A Study on Enterprise Strategy Based on Industry Innovation in Electric Generating Set Manufacture Industry

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Abstract

Restrictive factors of Chinese generating set equipment manufacturing industry innovation includes technical introduction restraint, system restraint, enterprise resources, ability restraint and resources disperser restraint. In the future, based on industrial innovation, generating set manufacture enterprise’s strategic choice, strategies on industry innovation of Chinese generating set manufacturing industry are proposed. There are a lot of means can help, as well as developing many kinds of clean energies and realizing industrial reforming, extending service pattern, promoting industry innovation level, enhancing ability of enterprise’s continuous development and accelerating industry’s innovation.

Key words major equipment manufacturing industry; industrial innovation; restriction factor; strategy

Enterprise strategies based on industrial innovation propose creating brand-new future industry or change existed industrial structure, formulating enterprises strategies which are beneficial to themselves. The equipment manufacturing industry can be understood as which provides equipments for various national economy’s branches and sectors to carry on simple reproduction and expanded reproduction. It is the foundation of national industry’s modernization and concentrated expression of economic strength, the symbol of a national industrialization level and even economical strength, and science and technology overall strength. On June 16, 2006, Certain Opinion about Speeds up Promotion Equipment Manufacturing industry by the State Council chose one batch significant technical equipment product which has important influence to state economy security and national defense development “The opinion” takes developing large-scale clean highly effective generating set as the first key product and profession[1].

Industrial innovation is cooperation innovation developed in industry between enterprises. Enhancement of industry’s competitive ability must be able to realize by innovation method. Technical application and economical development bring all unifications in industrial innovation process[2]. Industrial innovation means that continuous active technologic innovation process is based on industrial level. From enterprise’s stratification plane, industrial innovation is the process that enterprise breaks through existed structure industry restraint, by using technical innovation, product innovation, market innovation or combination innovation, in order to change the existed industrial structure or create a new industry[3]. On industrial innovation, enterprise perhaps faces some opportunities, including[4]; the opportunity of industry reforming, if enterprise at a disadvantageous position is able to grasp initiative on industrial reforming ahead of time, forestall to carry on management or technical transformation, then it will have superiority which competitor will be unable to surmount. ZHANG and XIE[5] had analyzed the question which Chinese steel and iron profession industry innovation and development met, and proposed corresponding management measure. ZHU[6] analyzed each kind of question that IT industry innovation policy will meet the situation after China join into WTO, and carried on the discussion hope to be able to provide enlightenment to industrial innovation adjustment. This article in view of challenge and innovation restriction factor of China generating set manufacture industry in industrial innovation face, proposes industry innovation of Major Equipment Manufacturing Industry in China strategy.

1 Present Situation on Industrial Innovation of Major Equipment Manufacturing Industry in China

Since 2002, partial industries have invested heat,
Chinese economy was keeping fast growth ratio and some partial local electric power short from market demand, it was also called “the blowout” phenomenon. Massive funds invest into construction of electric power industry development. It directly causes strong situation of generating set market demand. Nation generating set enterprise produces raise fast, the output value doubles year by year as shown in Fig.1, from this initiated the generating set manufacture enterprise to surmount the type super velocity development.

China Major Equipment Manufacturing Industry Enterprise starts to go out the trough of industry from 2002. In 2003, the enterprise started to undertake the contract which keeping greatly increasing, at present the enterprise had already arranged the production to 2007, even 2008. Statistics have indicated that our country yearly average electricity generation installing equipment rate will rise and achieve above 16% in the next 4 years. According to this trend, after years our country electric power supply and demand will achieve unbalanced condition that supply is bigger than demand. According to this circumstance, it requests generating set enterprise to ponder from strategic angle and make policy to face “greatly fall” situation which will possibly appear after 4 years. Before 2002, rise and fall of China generating set market demand was a relatively gentle wave. But in 2003, short electric power has greatly initiated great investment. Numbers of installed new equipments are 34.84 million kilowatts in 2003, 51 million kilowatts in 2004, 6 000~7 300 million kilowatts in 2005. This number will increase to 75 million kilowatts in 2006, which will be the highest since new China had been established. At present, national electric power general equipment department machine capacity has already surpassed 500 million kilowatts. Installing capacity in construct estimate also reach 300 million kilowatts, which majority will go into production in 2008.

