote power grid enterprises to play a greater role in energy reform and national strategy with a higher level of basic support,

open cooperation, benefit contribution and industry drive.

Consolidate the support capacity and strengthen the guarantee of main business. The competitive business of power grid enterprises has obvious advantages in electrical equipment, power information communication and so on (Ansoff, 1965). In the new era, the competitive business of power grid enterprises should give full play to the technological innovation advantages and professional service advantages of directly affiliated industrial units, focus on the actual needs of power grid enterprises to lead the construction and operation of energy Internet, focus on breaking through the "neck" technology and core components, and strive to improve the autonomy and localization level of high-end electrical equipment and information and communication systems, take high-quality development as the main line, be driven by improving quality, reducing cost and increasing efficiency, business optimization and reorganization, and improve industrial operation efficiency, innovation power and development joint force, and continuously strengthen the all-round support capacity of technology, equipment, capital, platform and talents.

Strengthen opening-up and cooperation and highlight industry driven. The ecological development of energy Internet is advancing rapidly, and there is a huge space for power grid enterprises to tap the internal element value, business value and platform value of competitive business (Grant, 1991). In the new era, the competitive business of power grid enterprises is an important window to highlight the status of power grid enterprises as a "big country and heavy weapon". We should adhere to the ecological development concept of deep opening and collaborative innovation, focus on meeting the needs of users (customers) and scenarios, improve the level of strategic cooperation and capital operation in the capital and market, and unblock the channels for high-quality resource allocation inside and outside, enhance the penetration and expansion of emerging markets; In terms of data and technology, it is necessary to strengthen the joint innovation incubation of technology and products, and fully release the value-added potential of digital transformation of energy and power.

Adhere to innovation driven and enhance value creation. The rapid development of energy Internet provides new opportunities and requirements for responding to the change of supply and demand system of the whole energy and power industry chain, the optimization of industrial pattern, and the innovation of business format and mode. In the

context of digital transformation and clean energy development, the competitive business of power grid enterprises should be based on responding to the new scenarios and new needs of energy supply and consumption, strive to give full play to the multiplication effect of digitization, develop public service technologies, create online platform products, innovate business models, expand the public value creation ability of energy Internet and promote the sustainable development of competitive business, provide market, policy and technical support.

2.2 Basic Positioning of Competitive Business of Power Grid Enterprises

The competitive business of power grid enterprises is the "new kinetic energy" and "stabilizer" for the development of power grid enterprises (Hage, Alien, 1970). It is the "incubator" for power grid enterprises to cultivate market-oriented business for energy and power industry under the background of energy marketization and technology digitization in the new era. Specifically, the competitive business of power grid enterprises should focus on three basic positioning: supporter, benefit contributor and industrial driver, so as to serve power grid enterprises to speed up the construction of energy Internet and better fulfill their three responsibilities.

Critical Supporter. The construction of energy Internet of power grid enterprises is a pioneering system project. The establishment of smart grid's grid system and information communication system requires power grid enterprises to independently develop smart grid technical equipment and high-end equipment of components and components such as UHV bushing, tap changer and smart substation, and power grid enterprises to increase key technology research and integrated application in the fields of automation system, digital platform and communication, industrial control chip and artificial intelligence. It is necessary to establish a complete industrial chain of high-end electrical equipment and a power information and communication industry with high level of autonomy and strong product development ability, so as to provide key guarantees such as technology, equipment, platform and talents for the development of power grid enterprises.

Benefit Contributors. Affected by the slowdown of power demand and policy price reduction and profit transfer, power grid enterprises will continue to increase the operating pressure in the future, and power grid enterprises will put forward higher requirements for the profitability of competitive businesses. At the same time, the traditional electrical

equipment and information communication business mainly support the main business, and the external market expansion capacity is limited. Combined with the latest research and analysis, emerging businesses such as energy e-commerce, comprehensive energy services and electric vehicle business have large market space and great profit potential, which can be cultivated as a new profit growth point for power grid enterprises.

Industry Driver. Under the background of the in-depth integration of digitization and power grid business, the industrial driving role of new infrastructure construction and the utilization level of market factors have gradually increased. The development and utilization of data, network, terminal and platform resources by power grid enterprises is conducive to promoting the operation efficiency and value creation level of the whole energy and power industry chain. Therefore, with the digital level of the industry and the development of the national digital industry, digital services, the development of power grid basic resources, and the design, development and operation and maintenance services of information systems will play an important role in driving the industry.

