AN ANALYSIS ON ENERGY MANAGEMENT OF AMERICA, JAPAN AND RUSSIA AND ITS ENLIGHTENMENTS

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Energy issue is an important link of the sustainable development of the developing country. On the basis of a profound discussion of the energy strategies adopted by America, Japan and Russia, this paper draws special features of the energy strategies implemented in these countries. It gives some policy suggestions on new energy introduction for China including enhancing the role of market mechanism, improving the policy coordination, and promoting structural adjustment, on the basis of keeping policy.

Key words: **energy policy, policy coordination, structural adjustment.**

Introduction

The energy crisis has become one of the greatest concerns today. The world is being adjusted and the pattern of the energy is being changed. Form the viewpoint of consumption, the centre of gravity in consumption has shifted from developed country to Asia; from the viewpoint of production, with the energy multiple and energy security, the western country are stepping up their plans for energy saving and new development. As a result of their economic, historical, cultural, institutional and environmental factors, the energy strategy in these countries the specific model is still distinctive. From the analysis and conclusions of their experience and lessons, we study and search for the issue consciously and deeply, and we can find enlightenment and new thoughts.

1. Energy strategy in America

In order to face world economic crisis, America launched new technical-industrial revolution led by energy, which is the core of economic recovery. American energy strategies against economic crisis bear three features: green economy as a major drive; regime innovation and human resource as a key to energy science and projects; super conduction power grids and intelligence power grids as a tool to reshape its energy industry.

The explosive growth of domestic unconventional oil and gas production since 2008 leads to continuous growth of U.S. comprehensive energy self-sufficiency rate. America's Energy Independence will be realized in 15 to 20 years, which will bring profound changes to global geopolitics. The superpower status of the U. S. will be reinforced. The rise of the American Continent as new energy supply center and Asia as consumption centers will cause the global energy trade flows to reverse. The U.S. will shed its «oil burden» in the Middle East and strengthen the relationship with its European and Asian allies. It's likely to have a limited strategic contraction and its focus may further shift to the East.

The current path for United States clean renewable energy is sustainable only with the use of large U.S. government assistance in the forms of loans and subsidies. A moral hazard is created when any government awards money and subsidize an industry. The companies that receive government assistance have no intention of using the money in a cost effective way. In fact if something is financially wrong with a subsidized company the expectation is for more government financial assistance. This is to say that government assistance encourages more risk taking behavior. The current situation of the clean energy movement has striking similarities to the U.S. automobile industry and the banking system that also expect to be bailed out by the government. If the clean energy industry can really be sustained indefinitely, government loans and subsidies have to be removed to find out the true viability of the programs. If the result is bankruptcy for many of the companies with a focus on clean energy, it only proves that the companies were inefficient and should go bankrupt. If the industry is truly promising and profitable, new and more innovative companies will rise and take the place of the bankrupt ones. Only with the threat of bankruptcy any company or organization will act responsibly with the funds it has.

2. Energy strategy in Japan

Japan, being the second biggest energy-consuming country in the world, is nevertheless dangerously short of natural resources. Therefore, in order to secure its energy supplies, the Japanese government has formulated explicit energy policy goals and, with regard to the implementation of such policies, hammered and carried out a series of energy strategies, thus forming a unique energy strategy system. Great successes have been achieved so far in energy reserve, diversification of energy, import channels and energy resource development. Hence, Japan has set a good example for other countries in the world in boosting energy security.

Japan is extremely short in conventional energy resources, and has been relying on imports for its primary energy requirements, with an energy self-sufficiency rate of less than 17%. Oil accounts for 50% of Japan's total energy consumption, nearly 90% of which is imported from the volatile Middle East. This has caused tremendous pressure on Japan's energy security. In order to alleviate the pressure caused by the excessive weight and the high import dependency of conventional energy consumption, Japan is strongly seeking to develop alternative energies. As a result, Japan has made considerable development and has played a leading position, in the exploitation and utilization of new energies.

The soaring oil prices since 1998 has not sent Japan into economic chaos, as what occurred during the oil crises. In order to secure stable energy supply and to avoid energy risks, Japan has made a series often energy policies from multiple perspectives basing on its own situation. Japan has been successful in building an outstanding energy safety system, which covers the full processes of development, production, distribution, consumption and reserves of energy. This article places the commodity of energies into the above mentioned framework, and focuses on Japan's policy choice and preference when building its energy safety system.

The research and practice on energy management started earlier in Japan due to scarcity of resources, which provided rich experiences of energy management. Dominated by energy management legal system and with advanced technology, Japan established a mode of energy management for its own development. Japan widely carried out energy diplomacy, built energy conservation strategies, and actively promoted the development of new energy for the security of energy supply. Meanwhile, for the purpose of creating low-carbon world, Japan improved the energy consumption mode of energy conservation and environment protection, promoted the transformation from traditional society to low carbon society.

Japanese new energy industry, which is the forerunner in the world, has been losing its leadership, while China displayed evident «later development superiority» with an unexpected growth since 2001. The industries in two countries, however, are facing the similar tough hurdles such as high cost and networking obstacles. One of the findings from policy comparison is that the holistic policy design is better in China, while there is more mature policy implementation mechanism in Japan. Finally, it gives some policy suggestions on new energy introduction for China including enhancing the role of market mechanism, improving the policy coordination, and promoting structural adjustment, on the basis of keeping policy consistency.

