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Developing Problems: At the End of Cheap Energy Era

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I. Throughout the world history, the high development of industrial civilization was supported by cheap energy.

That cheap energy is mainly referring to oil and gas, the nonrenewable resources

distributed extremely unequally around the world and with limited reserve. During industrialization process, western developed countries madly chased for the production sources of oil in order to get and secure that cheap energy. From colonialism to hegemonism period, depending on their military, political and economic power, the most industrialized countries controlled resource products of those production places and supported their high development of industrialization. Although developed countries stepped into the “post-industrialization era”, it only means that economic development reduces its dependence on natural resources, but not in their absolute consumption on resources. So, powerful countries still need cheap energy and maintain their privilege on cheap energy to make good for their development.

The reserve of oil and gas on the earth is limited, it's expected to be exhausted finally. The use ages of oil for human being is estimated from fifty to one hundred years. In addition, even though countries increase R&D on substituted resource for oil since the world oil crisis erupted in 1970s , the world's rising consumption on oil didn't reduce. We believe there will be two trends in the future: one is realistic, that is human will accelerate its consumption on oil; another is logical inference, it assumes that people will slow down their consumption on oil. Following reasons sponsor this trend: first is the shortage of oil supply. At present, the proportion of consumption quantity of oil to the new exploration ones is 4:1, and the exploitation of oil can't catch up with the consumption speed. On the occasion world economy will rely more and more on coal and the use cost of energy will rise sharply. Secondly, it's hard to predict whether the total cost of developing new energy will be less than oil or not.

In a word, the ending of cheap energy era has been matter-of-fact and an irreversible trend. The short-term decreasing of oil price can't turn it over.

II. The ending of cheap energy era will bring effects to the world in six respects:

First, to bring up international conflicts in struggling for oil resources. Middle-East situation will become more unsafe.

When coming close to 21 century, the struggle for energy among countries became severe. Middle-East is a prominent area full of international disputes. The actual aim for America's occupation on Iraq is to control the oil in the Middle-East. The high oil price will bring heavy burden to the United States if it keeps going up. The gamble war to attack Iran is likely to take place subject to this war can bring cheaper oil and controlling over this 2nd largest oil deposit to America.

Secondly, to bring up a dilemma situation between energy and grains. The technology to produce alcohol from starch foodstuff is feasible. America produces ethanol gasoline

from grains to cover the increase in oil price, which resulting in a shortage in international grain market and the increasing of grains prices. One calculation reveals that to produce and use biological ethanol from corn can save 2% off oil consumption while at the meantime increasing grain price by about 30%. The repeated increasing and substitution between oil and grain price will be the trend in the future.

Thirdly, to promote “energy-effective economy” development. In other word, such economy means to keep a healthy steady economic development based on lower energy consumption. To some extent, by adopting technology methods such as developing new fungible energy and improving efficiency in energy consumption, we can reduce human demand for oil. On the other hand, we can increase oil production and improve its supply through the progresses of oceanic exploration technology. This may relieve human’s energy difficult situation. Besides, developed countries have entered into a stage of “service economy”. The percentage of most energy consuming sectors of heavy chemical industry is coming down in national economy. The economic structure of post-industrialized society reduces demand for energy in production. This is a severe challenge to developing countries, especially to newly emerging industrialized economies. In the long-run, the industrialization of developing countries will go on under costly energy ; production cost will be higher; control on exhaust emission will be more stringent, thus resulting in hard development.

Fourthly, to change people’s living style. Under the threat of increasing oil price, each government and society will conduct positive measures in saving energy. These practical measures may only relieve the situation but changing our idea and living style is what we essential required.

American began to review whether their big-house living style is sustainable from the perspective of their residential outlet. People search for place where they can stay, work, go to school and live within half an hour journey without driving. The ending of cheap oil era forces the society to turn into an historic transformation period and we should take this change as an opportunity.

Fifthly, international energy co-operation will attract more attention. The co-operation to settle such common problems includes political consultation, scientific & research co-operation, technology co-operation, market co-operation, human resources development co-operation etc. Due to the unbalanced fact of world energy distribution, 75% of oil and gas reserves are controlled by 12 countries, those big countries (The United States, China, India and Japan) control 10% of oil and gas reverse only, while they produce 75% GDP of the world. Confrontation is lurked behind such unbalance. During G8 summit in July 2006 in St. Petersburg, Russia , the document of “Common Acting Plan to Protect World Energy Safety” was approved. It proposes methods to solve energy safety problem including: establishing oil data base, improving transparency in spending of energy export income, securing safe nuclear energy technology for each country, encouraging diversification of

energy products, and developing alternative energy.

