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## Exploring China's energy situation through One Belt And One Road

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# Exploring China's energy situation through One Belt And One Road

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**Abstract.** Energy refers to various resources that can be directly obtained or be obtained through processing or conversion, including coal, crude oil, natural gas, coal-bed methane, water energy, nuclear energy, wind energy, solar energy, geothermal energy, biomass energy and other primary energy, electricity, thermal energy, refined oil and other secondary energy, as well as other new and renewable energy. Energy is an important material basis of national economy, and the future national destiny depends on the control of energy. The development and efficient use of energy and per capita consumption are important indicators of production technology and living standards. This paper analyzes the relationship between China's energy status and One Belt And One Road security from the aspects of China's energy status, China's energy consumption in the next 30 years, China's various energy basic conditions and important energy policies related to countries along the silk road. It is found that "The Belt And Road" strategy provides support and conditions for China's energy development.

## 1.Introduction

As the world's largest developing country, China is a major producer and consumer of energy. It ranks third in the world in energy production after the United States and Russia. The consumption of basic energy accounts for 1/10 of the world's total consumption, second only to the United States. China is a country with coal as its main energy source, and the contradiction between economic development and environmental pollution is quite prominent. In recent years, energy security has become the focus of national life and the whole society, and has become a hidden danger of China's strategic security and a bottleneck restricting sustainable economic and social development. Since the 1990s, China's sustained and rapid economic development has led to a sharp rise in energy consumption. Since 1993, China has changed from a net exporter to a net importer of energy. The total energy consumption has exceeded the total supply, and the external dependence on energy demand has increased rapidly. Coal, electricity, oil and natural gas and other energy sources in China have gaps, among which the



increasing demand for oil and the structural contradictions caused by it have become the biggest problem facing China's energy security. To solve this problem, China has put forward the "The Belt And Road" strategy.

One Belt And One Road is committed to the connectivity of the continents of Asia, Europe and Africa and their adjacent oceans, to establish and strengthen connectivity partnerships among countries along the belt and road, to build an all-dimensional, multi-tiered and comprehensive connectivity network, and to achieve diversified, independent, balanced and sustainable development of countries along the belt and road. "Neighborhood" all the way along the connectivity project will promote the development strategy of the docking and coupling, the excavation of the regional market potential, promote the investment and consumption, creating demand and employment, the enhancement of the people of all countries along the people-to-people and cultural exchanges and civilization, to meet people from different countries to know each other, mutual trust, respect, sharing the harmonious, peaceful and rich life. At present, China's economy is highly correlated with the world economy. China will stick to the basic state policy of opening up, build a new pattern of all-round opening up, and deeply integrate into the world economic system. Promoting One Belt And One Road is not only necessary for China to expand and deepen its opening-up, but also to strengthen mutually beneficial cooperation with countries in Asia, Europe and Africa as well as the rest of the world. China is ready to assume more responsibilities and obligations within its capacity and make greater contribution to the peaceful development of mankind.

## **2.Literature Review**

### *2.1 The study of oil and gas trade*

Oil and gas trade is the core of world commodity trade; Scholars have discussed it from different aspects. Some have studied oil and gas trade between China and counties end regions along "the Belt and Road" (Jing Zhang, 2019). Some studied domestic oil and gas or import oil and gas (Xiaohai Ren et al., 2018). Others studied focused on the different forms of trade, showing that global oil and gas trade has evolved from product to capital flows(Lemoine, 2013; Waterworth and Bradshaw, 2018).In terms of research methods, most studies on oil and gas trade adopt complex network analysis method or comprehensive method based on complex network theory. Other common methods include gravity model (Babri et al., 2017; Zhang et al., 2018a,b), Malmquist index method, input-output model or proposed index to describe the spatial characteristics of trade network (Zhang et al., 2015).

Distribution imbalance due to the global oil and gas resources, whether in the global oil and gas evolution of trade networks, the core of the network structure has been by a large number of outflow of the Middle East, north, central and South America, into the south and east Asia. The analysis of oil and gas trade network will help us understand the development trend of global oil and gas trade. However, the geographical distribution of oil and gas resources is predetermined and cannot be separated from the trade network. Therefore, any analysis of the oil and gas trade network is only descriptive and has limited reference value for countries to formulate oil and gas trade policies.

