

# Sea Lanes and Chinese National Energy Security

Lirong Wang<sup>†\*</sup>

<sup>†</sup>African Research Center  
Zhejiang Normal University  
Jinhua 321004, China

<sup>‡</sup>School of Marxism  
Zhejiang Agriculture and Forestry University  
Lin'an 310027, China



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## ABSTRACT

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Energy is the essential pillar of the national economy. Either the shortage or the interruption of energy will directly threaten the security of our national economy. With the rapid development of our national economy, especially the increasing dependence on marine energy transportation, sea lanes security gradually becomes a strategic issue concerning national security and development. At present, over 90% of the national imported energy supplement depends on the marine transportation. Thus, the sea lane is becoming the “blood vessels” to sustain the national economy. Therefore, strategic international marine routine will be of strategic significance to China’s national energy security, especially the petroleum security. In order to maintain China’s energy security, our government should reinforce top-level design and overall planning, develop the strategy of national channel security as soon as possible, enhance the comprehensive abilities of maintaining sea lanes security, participate in the international cooperation of marine strategic lanes, promote the establishment of new orders in marine strategic lanes, explore novel lanes for business and energy transportation, and reduce risks in transportation and economy.

**ADDITIONAL INDEX WORDS:** *Marine routine, energy security, petroleum.*

## INTRODUCTION

Looking back at the history of the human beings can help us clearly see the close relationship between energy and social development. Due to the limitation of science and technology, only energies like coal, oil and natural gas can be fully exploited and widely used by the international community. Compared to coal, oil and natural gas have more advantages. As they are with high energy and low pollution, they have become the major energies dominating the world’s energy consumption, but also lead to energy security issues. However, the energy security refers not only to the safety in energy production (production and consumption safety), but also the energy economic security (supply safety), which is to say that energy supply stability meets the normal demands of national survival and development (Energy Security Research Group of Party School of the CPC Central Committee, 2010). Import energy transportation safety becomes an integral part of the security of energy supplies and the national energy security strategy. The security of energy and import-export energy transportation is closely related to each other. Energy transport line was known as the “industrial lifeline” for its constantly conveying “blood” to industry. With China’s increase in energy demand and dependency on foreign countries, the problems on energy security and energy import transportation safety have been highlighted. To ensure energy security, China should not only afford and get energy, but also bring the energy back. Only by “finding”, “purchasing”, and “transporting” energy, China would not be bottlenecked by

energy in its further development. The dislocation phenomenon between world energy supply and consumption has determined the necessity of energy transportation. Transportation is an indispensable part of energy security. And there is no doubt that energy transportation mainly depends on the flowing of shipping channels and the adequacy of shipping capacity. As more and more energy imports, energy transportation problems should be taken into consideration. “The one who controls the Malacca Strait and India Ocean, places an important role in China’s strategic energy channels, and can threaten China’s energy security.” A steady supply from energy supplying places and the security of energy transport are considered to be the important symbol of ensuring energy import safety. The key of energy import safety lies in transportation, but maritime transport is the weakest link in China’s energy import security (Wang, 2009).

## ENERGY IMPORTS IN CHINA

Being the blood of the national economy, energy becomes a driving force for national economic development as well as the key to the national sustainable development. With the accelerated process of economic globalization, international conflicts resulting from the competition for strategic resources of energy have fallen and risen. With sustaining economic growth in China, domestic energy consumption increases rapidly, yet at the same time, the growth in domestic energy production and supply is relatively slow, resulting in enlarging the gap between energy supply and demand. According to statistics, the annual increase of the energy consumption from 2001 to 2010 in China went to 11.6%, while the world average was only 2.8% over the same period (Zhang, 2012). Take oil as an example, in 1993, China started to transform from oil

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\*Corresponding author: wlr2005@163.com

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Table 1. China's oil production, consumption, net imports and import dependency ratio statistics from 2000 to 2011.

