

# Study on the Development Strategies of New Energy Industry in Jinwan District\*

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**Abstract**—Based on the positive response to China's policy of vigorously developing new energy industry, Jinwan District of Zhuhai fully mobilizes all resources in the region to promote fresh progress of the new energy industry, so as to implement the requirements of green development. Jinwan District should keep the new-energy automobile industry at the core and give priority to solar energy industry, wind power industry, smart grid industry and new energy service industry, so as to form a new energy industry structure of "one core, four emphases". Besides, Jinwan District should do a good job in attracting investment, to drive industries to improve quality under the influence of the vision of the foreign businessmen and the development level of their business so as to explore the international market; accelerate the planning and construction of new energy industrial park to provide guarantee for new energy enterprises to enter and start projects; increase financial support by formulating strategies and measures to promote the development of the new energy industry so as to mobilize the of participating initiative of new energy enterprises; expand the scope of the introduction of business capital to a broader range of other industries to attract investment projects and lengthen the industrial chain to pool more resources, to avoid the unitary development of industries.

**Keywords**—new energy; industry; development strategy

## I. INTRODUCTION

Since global warming and the energy crisis have triggered a profound reflection on the way of survival and development of human, the research and industrial application of new energy have become a historical revolution sweeping the world. As a related industry formed in the process of developing and utilizing new energy resources and transforming traditional energy production and utilization modes, new energy industry is a strategic industry that the whole world is pursuing and promoting. Currently, the vigorous development of the new energy industry in

China is gradually reducing the country's economic dependence on traditional industries, which reduces the energy costs and environmental costs of economic growth. This is represented in the constantly upgraded and completed energy structure and the improved resource utilization rate. In China, the policy framework system for the development of new energy industry involves incentive policy, decision-making and supervision policy, industrial policy and market service policy. The formulation of strategic planning is based on the resource characteristics and technological development advantages of different regions. The overall planning according to local conditions contributes to a healthy industrial pattern. At present, the new energy development in Jinwan District has a high starting point with a reasonable industrial layout, an industry embryonic form based on certain foundation and technical level, and a good market prospect of the new energy automobile in particular. In addition, the geographical location around the mountains and the sea, the traffic hub with high accessibility, and the economic radiation brought by the opening of the Hong Kong-Zhuhai-Macao Bridge all provide opportunities for its development. Nowadays the Jinwan District plans to adhere to the development model of "one core and four keys", focusing on the planning and construction of leading enterprises of Yinlong Energy and Guangtong etc. in new energy automotive industry so as to drive the cooperation and mutual development of solar energy industry, wind power industry, the smart grid industry and new energy service industry and thus make the transformation from "made in Jinwan" to "made by Jinwan wisdom". The development of new energy in Jinwan District is conducive to promoting the influence of radiation of Zhuhai and opening a new channel for new energy products and market links between the Zhuhai Basin and Hong Kong, Macao and countries along the ASEAN. This will promote the introduction of international resources and Chinese enterprises' access to foreign markets and thus will become an important fulcrum for China to implement the "Belt and Road" initiative.

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## II. DEVELOPMENT STATUS OF NEW ENERGY INDUSTRY IN JINWAN DISTRICT

### A. *New-energy Automobile Industry*

Accounting for a large proportion in the industrial output value of Jinwan District, the new energy automobile industry has a solid foundation for and considerable prospect. The dramatic growth of new-energy automobile industry led by Yinlong Energy and Guangtong Auto has boosted the rapid increase of industry and accelerated the improvement of the upstream and downstream supporting industrial chain covering core components, forging the country's largest production base for new energy automobile. At present, with relatively reasonable industrial structure, enterprises are highly motivated to increase capital and expand output. The industrial chain of key parts, such as vehicle production, power batteries, motors and electronic controls, has been continuously improved, and the progress of production base construction has been continuously improved, providing a guarantee for enterprises to enter and settle down. The new-energy automobile in Jinwan new Energy implement the utilization of new energy in the whole process, which becomes a strong engine for the development of ecological construction and the green and low-carbon economic society in Zhuhai city. It is reported that the Yinlong Energy has passed the EU electric vehicle qualification certification, which is a big step for China's new energy vehicles to enter the international market in the future. It is expected that the development of new energy automobile industry will be a new beginning for the vigorous development of new energy industry in Jinwan District.