With the expansion of oil and gas resources import in China, oil and gas supply risk is increasing. Several studies have argued that diversification of oil import sources is essential to ensure a stable supply (Ediger and Berk, 2011; van Moerkerk and Crijns-Graus, 2016) and have focused on

optimizing the oil import mix. China's dependence on foreign oil is estimated to have cost the economy between 0.57 per cent and 3.93 per cent of gross domestic product between 2001 and 2015. Buying overseas equity barrels, they suggest, is a way for China to increase its own supply of oil. The One Belt And One Road route is rich in oil and gas resources, and maintaining stable oil and gas trade relations with these countries is crucial to maintaining China's energy and economic security. A large number of Chinese scholars have addressed this issue, including research on resource reserves and export capacity (Lin and Lan, 2017; Piao and Li, 2016; ), resource countries' investment risk payment and settlement systems, and import safety recommendations (Fan and Wang, 2017; Sun et al., 2017).

## *2.2 The Belt and Road*

Starting from China, One Belt And One Road spans central Asia, Southeast Asia, South Asia, west Asia and even parts of Europe. It is connected with the Asia-Pacific economic circle in the east and the European economic circle in the west. It covers about 4.4 billion people and has a total economic volume of about 21 trillion us dollars, accounting for 63% and 29% of the global total. "One Belt And One Road" has been a hot topic explored by scholars since it was put forward. A large number of scholars analyse energy relationship between China and the counties along the Belt and Road (Yabo Zhao et al., 2019) and the petroleum trade network of counties along "The Belt and Road" Initiative (Chi Zhang et al., 2019).

The article, called "Dynamic measurement of resource and environment foundation supporting capacity along "One Belt One Road" in China" (Wanxu Chen et al., 2018), improves the model of relative resource carrying capacity on the basis of previous research, and adopts the improved model of relative resource carrying capacity to study the supporting capacity of resources and environment foundation of provinces and regions along "One Belt And One Road" to economy and population. The weighted geometric average model is used to measure the relative carrying capacity of the region, which not only considers the matching of resources, but also the relative importance of various resources. This model is used to measure the relative resource economy and population carrying capacity of provinces and regions along "One Belt And One Road" and different regions. By comparing the measured results with the actual population scale and economic scale, the carrying status of different regions' economy and population is analyzed.

"One Belt And One Road" is not for China alone, but for all countries. It is not a zone of exclusive interests for China alone, but a zone of Shared interests for all countries. "Area" construction, including previous research is open, welcome to put forward constructive proposals suggested other countries, China, constantly enrich and perfect the "area" concept, idea and planning, brainstorming, wisdom, jointly compose the new chapter of the silk road, the construction of common interests and common destiny, together create a great happy future.

## **3. Research and Data**

### *3.1 Relation between OBOR and China*

One Belt And One Road is an important stage for China to participate in global energy governance. International energy governance power is embodied in many aspects, including higher energy security level, safe energy transport channels, influence on energy pricing, and leading power in energy

international organizations. Although China is the world's largest energy consumer, its governance power, influence and power of speech on the international energy arena are not high, mainly reflected in such aspects as limited sources of energy imports and transportation channels, lack of energy pricing power, and insufficient leading power in international energy organizations. The implementation of the "One Belt And One Road" strategy provides an important stage for China to participate in international energy governance and expand its influence and voice in the international energy system.

### *3.1.1 Along the route is the main source of energy imports*

The "One Belt And One Road" line is the most energy-rich area in the world and has important influence on the international energy stage. By the end of 2014, the proven oil reserves along the "One Belt And One Road" route were 137.4 billion tons, accounting for 57.3 percent of the world's proven oil reserves. Proven natural gas reserves are 143 trillion cubic meters, accounting for 76.2% of the world's proven natural gas reserves. The proven reserves of coal are 369.1 billion tons, accounting for 41.4% of the world's proven reserves. One Belt And One Road countries are the most important sources of energy imports for China. According to statistics, oil, natural gas and coal imports from One Belt And One Road countries account for 65.8%, 85.2% and 43.6% of China's total imports respectively.

Despite adequate supply and low energy prices in the international energy market, China's voice in the international energy market has been enhanced, but in the foreseeable future 20-30 years, China's energy demand and energy imports will continue to grow, the degree of energy external dependence will continue to increase, and the energy security situation is still not optimistic. Consolidating energy cooperation between China and countries along the "One Belt And One Road" route will further enhance the stability of China's energy imports, diversify its import channels and enhance energy security. A stable level of energy security is a prerequisite for China to calmly participate in international energy governance.

