

**Analysis of the Petroleum Supply and Demand in China and the
Strategic Thinking of Energy**

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**Distinguished President,
Distinguished representatives,
Ladies and gentlemen,**

Thank you very much for inviting me to participate in the Northeast Asia Energy Seminar, and express my opinions on the situation of Chinese petroleum supply and demand and the energy development strategy. Northeast Asia is one of the most important areas for the world economic development, whose total economic volume accounts for 20.4% of the world, and total trade volume accounts for 15.5% of the world in 2004. The healthy development of the economy of Northeast Asia has both realistic significance and profound historic significance not only for Asia but also for the development of world economy. We should also realize that Northeast Asia is not only an important area of world energy consumption, especially petroleum consumption, but also one of the areas where there is an obvious conflict between petroleum supply and demand. In 2004, the petroleum consumption of only China, Japan and South Korea in Northeast Asia has reached 0.654 billion tons, accounting for 17.4% of the world, while the current petroleum output in Northeast Asia is less than 0.18 billion tons, only accounting for 5% of the world. Since 2002, the world petroleum price has grown rapidly, approaching 60 dollars per barrel. The high price has become a hidden trouble for the economic development of Northeast Asia where the petroleum consumption concentrates. We should admit that the imbalance between the oil supply and demand would last for a long period and at the same time notice that the economic development of Northeast Asia requires sustainable oil supply. We should also admit that as an area with huge oil consumption, we have little impact on the change of world oil market, but accept the world petroleum price passively. In 2005, the net import of petroleum in Northeast Asia exceeds 0.5 billion tons, which means if the international oil price increases by one dollar, we should pay 3.5 billion dollars more for it. This is an unchangeable fact, and a common issue faced by the whole energy society in Northeast Asia. Today, we are discussing the energy issue in Northeast Asia together. Frankly and honestly, we should discuss the historic responsibility that should be shouldered by our energy society and the right measures we should take, just as we are in the same boat.

Then I will elaborate on my personal views about Chinese oil supply and demand and the strategic thinking about Chinese energy development for your reference.

I、 The conflict between oil supply and demand will be the major conflict in Chinese energy field.

With the rapid development of Chinese economy, the apparent consumption of petroleum in China for the first time exceeded 0.3 billion tons in 2004, which has become a signifying year. Though the growth of the Chinese domestic crude oil production speeds up, the processed volume of crude oil and the yield of oil products continue to grow by a large margin, the net import of petroleum still increases rapidly due to the increase of oil consumption.

In 2004, the productive capacity of oil and gas in China was improving. The output of crude oil reached 0.175 billion tons, up 2.9 from the same period of the previous year; the output of natural gas reached 40.77 billion m³, up 18.5% from the same period of the previous year; the processed crude oil of the whole year reached 273.068 million tons, up 13.9% from the same

period of the previous year. And the yield of gasoline, diesel oil, fuel oil, coal oil and lubricating oil are 52.498 million tons, 101.621million tons, 20.826 million tons, 9.708 million tons and 4.643 million tons, increasing by 10.2%, 19.5%, 7.6%, 14.1% and 13.6% respectively of that of 2003.

China has provided a huge and potential market for the world petroleum and petrochemical industry. In 2004, the nominal consumption of oil in China arrived at 0.324 billion tons, increasing by 18.23% of that of 2003, the net import of oil arrived at 0.1496 billion tons, within which the net import of crude oil was 117.3239 million tons, up 41.36% from the same period of the previous year. The growth rate of the import and net import of most oil products exceeded 20%, which was rare in the recent years. The import, export and total trade volume of Chinese petroleum and petrochemical products in 2004 has increased by a large margin of that of 2003. In 2004, the import and export trade volume of Chinese petrochemical industry arrived at 158.64 billion U.S. dollars, increasing by 40.0% of that of the previous year, within which the import was 117.72 billion U.S. dollars, increasing by 44.5% of that of the previous year, the export was 40.92 billion U.S. dollars, increasing by 28.4% of that of the previous year. The trade deficit was 76.8 billion U.S. dollars, increasing by 54.8% of that of 2003. In 2004, the import of oil products and the processed products in China was 46.2 billion U.S. dollars, up 63.1% from the same period of the previous year, and the import of petrochemical products was 71.5 billion U.S. dollars, increasing by 34.6% of that of 2003. Among the trade of import, crude oil accounted for 28.81%, organic petrochemical materials accounted for 20.45%, synthetic resin accounted for 17.86%, rubber and its products accounted for 4.02%, while inorganic petrochemical materials accounted for 3.30%.