### B. *Smart Power Grid Industry*

The scale of smart power grid industry in Zhuhai is in continuous expansion, with obvious positional advantages. With 80% of the enterprises are small and medium-sized enterprises, this industry has relatively flexible system. At the same time, showing a high degree of concentration, the industrial has more and more complete industrial chains, and the agglomeration effect has been initially presented. In Jinwan District, a smart grid industry cluster with distinctive features has been formed initially covering most of the upstream and downstream links of the smart power distribution network. And the smart power grid products and services cover the five major fields of distribution network automation, smart electricity and smart home, new energy and microgrid, substation automation as well as information and electricity. In addition, the geographical location around the mountains and the sea provides a high-quality micro grid demonstration, with distinctive characteristics of distribution network equipment and obvious market competitive advantages. What's more, the government policy support system has been improved and organized. With the rapid development of global smart grid industry, the strategic support of China Southern Power Grid and the Marine economy, the smart grid industry in Jinwan District has more opportunities for development. However, due to the differences in new energy, distributed generation, smart distribution network and integrated power supply, a considerable part of enterprises have not completed the

automation and digital transformation. They depend on foreign technology and haven't formed their independent smart grid development system.

### C. *Electronic Energy-saving Products*

Electronic energy saving products are the products of modern electronic technology applied in the field of energy saving, and the use of them is an effective way of energy saving. With the acceleration of industrialization, Jinwan District will use more high-tech electronic energy-saving products in energy consumption appliances like industrial equipment and household appliances, and develop and produce affordable lighting electronic energy-saving products. The principle of energy conservation in structure, technology and management will be carried out to reduce the energy consumption of electronic enterprises and achieve the expected high output. In addition, the government implements mandatory procurement of energy-saving products, giving priority to the purchase of new energy electronic products with little impact on the environment, to increase support for electronic energy conservation. The "hollow ring" structured lithium ion battery independently developed by Yinlong Energy has passed the test of the national battery testing center and has completely independent intellectual property rights. And it acquired the American company Altair Nanotechnologies Inc. through strategy, and thus has mastered the world's leading lithium titanate lithium ion power battery production technology. However, since there are not many manufacturers producing electronic energy saving products in Jinwan District, the varieties are not complete and the product reliability is still low, it is still in the initial development stage in terms of promotion and application. Therefore with not quite satisfactory development, there is still market and potential for further development and application.

### D. *New Energy Technology and Consulting Services*

According to the new energy development planning report of Jinwan District, Zhuhai, new energy technology and consulting services have been commissioned by Guangxi Bohuan Environmental Consulting services co., LTD, and the effective use of new energy technologies and the important role of environmental protection have been publicized and awareness of energy conservation by new energy has been popularized in due time. Also, a comprehensive information system for consultation services has been established based on opinions and suggestions solicited from the public in the use of new energy technologies, which timely solved the difficult problems of the public in the development planning of the new energy industry, and provided a guarantee for the smooth implementation of the new energy industry plan. In addition, there are many colleges and universities in Jinwan District with strong scientific research strength, which have established a close industry-university-research relationship with enterprises and have provided a large number of academic and technical talents. This provides the talent guarantee for the popularization of new energy technology and the consultation service, and improves the scientific and preciseness of the solution provided. But as the new energy

industry is an emerging technology industry, the public do not have enough awareness of the utilization, development and production of new energy as well as energy conservation. With insufficient enthusiasm of the public in the development of the new energy industry, there is still a long way to go for new energy technology and consulting services in Jinwan District.

### III. ANALYSIS OF EXISTING PROBLEMS IN THE DEVELOPMENT OF NEW ENERGY INDUSTRY IN JINWAN DISTRICT

#### A. *Technical Bottlenecks in the Transformation, Upgrading and Development of the New Energy Industry*

In recent years, while China's has become the world's largest equipment manufacturer with rapid growth of solar and wind power generation, it hasn't yet mastered the core technology. First of all, no breakthroughs have been made in new energy equipment manufacturing technology, using technology such as smart grid technology, and there are problems in equipment manufacturing cost and stability in use. The five major state-owned power companies haven't made full use of the convenience of their monopoly organizations to focus on new energy industrialization technology and smart grid technology, and large enterprises have not set clear assessment targets for the development and use of new energy technologies, which is not conducive to the increase of the proportion of new energy use. Due to the dependence on the introduction and reference of foreign technology at the beginning, China's new energy industry has not mastered the core technology and lacks market competitive advantages. In addition, as one of the core technologies of new energy, battery technology has not made significant breakthroughs: Green energy comes from nature and has obvious intermittency and instability, so it is easy to be short of energy storage in peak period of power generation, meaning that the inadequate battery technology cannot solve such problems and thus the new energy technology can never cross the threshold for a breakthrough.