### *3.1.2 Along the impact of energy import channel security*

The strait of Malacca guards China's energy imports. Pirate attacks, terrorism or regional conflicts near key transport nodes such as the gulf of Aden and Persian gulf also pose a threat to China's energy supply. With the completion of the China-Russia oil pipeline, the central Asian oil and gas pipeline and the China-Myanmar oil and gas pipeline along the "One Belt And One Road" route, China's energy import channels have gradually diversified. In the future, with the completion of the eastern and western lines of the China-Russia natural gas pipeline along the "One Belt And One Road" line, and the completion of the China-Pakistan energy channel with Gwadar port as the core, China's energy import channel will be further expanded.

The safety of the offshore oil and gas transportation channel in China, and also depends on China and the process of the energy cooperation of countries along the maritime silk route, by strengthening with energy and other areas of South Asia, southeast Asia countries cooperation, jointly combat along the transport corridor of terrorism and piracy in the Indian Ocean, the reasonable control of the south China sea differences, protect the safety of the maritime transport channel.

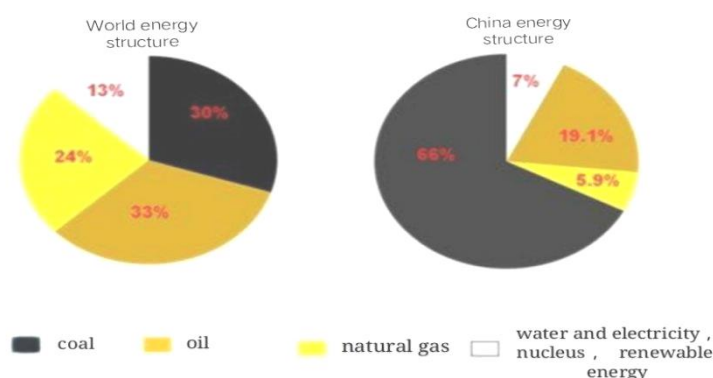
By deepening energy cooperation with "One Belt And One Road" countries, China's energy import transport channels will be further diversified, China's room for maneuver in the international energy market will be increased, and China's initiative and voice in international energy negotiations and global energy governance will be enhanced. Energy cooperation breaks Asia's energy premium.

In terms of energy pricing power, Asia has little influence on international oil and gas prices. For a long time, there has been an "Asian premium" for oil and gas prices, and Asian countries have to pay more for energy imports than other countries. Take natural gas for example. In 2015, the price of natural gas in Asia represented by the import price of LNG in Japan was \$10.31 / million btu, 1.6 times the import price of natural gas in Germany and the UK, and 4 times the price of natural gas in the us.

China has the greatest potential to break the Asian premium. , along with the development of "area" energy cooperation between China and Russia, central Asia, China and Myanmar and sea four volumes of oil and gas inlet channel increases further, formed the multichannel energy supply we have the situation of China, China will become an important energy trading center of Asia and the world, different sources of oil and gas to form a certain competition, thus in the international energy market, is conducive to Chinese enterprises with international influence prices in China.

### 3.2 Comparison of China's energy structure with the world's energy structure

China's energy is mainly coal, China is the world The largest coal producer and consumer and exporter, is China's second largest oil energy, and its proportion in the growing, other energy sources such as natural gas, hydro-power, wind power, nuclear power, such as account for only a very small proportion and does not have national. The world's energy consumption is mainly rely on oil, known as industrial water of blood and gold, at the same time also is the significant factor of instability in the world, and in the western countries, hydro-power and nuclear power and obtained the widespread application, such as France hydro-power accounts for 70%, Japan's nuclear size. With the concept of environmental protection in recent years to promote, alternative energy and pollution-free energy also got certain development and use experts believe that with the development of science and technology and the improvement of people's attention to the living environment, new energy will emerge and bring great changes to people's lives. Let's look forward to and strive for it together.



**Figure 1.** China's energy structure & the world's energy structure

### 3.2.1 The current situation of energy in China

#### 3.2.1.1 The current situation of energy

In the past, China's economic development needed a lot of energy. China is known as "the factory of the world", which needs power and energy. So in fact, we do a lot of manufacturing for countries, we use a lot of energy, and half of our energy is indirectly produced for foreign factories, for foreign manufacturers. So in the process of finding the energy we need, there are a lot of unsung heroes, at sea, on land, looking for oil, looking for gas. In the past, we often use the word "vast land and abundant resources" to describe our motherland, but the fact shows that our total energy and resources are not rich, because of China's large population, per capita resources and energy possession from the overall level of the world there is a significant gap. The grim situation is startling.