Affected by the international oil price, the basic price of the crude oil in China rose, reaching a new historic height, especially for the light crude oil, which had an even higher increase of price. Compared with 2003, the basic price of light oil, medium oil I, medium oil II and heavy oil increased by 33.20%, 24.89%, 22.61% and 15.13% respectively. In 2004, the retail standard prices of various refined oil products in China have been adjusted upward twice. Compared with 2003, the retail standard prices of gasoline and diesel oil increased by 13.07% and 11.48%. These increments lag far behind of the increase of the basic price of light crude oil, medium crude oil I and medium crude oil II, and even farther behind the increase of the international price of refined oil products.

In 2005, the tension between oil supply and demand in China will be eased. The expected economic growth rate in China is 8%. Most of the domestic institutions and experts predict that the Chinese economic growth rate will stay at about 8.5%, lower than 9.5% in 2004.

First of all, in 2005, Chinese government will adhere to the scientific view of development, and continue to carry out active macro-control to keep a check on the excessive economic growth in some fields and the low-level redundant development, which will lower the growth of the investment in fixed assets programs and the heavy chemical industry, so as to reduce the growth of oil demand. Second, with the decrease of the economic growth rate and the appropriate control of the high energy consuming fields, the tension in electric power supply can be released; meanwhile, a group of new power generating sets will be put into production, the demand for fuel oil for power generation will be lessened. Third, the rapid increase of the other replacement energies, like ethanol gasoline will to some extent help to release the pressure on the increase of oil demand; and the opening of the line of "Gas Transfer from West to East" will also play an active role in easing the tension of oil supply. Fourth, the further improvement of energy saving technologies and measures and the strengthening of people's energy saving consciousness will also help to restrain

the growth of petroleum demand. In addition, the high oil price and the resulted increase of the prices of other commodities will also play a restraining role.

From January to June in 2005, the yield of crude oil in China arrived at 89.80 million tons, increasing by 4.8% of the same period of 2004; the import of crude oil was 63.42 million tons, with an apparently slower increase; and the nominal consumption of petroleum was 0.158 billion tons, closing to the level of the same period of the previous year. These fully indicate that, the excessively fast increase of oil consumption in China and the quick increase of import have been slowed down. The effect of the state macro-control policies is gradually appearing. In 2005, the Chinese oil demand still remains at a high level, but the tension between supply and demand will be eased.

From a long-term perspective, Chinese petroleum consumption will still increase at a rapid speed. Without any effective control, till 2020 the Chinese oil consumption will probably reach about 0.6 billion tons. However, the oil yields will only reach 0.2 billion tons, so the conflict between oil supply and demand will be more severe. This is a situation that the Chinese government and enterprises are not willing to see and must be avoided. The oil consumption of any state should be considered as the variable of the policy, which can play an important guiding role for the oil consumption. During the first and second oil crisis in 1970s, the international oil price increased by a large margin. The United States, Europe and Japan have issued a series of energy saving policies, facilitating the development of energy saving technologies, highlighting the role of replacing energies so as to control the excessively fast growth of oil consumption. China must learn from this experience, effectively control the momentum of excessively fast growth of oil consumption through policy guidance. If effectively, China is fully able to control the oil consumption within 0.45 billion tons before 2020, however, it is hard to attain.

II、 China is at a stage with rapid increase of oil consumption.

According to the prediction of the Development Research Center of State Council, China has entered into a new round of economic development period since 2002, which will last till 2010. It is estimated before 2010, the Chinese economic growth rate will be 8% to 8.5%. Urbanization, internationalization and industrialization will be the major features of this period of new economic growth. At present, the proportion of city and town population in China is increasing by 1% every year, which is predicted to be 47% and 57% till 2010 and 2020. From 2001 to 2004, the total export volume of China all accounted for more than 20% in the GDP. The increment of the total export volume accounts for nearly 3/4 of the increment of GDP. The world economy is exerting a more and more direct impact on the Chinese development. Since 1990s, Chinese economy has entered the industrialized stage, in which the proportion of the second industry is increasing and the heavy industry develops faster than the light industry. After entering the new century, a new round of guiding industries has formed, including automobile industry, real estate industry, mechanically manufacturing industry and the rapidly growing industries closely related to the upgrade of people's daily consumption structure. It is predicted that in the next 20 years, these industries will continue to fuel a continuous growth of Chinese economy.

The characteristics of the new economic period determine that in the next 10 to 20 years, China will still stay at a stage with rapid increase of energy consumption. Till 2020, if the total

consumption of the primary energy in China is 3 billion tons of coal equivalent, the consumption per person is only 2 tons of coal equivalent, close to the current average level of the world. Coal in China is affected by the factors of inadequate supply, inadequate productive capacity, inadequate transport capacity and inadequate environmental capacity. The supply of coal will increase to 2.4 billion tons in the near future, approaching the limit. China is relatively insufficient of petroleum resources, of which the reservation growth becomes harder and harder, and the ground as well as underground conditions for discovering the oil resources is becoming more and more complex. The eastern main oil fields have entered a degressive stage, with increasing difficulty in stabilizing the oil production, while the western and coastal areas have not formed a reservation base to succeed. It is predicted that in the next 5 to 15 years, the Chinese oil production will approach its limit, with little possibility to have its summit production volume exceeding 0.2 billion tons. Chinese oil supply will gradually shift its focus from domestic market to the foreign market. The project of Gas Transfer from West to East has quickly expanded the market of natural gas, and now demand has exceeded the supply, which leads to an inadequacy of natural gas. The hydraulic power, nuclear power and new energy sources will all enter into a stage of rapid development, however, they will not account for more than 10%. Coal and oil are still dominant in Chinese oil structure.

