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# Northeast Asian Energy Situation & Multi-lateral Cooperation Outlook

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RIPED

# OUTLINE

- **The World Economy Is Entering into A New Era**
- **Strengthen Energy Cooperation in NE Asia:  
Russia's Reasonable Choice After Financial Crisis**
- **Energy Premium : Common Challenge Faced by  
China, Japan and South Korea**
- **Outlook of NE Asian Energy Cooperation**





# PREFACE

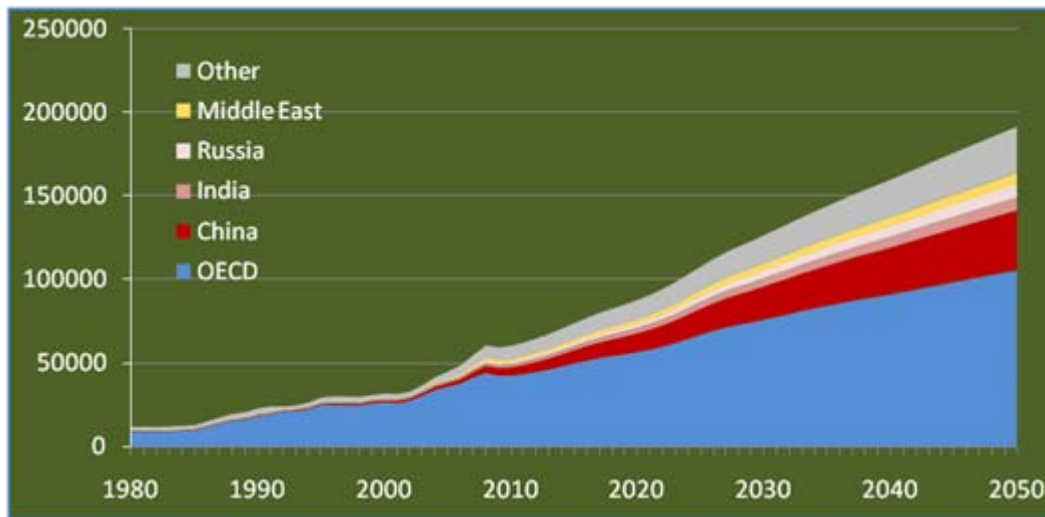
The “Regional (Energy) Cooperation” has been discussed for more than 10 years . Why do we need to talk about old topic again today? The main reason is for “CHANGE”. Especially, the world and the region were been changed profoundly after financial crisis.



# The world is being changed

## (1) Globalization has changed the world economic growth pattern

Major Economies' GDP Growth Forecast (\$1 billion )



Globalization had broken the fence of nations. Many manufacturing have been moved to China, India... from developed countries. The social resources have to be rearranged worldwide and finally results in changing of economic growth modes and transferring of industry centers.

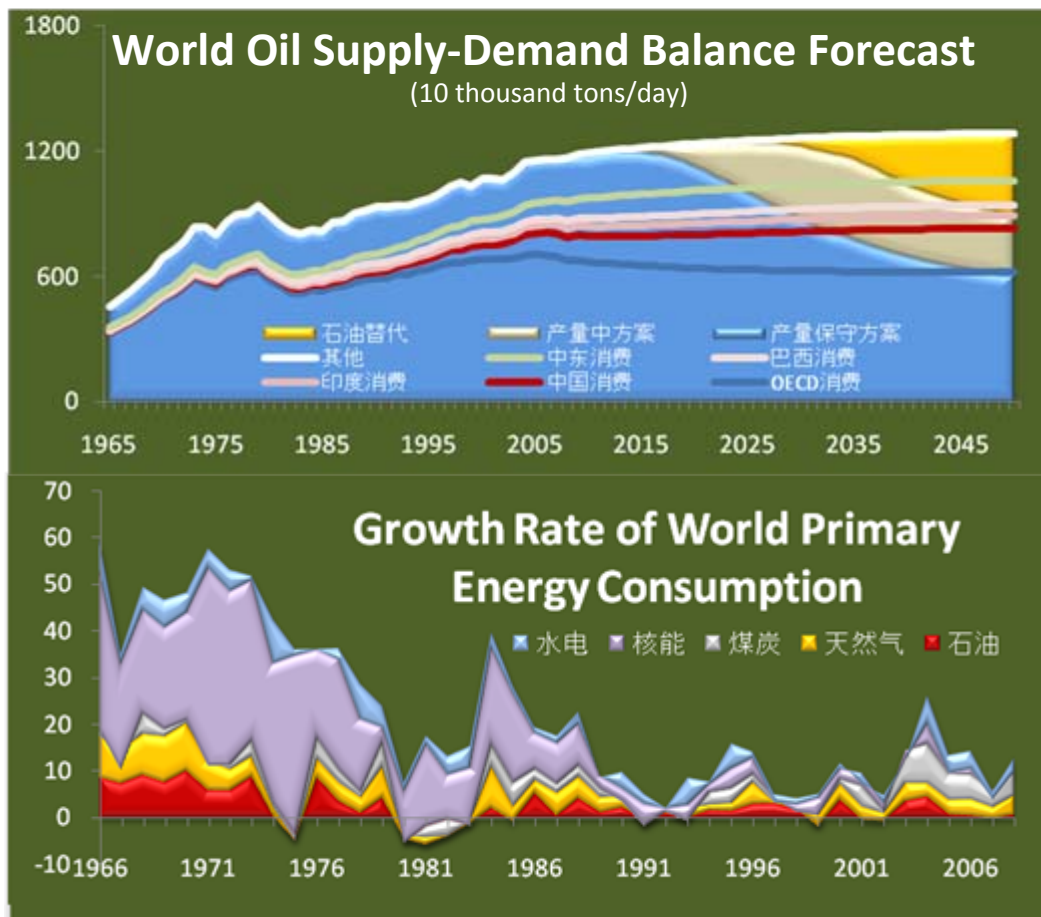
As the major economic body after the War-II, OECD is becoming a mature organization in the last ten years of the 20th century. On the another hand, new rising economic bodies developed quickly. The GDP of China took an average increasing ratio of 13.3% year on year after 1990.



# The world is being changed

(2) Traditional energy supply-demand system is increasingly mature

And the cheap oil era will be over



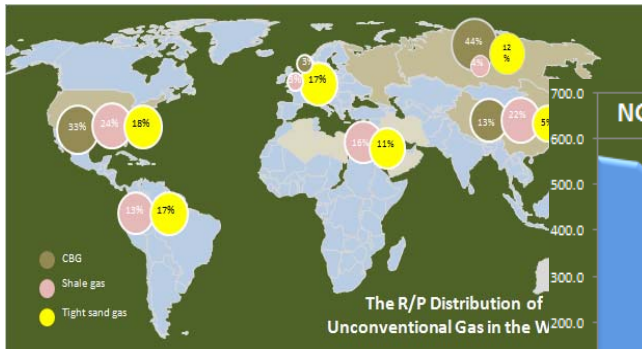
- The world oil production is unlikely to increase dramatically in the future. The annual production will fluctuate around 4.1 billion tons.

- The exploitation of unconventional resources and the development of IOR/EOR technology will may extend the term of stable production between 10 to 20 years

- The substitutions of natural gas for oil, and oil for coal, together with the development of new energy are the main features of the world energy .