3 COMPOSITION OF COMPETITIVE BUSINESS PATTERN AND TECHNOLOGY OF POWER GRID COMPANIES

At present, on the basis of consolidating the traditional energy transmission and power service business, power grid enterprises have preliminarily arranged competitive businesses covering the whole energy and power industry chain (such as comprehensive energy services, new energy cloud, energy e-commerce, energy industry internet, online industry chain finance and other key businesses). In the future, the Energy Internet business ecosystem of power grid enterprises will show the characteristics of clear core, cross-border extension and fuzzy boundary. Based on the energy grid and information system, and consolidating traditional energy transmission and power service business, it will develop in two directions of extending vertically along the upstream and downstream of the industrial chain, and mining the two directions of horizontal expansion based on the reuse value of basic resources, a business system connecting the whole energy and power industry chain will be evolved.

With the steady progress of comprehensively deepening reform, accelerating the digital transformation of the energy industry and gradually improving the Energy Internet system of power grid enterprises, power grid enterprises gradually have the

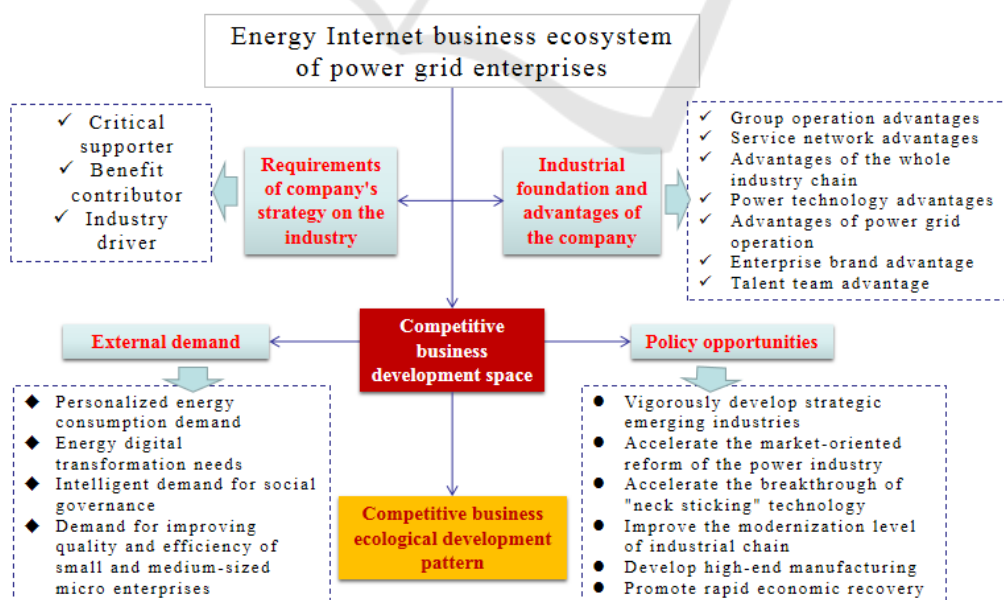


Figure 1: Derivation logic technology of competitive business pattern of power grid enterprises.

basic conditions and development opportunities for the overall promotion and coordinated development of the strategic layout of competitive businesses.

Firstly, from the perspective of the industrial foundation and advantages of power grid enterprises, power grid enterprises have accelerated the construction of energy Internet efforts have been made to consolidate the foundation of the energy and power industry chain, and the group's operation advantages, service network advantages, whole industry chain advantages, power technology advantages, power grid operation advantages, enterprise brand advantages, talent team advantages and other significant advantages have provided a persistent basis for the development of competitive business.

Secondly, from the perspective of external demand, energy consumption demand is increasingly diversified, technologies such as multi energy combined supply are gradually mature, and demands such as personalized energy consumption demand, energy digital transformation demand, intelligent social governance demand and quality and efficiency improvement demand of small, medium and micro enterprises are becoming increasingly prominent, providing a huge market space for power grid companies to develop energy and power value-added services.

