

# **The Analysis of the International Competitiveness of China's New Energy Industry**

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## **Abstract**

Background in the global warming and economic crisis, new energy industry can effectively solve problem of the shortage of resources (Especially the fossil energy) and the pollution of environment around the world, so people pay more and more attention to the problem of new energy industry. According to Chinese customs statistics data from 1998 to 2011, this paper analyzes the International competitiveness of China's new energy industry and shows the development process of China's new energy industry, it mines the statistical regularities on time series of China import and export trade and volume, and then it reveals the advantage and shortage of its trade competitiveness.

Key Words: New energy industry, trade competitiveness, Chinese customs statistics data, time series

## **1. Introduction**

The new energy, which is also called unconventional energy, refers to various forms of energy except for coal, oil, natural gas, or Large and Middle Hydroelectric Works. It is a kind of energy that just starts to be developed or being under active research and prepared to be spread. The new energy usually owns the characteristics of less pollution and large reserves, which are meaningful to the severe air pollution and resources exhaustion (especially for fossil recourses).

The new energy has five seed industries, including nuclear power industry, the wind energy industry, solar energy industry, biomass energy industry and smart grid industry. Different from other manufacturing Industries, the new energy's basic motivation lies in the environmental benefits of product and the replacement of the fossil resource instead of industry's self-development. Therefore, developing countries' industry development not exactly abides by the development path of goose industry, namely research- manufacturing-export- Industry migration- products importing. Instead, it adopts the form of vertical division and horizontal division at the very beginning, putting the developing countries in to the industry division system. On the global production system, the developed countries hold the core technology. As for China, developing the strategic industries is an essential task, especially when the economy is under so much pressure. Therefore, according to the data of Chinese Customs, and analyzing from the aspect of the international trade, this paper aims to show the process of Chinese new energy industry's development, reveal the advantages and disadvantages of trade competitiveness.

## **2. New energy industry exports**

### **2.1 The new energy industry's value of export and the rate of increase**

When studying on Export competitiveness, value of export is one of the basic indexes. Chart1 shows the time series plot of the new energy industry monthly value of

export and the rate. China's new energy industry value of export is increasing as the exponential growth trend. Since it was late Southeast Asia economic crisis, the growth rate appears a drop, even negative growth. Because of the reform of the exchange rate in 2005, there is a negative growth in the export value. From 2008 to 2009, A fluctuation gap appears owing to the worldwide economic crises .In the end of 2010, the value of export started to decrease instead of the trend of increasing. The trend does not change until now.

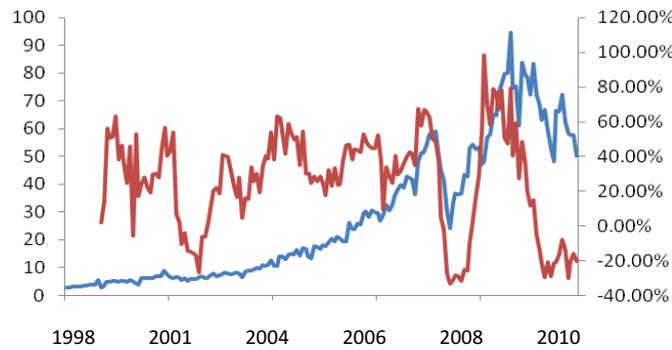


Chart 1 New energy industry exports and growth rate

## 2.2 The new energy industry export composition

The new energy has five seed industries, including nuclear power industry, the wind energy industry, solar energy industry, biomass energy industry and smart grid industry. There is a big difference among these five industries. According to chart 2, during 1990-2012, the biomass energy accounts for the largest proportion, occupying 70% of the value of export about 15 years. And solar energy takes the second place. It is still increasing and is closing to 30%, which result in taking away some of the biomass energy industry shares.