Sixthly, territory resources have become fundamental resources to solve energy problem. Territory resources include land and sea areas. The later is basis for seabed oil resources while the earlier one is basis for energy agriculture and energy forestry. The size of land and sea area is vital to every country thus will bring up more disputes. Whether countries can mutually develop and enjoy the benefits based on respecting territories and territorial waters sovereignty with each other will mainly depend on world peace forces leading the disputes on territory resources.

III. The above six prediction reflect two tendencies: international struggles and international joint development.

1. International struggle happens among big countries while small countries will be involved. The ending of cheap oil will undoubtedly makes energy as focus in international struggle and control in the new century. Every country has to put oil safety as one of main target in national security strategy. The struggling fight for oil resources will become more severe, while Middle-East, Africa, Latin America, Caspian Sea-Mid-Asia and Eastern Asia will be hot areas of contesting.

Middle-East has always been the NO.1 supply place in world oil resources. The United States' victory over Iraq War has again laid down foundation for it to control oil resource in the middle east areas. Russia, France, Germany and other countries are fighting for benefits in Iraq or even other middle east areas by various means.

Africa is among 8 main oil producing areas. It's daily crude oil production accounts for 12% of total world production. Petroleum companies of America, U.K. and France are contesting for Africa's oil resources through investments.

Being one of major producing countries, Venezuela's oil resource is abundant in Latin America. Its production has direct impact on American's consumption. The involvement from other countries in oil exploration makes the situation more complicated and serious.

Caspian Sea-Mid-Asian area has been reputed as "the second Middle East". In recent years, the United States and other western countries, Russia, mid-Asian and nearby countries conduct severe competition over production and transport in above area aiming to control. The United States has successfully weaken Russia's oil interest and influence in this area through Afghanistan War. China, India and Pakistan as well as other countries also increase their penetration into this area.

In the Far East Asia, the United States, Japan and China are fighting sharply for controlling potential oil and gas resources in these areas. In South China Sea, nearby countries will have long disputes on who is the real owner of oil and gas resources.

There is about 90 billion barrels of crude oil and 1670 trillion cubic feet natural gas

in the Arctic---equivalent to 30% of undeveloped natural gas in the world. Thus the United States, Russia, Denmark, Norway and Canada participate in enclosure movement in the Arctic.

Many other countries in the world are conducting a new round of “blue enclosure movement” with the aid of advanced deep-sea development technology.

Such struggling result in impediment of human being’s normal development in developed and undeveloped oil and natural gas resources. It also determines normal development in world trade relations, which may even bring up military conflicts and war.

2. There are three levels in international energy co-operation. First is bilateral energy co-operation between one country and another. This co-operation mainly consists of oil development and supply, energy technology co-operation. The second level is regional energy co-operation. This co-operation mainly consists of establishment of regional oil trade system. The third level is global energy international co-operation. This co-operation mainly includes the construction of international oil safety mechanism and the adjustment on world energy map.

The ending of cheap energy times will undoubtedly promote bilateral energy co-operation. To secure international oil supply, China should demonstrate its power in bilateral energy co-operation from the fringe of world oil supply to its central area in the Middle East . America and western countries may feel upset by such bilateral co-operation. The other side of international oil co-operation is international oil contest.

Regional international energy co-operation is based on bilateral energy co-operation. It also relies on the energy co-operation of regional integrated economic organizations.

The global energy co-operation is taking place under the framework of existing international energy pattern. The established international energy pattern has been led by America. IEA (International Energy Agency) was organized by 16 members of OECD, which actually control the co-operation mechanism of world energy consumption countries. IEA has reached the so-called “mutual-reliance” compromising pattern with OPEC. Since this century developing countries increase their consumption on oil. If the IEA under the framework of OECD want to resolve the energy security problem, it calls for the involvement and cooperation from China, India and other countries in some way.

It is expected that on one hand, America would defend the ready international energy co-operation mechanism with IEA as the core and led by western developed countries, while appeal China and other new emerging oil consumption countries not to challenge the existing international rules. On the other hand, given the fact that huge demand for energy from China, India and other new emerging economies has changed the equilibrium of international energy fields to certain extent, the adjustment on the established international energy co-operation mechanism will be inevitable.