Year	Production (MT)	Consumption (MT)	Net Import (MT)	Import Dependency (%)
2000	162.3	226.9	71.0	31.3
2001	164.9	231.9	73.8	31.8
2002	168.9	245.7	83.6	34.0
2003	169.3	275.2	107.7	39.1
2004	174.1	308.6	149.7	48.5
2005	180.8	327.8	146.2	44.6
2006	183.7	346.1	168.6	48.7
2007	186.7	362.8	183.9	50.7
2008	189.7	375.7	199.1	53.0
2009	189.5	404.6	219.2	54.2
2010	203.0	428.6	234.6	54.7
2011	203.6	461.8	253.0	54.8

Data sources: according to BP Statistical Review of World Energy

exporter into a net oil importer. From then on, the net import volume of petroleum in China has increased substantially. By 2007 China had become the world's third largest oil importer (second only to the United States and Japan), and the world's second largest oil consumer (after the United States), with oil import dependency of 50.7%. In 2009 oil imports in China topped 200 million tons for the first time, with the dependency of 54.2%. At the same year, the United States consumed 2.182 billion tons of standard oil, China 2.177 billion tons, accounting for 19.5% of the world's volume, without any differences between each other (BP Statistical Review of World Energy, 2010). Oil consumption in China from 2000 to 2010 increased from 226.9 million tons to 428.6 million tons, with the average annual growth of 6.37%, contrasting to the world's growth of 1.36% over the same period, with an increase from 6.81% to 11.04% of world's oil consumption. In the ten years, the added volume of oil consumption in China occupied 40.2% of world. During this ten year, China's crude oil imports increased from 73.8 million tons to 234.6 million tons, with the annual growth rate of 16.3%, while the annual growth of world oil and oil imports are 1.21% and 5.32% respectively over the same period. By 2010, China has become the world's second largest oil consumer and importer (Zhang, 2012). According to the *BP Statistical Review of World Energy*, Chinese crude oil imports amounted to 253 million tons in 2011, accounting for 13.3% of total world imports, and continued to rank the second place in world crude oil imports. According to the official statements, the total energy consumption in China will reach 5 billion tons of standard coal equivalent (tce) in 2020, in which oil accounts for 20% (only a slight increase from 18.1% in 2010), then it will consume 700 million tons' crude oil. Supposing domestic production is basically stable with the output of 200 million tons and the import of 500 million tons, the import dependency would reach as high as 71%. China is much more likely to be the world's largest importer of crude oil in the period from 2015 to 2020, which imposes a greater pressure on China's crude oil supply (Zhang, 2012). The details of Chinese oil production, consumption, net imports and import dependency are shown in Table 4. Compared vividly to black gold, Oil, as important

national fuel energy and strategic materials, composes an important part to ensure national economic development and security. "The one, who occupies the oil, then occupies the world, for he can rule the ocean with diesel, control the sky with high precision oil, and dominate the land with gasoline and kerosene (O'Connor, 1955).

In addition, China is also a big country in the import and consumption of coal and natural gas. China has been known for its high proportion of coal consumption (70%), which is about 2.4 times over the world average volume (29.6%). The proportion of China's coal consumption in the world's total volume rose from 22.4% in 2000 to 48.4% in 2010, which means that China consumed nearly half of the global coal production. The growing demands for coal also cause the increasing problems of coal supply security. For natural gas, China has begun to partly rely on imports since 2007. By 2010, gas imports amounted to 17 billion cubic meters, accounting for 16% of the total annual consumption, including 9.356 million tons' liquefied natural gas. The consumption of natural gas has increased as high as 28% and 19% in the domestic civil and industrial areas respectively. In 2011, this trend did not change, and natural gas import dependency increased greatly, rising from 11% in 2010 to 21% (Tian, 2012). According to the data in *BP Statistical Review of World Energy*, China's natural gas imports amounted to 30.9 billion cubic meters in 2011, which would reach 90 to 100 billion cubic meters in 2015. The International Energy Agency (IEA, May, 2012) predicted that by 2020 natural gas consumption in China would reach 400 billion cubic meters, and in this way, China could become the largest importer of natural gas during the period from 2015 to 2020 (Zhang, 2011).

#### ANALYSIS ON THE IMPORTANCE OF MARINE TRANSPORT TO CHINESE ENERGY SECURITY

"From 18<sup>th</sup> Century, marine channels have been of critical interests for marine nations. They are not only the means of maintaining economic prosperity and exerting global impact, but also the approaches of national surviving (Bergin, 1997)." "As maritime trades are of utmost importance to the security

and economics in most nations, the possible consequences resulted from the interrupted trades in the narrow waters or on the high seas would be most disastrous, which raises the marine channel security to one of the primary issues with global concern (Singh, 1998).” As for China, due to the sustaining and rapid economic development, the domestic energy and resource have become “a very weak link that is not strong enough to support the continuing rise of China (Zhang, 2004).” Chinese economy is facing the bottleneck of resources and energies. In order to make up for this huge resource and energy gap, China has no choice but to import from abroad, which brings itself huge challenges in the field of energy and trade.