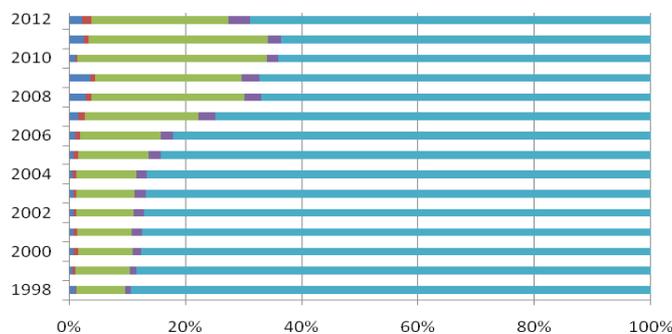


Chart 2 New energy industry exports

## 2.3 Eleven kinds of markets' MI index

Generally, there is a big difference among export destinations' value of export. Chart 3 shows the value of new energy exported to ASEAN10, Brazil, EU27, France, Germany, India, Italy, Japan, Korea, United Kingdom, United States. When it comes to the value of export, EU27 accounts for the greatest share, and ASEAN10 takes second place, Germany takes third. The US, Korea, Japan weight the same.

Chart4 shows the proportion of Chinese new energy export products. Since France, Germany, Italy, Britain are all subsidiaries in European Union. They need to be separated from the European Union. It is not difficult to find that China's exporting to the EU is increasing year by year. However, it has been decreasing since 2004 when it comes to Japan and the US. Considering ASEAN and Korea, It is not that obvious. As for India with small density, it is expanding these years.

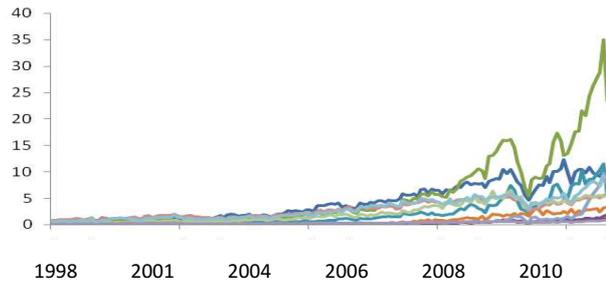


Chart 3 China's new energy industry exports, export to countries

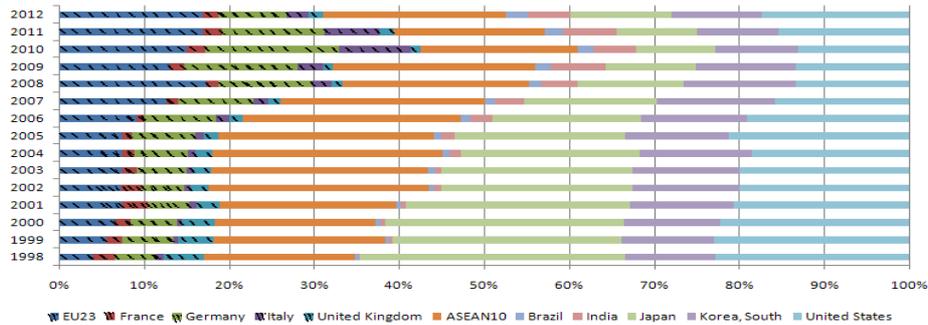


Chart 4 China's export to the countries the proportion of new energy products

### 3. The trend of the new energy industry in the international market

#### 3.1 The competition pattern of the new energy industry in the international market

Since United States, Japan, EU27 and ASEAN10 are all important worldwide economic entities, we analyzed the new energy industry import trade in these countries to describe the international competition pattern of the new energy industry.

According to chart5, from 1998 to 2012, the volume of trade of the new energy products, which is exported to the United States, Japan, EU27 and ASEAN10, is increasing year by year. Before 2008, it was the United States that exported most. In the post-crisis period, which is after 2010, the new energy exporting to the European countries reach the first place.

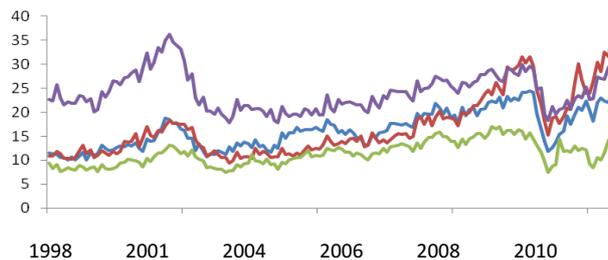


Chart 5 The volume of trade of the new energy products, which is exported to the United States, Japan, EU27 and ASEAN10

#### 3.2 The situation of the new energy products in the United States market

From chart 6, China, ASEAN10, EU27 and Japan are the new energy products main import countries of the United States. Before 2003, it is obvious that ASEAN10 is the biggest importer of the United States, but the volume of trade shows a downward trend. The import quotas of Japan was still more than EU27 in 2001, however, later on it was surpassed by EU 27. The import quotas of China were far less than EU27, ASEAN10

and Japan in 2003. Since 2003, import quotas of the ASEAN10 has been continually decreasing. But the United States imported more from EU27. The import quotas of Japan remain the same. Noticeably, China's exporting to the United States is growing strongly. After 2007, China passed Japan. Since the latter part of 2008, export quotas of the countries were all decreased. But we can still find that China holds the biggest rebound effort of the export.