From the total energy, China is the world's second largest energy producer and second energy consumer.

According to data, by the end of 2004, China's remaining recoverable oil reserves were 2.3 billion tons, accounting for 1.4% of the world's total. The remaining recoverable natural gas reserves are 2.23 trillion cubic meters, accounting for 1.2% of the world's total recoverable natural gas reserves. The remaining recoverable coal reserves are 114.5 billion tons, accounting for 12.6% of the world's total. In terms of recoverable reserves, experts estimate that at current levels of exploitation, China's oil and coal resources in the east will be exhausted by 2030, and the development of hydro-power resources will reach an extreme. In terms of quality, China's energy resources are dominated by coal. According to the calorific value of various fuels, the ratio of solid fuel, liquid fuel and gas fuel is 4:1 in the world's energy resources, while China is far behind this ratio. Currently, in the world's energy output, the proportion of high-quality liquid and gas energy is 60.8%, while China's is only 19.1%.

In 2004, China's primary energy consumption totaled 1.97 billion tons of standard coal, an increase of 15.2 percent over the previous year. Of this amount, coal consumption is 1.87 billion tons, crude oil is 290 million tons and natural gas is 41.5 billion cubic meters. In terms of per capita level, China's per capita primary energy consumption in 2004 was 1.08 ton, 66% of the world average of 1.63 ton, 13.4% of the us per capita of 8.02 ton, and 28.1% of the Japanese per capita of 3.82 ton. In terms of energy structure, coal accounted for 67.7 percent of primary energy consumption in 2004, oil 22.7 percent, natural gas 2.6 percent and hydro-power 7.0 percent. These are only some of the energy consumption, and the situation is not optimistic.

**Table 1.** China's energy position in the world

%	Population	GDP	The total energy	Coal	Crude oil	Natural gas	Generate electricity	Nuclear power
production	21	2.55	10.47	35.7	4.8	0.8	7.6	0.56
consumption			11.18	37.5	4.9	0.8		

**Table 2.** China's energy consumption in the world ranking

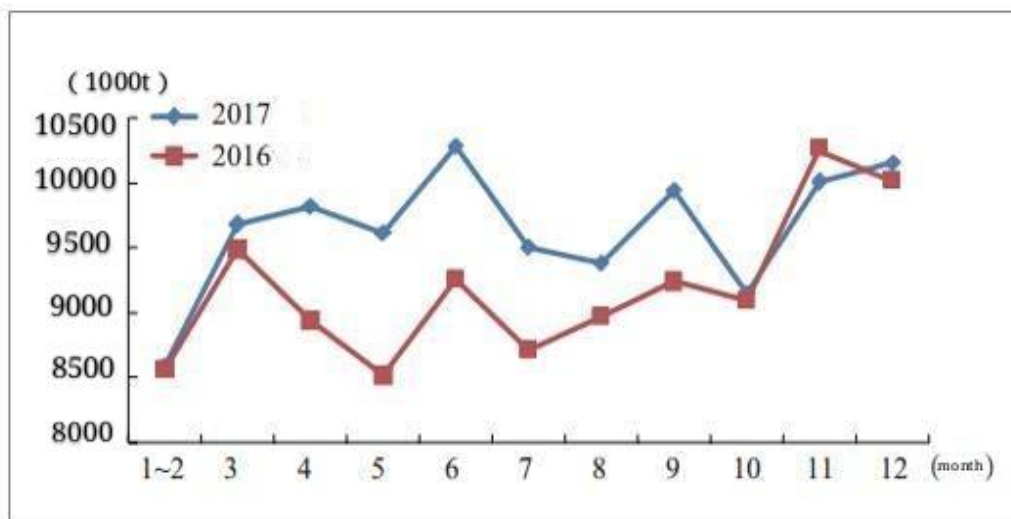
Country	Total sales volume (MTCE)	World share (%)	Structure of energy consumption (%)				
			Oil	Natural gas	Coal	Nuclear power	Hydro-power
US	3063.0	25.2	39.5	26.5	224.6	8.0	1.4
Russia	929.3	6.8	22.1	51.3	19.5	4.8	2.3
Japan	723.3	6.0	52.6	11.6	17.7	16.5	1.6
German	485.7	4.0	40.2	20.9	25.5	12.9	0.5
France	349.0	2.9	37.6	12.8	5.4	41.8	2.4
UK	321.3	2.6	36.1	34.3	18.0	11.3	0.2
China	1292.3	10.6	20.5	1.9	75.4	0.4	1.8
India	371.9	3.0	31.9	8.5	56.2	1.0	2.4
Total	12156.0	100.0	39.9	23.2	27.0	7.3	2.6