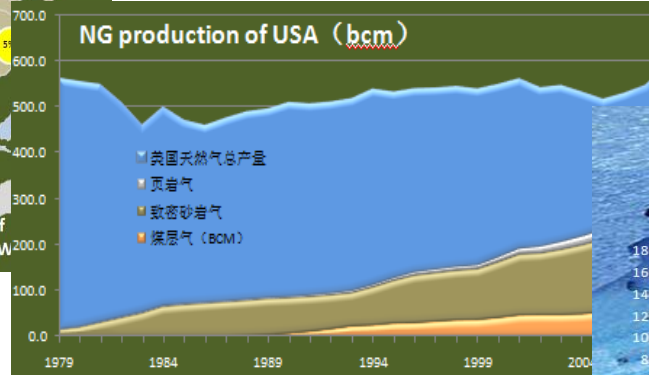
# The world is being changed

(3) The world NG industry is stepping into a sharp increasing period



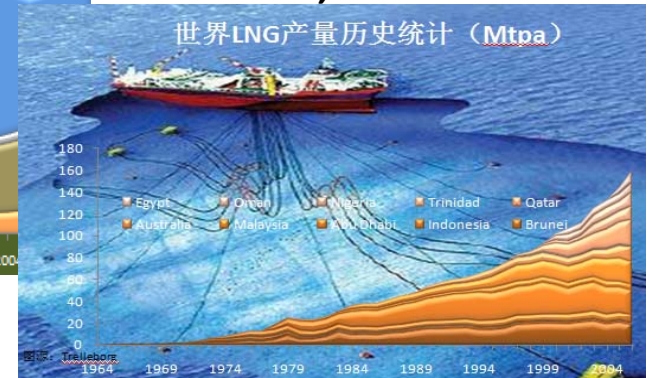
## North America

NG production of USA (bcm)



## Middle East, Pacific Ocean

世界LNG产量历史统计 (Mtpa)

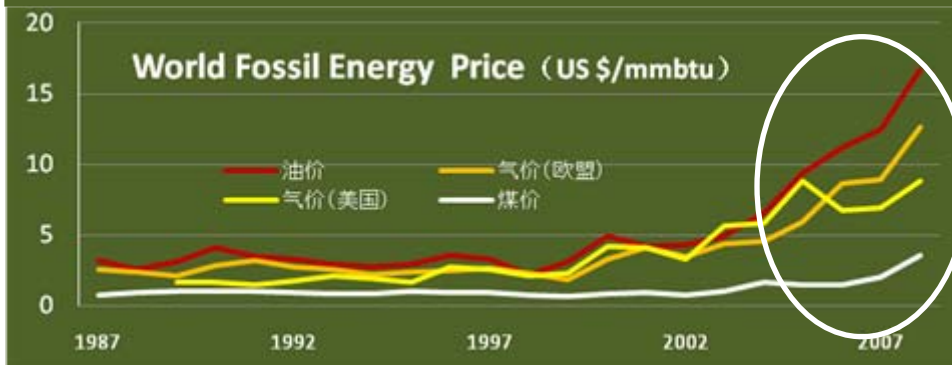
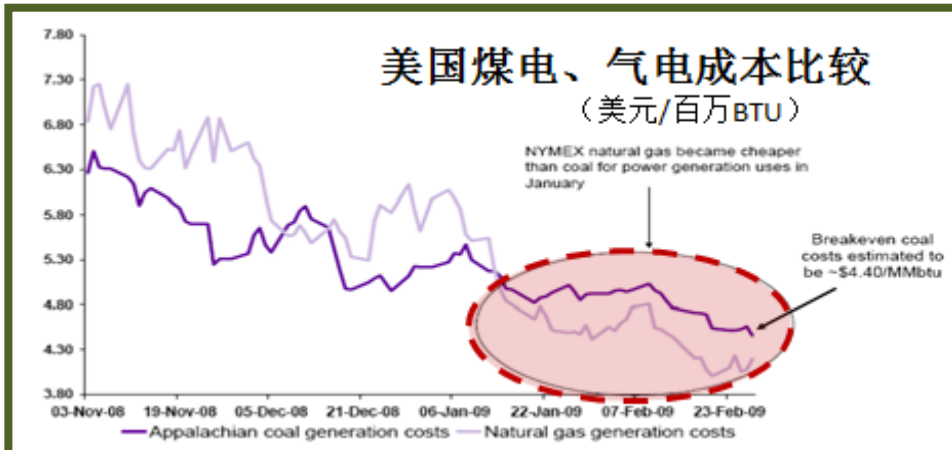


After 2005, along with the improvement of the technique in the scale production of unconventional in North America gas and the development of LNG/FLNG technique, the world natural gas industry is stepping into a quick developing and global stage. But the two hotspots appeared out of Russia. But where is the GPEC?



# The world is being changed

(4) The change of energy economy in transition period will be more dramatic



- Due to the decline of the cost for unconventional gas producing, the gas price in NA has lapsed from oil price since 2006, and obviously lower than in Japan or Europe.

- The gas generation costs was lower than coal generation costs of USA in 2008

- The price of coal dramatically increased 190% in 2008

- Due to the credit crisis of the U.S. dollar, oil will become a substitute for speculation. A dramatic change will take place not in supply and demand but in the world energy economy

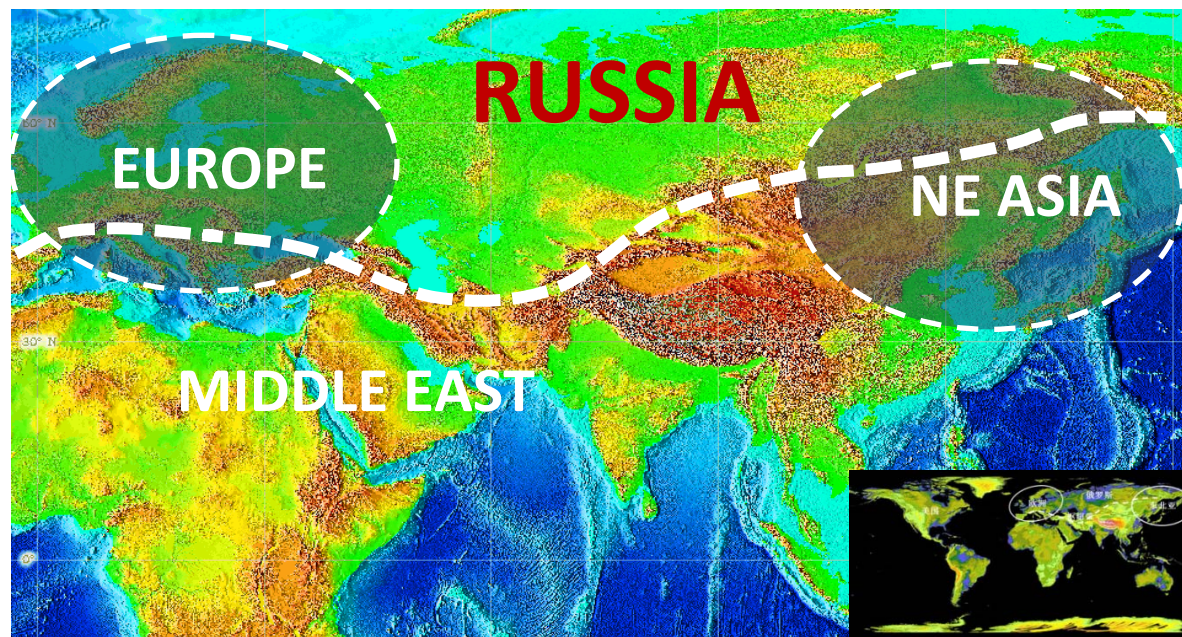
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# Russia: The key role in the regional energy cooperation