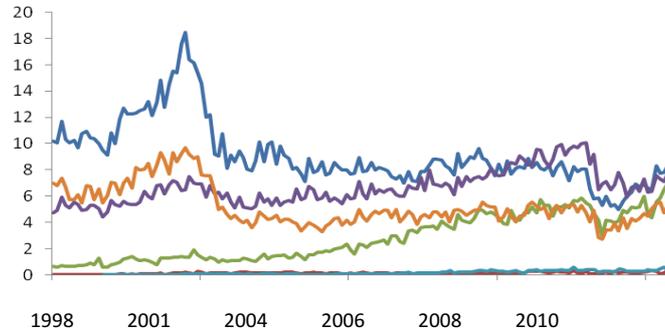


Chart 6 The new energy trade imports

Chart7 shows the scale diagram of America's import volume of trade from different countries. Since 2003, the proportion has been increasing, when it comes to the import from China. Until 2009, it has reached 20%. In the market of the United States, China has the very strong competitive power.

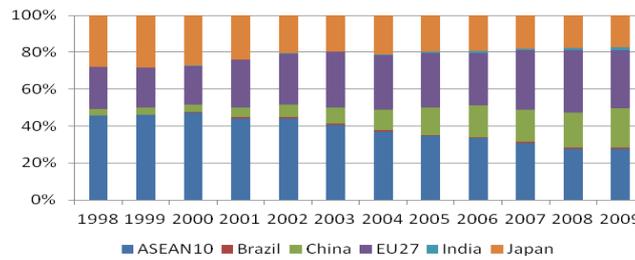


Chart 7 The United States imports from countries trade the proportion of new energy products

### 3.3 Trade in the new energy industry in Japan

According to chart8, China, the United States, Korea and EU27 are four main importers of Japan's new energy products. Before 2005, Japan got the maximum amount of imports from the United States, Korea took the second place. China and EU27 got the minimum amount. Japan's import from China continues to rise. Since 2005, the import quota has passed Korea, and at the end of 2006, it has exceeded the United States.

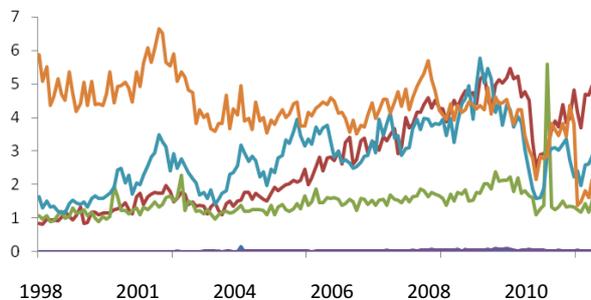


Chart 8 New energy trade, imported from Japan

Chart 9 shows the scale diagram of Japan's volume of trade from different countries. According to it, the United States proportional share is gradually reduced, from nearly

60% in 1998 to less than 20% in 2010. However, China's proportional share is gradually increasing; it has been over 50% since 2010. Korea and EU27 haven't change much.

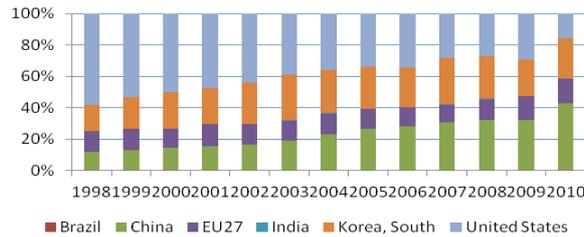


Chart 9 The scale diagram of Japan's volume of trade from different countries

### 3.4 The trade position of new energy industry in EU27

According to chart10, EU27's main import countries of the new energy are China, the United States and Japan. Before 2006, the United States got the maximum amount of exports to EU27, Japan took the second place, and China is the last one. Since 2006, China has passed Japan, and in 2007, China passed the United States, becoming EU27's the largest new energy products importer.