### 3.2.1.2 Analysis of output and consumption of the coal industry.

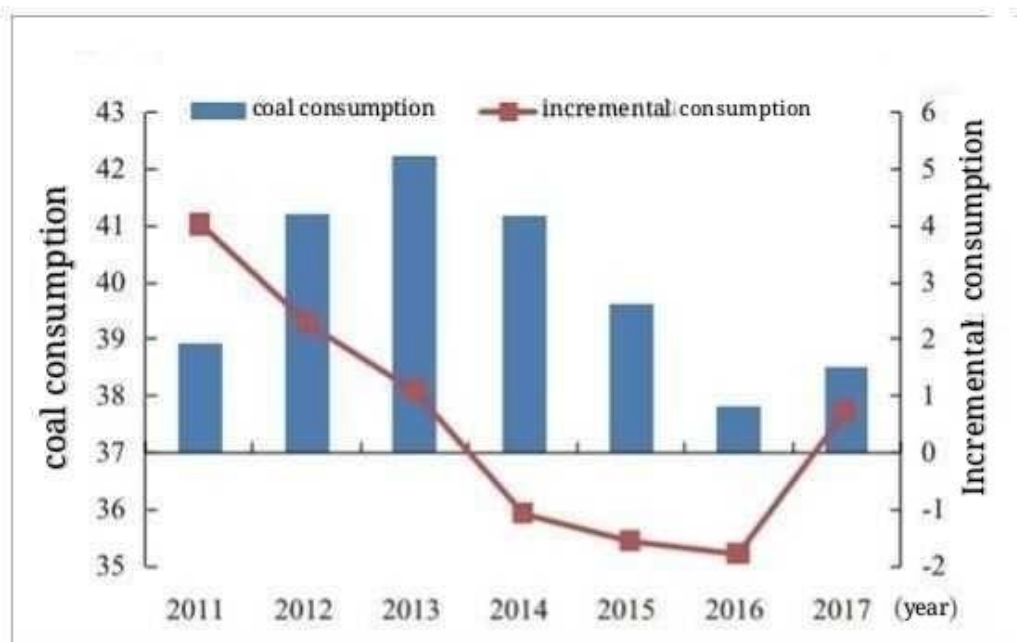
From January to December 2017, the total output of raw coal by enterprises above a certain scale reached 345,000 tons, an increase of 108 million tons or 3.2%. From January to November, the total output of key state-owned coal mines reached 1.608 billion tons, an increase of 98 million tons or 6.5%. In terms of monthly output, 1.784 billion tons of coal were produced in april-september, an increase of 150 million tons or 9.2% over the same period of 2016. This period is the concentrated period of net increase of coal output in 2017. After three consecutive years of decline from 2014 to 2016, China's coal consumption increased by about 70 million tons year-on-year in 2017, with a year-on-year growth of about 1.9%.

From the perspective of the coal consumption industry, from January to November 2017, the year-on-year growth of thermal power generation, crude steel and 10 non-ferrous metals was 4.7%, 5.7% and 2.5% respectively, 2.2, 4.6 and 1.2 percentage points higher than that of 2016, indicating that the power, steel and non-ferrous industries support the growth of coal consumption. From January to November, cement and plate glass increased by -0.2% and 3.9%, respectively, 2.9 and 1.0 percentage points lower than 2016, indicating sluggish coal consumption in the building materials industry. Although coal consumption in 2017 was supported by thermal power generation, crude steel, nonferrous metals and other industries, the year-on-year growth rate of these industries in 2017 was still at a relatively low level compared with the double-digit growth rate in previous years. Therefore, from the perspective of the coal consumption industry as a whole, the growth momentum of coal consumption is still very weak.