## (1) Unique geographical predominance

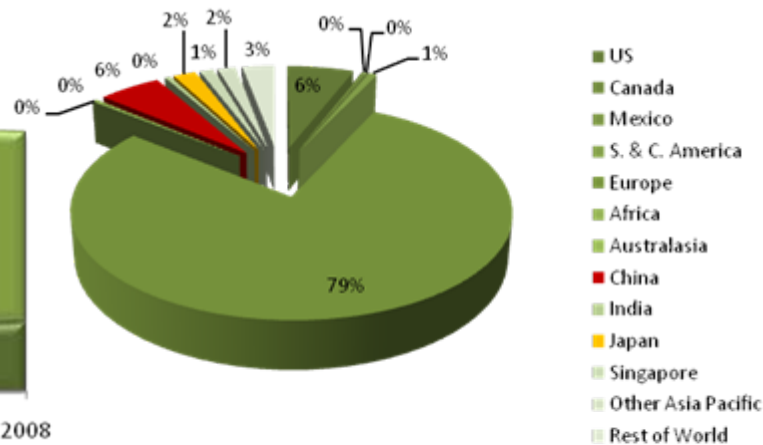
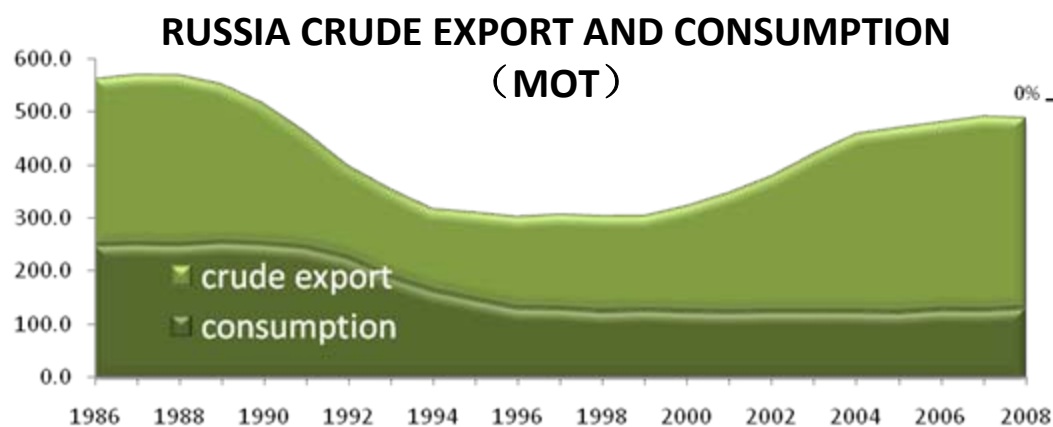


Russia possesses unique geographical advantage by locating in the heart of the world . Besides, it is also the core energy resource country in NEA. Europe and NEA like two weights for the Eurasia balance. Along with the rising of China, the scale inclines to the East. So Russia will need to adjust its energy strategy.



# Russia: The key role in the regional energy cooperation

## (2) Energy security need to make NE Asia to be the counterweight of Europe in the pattern of energy resources export

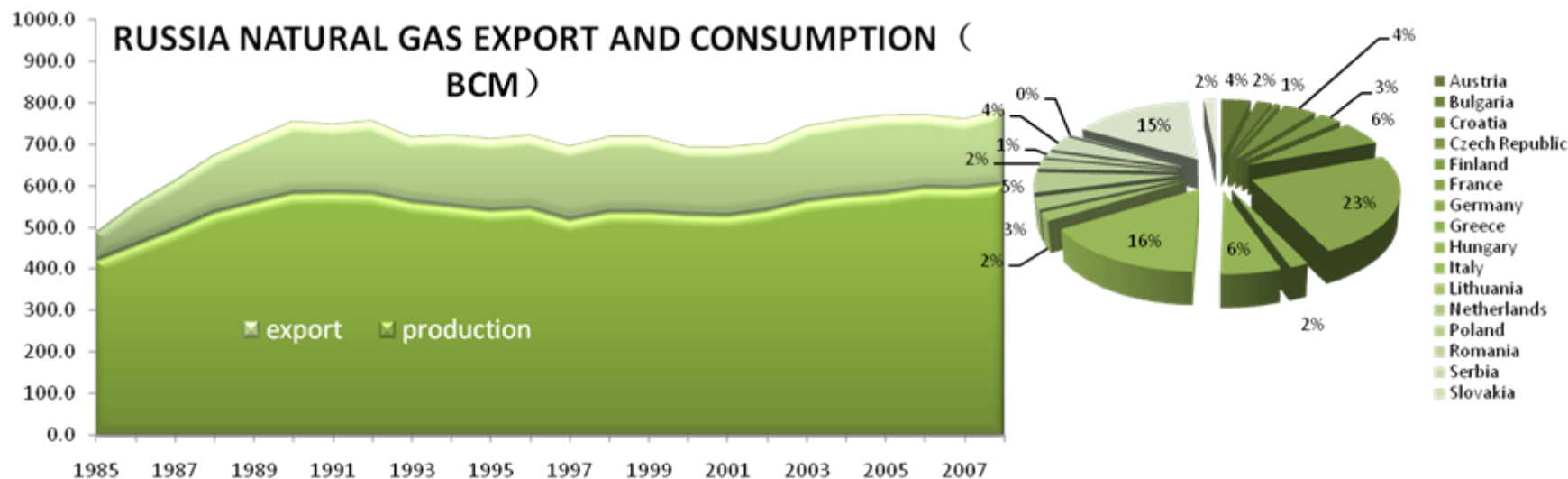


Since the disintegration of the former Soviet Union in 1991, the oil export volume of CIS region has kept growing 16% year on year. And the export volume account for 15% of the global export volume. Russia's oil are mainly exported to Europe in the history. In 2008, 78.5% of Russia's oil is exported to the European market; only 11% of its oil is sold to the Asia-Pacific region.



# Russia: The key role in the regional energy cooperation

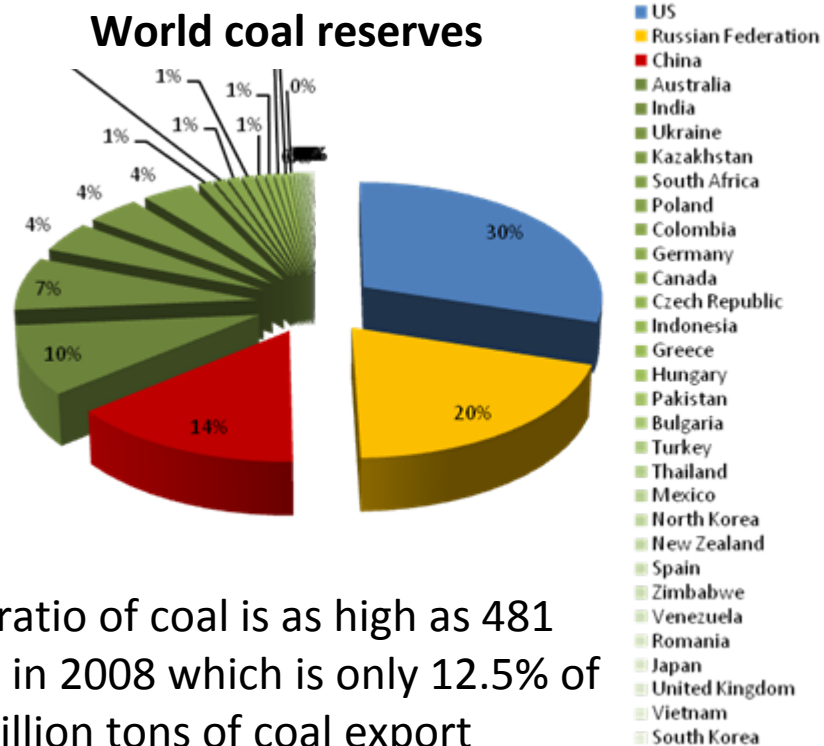
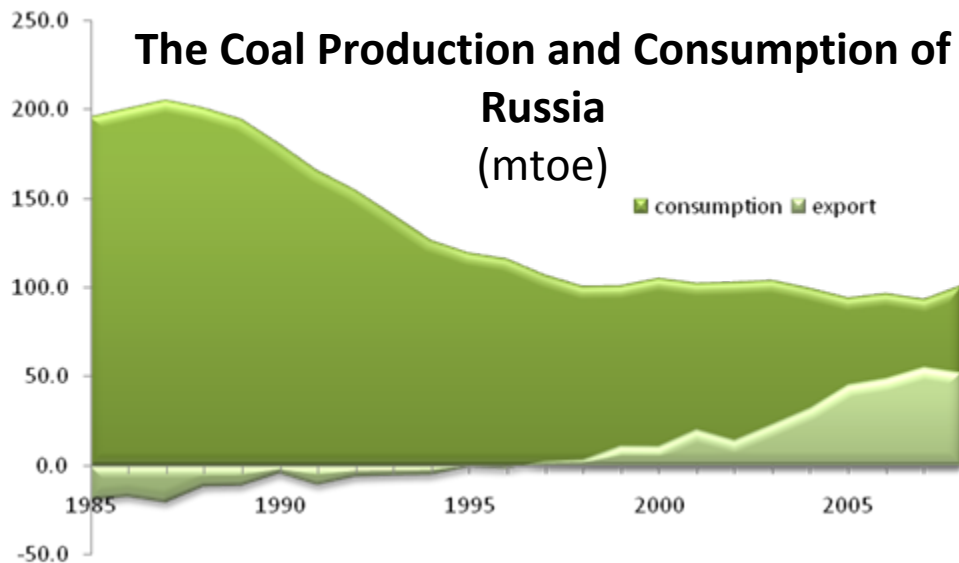
(2) Energy security need to make NE Asia to be the counterweight of Europe in the pattern of energy resources export



Although the R/P ratio of natural gas is as high as 72 years, the export volume remained at about 150 bcm in the past 15 years. However, Russia's gas are mainly exported to Europe in the history. In 2008, 100% of Russia's natural gas is exported to the European market.

