# VARIOUS COUNTRIES CURRENT RESEARCH ABOUT NATIONAL ENERGY SECURITY

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**Energy resource is indispensable material resource for human survival, economic development, social progress and national security, is an important strategic material related to national economic lifelines and national security. Enter XXIst century, the international energy security issues are highlighted, energy competes fiercely, price fluctuates frequently. Energy security strategy is an important strategic issue in the (countries all over the )world , especially the major powers. This paper analyzes and summarizes the current status of research on national energy security at home and abroad, it is of great significance for the development of proper energy development planning, national security.**

*Key words:* **Energy Security, Strategic Economy, Comparative study.**

## 1 Introduction

Energy is the food of industry and the lifeblood of the national economy. Energy problem is not only a major economic and social problems, but also involves significant diplomatic, environmental and security issues. Now in the world, all the humankind are common concerned about the issue that the use and development of energy resources, it also closely affects all aspects of national socio-economic development.

National energy security is mainly composed of two parts, the energy supply security and the energy use security, and the energy supply security mainly refers to the stability, economy and sustainability of the energy supply, meeting the normal requirements of national survival and development . The energy use security, mainly refers to the energy consumption and use should not pose any threat to survival and development of the human environment ,it is a high-level pursuit to the country's energy security

## 2 Status of foreign research on national energy security

The western developed countries started relatively early study on energy security issues, the world oil crisis happened in 1973 is an opportunity to study the further development of energy security, and promotes the importance of energy and energy security issues in Western countries, and draws a lot of constructive conclusions.

2.1 In economic theory, especially econometric methods to study the issue of energy security

Many economists use economic theory to analyze the energy. Dennis· L. Meadows (Meadows. The Limits to Growth Beijing Commercial Press 1984) and others regard the whole world as the research object, establishing a "doomsday model", the model for the first time gives a systematic analysis on the issue of energy demand, and later some energy experts evolved beyond logarithmic model of the energy demand from the Cobb - Douglas function, after Hudson and Jorgenson (1974), Berndt and Wood (1975), Jorgenson and Fraumeni (1981) and others corrected and deepened this model in various degrees. With the development of econometrics, since the 1980s, cross-sectional data model has been widely used, Beenstock (1981) Bopp (1984) and others established Energy demand forecasting model based on theories of economics, by analyzing factors affecting energy demand, which is currently the most widely used model. With a variety of climate and other factors affecting energy demand function added, now the energy demand function becomes more realistic, can be more explained by its economic significance.

2.2 Some Western scholars analyze energy security issues based on the geopolitical point

Melvin A. Conant and Fern Racine Gold raised the concept of geopolitical energy earlier, in the *The Geopolitics of Energy.* They analyzed the international energy situation and its impact on the international political after the first time oil crisis in the 70s of the last century, it is clear that this analysis and discussion does not discuss the relationship between energy

demand and energy security clearly. The main achievement of energy security research at this stage mainly are L.·J.·song Destin's (1998) and Karasumori's (1999), etc. In the study of energy security strategy, they focused on how to prevent energy supply risks, a particular focus on how to resolve energy supply risks through the national policy, but neglected the theoretical study of energy security and energy needs relatively. Michael May's (1998) *Energy and Security in East Asia* pointed out that in East Asia, especially China, Japan and South Korea's fast-growing energy needs, and discussed the)insecurity caused by energy .

**3 The status of China's National Energy Security Research**

With nearly two decades of rapid economic growth, especially since China became a net oil importer in 1993, the energy issue has became increasingly important, but the start of China's energy security research is relatively late, we mainly analyze it from the following aspects.

3.1 Discussion of the impact on the energy security of country's economic security based on energy supply, consumption, demand, and price

Analyzing the country's economic security by studying the energy security regards the energy security study as an important part of the national economic security, and analyzing the energy using economic thinking in particular the economic model. Zhang Youwen (2000) clearly stated the country's economic security points, and discussed several aspects of China's national economic security in detail, including energy security. Hu Angang (2000) analyzed national security issues based on the perspective of economy and finance, the issue of energy security, while not the center, but the research more or less related to the energy. Because of the tension between supply and demand of energy, easing energy consumption through import is facing many problems. Li Pumin, Jia Ming, Zhang Guangyao analyzed the current high oil price formation mechanism, and think that there are two reasons related to the current high oil prices, the long-term trend in oil prices is determined by oil supply and demand, the short-term is oil market's investment amplification, they analyzed the impact of high oil prices on China: the transfer of wealth, the overall stability of the domestic price level, differentiation industry interests, and they make policy recommendations combined with international experience, the analysis that prices are determined at different levels in this article is unique, but the in-depth analysis of each level is not enough .