While promoting economic development, China tries its best to control resources consumption and environmental population. During the last 20 years of the previous century, the per 10,000 RMB GDP energy consumption of China reduced by 66%, much higher than the contemporary average world reduction of 19%, and China realized its objective of quadrupling GDP on the basis of doubling the energy consumption. Till 2020, even if quadruple GDP on the basis of doubling the energy consumption, the supply of energy will be a tough issue. During the first 20 years of this century, the demand for high-energy consuming products, like steel, non-ferrous metal, petrochemical products and cement is still on the rise, and a great many of automobiles and home appliances have entered into households. Correspondingly, the resources consumption will further increase. Taking the energy for example, on the premise of saving as much energy as we can and optimizing the economic structure, till 2020 the total consumption of primary energy will reach 3 billion tons of coal equivalent according to a preliminary calculation. Only from the perspective of satisfying the domestic coal demand, we are faced with four pressures including inadequate reserve, inadequate productive capacity, inadequate transport capacity and inadequate environmental capacity. Though we can make use of the foreign resources to compensate the resources shortage at home, we should notice that unavoidable risks would exist if importing a great amount of overseas resources. The finite global resources cannot satisfy the infinite import demand. Importing a great amount of foreign resources will bring problems like, market and price risk, constraint on transport capacity as well as security insurance of import.

From the perspective of energy saving potential, the expenditure of the terminal-end energy consumers in energy consumption accounts for 13% of the GDP, which is only 7% in the United State. Now, the average per unit product energy consumption of eight high-energy consuming industries is 47% higher than the advanced level of the world. The energy consumption of these eight industries accounts for 73% of the total energy consumption of the industrial departments, therefore have great energy saving potential. Large population and inadequate resources per person are the basic situations of China. China must follow a path of energy saving, energy efficiency and resources recycling to develop recycling economy, speed up the construction of an

economic society, and develop a new model of industrialization with low resources consumption and low environmental pollution.

From the perspective of the environmental capacity, currently the deterioration of the environment in China has not been basically changed. Instead, the pollution becomes increasingly severe. In 2003, the total disposal volume of wastewater reached 46 billion tons, within which chemical oxygen demand was 13.34 million tons. The total disposal volume of smoke and dust was nearly 10 million tons, the disposal of sulfur dioxide was far beyond the environmental capacity, and the acid rain has also already covered 1/3 of the whole country. The disposal of the industrial solid waste of the whole country was 19.41 million tons, within which 3,000 tons are not processed before being discharged into the environment. The processing rate of city garbage was less than 20%. And the problem of “overusing” the environment becomes severer and severer.

The growth of supply cannot satisfy the rapid growth of demand. Great potential for energy saving and great pressure on the environment are the issues confronting the energy society of China. We must look for the most effective solutions.

III、 Reflections on Chinese Energy Development Strategy

The solution of the problems faced by Chinese energy ultimately depends on the increase of recyclable energy and sustainable energy. However, it is a fairly long process. The current stage is still depending on fossil energy. The energy problems in the economic development should be solved by focusing on coal and making use of various kinds of energies from both home and abroad. Improving the energy efficiency by a large margin and saving energy become the key tasks in the energy development at the current stage. We will try to quadruple the economy on the basis of doubling the energy consumption in 2020 (the first 15 years). And try to form a preliminary scale of the multi-dimensional development of energy and form a basically dimensional developing capacity of recyclable energies in 2035 (the second 15 years). After 2035, the increased energy demand will be satisfied by recyclable energy and nuclear energy. Till 2050 (the third 15 years), a sustainable development of energy can be realized preliminarily.

Before, when working over the problem of energy security, China pays more attention to supply security, wishing to ensure the petroleum safety through increasing the domestic output, improving the import stability, speed up the overseas exploitation and development as well as keeping emergency reserve. Undoubtedly, these measures are necessary to ensure the Chinese petroleum safety at the current stage. However, from a long-term perspective, Chinese energy problems should be basically solved by dealing with supply and demand, by the traditional measures of saving energy and improving energy efficiency and by making use of new and recyclable resources. Though the past energy strategic studies have mentioned about putting energy saving as the priority, they do not place it in a real important position. It has been proved by the practice that the current developing stage of China determines the rapid increase of energy demand. The excessively fast increase of energy consumption is the principal aspect of the contradiction. The solution of Chinese energy problem does not rely on increasing the supply, but on changing the way of thinking and pursue a road of our own.