# Russia: The key role in the regional energy cooperation

(2) Energy security need to make NE Asia to be the counterweight of Europe in the pattern of energy resources export

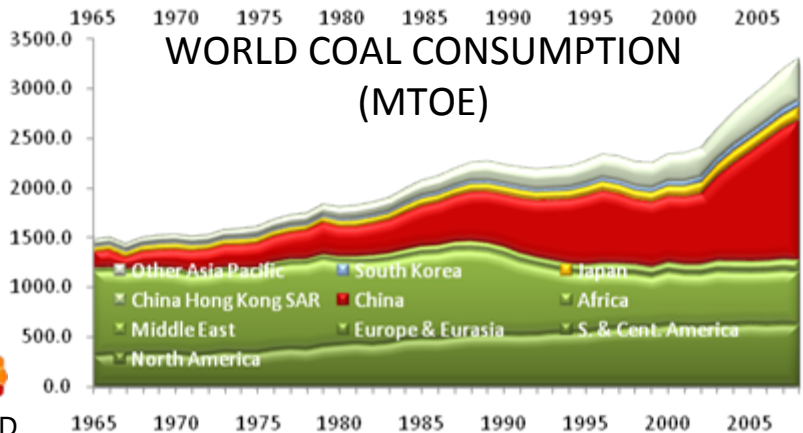
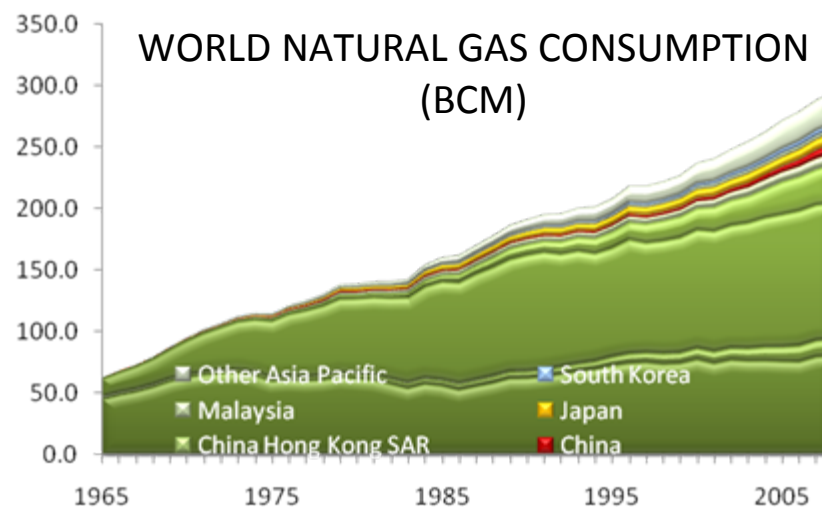
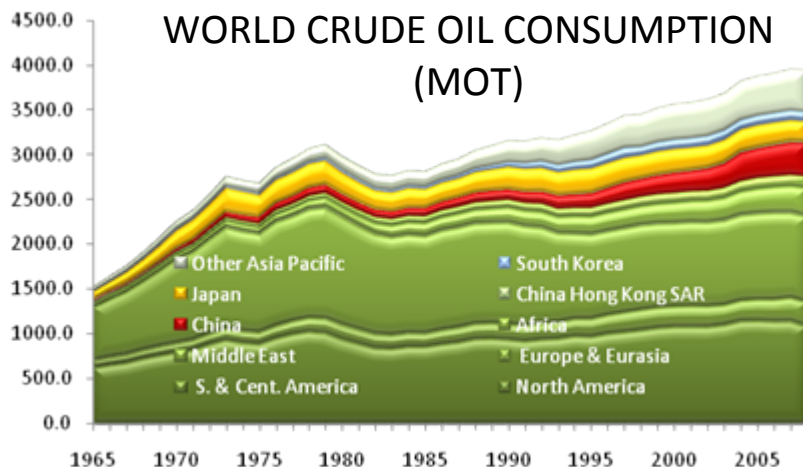


Similarly, although the reserve-production ratio of coal is as high as 481 years, the output was only 326 million tons in 2008 which is only 12.5% of China's coal production. Among the 100 million tons of coal export volumes, the total export volume to China, Japan and South Korea is only 25 million tons



# Russia: The key role in the regional energy cooperation

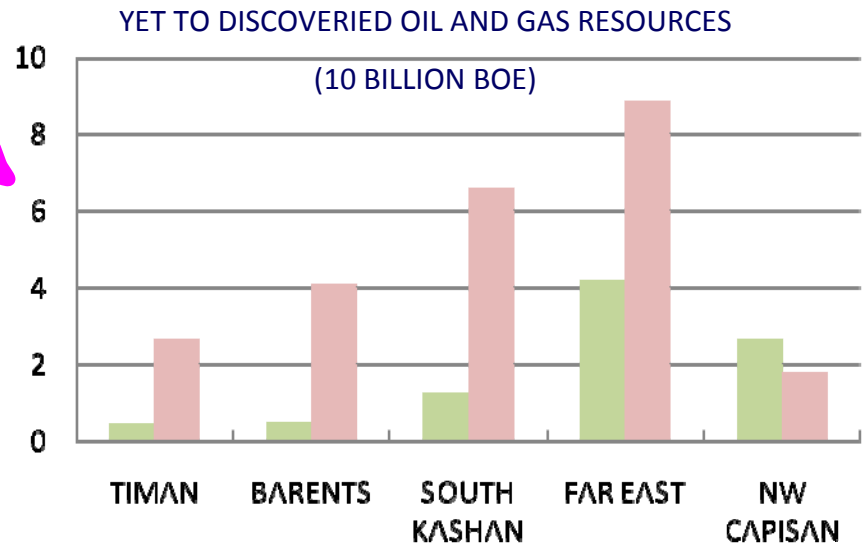
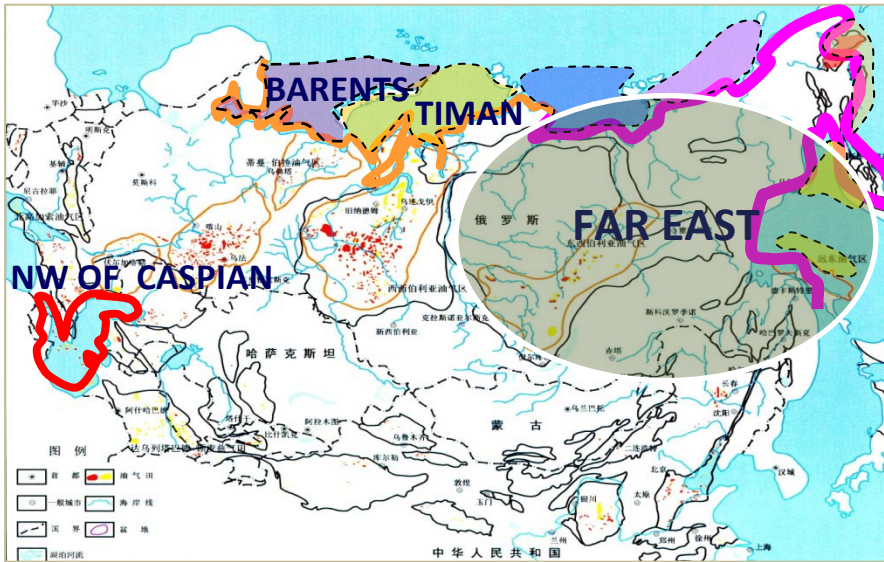
(2) Energy security need to make NE Asia to be the counterweight of Europe in the pattern of energy resources export



**Huge Market:** NEA has become the world's second energy consumption region. In 2008, the primary energy consumption volume of China, Japan and South Korea reached 2.75 billion tons of oil equivalent, while primary energy consumption volume of North America was 2.77 BTOE. By 2020, the primary energy consumption is expected to reach 40 BTOE, which is about 1.48 times of current North America's consumption volume.