3. Energy strategy in Russia

Russia's foreign energy strategy is consistent. By using the energy weapon, Russia carries out its energy cooperation with other countries. However, compared with the Soviet Union and Yeltsin period, Russia's current foreign energy strategy is more flexible and pragmatic. Energy exportation has become the pillar of Russian economy. It is also an important cornerstone for Russia to revive and keep the status as a great nation.

Sino—Russia energy cooperation has broad prospects, but Petroleum pipeline building is tortuous and adulatory, and gas cooperation is still in the junior stage.

Russia does not only exploits the abundant domestic natural resources, but also pays attention to developing the natural resources overseas in order to promote and encourage their energy enterprises to «go out». Recently, as the price starts to be stabilized in international resource market and the world market scale becomes larger and larger, the Russian energy enterprises are eager to expand their overseas markets and their influences. The strategy of extroverted resource development becomes mature. With the help of government, there is a group of powerful firms who start to lead in the world resource markets like some of the large energy companies. The global financial crisis in 2008 had a certain influence on the «going out» strategy of Russian energy enterprises, and they began to make international adjustments accordingly. During the post-crisis period, the integration of international resource market and the successful accession to the WTO provides a very good opportunity for Russian «going out» policy. The role of Russian government in the extroverted resource development strategy will be strengthened and new

contents will come into being during the overseas expansion of resource enterprises. In future, the Sino-Russia energy cooperation will be beyond the two nations and will involve the resource field in other parts of the world.

The output of petroleum and natural gas of Russia ranks the first in the world. The energy exportation has become the pillar of Russian economic and social development. It is also an important cornerstone for Russia to revive and keep a great nation status. Seen from the recent energy strategic trend of Russia, there are several characteristics as following: 1) Russia has been adjusting the energy policy to Commonwealth of Independent States, based on the political relations. Those which have good relations with Western countries have to buy Russia energy with high prices. And those which have good relations with Russia can get energy with much lower price than from the international market; 2)Taking «return to European» as the goal , Russia uses energy as «lever» to regulate the relations with European Union; 3) The relations between Russia and OPEC are more competition than cooperation .Competition or cooperation based on Russia' s national interests; 4)In order to diversify the markets of petroleum and natural gas exportation , Russia has increased energy export to Asian and Pacific countries; 5)Energy cooperation with USA has been used as a regulator to adjust the relations with USA by Russia. The energy cooperation is an important part of Sino-Russia strategic partnership relations. It is very important to both countries.

Security of energy supply directly influences China's national security and the process of modernization. In 2011, China's dependence on foreign petroleum has run up to 54.95%, exceeding 50%, the internationally accepted alarm level. Therefore, how to ensure long-term, sustained, secure and reliable energy supply for China becomes the top priority of China's energy security. By energy cooperation in petroleum and natural gas

Resources with Russia and five Central Asian countries, China can remarkably reduce the costs of freight and time because of not only the geographical proximity but also the efficient pipeline transportation. As opposed to the traditional way of seaborne imports (accounting for 88% of China's crude oil imports), the energy cooperation can greatly improve the safety and reliability of energy supply because there is no need to pass through the maritime strategic channels under the control of other countries. From the geopolitical point of view, based on the in-depth analysis of geopolitical background, strategic needs, resource basis and the status of the energy cooperation of China with Russia and five Central Asian countries, predicts the prospects of energy cooperation and the scales of the cooperation in different stages to 2030, and proposes energy cooperation projects and development plans. The main conclusions are as follows: (1) In 2015, Russia and Central Asian countries will account for more of China's import, from 12.3% (2010) to 20% in crude oil, from 10% (2010) to 50% in natural gas, and 26% of the import of comprehensive crude oil and gas resources; (2) In 2020, crude oil and natural gas imports from Russia and Central Asian countries will rise to 28% and 70% respectively, accounting for 38% of the import of comprehensive crude oil and gas resources; (3) In 2030, crude oil and natural gas imports from Russia and Central Asian countries will steadily stand at 26% and 75% respectively, accounting for 40% of the import of comprehensive crude oil and gas resources. In order to enhance the level of cooperation, puts forward four energy cooperation modes: loans for petroleum, production-sharing, joint management and technical services.

«Coal-based» energy strategy has played a significant role in maintaining China's energy security, and promoting economic development, but its negative impact is also growing. The reason why «coal-based» energy strategy was worked out was due to a fundamental lack of knowledge of the situation. To really maintain China's energy security, needs to save coal as much as possible and to extend the useful life of coal as much as possible on the one hand, and to vigorously develop all kinds of new energy including nuclear energy, hydro energy, wind energy and solar energy on the other hand.

Therefore, in order to improve the energy cooperation between China and Russia, China should:1) Strengthen the comprehensive survey and studies in Russia' s energy policy and energy investment environment; 2) Study the national situation of Russia , especially the complexity as a multi-national great nation in the transition period of economic and social reform; 3) China and Russia are both the membership of Shanghai Cooperation Organization (SCO); China should fully utilize the SCO to deepen the relations of strategic partnership and energy cooperation; 4) Standardize Sino-Russia energy cooperation behavior according to international laws and general principals.

4. Conclusion

In the past decade, great changes have taken place in the energy strategies of the international community, including China. The developed countries in America and Europe have eventually adopted

the new approach of developing low-carbon economy as their energy strategy in the XXIst century. In order to enhance the level of cooperation, China should put forward four energy cooperation modes: loans for petroleum, production-sharing, joint management and technical services. Likewise, China is also facing the new challenges upon completion of a round of constructing national energy strategies.

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