Redundant installed capacity is estimated that it might achieve 10% at the end of 2007. In 2007, national increased installing equipment will still surpass 80 million kilowatts. To the end of 2005, national electricity generation installing equipment aggregate capacity will sum to 520 million kilowatts. According to the nearest statistic result, national installing equipment aggregate capacity will achieve about 740 million kilowatts in 2008. It would have surpassed 300 million kilowatts about originally expected plan in 2010. It can be said that installed capacity of quota of following 5~7 years electric power development has fulfilled or finished ahead of schedule. If not adjusting industrial structure, once there forming a new turn of competition, power equipment manufacturing industry will face a disaster attack, as shown in Fig.2.

At present the elasticity coefficient of the China electric power expense is about 1.5, this coefficient later will have a drop from 2008. It will pace back and forth in a longer time about 1. Authoritative department forecast that, our country power rate possibly achieves above 500 million kilowatts per hour in 2020, and electricity generation installed capacity will achieve about 1.16 billion kilowatts. During 12 years from 2008 to 2020, electricity generation installed capacity will increase to 420 million kilowatts. This yearly average increase is 35 million kilowatts, which will be equal to a half of annual mean during the period of 2005~2008. But thermal power installing equipment still will occupy about 75% of nation installed capacity. Therefore risk of greatly fall mainly will concentrate in traditional thermal power equipment manufacture field. So, for equipment manufacture enterprise main profit comes from tradition thermo-electricity generation. They should be supposed to locate direction of enterprise future development based on industrial innovation. Market pattern change and market information trend, enterprise should grasp important strategic opportunity.
of generating set profession development.

1.1 Technical Introduction Restrict Industry Innovation

Tense season of using electricity these years appear “dian huang”. This kind of urgent market demand has produced huge drawing to power equipment production manufacture. In American history, the highest annual electric power production output is only more than 50 million kilowatts. But in former 10 months in 2005, China had already produced sum to 72 million kilowatts. And this number is still in accelerated growth. After high electric power construction tide, it causes domestic generating set manufacture enterprises introduce technical equipment to begin immediately produce. Simply they do not have time to finish technical digestion. Enterprise falls into strange circle of nonstop introduction. Chinese domestic scholars start to allege the question of strategy “market trade technology”. Chinese manufacture enterprise cannot obtain promotion on industrial value chain. Domestic colleague’s steep competition, which profit is extruded, is in low end of value assignment. Moreover, multinational corporations is stemming from market protection goal, which often intentionally enhances technical standard to meet market demand. Technical standard has become an important way that multinational corporations carry out trade protection and earn excess profits. Some standards are only partial improvements.

When compared with multinational corporations, insufficiency is without engineering research and development ability ahead of market demand. In generating set profession, China has introduced million kilowatts ranks one after another sub critical, supercritical, ultra supercritical large-scale thermal power steam turbine and nuclear electricity steam turbine production manufacture technology. After purchasing technology, we lack platform of massive foundational technical laboratory to study and digestion absorption time.

1.2 System Restraint

Enterprise seeks new industry, new energy, solar energy and seawater desalination technology, etc. Decision-making has risk. It is not feasible to put investment risk management idea under Chinese state enterprise’s supervising and managing system when develop new product industry. Universal thought and system barrier will harm enterprise innovation for long-term.

Main body of industrial innovation is enterprise. Enterprise must be fastidious economic efficiency. If research and development project expend large amount of money and be able to gain benefit 3 years later, development study in advance will directly affect enterprise’s current benefit, profit and financing ability. Original system causes research development and industrial development coming apart. Ability of equipment manufacturing industry’s independent innovation of our country is not well. After reform of science and technology system, original industrial research institute completely transfers to enterprise. Industrial general character technology is research from “vacancy”. Economic restructure reform continues deepen, which will promote equipment manufacturing industry development. But the duty of state-owned enterprise structure adjustment and mechanism innovation is still very arduous. Vigor and competitive ability of state-owned enterprise is still more or less affecting equipment manufacturing industry promotion.

1.3 Enterprise Resources and Ability Restraint

In industrial innovation process, enterprise discovers profession opportunity unceasingly. Enterprise industry innovation restraint mainly comes from oneself resources and ability restraint. These years market pressure is the impetus function to manufacturing capacity enhancement, including ability of using equipment and production management. However, what had been covered is the development of ability of technical research and management. On surface it looked like enterprise unceasingly enters nuclear electricity, gas turbine gentle breeze electricity and emerging area of technology. In fact, ability of technical research is split up and weak. It seems that the scale of business management system becomes larger and this system solves more problems. In fact, system coordination, efficiency and unity which expose in management become worse.

