

The Renewable Energy Development Industry Situation and its Sustainable Development Strategy in Xinjiang

Asifujiang Abudureyimu^{1, a}, Weiqing Wang^{1, b}, Qian Han^{2, c},
Deqi Huang^{1, d}, Qing Chao^{1, e}

¹College Of Electncian Engineering Xinjiang University

² Xinjiang Academy of Economic Research of Development and Reform Commission

^aaspj@163.com, ^bzj-wwq@xjkunlun.cn, ^chanqianxj@163.com,

^ddqhuang@126.com, ^e87091954@qq.com

Keywords: Renewable Energy, Strategic Position, Strategic Goal, Xinjiang

Abstract. This paper analyzes the new situation faced by the renewable energy development and new trend in xinjiang, expounds the renewable energy in the position and role of the future energy system, put forward the development strategy for the future of renewable energy targets and requirements. At the same time, in view of the renewable energy development in system, mechanism, policy, resources, technology, research and development, as well as the problems and challenges, puts forward the countermeasures and Suggestions.

Introduction

Renewable energy development by economic development, energy utilization technology, resources endowment conditions and environmental constraints, diversified energy markets in xinjiang, at the same time also faces many deep problems and contradictions and challenges.

The Strategic Position of Renewable Energy

The strategic positions of renewable energy are set differently among the countries in the world. It is a strategic measure to address the climate change for developed countries whereas for developing counties it is designed to solve the energy supply for rural and remote areas. Despite the shortage of the regular energy resource, China plans to achieve the strategic transfer of energy resource to secure the long-term development of the country as well as to complete the task of modernization and the revivification by the middle of the century. Based on the long-term energy situations and the overall requirement of energy development strategy, the development of renewable energy is crucial in both energy reassurance and security of the country.

We should guard against two tendencies in the development of renewable energy which is a rising industry.

The first tendency is to make negative judgment against the current technologies, industrialization and the market bottleneck; it is believed that renewable energy will not play any important roles even in future. The energy, environmental and social values of renewable energy is underestimated.

The second tendency is featured with blind optimism but ignoring the difficulties in the development of new technology and rising industry. It focuses on the fast expansion of the industry instead of the technology innovation and quality, which are essential for leading the market. The industry is in danger of being misled by this rush approach.

The Strategic Goal of Renewable Energy

Overall Target

Through the adjustment of industrial structure, the transformation of the mode of economic development and the use of advanced technology and management measures to guide rational energy

consumption, accelerate the construction of energy and structural adjustment, increase in clean energy production of extinction ratio at the same time, gradually reduce the proportion of coal in the energy structure, build in accordance with their own characteristics and scientific development needs of diverse, stable, efficient and clean energy development and utilization of the system, and better meet the outside two market demand.

The Target of Wind Power

The development concept of wind power is “primarily developing the onshore and grid-connected, attaching importance to the distributed development and accelerating the industrialization.” In the short-term the onshore wind power plant will be dominant and the key areas include the Urumqi, Da bancheng and Hami.

The Target of Solar Power

Great efforts should be paid in the thermal application technologies that integrate with building constructions in the field of solar power industry. The balance development of solar power-photovoltaic industry chain should be also attached great importance. Due to the sufficient developable areas for solar power, there are big markets for solar heating system in both urban and rural areas. The industry should be promoted with gradual use of mandatory policies so as to achieve the goal of 1 m² of solar power per person. Solar houses and solar cookers are of great use in the west especially in the rural and remote areas in the northwest and should be paid attentions.

Application Goal of Biomass Energy

The technologies for biomass energy are diversified. The development of biomass energy should be with the premise of “not taking crops from the people, not taking land from the crops, not taking water resource from fields and not taking feeds from livestock” . As time goes on, biomass product that is non-grain-oriented and substitute to patrol-oriented should be the focus of the strategy. The biomass energy generation should be in accordance to the localities. Co-combustion technology for biomass energy, which is relatively mature, should be developed through encouraging the projects of co-combustion generation from both coal and biomass in areas that are favorable. As for the areas with abundant forestry waste, co-generation and heating project of environmental-friendly biomass with high efficiency and small-medium scale projects should be advocated. The projects of biomass gasification generation and the concentration of methane from farms should be promoted so as to accelerate the development of rural biomass energy generation in distributed pattern.

Major Problems in Renewable Energy Development

Currently, the major problems faced by renewable energy development are still the high cost and low competitiveness of the market in Xinjiang.