# Russia: The key role in the regional energy cooperation

## (3) Huge remaining fossil energy resources in Russia's far east

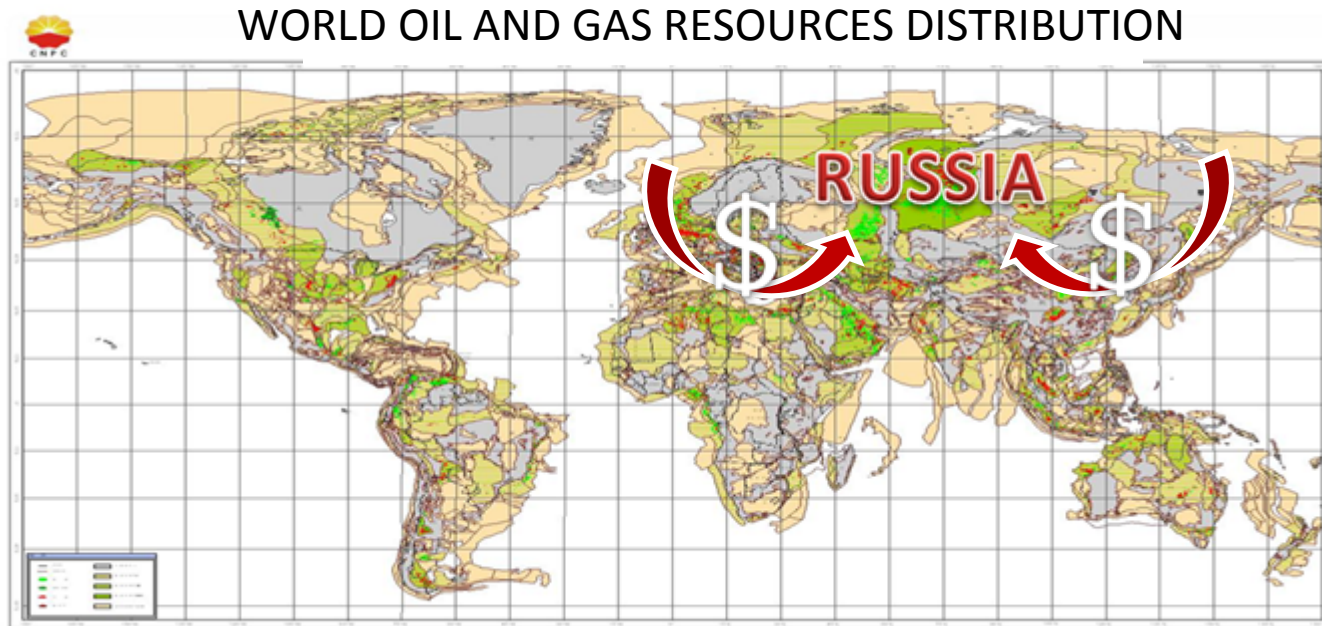


The Russia's Far East oil and gas exploration has made considerable progress in the past 20 years. Now there are 66 discovered oil and gas fields in the Far East, where oil and gas resources to be found account for 27% and 45% respectively of Russia's total oil and gas resources to be found. The proved coal reserves in the Far East is 20 billion tons which accounts for 40.8% approximately of Russia's coal reserves, and 50% of which could be open-pit mining



# Russia: The key role in the regional energy cooperation

## (4) Recovery of Russia's economy relying on energy consumption of other economies in NE Asia



Europe and the United States have limited contribution for Russia's future economic growth. At present, China economy is showing signs of recovery and leading the Northeast Asia's economy out of the financial crisis. Therefore, the three biggest consumers in Northeast Asia will become the main engine of Russia's economic recovery

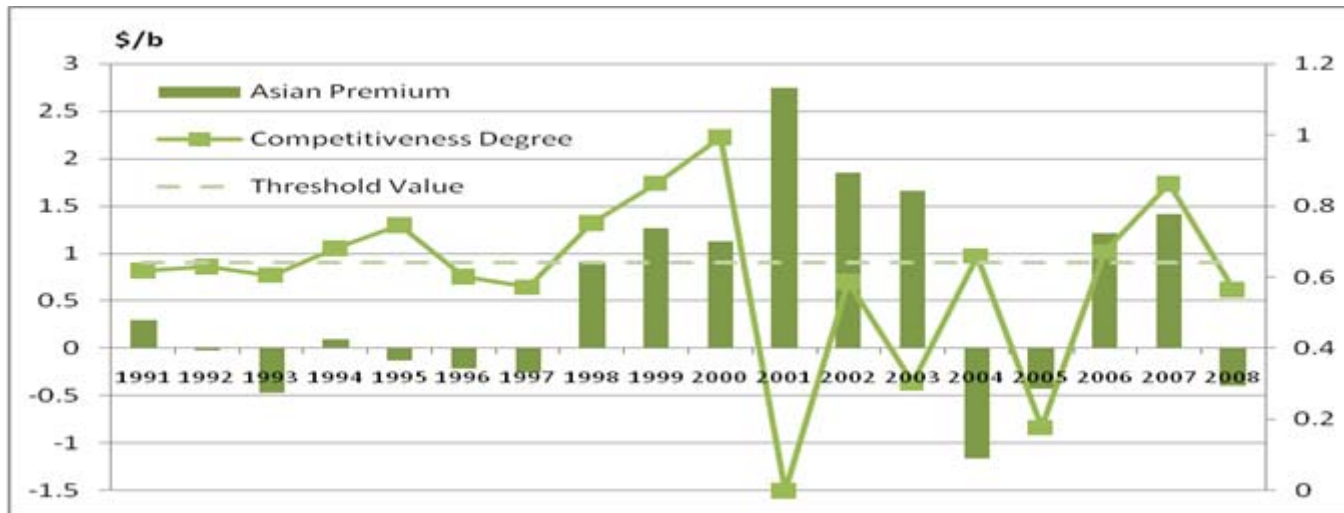
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# Premium : the common challenge faced by the three big consumers in Northeast Asia