Management challenge mainly comes from management complexity, which faces multiplex management. It must manage thermal power generating set, emerging burning machine, wind electricity and nuclear electricity. Both must manage state-owned stockholder’s rights ingredient, and manage joint-stock, non-joint-stock companies and joint venture. Enterprise function department’s attention disperses which must share and manage massive social function, molecular company and auxiliary departments. Traditional management pattern
has its inherent inertia, involving to person’s behavior and enterprise culture inertia. If you want to carry on management in a system more complex than traditional, you will fill with nondetermination and challenge.

1.4 Resources Disperser Restriction

Multinational corporations generally are “dumb bells” structure. It means research development ability and sales ability are very strong. In China, many enterprises are “Chinese olive” structure. It is to say only manufacturing ability is strong. Moreover, Chinese Academy of Science Institute and enterprise’s research and development system follow Soviet Model, respective independence. Personal scientific research results are easily put aside. Not only difficulty docks with market demand and easily block or repetition, but also like ships power technology at least falls behind 20 years compare to existed generating set manufacture technology. It is unable to realize resources fusion. Our transaction behavior has already marketed. But resources disposition does not market and its waste is huge. Resources of technical innovation and industrial innovation are too disperses. Enterprise is unable to make use of them or form unification centralized ability. Many enterprises appealed that, it should carry on conformity of domestic research and development resources as soon as possible from higher national stratification plane[7]. But, existed mature industrial structure gives us little opportunity. We need to seek opportunity of value from changing industrial structure. Practice proves that strives for survival development space by dividing market share in existed structure in industrial market is extremely limited. Industrial structure regulation is higher. Competitive intensity in industry is greater, and then enterprise’s choice leeway (competition space) is smaller.

In existed industrial market, enterprise should seeking best status by products, price, channel combines. These factors no doubt are necessary to enterprise. But unavoidably, enterprise will become a follower forever. Passively adapting to circumstances, it is competition pattern namely existed industrial market, which is unable to breakthrough. Baud competition strategy theory is based on industry which already existed carries on choice between structured but not fully structured industry. It is still difficult to obtain leading status among enterprises in industry. Similarly enterprise faces difficult position which classical strategic theory caused passively follows the leader. Enterprise only can focus on existed market under industrial structured competition. Neglecting decides future potential market competition. This kind of potential competition occurs in unstructured industry. Formulating enterprise strategy by innovating future industry or changing existing industrial structure is advantageously to oneself as starting point. It will be the topmost story strategy of enterprise[8].

Intensified along with globalization advancement, enterprises have to go out because of domestic market factors. For overseas big companies, market will saturate in the next 10 years. They generally do not produce products themselves. These years Chinese market development gives them more opportunities. Chinese generating set manufacture enterprise has superiority in cost, which have competitive advantage in developing countries. Developing high end equipments of highly effective clean, and diversification will be the only path which our country must choose. It also will be the only path of sustainable development of generating set profession must choose. shown in Fig.3.

2 Enterprise’s Strategies on Industrial Innovation of Major Equipment Manufacturing Industry

2.1 Enterprise’s Strategic Based on Industrial Innovation of Future Generating Set Manufacture Enterprise

Enterprise strategy attempts to grasp its righteousness from industrial angle. When formulate strategy, we have to carefully examine enterprise’s strategy again from industrial innovation stratification plane[9]. But, existed mature industrial structure gives us little opportunity. We need to seek opportunity of value from changing industrial structure. Practice proves that strives for survival development space by dividing market share in existed structure in industrial market is extremely limited. Industrial structure regulation is higher. Competitive intensity in industry
2.2 Developing Kinds of Clean Energy, Realizing Industrial Reforming

Our country electric power industry plan claims to change structure of power source, increase electric power proportion of electricity generation of water, nuclear, wind, solar energy, biological mass energy, and so on. It plans that electricity generation of nuclear capacity would achieve about 20 million kilowatts in 2010, 40 million kilowatts in 2020. Electricity generation of wind capacity will achieve 4 million kilowatts in 2010 and 20 million kilowatts in 2020. At present, electricity generation of wind in our nation only has 764,000 kilowatts. It has to increase above 3.25 million kilowatts to meet request of 4 million kilowatts in 2010, and over 1.28 million kilowatts each year to meet national plan requirements in 2020. Renewable energy will be direction of world energy development. A series of significant breakthroughs in renewable energy technology aspect appears in many countries now. So it leads a new turn of world economics growth. This trend will form renewable energy revolution in 21st century.