Zhou Fengqi (1999, 2000, 2001, 2005) studies the fluctuations in oil and energy price deeply, he believes that the view of the rising oil prices caused by resource depletion is not established, the global remaining proven oil reserves are constantly rising slowly. In the current strong demand for oil in the world, the growth in developed countries is relatively modest, the main source of growth in demand is from developing countries, but China's increase of oil imports will not cause an imbalance between supply and demand on the international oil market.

Domestic scholars also have done a lot of work on the demand for energy forecasting , such as Zheng Jianchao, Chinese Academy of Engineering, he analyzes the status quo of China's energy supply and demand and the future strategy descriptively, and summarizes the various models including regression prediction model, Markal model, 3E model, gray GM (1,1) model, Elastic analysis and forecast model, etc, to predict the energy consumption demand once in 2020 is 24-33 million tons of coal, and considers it is likely to be more than 3.1 billion tons of standard coal, he proposes four strategic choice combining with China's energy supply constrained by the environment, social and economic conditions. Lin Boqiang, Wei Weixian and Li Pidong use co-integration technology to study the long-term equilibrium relationship between Chinese coal demand in *Chinese long-term coal demand: impact and policy options*, and they estimate long-term income elasticity, price elasticity, structural flexibility, and transportation costs elasticity of Chinese coal, finally they get to this conclusion: GDP is the reason to coal demand, but coal demand is not the cause of GDP growth, even the fine-tune adjustment of industrial structure also has a great inhibition on the coal demand, then causes problems in energy, and affects national economic security. Zhang Yixiang, Sun Han, Cheng Jinhua analyze the mechanism and extent of the impact of the interaction between domestic and international crude oil prices, seeing the domestic and international crude oil spot prices FOB monthly price in January 2000 to December 2006 as variables, testing their dynamic equilibrium relationship by Granger causality test and error correction model, and analyzing the dynamic equilibrium relationship by impulse response function and the prediction error decomposition technique in *Dynamic analysis of the relationship between domestic and international crude oil prices*. On this basis, they discuss ways to enhance the impact of domestic crude oil prices on the international crude oil prices, and avoid the risk of fluctuations in international crude oil prices.

3.2 Consider energy security as research center Entirely

Considering energy security as research center is discussing based on the pattern of energy, energy supply, consumer demand-pull, energy security and other aspects. Xu Xiaojie and Ji Guoxing analyze the world energy situation of the XXIst century in the turn of the century, they forest the International Energy in 15 years of the XXIst century from a global perspective, especially the general trend and balance problems of the supply and demand of oil and gas, by analyzing the changes in the international oil prices, the supply and demand structure of oil and gas.

Wu Qiaosheng, Wang Hua, Cheng Jinhua (2003) defined the security system of the sustainable development resources oil and gas, set up corresponding evaluation model and evaluation system, and did a systematic analysis on China's security situation of sustainable development resources oil and gas, at the same time they put forward to strategic measures and countermeasures suitable for China which can improve the safety of oil and gas. Macroeconomic Research Institute of the National Development Reform Task Force point out in the book *Energy development ideas and strategic priorities in Fifth Plenary Session of the Eleventh*, that since «Fifth Plenary Session of the Eleventh», with sustained rapid economic growth, industrialization and urbanization have been accelerated, Industrial and consumption structures upgraded, as well as some high-energy production and life behavior over-expand, all these have a significant increase in demand for energy. Domestic resources and production capacity expansion restrict energy supply, making a significant increase in energy (mainly oil) imports, dependence on foreign continues improving, at last it proposes some related measures to enhance China's energy supply and using safety.

**4 Conclusions**

Researches on national energy security continue to be mature, comprehensive and systematic at home and abroad, proposing some related measures to ensure national energy security initially: get rid of the geopolitical situation changes, carry out energy diplomacy actively; establish and improve the energy strategic reserve system, reduce the risk of energy supply disruptions; ensure financial investment, reverse the high cost of energy security; establish «open source and cut costs» etc, provide more reasonable data references and suggestions for our energy security.

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