**“Competition Index” is the function of differential coefficient of oil price to time**

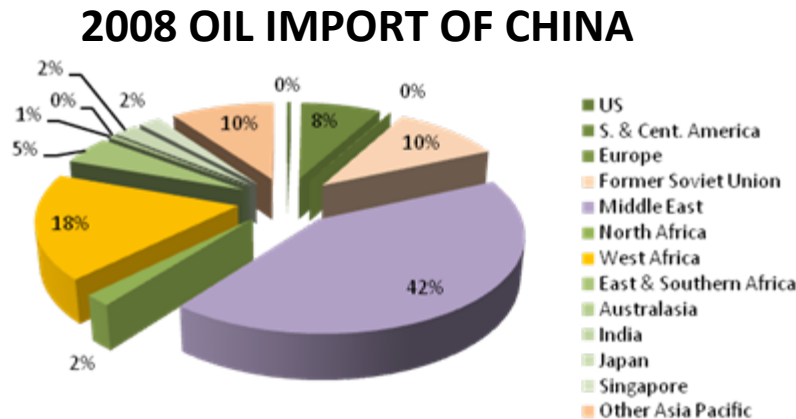
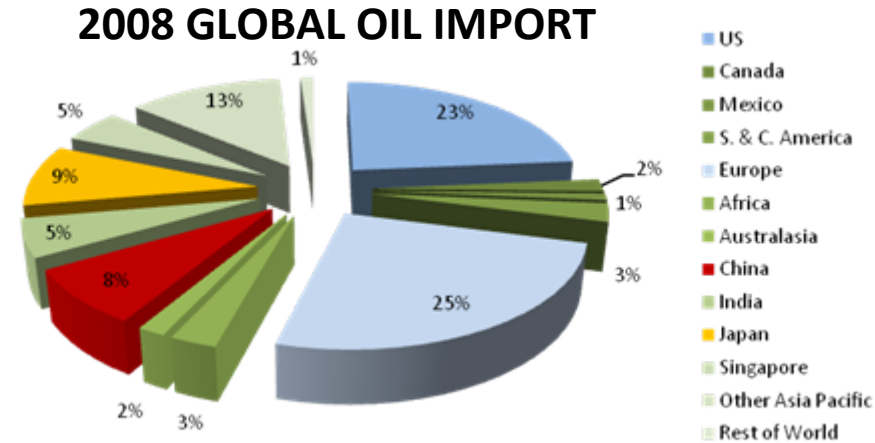
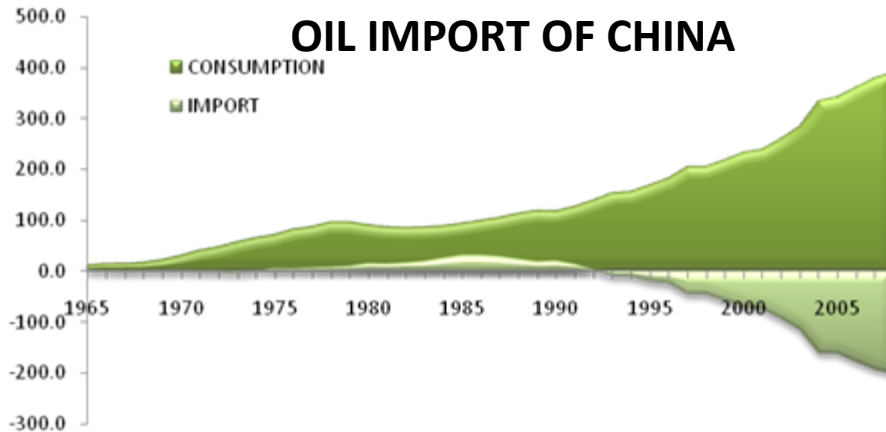
**“ Asia Premium” = Price<sub>Saudi Arabia-Asia</sub> - Price<sub>Saudi Arabia-America</sub>**

“Asian premium” problem has existed since the early 1990’s. The average premium from 1997 to 2004 is 1.46 \$/b. Since 2005, with the continuous rising of international oil prices, the average premium exceeded 2 \$/b and the highest monthly premium reached 7 \$/b.

# CHINA

One of the major engines of regional economy  
Resuscitation

But the Economy more and more laying on import of oil



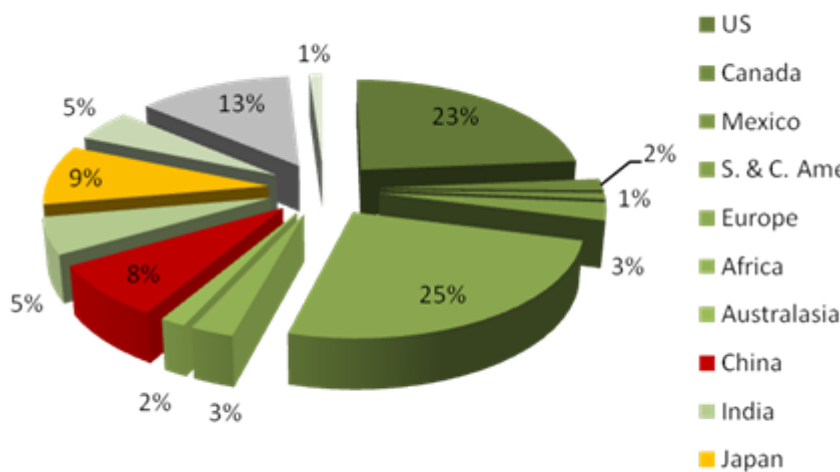
In 2008, 49.5% of China's oil consumption needed to import.  
China's import oil took around 8% of global import crude oil.



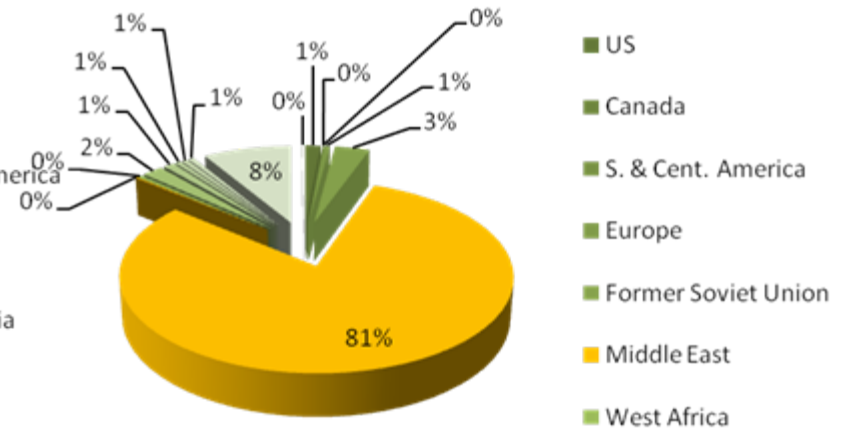
# JAPAN & SOUTH KOREA

Energy security need to make NE Asia to be the counterweight of Europe in the pattern of energy resources export

### WORLD OIL IMPORT PATTERN



### JAPAN OIL IMPORT PATTERN

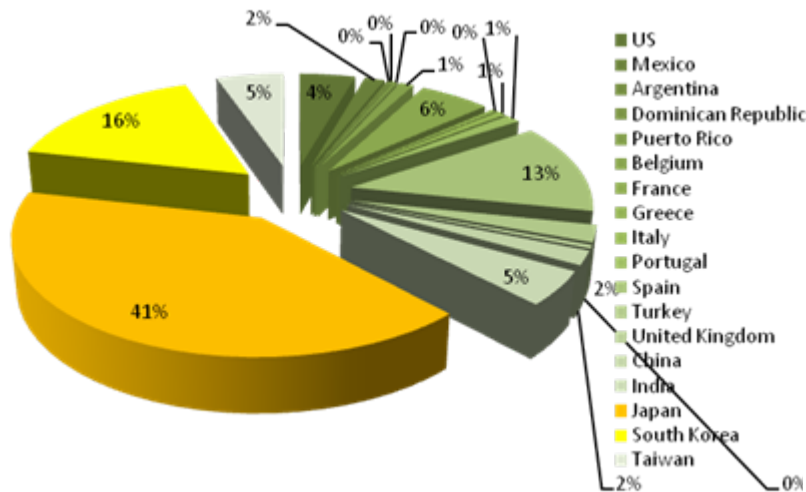


Japan took around 9% of total oil import of the world, and the 81% of your country's oil import came from Middle East in 2008

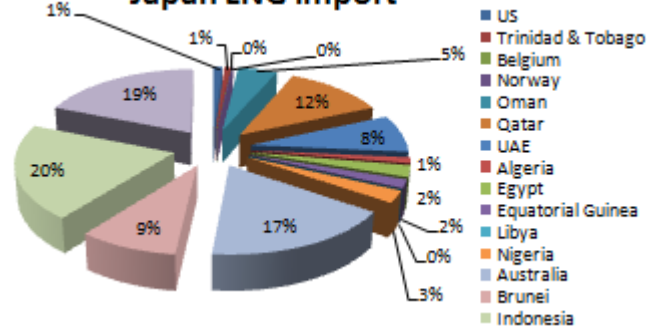
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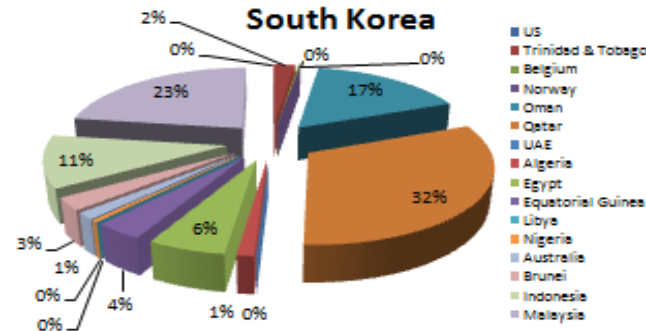
**WORLD LNG IMPORT PATTERN**