The Immature Market and the Insufficient Support Capabilities

In spite of the hard works done in the market construction of renewable energy, there are still many problems remaining. Concretely, the insufficient understanding of the strategic, protracted and arduous features of the market; the lack of the recognition of the society and the developing market environment due to the high cost and other product features, for example^ the way that the power grid receive the renewable energy power; patrol enterprises and households, suspicions towards bio-liquid fuel purchasing and the building developers.

The Incomplete Policy System and the Inconsistent Measures

Though China has carried out the renewable energy law which determines a relatively complete requirement for regulation building, the policy measures do not go in consistency with the regulation building, which cannot meet the demand of renewable energy development. Problems existing are a) The special planning and roadmaps for renewable energy development are not worked out in time and there is still a lack of clarified leading mechanism for the target planned, b) The lack of supervision for the market which defines the responsibilities, rights and obligations of energy monopolies, c) The lack of a coordination mechanism to be in charge of planning? approving, special funding arrangement and pricing, d) The lack of transparency of the planning, goal setting and project decisions making, e) The lack of report of law enforcement and the system of supervision and self-improvement, f) The lack of coordination mechanism and policies for the development of renewable energy and the social-ecology-environment protection. Specifically, there is the need of corresponding policies for migration, land use and ecology protection for hydropower and biomass power projects.

Insufficient Input for Technology Development and the Incompetent Innovation

The tasks-of lowering the cost and removing the limitation of external supporting condition such as power grid rely largely on the constant technology innovation and the application of industrialization. Though China has improved in the key technology application and innovation, the overall level is still left behind by the developed countries. Specifically, a) The basic research of renewable energy is weak; the basic research and innovation were started late at a low level; PV and cellulosic ethanol industries, for example, are in the lack of technology support for large-scale development, b) The lack of a strong supporting platform for technology research. There is not any country-level laboratory or public research center for renewable energy to supply with basic research and public technology services for the industry, c) The lack of a clear and systematic development route and long-term development concept and the lack of a continuous and cycling investment plan for technology research, d) The shortage of funding for research in both governmental level and the industrial level.

The Weak Industry Structure and the Incompetent Supporting Abilities

The fast development of the industry in recent years owes to the sufficient investment from both in and abroad. Technologies concerning, China is inferior to the most advanced countries with its incompetent products. In terms of key techniques, equipment and original materials supply, the industry relies heavily on imports, being subject to the technological monopoly of other countries.

The Superficial Resource Assessment Limiting the Scale Development

The estimation started and statistics gained in the renewable energy resources are not qualified for the energy development and exploitation in high efficiency and scale. The resource store quantity and distribution, data are both roughly drawn from the observations in the existing meteorological stations, featured with limited completeness, reliability and usability. These data can support only part of the need in related strategic plans and implements of some development and exploitation projects.

Major Measures to Promote Renewable Energy Development

Renewable energy development, which is considered as a long-term strategic task of Xinjiang, should be carried out with persistence, A complete framework of policies and the system is necessary for the long-term, active and steady support for the industry.

To make clear the Renewable energy development roadmap

Roadmap is a strategic plan, to achieve the established target needs to take measures and steps, points out that the current focus, medium-term and long-term task, the purpose is to support the development of specific technologies, design and application promotion. The roadmap should include clear objectives of the most important events in the design, the key time node, possible problems and gap, the key task design, priority events and deadlines, etc.

Regulations and Relevant Supporting Policies

Renewable energy development in its initial phase is featured with low market competitiveness so that the political measures are essential. To promote the renewable energy development, the countries in the world encourage the business through mandatory market shares, purchasing at fixed prices and favorable tariff policies.

Basic Research and Independent Technology Development

Basic research and technology development are the keys to keep the competitiveness of the rising industry. Renewable energy, as a technology-oriented industry, should be paid more attention on its abilities of basic research as well as the innovation of technologies.

Cultivation of Innovative Talents

On the one hand, these countries build up high-level talents tank through basic research, promoting the technologies and the improvement of the industry. On the other hand, the enlarging scale of the industry creates new jobs and becomes a crucial part in the economic growth.

Enhancing International Cooperation

Renewable energy development of extreme importance to cooperate with other countries, the development of the resource demands high technologies and depends on the development of equipment manufacturing industry. The renewable energy market in the future will be a market of the world.

References

- [1] Zhongying Wang, Dongming Ren and Hu Gao, The Renewable Energy Industrial Development Report 2011.
- [2] Xinjiang statistics yearbook 2014. Xinjiang Statistics Press; 2014.
- [3] Xinjiang energy annual report 2014, Xinjiang autonomous region development and reform commission; 2014.
- [4] Dunhua Xiao, Xinjiang new energy development strategy research; June, 2011.