Based on the statistics of the Central Administration of Customs, the crude oil import sources and shares in 2003 are as followed: the Middle East 50.9%, Africa region 24.3%, and Asia Pacific region 15.2%. The oil volume imported from these three areas accounted for 90.4% of the total imports (China Customs, 2003). While these statistics diversified in 2009 with the Middle East 47.8%, Africa region 30.1%, Europe and the former Soviet Union 10.6%, the western hemisphere 6.7%, and Asia Pacific region 4.7% (Tian, 2010). In 2011 China imported 130 million tons’ crude oil from the Middle East, and 59.775 million tons from Africa, still mainly depending on the Middle East and Africa with the respective share of 51.5% and 23.7% (Ma, 2012). From data mentioned above, more than 70% of the present imported oil is from the Middle East and Africa. And this trend is expected to be of little change in the future. From the perspective of specific country, China’s main import sources of crude oil reached 24 countries in 2011, of which the top ten were Saudi Arabia (50.2777 million tons), accounted for 19.81%; Angola (31.1497 million tons), accounted for 12.27%; Iran (27.7566 million tons), accounted for 10.94%; Russia (19.7245 million tons), accounted for 7.71%; Oman (18.1532 million tons), accounted for 7.15%; Iraq (13.7736 million tons), accounting for 5.43%; Sultan (12.9893 million tons), accounted for 5.12%; Venezuela (11.5177 million tons), accounted for 4.54%; Kazakhstan (11.211 million tons), accounted for 4.42%; Kuwait (9.5415 million tons), accounted for 3.76%. Imports from these ten countries have accounted for 81.21% of the total volume of Chinese crude oil import (Zheng, Zhang, and Dong, 2012).

Apart from only a small portion of imported oil through the pipeline transport, most of the rest oil must be transported by sea in China. At present, there are three major routes of China’s oil imports. First is the Middle East route: the Persian Gulf-the Strait of Hormuz Strait-Malacca (or Makassar Strait-Taiwan Strait-Mainland China. Second is the Africa route: North Africa-the Mediterranean-the Strait of Gibraltar-Cape of Good Hope-the Malacca Strait-Taiwan Strait-Mainland China; the West Africa-Cape of Good Hope-the Malacca Strait-Taiwan Strait-Mainland China. Third is Southeast Asia route: the Malacca Strait-Taiwan Strait-Mainland China. Excessive dependence on oil from the Middle East and Africa, monotonicity of marine transportation route, and high dependence on the Strait of Hormuz, the Malacca Strait will cause the prominent vulnerability of China’s oil imports. If encountered special circumstances, the normal oil imports could not be guaranteed, which would have a great impact on people’s health, economic operation as well as national security (Liu, and

Qin, 2002). As a great energy importer, China relies extensively on the sea lanes of its energy transport. Once the lanes are blocked, China’s energy security would be affected seriously. So Malavika and Benjamin (2011) hold that the saving supply of energy becomes the most important issue in China’s energy security dilemma. The growing volume of energy imports increased the risk of Chinese economic security, while the dependence on oil, which is “particularly cured and unable to get rid of”, has forced China to take measures to tackle the issue of oil dependence (Chen and Chen, 2010).

#### THE FACTORS INFLUENCING THE MARITIME TRANSPORTATION OF CHINESE ENERGY

Confronted with the complex and volatile international situation, various traditional and untraditional security threats interweave with each other, making the maritime transportation lane the focus of the game among many world powers.