**Japan LNG import**



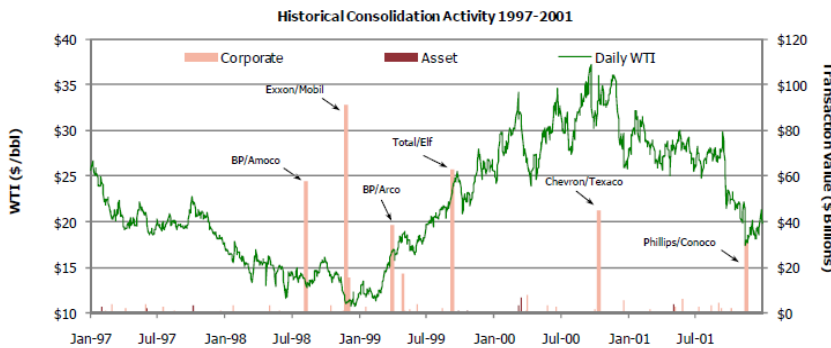
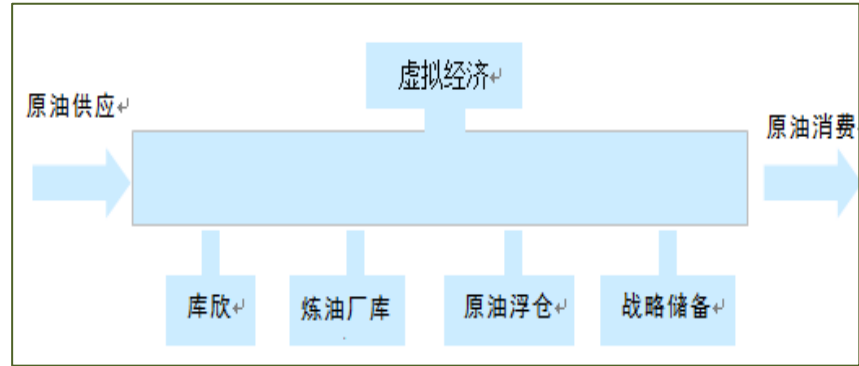
**South Korea**



Japan and South Korea hold around 41% and 16% (more than 50%) of global LNG trade. Because the world energy price system takes crude oil price as reference, the crude oil premium phenomenon has spread to other energy areas such as LNG and LPG.



# Premium : the common challenge faced by the three biggest consumers in Northeast Asia



NEA, USA, EUROPE hold 20%, 24%, 25% of global trade oil. But we have to accept passively the international oil price. In 2006 and 2007, the additional payment caused by the premium is as high as 10 billion dollars. The consequent effects damaged the Northeast Asia's economy seriously.

# Why did we bear the high Premium?

## (1) Impacts of Import Growth Rate

First of all, Asian premium is mainly impacted by the growth rate of import volume rather than the total import volume. Only when there are new entrants or sharp increase in oil demand, there is significant premium. New entrants have to adopt price strategy to squeeze into the market and win market quota. Meanwhile, incumbents have to raise price to defend their market share.

The emergence of new entrants and demand increase strengthen market competition. The premium would disappear only when the energy market finishes the share adjustment. From Figure 1, we can find that the premium weakens when the import volume keeps at stable growth rate for more than two consecutive years. Therefore, one key to reduce premium is constructing oil stockpiling to smooth short-term fluctuations in energy supply and demand.





# Why did we bear the high Premium?

## (2) Simplex Import Structure & Negotiation without BATNA

The international crude oil market is still a seller market. Whether possessing alternative projects would impact trader's bargain power directly.

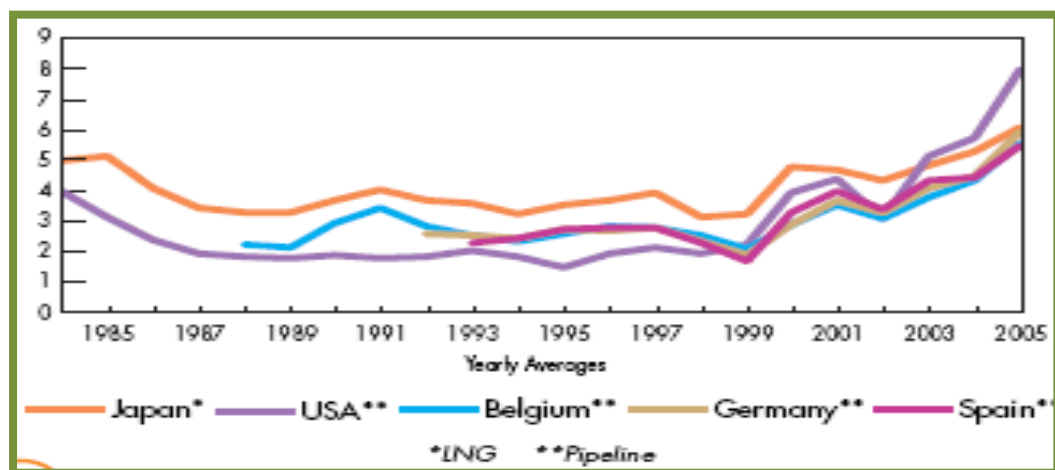
**Best Alternative Projects in international oil trade:** include substitutive crude oil supply regions, own production amplification capacity, substitute energy and demand reducing ability. For the three major oil consumers in Northeast Asia, Japan and South Korea is poor in energy resources; China's future production capacity can be amplified up to 1.5 million tons / year. With the increase of energy consumption, these three countries would be a passive price acceptor if they could not diversify import sources or develop substitute energy.

In fact, it is difficult for Middle East crude oil to obtain premium from U.S. as the United States has diversified import sources.



# Why did we bear the high Premium?

## (3) Security and Environment Premium



In order to reduce the reliance on the Strait of Malacca and to maintain environmental sustainability, Japan government frames a basket of effective policies to promote natural gas consumption during 1984 to 2003.

At present, Japan's LNG import volume is 92.13 billion cubic meters, accounting for 40.67 % of the global LNG trade volume, and 65.58 % of the import volume is imported from the Pacific region. During this period, LNG price in Japan keeps higher than the calorific value of crude oil, that is, the price is added security and green premium on crude oil premium



# Why did we bear the high Premium?

## (4) Other reasons: Correlation

Except the synchronous premium caused by the crude oil premium, correlative premium exists among the three big consumers in NEA, namely, China, Japan and South Korea. If any country change its price, other members will be influence. So, no country can deal with the energy premium problem alone.



# Why did we bear the high Premium?

## (5) Relative Premium

Premium is one relative concept. When there is a noticeable oscillation in the reference prices of energy premium, namely, the F.O.B prices to U.S.(WTI), even if there is no big fluctuation in Asian energy prices, it's still possible to find energy premium.

The high premium in 2001 is one good example. The premium reached its peak value while the Asian competitive degree fell down. Further data analysis shows that the adjustment price of Saudi Arabia light crude oil to the United States is -5.59 \$/b in 2001, while the previous average adjustment price is -3.36/b. This led to the high Asian premium phenomenon directly.





# Premium & Cooperation

Generally, the energy discount appears when the regional energy demand dropped due to unexpected events or temporary excess supply in the source region. But a high energy premium may occur as the quick recovery of the regional economy.

In fact, all above reasons just are exterior. The real reasons are conflicting between globalization and nationalism, and limited resources and unlimited demand.