Thirdly, from the perspective of policy basis, the government has issued a series of policies to vigorously develop strategic emerging industries, accelerate the market-oriented reform of power grid industry, accelerate the breakthrough of "neck" technology, improve the modernization level of the industrial chain, develop high-end manufacturing industry and promote rapid economic recovery, which will deeply tap the value-added potential of reuse related power grid resources for power grid companies give better play to the leading role of industry and provide a relatively loose policy environment.

Based on the above analysis, the competitive business of power grid enterprises will start from supporting the leading industry of power grid enterprises, be oriented to meet the needs of "users (customers)" and "scenarios", deeply cross integrate business scenarios, resource assets and market users, and expand from point to point and outward through customer development, resource integration, platform Association, collaborative innovation, etc, Gradually form four business clusters: smart energy service business, smart industrial chain service business, resource sharing service business and basic forward-looking business.

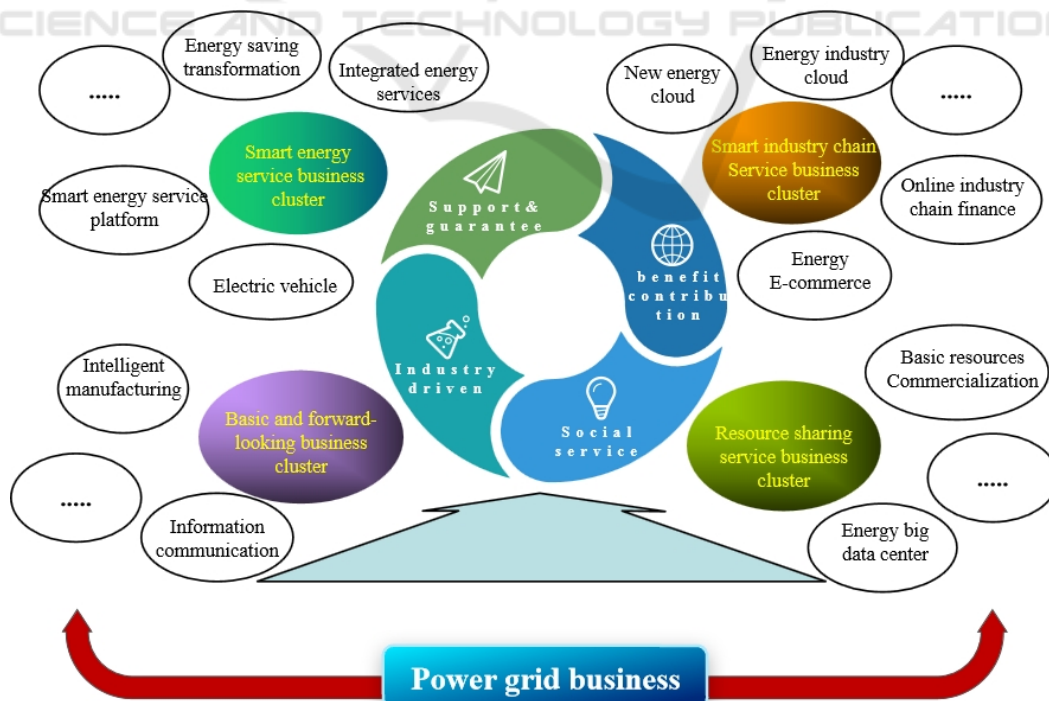


Figure 2: Four clusters of competitive business of Power Grid company in new energy.

4 CONCLUSION AND ENLIGHTENMENT

Wood E. Determinants of innovation in SME's [J]. See Michie and Smith. 1998: 119-145.

In the future, power grid enterprises should focus on building smart energy services, smart industrial chain services, resource sharing services and basic and forward-looking business clusters of Energy Internet in in new energy.

Firstly, it is necessary to determine the positioning of "new kinetic energy" and "stabilizer" for the development of competitive business, and strengthen the "incubator" function of power grid enterprises to cultivate market-oriented business for energy and power industry.

Secondly, combined with the external strategic environment requirements of power grid enterprises and the company's industrial transformation and upgrading deployment, the development of power grid enterprises' industries should adhere to the overall development idea of "2+2+n": two development points - optimizing business layout and strengthening business integration; Two means of development: form a classification path and promote collaborative development; "N" is the development strategy of N industrial units.

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