To begin with, the international fights for the maritime lane are aggravating, posing a threat to the maritime transportation security of Chinese energy. Countries like Japan, India, especially the U.S. took political, economic, military and diplomatic means to reinforce the filtering and strategically control of some vital straits. In 1986, when the U.S. declared war, they aimed at controlling 16 important maritime lanes including the Strait of Malacca and the Strait of Hormuz. In order to control the strategic lanes, the U.S. has taken a series of strategic measures. The first way is to keep the maritime forces and navy strong, and establish overseas military base for the purpose of the strategical control of the vital maritime space and lanes; the second way is to put weight on the role of the strategic islands and curb the development of other countries by the strategic lanes; the third way is to integrate some relevant countries into its security system, and establish the maritime military and security cooperation mechanism with the U.S. As the leading power, attempting to extend their military tentacles and influences towards various vital maritime space and lanes involving their national profits; the fourth way is to obtain the leading right of anti-terrorism and control the vital strategical lanes by means of warding off the pirates and the maritime terrorism.

Japan has been attaching importance to maritime lane security, and the Maritime Self-Defense Forces give a priority to the protection of maritime security. Japan has been always advocating “the Malacca Strait is the lifeline of Japan”, making its military tentacles extend to the Malacca strait through continuous adjustment of the military strategy. After the 9.11 event, Japan took the opportunity to formally authorize the Japanese Self-Defense Forces to dispatch the warships to the Indian Ocean. Now, Japan takes warding off the pirates as an excuse to make a military presence in the Malacca Strait and the Indian Ocean by every means, posing a compelling threat to other countries. India has always had a “marine complex”. After 1990s, India has intensified the implementation of the “the Indian ocean control strategy” and “the oriental marine strategy” “depriving the enemy of using ocean opportunities on the one hand, and safeguarding their own rights to use sea on the other hand”. In 2000, India clearly put forward the establishment of the Indian Navy in order to deter other marine forces entering the Indian Ocean. India also accelerated the base

construction of the Dammam-Nicobar Islands, and established a base outside the northwestern entrance to the Strait of Malacca. In addition, the coast countries along the maritime lanes also continued to strengthen the domestic legislation, reinforcing the control of the channels and the adjacent maritime lanes, and used it as a weapon in the international wars. All these have the uncertain impacts on the maritime transportation of Chinese energy and pose a serious threat to China's energy transportation security.

Secondly, the deterioration of the political situation of the Coastal states along the maritime lane increased the uncertainty of the maritime transportation of Chinese energy. Regional turmoil and conflicts between or within the littoral countries are important factors that affect the security of maritime lane. In terms of the South China Sea, if China and ASEAN countries have serious conflicts in the South China Sea, ASEAN countries may use the Strait of Malacca as a threat; if the environmental safety of the South China Sea deteriorates, and China takes a tough stance, which may trigger Malaysia, Indonesia to block the straits. As for the Indian Ocean, since the geo-strategic value of the Indian Ocean is mainly manifested in the northern waters, the stability of the subcontinent of South Asia is directly related to the security of the maritime lanes (Suresh, Sundar, Selvaraja, 2011). However, India and Pakistan, as the most important two countries of the subcontinent, have been standing opposite to each other for more than half a century, and the contradiction and conflict between them still have no signs of the fundamental solution in the foreseeable future. During every Indio-Pakistan crisis, war or the military confrontation period, the safety of the maritime lane in the Indian Ocean is greatly threatened and destroyed. As far as the Middle East where the Strait of Hormuz lies is concerned, the social situation has been turbulent, and the wars and conflicts within the district are frequent; the terrorism is proliferating the radical forces of the Islam are expanding their influences, which makes maritime lane security in the Indian ocean expose to major challenges.

Thirdly, the non-traditional security issues such as piracy and maritime terrorism poses an increasing threat to the maritime lane of the China energy. After the Cold War, the non-traditional security factors became prominent, and the global piracy incidents witnessed a rapid growth, and the maritime terrorism showed a new development trend and situation, posing a serious threat to the security of the international shipping and strategic lanes. At present, the piracy and maritime terrorism are the largest and realistic non-traditional security threats to the maritime transportation of the Chinese energy. According to the experts, at present, the pirates are mainly concentrated in five "terrorist waters": along the West African coast, around the Somalia Peninsula, the Red Sea and the Gulf of Aden, the Bay of Bengal and the entire Southeast Asia area. These areas are the only way for China's maritime transportation. Over the past few years, Chinese ships have been frequently encountering the pirates, the maritime terrorism, and have suffered a heavy loss. According to the reports, nowadays, some Pirate Groups have conspired with the terrorists to engage in maritime criminal activities together, resulting in a significant impact on the world economy by attacking ships and oil tankers. The data shows, nowadays, the frequency and the violence level of the piracy attacks are showing an increasing trend, causing a serious harm

and great influence over the years. Before 1996, the pirates caused a loss of about \$400,000,000, and in 2008, the loss rose rapidly to about \$30,000,000,000. Affected by the pirates and other factors, the shipping company suffered an annual loss about \$15,000,000,000 (Sterio, 2010). The frequent incidents of piracy and maritime terrorism make the maritime shipping of the Chinese energy confront with an extremely severe security dilemma.