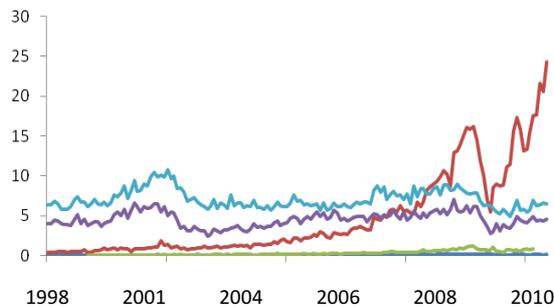


Chart 10 EU27's volume of trade from different countries

Chart 11 shows the scale diagram of EU27's volume of trade from different countries. We come to a conclusion that the proportional share of the United States and Japan is gradually reduced, and the proportion of share of the United States is greatly reduced, ranging from nearly 60% in 1998 to less than 25% in 2010. The proportional share of China and India is gradually increasing. Since 2009, China's share has past 50%.

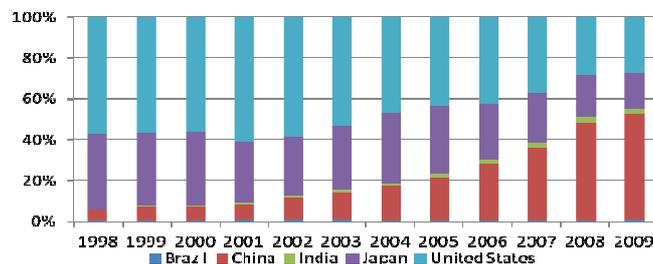


Chart 11 The scale diagram of EU27's volume of trade from different countries

### 3.5 The trade position of new energy industry in ASEAN10

According to chart12, ASEAN10's main import countries of the new energy are China and the United States. China's amount of exports to ASEAN10 remains to be unchanged. Before 2008, China's amount of export was much less than the United States. However, in 2009, China's value of export caught up with the United States. Chart 13 shows the scale diagram of ASEAN10's volume of trade from different

countries. We draw an conclusion that the proportional share of China is continually increasing, from 5% in 1998 to 46% in 2010. The highest proportion finally appeared in 2009, reaching 48%. While the proportion of the United States have a downward trend, ranging from 95% in 1998 to 54% in 2009.



Chart 12 ASEAN10's volume of trade from different countries

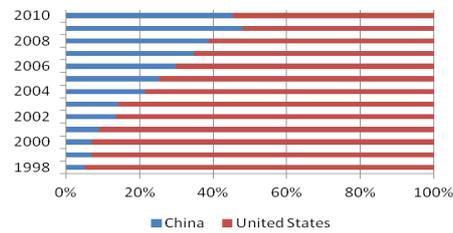


Chart 13 ASEAN10 import trade the proportion of new energy products

#### 4. Conclusion

It's an obvious trend that the export of new energy is increasing rapidly. Among five brunches of new energy resources, the smart power grid industry occupied the largest proportion in the export, and exceeded the overall exports of new energy industry more than 70%. China's biggest new energy export market is the EU27, followed by the ASEAN10. In the U.S. market, the proportion of imports of new energy products from China continues to increase, which has reached more than 20% in 2009; In the Japanese market, the proportion of imports of new energy products from China is also increasing. After 2005, China's export to Japan surpasses South Korea, and at the end of 2006 exceeds the United States; In the EU27 market, China's new energy products of export quotas continues to rise, in 2006 China's exports to the EU27 countries exceeds Japan, and surpasses the United States by 2007, thus making China the largest importer of new energy products in the EU 27 market, the new energy industry products imported from China account for more than 50%; In ASEAN10 market, the proportion of new energy products which China export to the ten countries has increased from 5% in 1998 to 46% in 2010, while the proportion of U.S. exports fell sharply. China's new energy industry lacks international competitiveness in the early development, but with the economic development of China's foreign trade and the strengthen of goods' competitiveness, up to now, the industry has been showing a competitive advantage, and shows a strong competitiveness.

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