#### B. *Regional Constraint of Industrial Development Environment in Jinwan District*

Although the government of Jinwan District encourages leading enterprises such as Yinlong and Guangtong to formulate relevant industry standards to unify the market, it is difficult to unify the corresponding industry standards and guarantee system because the new energy industry involves many specific fields and each type of new energy has its unique production, development and utilization mode. In addition, enterprises in Jinwan District are of varying quality, and lack of effective industry norms, evaluation mechanism, technical standards, product testing and certification system and market access system, so supervision over the operation process of new energy development and production is in absence of supervision, resulting in unstable product quality imported into the new energy industry. Moreover, the Jinwan District is located in an important hub of Zhuhai city, with high power cost. So the electricity pricing mechanism brings many restrictions to electronic energy-saving products, and

the problems of power operation and power grid management mechanism loom larger, hindering the development of electronic energy-saving industry and new energy industry. What's more, Jinwan District area still relies heavily on traditional industries with a still large proportion of coal resources in the market. The insufficient investment of enterprises in the development and production of new energy deficient energy supply all contribute to the downturn of the new energy industry market.

#### C. *Environmental Impact of New Energy Industry*

At present, the overall layout of China's new energy industry is not clear enough. The new energy industry in the east and other economic hot spots is too concentrated, resulting in severe overcapacity, while its development in the west and other economically backward areas is relatively lagging behind. The severe regional imbalance in the development of this industry has led to repeated construction and waste of resources in some regions, while other regions are facing an energy shortage. Some local governments blindly develop "concept" projects and set up "new energy bases" in order to seek political achievements regardless of local conditions, especially in the wind power equipment and polysilicon industries, where the problem of overcapacity is serious. In addition, the supporting policies of new energy are still insufficient, with the related tax policies, subsidy policies, credit policies, price policies and other policies to be built or improved. Although China has made great efforts in financial support and tax reform, incentive policies are still insufficient, therefore stable market demand has not been formed yet, leaving new energy industry development lacks market pull. Also, as many resources in China are under multiple management and lack of unified and coordinated policy system, the government has little effect in supporting the new energy industry.

### IV. SUGGESTIONS ON THE DEVELOPMENT OF NEW ENERGY INDUSTRY IN JINWAN DISTRICT

#### A. *Improving Policies for New Energy Industrial and Steadily Promoting Emerging Industries*

The government of Jinwan District needs to fully recognize the important strategic definition of the development of new energy industry, define its strategic position in the transformation of China's economic structure and participation in international competition, and constantly improve the subsidy policy, credit policy, price policy and other positive industrial policies, to support the rapid rise and stable development of small and medium-sized enterprises; adjust the structure of traditional industries and develop a new low-carbon economy by establishing a clean technology ecosystem, so as to stimulate the creativity of all sectors of the new energy industry; vigorously develop new industries such as hydropower, solar photovoltaic systems, wind power generation, biomass power generation and fuels, to inject new vitality into the national economy; strengthen foreign cooperation, transnational cooperation in new energy industry projects in order to give full play to the regional advantages of the region; attract foreign investment through

allowing a reasonable number of foreign enterprises to enter the mainland within a certain tax-free period and thus stimulate market creativity to promote the promotion and promotion of new energy technology; develop individual types of new energy according to the local characteristic resources of Jinwan District and formulate relevant laws and policies, to promote and supervise the development of new energy from the distinctive details of Jinwan District.