**Figure 2.** China's daily coal production per month from 2016 to 2017



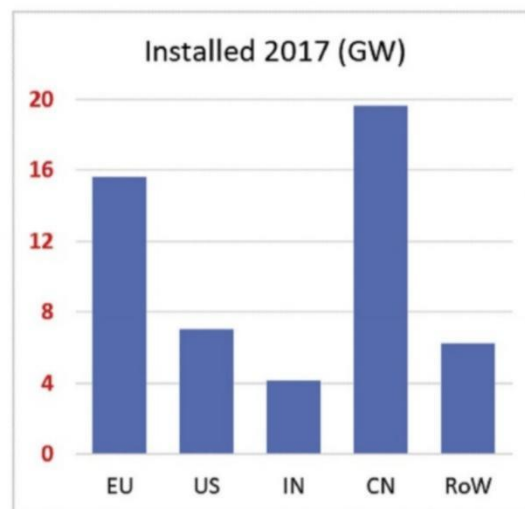
**Figure 3.** China's coal consumption and incremental changes since 2011

### 3.2.1.3 Current situation of the wind energy sector

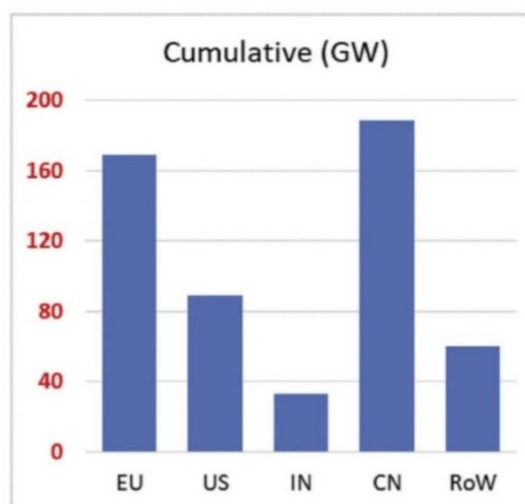
World new wind energy capacity installed in 2017 and cumulative

The annual market in 2017 reached 52.6 GW [17], a slight reduction from the 54 GW of 2016 [18]. China installed 37% of global new capacity in 2017 (2016: 43%), followed by the EU with 30% (2016: 23%), the US with 13% (2016: 15%) and India with 8% (2016: 6%) [17,18] (see Fig. 1).

The global annual market reached a record in 2015 with 63 GW installed [19], a highlight in a period (since 2009) when it has remaining at a very high level of around or above 40 GW. In 2017 it dropped to 52.6 GW which is still a very significant figure.



**Figure 4.** World wind energy deployment (or market) in gigawatt (GW) of new installations in 2017



**Figure 5.** World wind energy deployment (or market) in gigawatt (GW) of cumulative in 2017

### 3.2.2 Global energy status

#### 3.2.2.1 Coal

The blue book points out that after a sharp drop in demand in 2015, the world coal market in 2016 experienced significant fluctuations under the influence of China, which also shows that coal is in a relatively contradictory position in the current situation of attaching importance to the control of air pollution and carbon emissions. On the one hand, most developed countries, the leading source of carbon dioxide emissions and air pollutants, have sharply reduced their use of coal. On the other hand, due to the low mining cost and wide distribution, a large number of developing countries still have a high demand for coal, which leads to the continued shift of the world coal market focus to developing economies such as Asia and emerging market countries, and the world still has a high dependence on coal.

On the trend, the "golden age" of the coal market is over, and the demand for coal in power generation and other fields will continue to decline due to the rapid development of renewable energy and energy-saving technologies. But coal will remain the fuel of choice for industries such as power generation, steel making and cement making because it is cheap and widely distributed. Although coal has been widely criticized in recent years for its impact on air quality and carbon emissions, it cannot be completely abandoned at present, which is also the contradiction of coal. Meanwhile, the world coal market continues to shift to Asia, where densely populated emerging markets are looking for cheap and safe sources of energy to fuel growth. In 2000, Europe and North America accounted for about half of global coal demand, while Asia accounted for less than half. By 2015, Asia accounted for three-quarters of demand, while Europe and North America saw their share plummet to less than a quarter, a shift that will continue.