In synthesis, development of highly effective, clean, and diverse high end equipment will be the only way that Chinese generating set profession sustainable development choose. Generating set enterprise needs to value market investigation and study analysis. Promptly it carries on strategic product structure adjustment. It makes every effort to down market risk to minimum and can be face risk which greatly falls.

Power equipment manufacture enterprise still has very big development space, but its future market situation is stern. Prosperity market is only temporary. If enterprise plans to obtain sustainable development, it has to enhance its own technology, management level, creatively develop industry innovation. Chinese generating set manufacture enterprise needs to reform as soon as possible, to transform from pure manufacturer to versatile engineering firm, to form ability of design productions, and to purchase as well as later period personnel trains.

2.3 Extend Service Pattern, Promote Industry Innovation Level

Divide enterprise innovation into three levels: innovation on product, service and market; innovation on service, pattern; innovation on flow management. Chinese generating set manufacture enterprise still occupies a lower innovation level, mainly innovation on product, service and market aspects.

Enterprise starts to pay attention to the importance of service innovation. How to improve serves and how to increase value from manufacture to service together are concerned. Compared with overseas colleagues, enterprise’s main value all gain from service, while Chinese enterprise still has a very big disparity. Product and technology all can be transferred, but service can not be transferred. It is the only way to unify own specific and our user’s demand, which can then truly realize service innovation.

Now Chinese generating set manufacture enterprise have started to promote and extend service pattern. As for independent service of crosswise-making big, through “host auxiliary separation” enterprise can establish independent subsidiary company, which also provides primarily industry with inexpensive price and satisfaction service. Moreover, establishing joint venture with overseas companies is to satisfy market demand better.

Chinese manufacture enterprise should go out from former pattern “large and complete, small and entire”, lay stress on division of labor, attach importance to enterprise colony’s development and region manufacturing capacity overall development. Giving more supports to enterprise which separates, we should give more rights to independent technical research and development department which can not separate, and stimulate creation vigor.

2.4 Unceasingly Promote Ability of Enterprise’s Sustainable Development, Promote Industry Innovation

The goal of enterprise’s development is to pursue sustainable development ability, to consider questions from strategic commanding point, which makes great strides forward from common enterprise level to a higher level. Development needs innovation power and take value which innovation brings as strut. Enterprise develops just like a person “learns as long as one lives”. Enterprise needs unceasing study and innovation. This is the result of crisis consciousness “thinks of danger in peace” and is the way that enterprise’s development must choose.

For an enterprise, not only in developed countries but also in those countries with rich resources, such as China, the best resources and technology should be used in most valuable place. Global resources are limited after all. We have to introduce, digest and absorb oversea advanced technology. In order to encourage technology innovation, technical innovation
must be studied.

In enterprise stratification plan, innovation needs strategic investment of enterprise. Scientific research investment pays more attention to the matter of enterprise “tomorrow”. Present “real-time system” can only deal with the matter of enterprises today. Power, which talented personal development brings to enterprise innovation, may be established through interior innovation platform, cultivating innovational persons and promoting enterprise innovation ability by creating original industry method. Establishing an idea as “fund of youth starts an undertaking” in enterprise interior can encourage new product industry development.

3 Conclusions

Economical globalization accompanies with international industrial structure’s adjustment and shift. Under open international environment, it is an inevitable experience to admit international industrial shift. We should clearly recognize objective law of international industrial shift and maintain sober brains. Admitting shift is a pilot process, but realizing industrial promotion is to reach nation development’s goal. When admitting developing nations in shift, it must gradually move towards high end from low end, from lower attachment value to high attachment value, from OEM to ODM, from imitation analogy to independent innovation, and from periphery technology to core technology. The key is developed independent industry.

However, demand draws possibly oversea enterprises not to promote independent industrial development. When admitting international industrial structure shift process, Chinese equipment manufacturing industry have to strive for a bigger international market share in new international division of labor pattern. It has to select correct strategy in industrial innovation process. But if decision-making is improper, it will be facing the dangers solidified in industrial chain low end.

References


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