*B. Broadening the Space for Infrastructure Construction and Exploring the Integration of Development Resources for New Energy Industry*

The government of Jinwan District should speed up the implementation of the party's planning measures for the new energy industry in the district and introduce a series of financial support policies to increase the investment in the construction of various new energy production bases so as to improve the new energy infrastructure. It should formulate scientific human resource management projects, reasonably allocate urban land area, and reuse old city reconstruction, to improve the city's environmental carrying capacity. In this way more sufficient space for the construction of new energy industry can be provided and thus a new energy production base with reasonable layout, supporting facilities, sound infrastructure and distinctive theme can be established. In this process, the government should strictly fulfill the responsibility of the construction subject. The government should determine the key areas of the new energy industry preliminarily, sort and integrate renewable resources such as hydropower, wind power, solar energy, biomass energy, geothermal energy and marine energy. Through preferential price policies and mandatory market share strategies, it can pool the decentralized new energy resources for development. It should strengthen market regulation and macro-control of new energy resources in circulation, avoid the monopolization of any one of them, and encourage enterprises to cooperate on projects and share resources, so as to bring into full play the benefits of the whole rather than the parts.

*C. Giving Play to the Leading Role of Corporate Champions and Establishing the Core Area of New Energy Industry*

According to the plan, Jinwan District will build an upstream and downstream supporting industrial chain covering motor, power supply, electronic control and other core components, with Yinlong Energy and ZTE Smart Auto as the leaders, and build the largest new energy vehicle production base in China. The leading enterprises will be encouraged to become industry standard setters, leading small and medium-sized enterprises in the market to play their own resources and competitive advantages so that a cluster development trend can be formed. The development and growth of leading enterprises such as Yinlong, ZTE and Guangtong can promote the integration and collection of new energy resources and form industrial core centers so as to promote the optimization of new energy industrial structure. In addition, leading enterprises on the one hand connect with local middle and small-sized enterprises; on the

other hand integrate with the world market. They are not only the new energy processing and sales center, the information capture center, as well as the science and technology promotion service center, but also the core subject of the new energy industry. The implementation of intensive management of scattered small and medium-sized enterprises in the supply of products has improved the quality and standard of products and fundamentally driven the core competitiveness of the new energy industry in Jinwan District. Therefore, it is suggested that the government of Jinwan District provide strong policy support for leading enterprises.

*D. Building a Resource Sharing Platform for Government-industry-university-research to Promote Industrial Transformation and Upgrading*

The 19th national congress of the communist party of China stressed that we should give full play to the role of all factors of production in independent innovation through "government-industry-university-research-funded media" and promotes the combination of factors to form synergy. Jinwan district can take advantage of the new media public account platform to serve as the bond between the government, industry and colleges. It can take the lead and integrate the resources of various departments to play its functions of guidance, support, service, supervision and guarantee, break the industry boundaries, and actively cite the academic support of colleges and universities to form the integration synergy. Universities and research institutions located in the golden bay area should encourage scientific research achievements to go out of schools, so that more scientific research achievements can be applied to enterprises to play a role, release the potential, promote new energy technology innovation of enterprises, and promote the transformation of traditional industries into new high-tech industries. Universities should support the in-campus platform's exportation of their own research resources to the public and improve the technical support for the scientific and technological innovation of local enterprises so as that the scientific research achievements can continuously transform and upgrade in the market test, be put in the economic construction, and contribute to the modern economic transformation. Government departments should coordinate financial departments, investment institutions and all sectors of society to provide financial support for scientific research projects and achievements of colleges and universities through credit, venture capital and equity participation, and actively expand the channels of technology sources, to provide academic guarantee for the upgrading of new energy industry technology so that it can make transformation and upgrade more effectively.

## V. CONCLUSION

Based on this paper, in order to respond to the national strategic planning for the new energy industry, the Jinwan District needs to make specific analysis and summarize the appropriate strategic planning according to the local resources, social environment, industrial characteristics and other aspects of the district. At present, Jinwan District is

continuously ushering in good news about the new energy. New energy vehicles, smart power grid, electronic energy-saving products, and new energy technology consulting services are all flourishing with good industrial base and gradually improved industrial chain. However, as the new energy industry is in the initial stage, there are still immature industrial development patterns. The limitation of the environment for new energy industry make the process of construction a long journey, and the technical challenges are also barriers to cross. The government of Jinwan District should fulfill its main responsibilities by formulating relevant policy design, implementing financial support in one step, and providing the construction base and improve the infrastructure for the development and production of new energy so that enterprises can enter this area without worries; supporting the guiding role of leading enterprises and providing convenient service policies to build an industrial core area; and making full use of the academic resources of colleges and universities, combined with the joint efforts of government, industry, education and research. In this way can the transformation and upgrading of the new energy industry can be promoted and the efficient development in an efficient and high-quality way of China's economy can be propelled.

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