Developing recycling economy is the key to realize the above-mentioned objectives. We should fully realize that resources play an important supporting role for the economic growth.

Without necessary resources guarantee, the economy cannot attain a sustainable development. However, the resources also keep a check on the economic growth, as the carrying capacity of the resources will restrain the speed, structure and way of economic development. We should thoroughly alter the tendency of stressing development, ignoring saving, stressing speed, ignoring efficiency, stressing extension, ignoring intension and neglecting resources and environment, speed up the action to transform the ways of economic development and promote the development of recycling economy. Prime Minister Weng Jiabao has said, “Regard energy saving as the key, and develop a recycling economy. Save the energy while developing it. Put energy saving as the priority, and construct an energy saving society. At present, we should emphasize coal saving, electricity saving, oil saving, water saving and the reduction of major raw materials consumption. Promote the use of energy saving technologies, and carry out clean production. Establish a recycling system of urban and rural waste and recyclable resources, and increase the recycling rate and processing rate of resources.”

For this, it is necessary to stress four transitions: from aiming at simply satisfying the basic requirements of the economic development to the double objectives of emphasizing environment and benefit on the basis of satisfying needs; from focusing on supply guarantee capacity to jointly improving the supply capacity and energy efficiency and put energy saving as the priority; from the governmental leading to the market adjustment under the governmental guidance; from relying on the “self-balance” of domestic resources to make full use of two resources and two markets at both home and abroad. We should try our best to save energy, improve the energy efficiency, reduce the consumption of natural resources, promote clean production at a full scale, reduce the waste from the root of production and service, strengthen a comprehensive use of resources, make full use of various waste and recyclable resources, reduce the ultimate disposal volume of waste, actively carry out environmental protection industry, and provide material and technological guarantee for the efficient and recycling use of resources. During resources exploitation, we should improve the comprehensive development and increase the recycling rate of resources. During the resources consumption, we should improve the resources efficiency. We should vigorously carry out a comprehensive use of resources when producing the waste, should recycle various kinds of old and waste resources during the resources recycling part and advocate green consumption during the social consumption part.

Scientific technology is the important support for developing recycling economy. Achieving a breakthrough in the technology of improving energy efficiency is a key factor for developing recycling economy. We should try our best to break the technological bottleneck constraining the developing of recycling economy. Put emphasis on developing and promoting resources saving and replacement technology, energy stepwise utilization, extending the industrial chain and the related industrial linking technology, “zero discharging” technology, toxic raw material replacement technology, recycling technology, green reproducing technology as well as recycling cost reduction technology, increase the yield of per unit energy consumption, change the energy consumption from high growth to low growth and to zero growth, and change the waste disposal from positive growth to zero growth and to negative growth, so as to solve the problem of energy restraint and ease the great pressure on environment.

We must regard energy saving as the basic national policy of the new period, building a national economic system and modeling a life style featuring energy saving. Lift energy saving up to the height of basic national policy. Consider “population control, energy saving, and

environmental protection” together as the basic national policy of the new period. So far, energy saving has not been considered as basic national policy. Change the extensive economic growth pattern featuring high consumption and high pollution, and gradually establish a national economic system featuring energy saving. Check on the export of products of high-energy consumption, high material consumption, high pollution and low added value, and form an industrial labor distribution pattern and international trade pattern favorable to sustainable development. Reduce the energy consumption of industrial departments, and explore the maximum energy saving potential. Improve the comprehensive use of the resources, and develop recycling economy. Reinforce the energy saving in construction and transport, and advocate an energy-saving lifestyle. From the perspective of the growing trend of the three biggest energy consuming industries including industry, transport and construction, till 2020, the proportion of the energy demand of the industrial departments will reduce to 55% from 72.7% in 2000. Meanwhile, the energy consumption of transport and construction grow rapidly. We should change the current situation of overlooking construction and transport energy saving, adopt stimulating economic policies, like compulsive standard and taxation, and promote the building and transport energy saving. Petroleum should be used in transportation and petrochemical industry. Make full use of economic, legal and technical measures, along with administrative measures to promote the energy saving in automobiles.

Ladies and gentlemen,

Developing recycling economy, vigorously promoting energy saving and improving the utility of new resources and recyclable resources are the key ways to solve Chinese energy problems and also the general course for the energy development in China. Pursuing a path of energy development suitable to the national situation of China does not mean being close to the outside world, but actively carrying out international cooperation, making full use of the foreign experience and advanced technology in the field of recycling economy, so as to improve the recycling economy in China. I believe in the process of developing recycling economy, a great many of cooperative chances exist among China, Japan and South Korea.

Thank you.