#### COUNTERMEASURES

"The world's energy security is a unity. Only when every government realizes that they should not only take measures to improve their own energy security, but also contribute to other countries, can the national and international energy security be guaranteed (Willrich, 1975)". "Zero-sum game" thought has been shown to contribute nothing to the security problems of the international maritime lanes, but on the contrary, it will only intensify the unnecessary competition and confusion. Therefore, the win-win cooperation is the best way out.

Firstly, the cooperation of the international and regional maritime security should be strengthened. With the rising non-traditional security threats, big powers are aware of the necessity of negotiation and cooperation in order to jointly fight against these threats. The characteristics of the maritime strategic lanes have decided that the international cooperation is the essential way to seek for the maritime transportation security of the Chinese energy. For one thing, China should strive to develop relations with the United States and other maritime powers, strengthen exchanges and cooperation with them in the marine security, and increase military and strategic mutual trust. For another, China should strengthen the strategic cooperation with the coastal states along the maritime lanes, jointly maintaining the maritime security and probing to establish the prevention mechanism to avoid the maritime conflicts. Last but not the least, the participation in the construction of international maritime security mechanism should be reinforced. China, as the International Hydrographic Organization (IHO) member, should seize the opportunity to play an actively diplomatic role in the international marine multilateral organizations, and promote an effective communication and information sharing, timely taking joint actions to eradicate the pirate attacks and the threat of terrorism to realize the safety of the maritime lanes. China should actively participate in and advocate the conference, initiative and declaration of safeguarding maritime security, participating with a more positive attitude in the formulation of the globalization game rules maritime transportation security.

Secondly, the construction of naval forces in China offshore should be strengthened. "The state who wants to protect the maritime trade and resources interests must resort to an effective navy ultimately" (Tangredi, 2002). Chinese economy increasingly relies on international maritime lanes, so China must rely on the assistance and cooperation with the sea littoral countries to ensure smooth and safe maritime lanes, which means that China is possible subject to them in the maritime transportation security aspects. Because of the world maritime powers' monopoly, exclusive control of the maritime lanes, China is destined to be subject to others in the maritime transportation security issues. In the face of these invisible

threats, limited by the offshore strategic ability, China was unable to completely resolve the dilemma. Therefore, to safeguard maritime transportation security of Chinese energy, the establishment of naval power should be accelerated for the purpose of a modern navy power. Its strategic capabilities to safeguard the national interests should be improved to ensure the maritime transportation safety of the Chinese energy.

Thirdly, new channels of energy transportation should be explored to disperse the transportation and economic risks. Take the petroleum trade of China as an example, the diversification of the oil import channels should be achieved for the purpose of the establishment of the new path to break through the "bottleneck" of the Strait of Hormuz and the Malacca Strait. New oil supply base should be actively developed, and the import from the Middle East should be consciously avoided, and the diversification of import should target other countries and regions with certain oil and gas resources output capacity, such as the Russia Latin America and the Eastern Europe. In order to reduce the excessive dependence on the Strait of Hormuz, the Strait of Malacca and resolve such problems as "Malacca dilemma", it is necessary for China to look for an alternative energy transportation channel, open up land transportation routes, and reduce the transportation risk, so that the Chinese offshore energy channels could be more secure. Consequently, the involvement of cost effective, inclusive and holistic methods will often have a demand of combinations and cooperation of different techniques and different sections of the public (Johnson and Dagg, 2003). It is worth mentioning that the Sino-Kazakh oil pipeline, "Taine line" between China and Russia, Thailand Kela canal, the CBI oil pipeline, the new Pan-Asia Railway, Sino-Canadian oil pipelines and Sin-Vietnam oil development and cooperation are brewing or processing smoothly, which is one of the most important measures by which China can achieve important strategies such as importing diversification of the resources and risks.

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