#### 3.2.2.2 Oil

The blue book points out that it was in the oil age that the United States established the "petrodollar" political, economic and financial system, with which the United States gained a lot of benefits. Today, the world is shifting from oil to gas. It was also at this stage that the global political and economic system was undergoing drastic changes. In contrast to oil, China and the United States are just beginning to compete on the rules of gas. Now, China is likely to take advantage of the special geographical advantages, grasp opportunities, use the uniqueness in terms of natural gas consumption in Asia, as well as the good political relations with gas producers, create regional, use renminbi as the settlement and currency trading mechanism of natural gas, not only to further consolidate the renminbi regionalization, also can promote the development of China's leading all the way "area".

In 2016, the slow recovery of the global economy led to weak growth in world oil demand, which increased by 1.3 million b/d, down from 1.7 million b/d in 2015. Much of the growth in oil demand came from non-OPEC countries, largely because of improved economic conditions across emerging economies. Oil supply side, slightly increase global oil supply, only more than in 2015, 200000 barrels per day of non-OPEC oil supply was down more than 1 million barrels a day in 2015, Saudi Arabia, Iraq and Iran's oil output rose by 1.2 million barrels a day in 2015, Saudi Arabia, in particular, the oil output of 10.46 million barrels a day in 2016, rose by 270000 barrels a day from 2015, its exports in 2016 to 7.65 million barrels a day, more than 2015 rose by 260000 barrels a day, both record production and exports. The sharp increase in OPEC oil production eventually led to the world oil market not reaching the expected equilibrium state. However, overall, the global oil market supply in 2016 was more than 600,000 barrels per day (BPD), which was significantly narrower than the supply demand in 2015 which was more than 1.7 million BPD. The overall trend is slowly returning to equilibrium.

#### 3.2.2.3 Electricity

In 2016, global economic growth continued to be adjusted and slowed down from 2015. The growth rates of developed economies have diverged, while those of emerging economies have stabilized. Due to the impact of us dollar interest rate hike and other factors, global capital flows intensified in 2016. Affected by investment decline, demand recovery and capital flows, commodity prices rose somewhat.

Due to the slow global economic recovery, continuous progress in energy conservation and emission reduction, and improvement in energy efficiency, primary energy and power consumption in major economies grew slowly or decreased slightly in 2015-2016. BP statistics show that world primary energy consumption grew by 1.0 per cent in 2015, the slowest rate since 1998 (except during the financial crisis). World primary energy consumption is expected to maintain a low growth rate in 2016.

#### **4. Analysis and Assessment**

2019 "One Belt And One Road" political risk assessment report on energy and resources investment follows the analysis framework of previous years, and evaluates it from six dimensions including economic basis, social risk, political risk, China factor, energy factor and environmental risk. Report on China's factor dimensions have been adjusted, the new added "whether and China signed a bilateral currency swap agreement" and "whether signed with China area along the intergovernmental cooperation memorandum" two sub index, reflects the cooperation between the two governments institutional framework is complete, thus more fully to measure a country in the "area" investment cooperation with China in the field of close degree and risk factors. The report also optimizes and adjusts the calculation method of environmental dimension, and USES the EPI evaluation score to calculate the environmental governance level index. The 2019 assessment results show three countries with low political risk, 20 countries with low political risk, 30 countries with medium political risk, 7 countries with high political risk and 4 countries with high political risk.

Specific country risk status is as follows: (1) low investment risk countries, a total of three: Singapore, the united Arab emirates, Brunei. (2) lower investment risk, a total of 20: Malaysia, Qatar, Saudi Arabia, Kazakhstan, Kuwait, Oman, the Czech republic, Romania, Poland, Vietnam, Indonesia, Mongolia, Estonia, Russia, Israel, Thailand, Croatia, Slovenia, Georgia, Latvia. (3) medium investment risk, a total of 30: Slovakia, Serbia, Hungary, Jordan, the Philippines, Turkey, India, Laos, Turkmenistan, Lithuania, Belarus, Bulgaria, Sri Lanka, Kyrgyzstan, Azerbaijan, Iran, Pakistan, Ukraine, Bosnia and Herzegovina, Cambodia, Iraq, Burma, Albania, Macedonia, Montenegro, Armenia, Uzbekistan, Egypt, Bahrain, Bangladesh. (4) seven countries with high investment risk: Tajikistan, Nepal, Lebanon, east Timor, Moldova, Bhutan and Maldives. (5) four countries with high investment risk: Yemen republic, Syria, Palestine and Afghanistan.

Compared with the 2018 assessment results, there are fewer high-risk and high-risk countries, and more low-risk and low-risk countries. This is mainly due to the rebound in energy commodity prices, the global economic recovery and the overall easing of international political situation in 2017. Regionally, investment risks are still relatively low in central and eastern Europe and southeast Asia, and relatively high in post-soviet space states, South Asia, west Asia and north Africa.