Therefore, in order to reduce the energy premium thoroughly, it's necessary to strengthen regional cooperation, utilize energy resources orderly, increase strategy and commercial storage and diversify import sources



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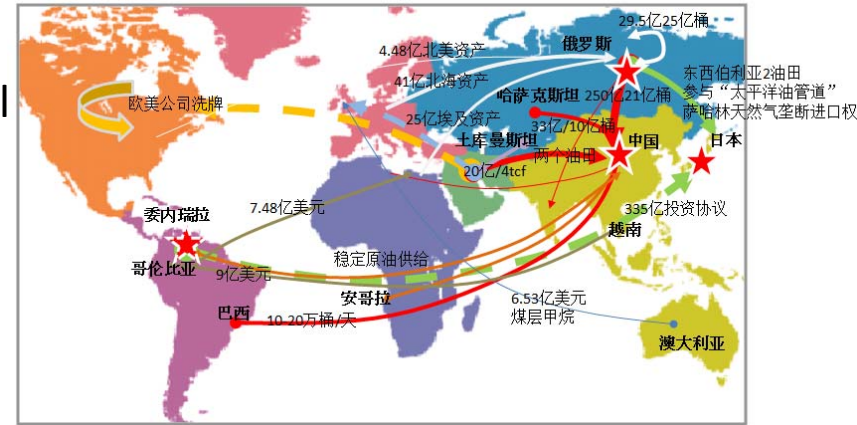
# The regional cooperation situation Has made radical progress since the financial crisis

Since the financial crisis, the cooperation between Russia and China, Japan and South Korea has made radical progress.

**China:** there is 15 million tons of crude oil transported through Sino-Russian pipeline to China every year from 2010.

**Japan:** Russia expands its energy export market by inviting Japanese companies to participate in the Far Eastern natural gas pipeline and the “Sakhalin-3” project. Sakhalin - Khabarovsk - Vladivostok gas pipeline is designed with annual transmission capacity of 30 billion cubic meters.

**South Korea:** Sakhalin Energy Company and South Korea signed a 20-year LNG import contract with the annual capacity of 1.5 million tons; Gazprom and South Korea signed a 30-year natural gas supply agreement with the annual capacity of 10 billion cubic meters.



# The future of regional cooperation

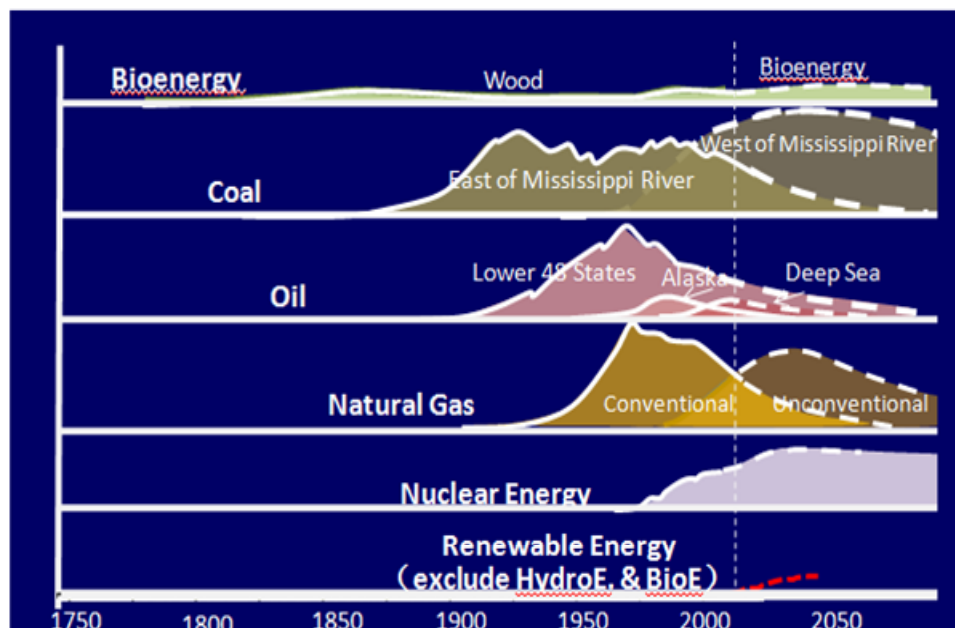
- According to the existing scale, the values of Russia's oil and gas exported to China, Japan and South Korea would reach about 10 billion dollars and 18.8-20 billion dollars respectively after 2010.
- Northeast Asia's economy development requires further energy cooperation between Russia and China, Japan and South Korea. The long-term cooperation should be based on mutual benefit, mutual trust and win-win situation



# Proposal

## (1) Utilizing Energy Resources in Order

The Transition of U.S. Energy Consumption



- Utilizing energy resources in order is one effective way to maximize the interests of energy suppliers.
- Utilizing energy resources in order is one effective way to minimize the costs of energy consuming countries. The regional cooperation with Russia would enhance the bargain powers of China, Japan and South Korea in the Middle East energy negotiations and would be helpful to reduce premium.

# Proposal

## (2) Regional Joint Bargain



- In the international oil market, the import volumes of China , Japan and South Korea are 320 million tons respectively. China's import volume of crude oil is expected to exceed that of Japan in 2012 and ranks second in the world.
- In the international natural gas market, the import volume of Japan accounts for 40.7% of the global volume and ranks first in the world; China is the major potential LNG consumer in the world. By 2012, the LNG import volume of China, Japan and South Korea is expected to account more than 65% of the global volume.



# Proposal

## (2) Regional Joint Bargain

- Among the three big energy consumers in Northeast Asia, China is the only one possessing rich energy resources and production capacity. China's reserves of oil, gas and coal account for 1.2%, 1.3% and 13.9% respectively of the global reserves; China's production of oil, gas and coal accounts for 4.8%, 2.5% and 42.5% respectively of the global production. Hence, China's existing resources would play an important role in the risk defense once establishing of regional energy cooperation mechanism.
- Japan has have obvious advantages in capital and technology. It possesses perfect oil strategy reserve system and high oil-refining capacity. Besides, Japan has complete law system, advanced technology and rich experience especially in nuclear power, energy saving, environmental protection, new energy development and other areas.
- South Korea is also good at energy storage, market operations, etc.
- If the Northeast Asian region can follow European experience in "Coal and Steel Community" to establish regional cooperation mechanism, China, Japan and South Korea could form alliances of oil-consuming countries and achieve a joint bargain in energy procurements. This would change their passive position in the international energy market in some extent.



# Proposal

## (3)Regional Strategy Storage

- The establishment of the regional joint energy reserve system would be one key method to build multilateral energy cooperation mechanisms and control national energy risks.
- In the late 1970s, the second oil crisis broke out. Japan rode out the storm by the 90 days oil reserves. In 2008, Japan's strategy oil reserves are 328 million barrels, commercial reserves are 302 million barrels and the total reserves are 630 million barrels which reach 124 days. South Korea's strategy oil reserves are 79 million barrels, industry reserves are 56 million barrels and the total reserves reach 49 days.
- In the first half of 2009, China has completed the first period national strategy reserve which is 175 million barrels. Japan and South Korea possess advanced technology and rich experience in energy reserves. China, Japan and South Korea can build regional joint reserve system.
- The joint oil reserve system is helpful to ensure the oil & gas supply and to control the risk premium caused by geopolitical conflicts and finally prompt the establishment of the multilateral energy cooperation mechanism in Northeast Asia.





# CONCLUSION

Although the multilateral energy cooperation mechanism has not yet been established so far, China, Japan and South Korea have made preliminary attempts to build cooperation mechanisms in different methods. From the joint declaration of China, Japan and South Korea in 2003 to the Boao Asian Forum in 2009, the establishment of regional energy cooperation community has always been one of the core topics. Since the global financial crisis, the cooperation between Russia and China, Japan and South Korea has been prompted comprehensively. The global energy economy structure and economy growth centers have been shifted to the east gradually. The establishment of multilateral reciprocal energy cooperation has become the common needs of the countries in the Northeast Asia. One cooperative Northeast Asia would make an important contribution to the world future economy development



# CONCLUSION



In the Northeast Asian regional relations, there is a variety of complex and interwoven contradictions which is impossible to resolve in a short time. Therefore, the work has to be done from easy to difficulty, from bilateral to multilateral. The cooperation can be achieved from the readily agreed contents. Cooperation contents and scopes could be expanded gradually and finally make substantial progress.