#### **5. Projections for energy development by 2050**

Pilot unit by the national top think-tank - China petroleum economic and technical institute released today "2050 world energy outlook, with China, according to a report in the economic structure adjustment and control policy under the influence of the total energy consumption, China's energy

consumption will peak around 2035, China's fossil energy consumption will peak in 2030; Around 2045, natural gas will overtake oil as the world's largest energy consumer.

According to the report, global primary energy consumption will approach its peak of 16.7 billion tons of oil equivalent in 2045, growing at an average annual rate of 0.7 percent, before slowly falling back. This is due to improved energy efficiency and lower energy consumption in big energy consumers such as China. Global primary energy consumption grew at an average annual rate of 1.6 per cent from 2015 to 2020, and then slowly until it stagnated around 2045. Global non-fossil energy consumption will increase from the current 1.81 billion tons of oil equivalent to 3.76 billion tons of oil equivalent in 2050, representing an annual growth rate of about 1.7%. Non-fossil fuels will account for about 23 per cent of primary energy consumption.

China's energy consumption will peak at 3.75 billion tons of oil equivalent around 2035; Consumption will grow by an average of 1.5% between 2015 and 2020. China's fossil energy consumption will peak in 2030 at 2.93 billion tons of oil equivalent. "China's energy consumption, especially fossil fuels, will have a profound impact on global carbon reduction and climate change." Du Wei, deputy director of the development strategy research institute of the China national academy of petroleum economics and technology, pointed out that the world is promoting the efficient, clean and diversified energy transformation.

The report also pointed out that the global energy consumption structure is becoming cleaner. Natural gas will overtake oil as the largest energy source, and its share of global clean energy, including natural gas, will exceed 50% by 2050. The proportion of global natural gas consumption in primary energy consumption will rise from 23% to 30% by 2050. Natural gas will overtake coal as the second largest energy source by 2025 and surpass oil as the first energy source by 2045.

For the world energy market by 2050, Liu Chang, an energy industry analyst with the China national petroleum corporation (CNPC) economic and technological research institute, believes that the world energy has entered a new stage of transformation and development, and diversification, low-carbon, clean, efficient and safe is the inevitable development trend. Under the benchmark scenario, the whole energy industry has witnessed rapid technological development, steady improvement of energy efficiency, and continuous reduction of new energy costs. New business models make it easier for more people to consume energy and promote energy distribution. It is difficult to change the pattern of loose supply and demand in the short-term energy market, and the replacement of renewable energy for fossil energy continues to improve, posing great challenges to fossil energy. Urbanization and electrification continue to advance, electricity development prospects are good.

## **6. Conclusion**

At present, China's economy is highly linked to the world economy, and energy is a major source of national economy. China, then, is an indispensable part of the global energy scene. energy cooperation is an important component of the BRI.

Energy security is closely related to the interdependent relations between countries. The One Belt And One Road strategy is dedicated to the connectivity of the continents of Asia, Europe and Africa and their adjacent oceans, to establish and strengthen connectivity partnerships among countries along the belt and road, to build an all-dimensional, multitiered and comprehensive connectivity network, and to

achieve diversified, independent, balanced and sustainable development of countries along the belt and road. Besides, there are also some difficulties or challenges that China is facing. Due to the depletion of traditional fossil energy, such as oil and coal, new energy production and supply system has not been established.

Energy is the most basic driving force of the development and economic growth of the whole world and the basis of human survival. While enjoying the benefits of economic development and scientific and technological progress brought by energy, human beings also encounter a series of unavoidable challenges of energy security. Problems such as energy shortage, competition for resources and environmental pollution caused by excessive use of energy threaten the survival and development of human beings.

## 7. Suggestions

- (1) Countries should actively develop renewable energy sources such as solar, wind and Marine (including tidal and wave) energy, or turning their attention to new fossil fuels such as flammable ice (hydrated natural gas) on the seabed.
- (2) Government should strengthen cooperation with energy countries along the Belt and Road and publish policies to urge people to make better use of existing resource.
- (3) Human beings should make full use of “The Belt and Road” initiative to consume our energy in a reasonable way and let energy bring benefits to all countries under the development of One Belt And One Road strategy, cause energy is the basis of human survival.

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