



## **PTA Annual Report (2013)**

Your First Window on  
China Chemical Fiber Market



China Chemical & Fiber Economic Information Network ( CCFEI )

# PTA Annual Report (2013)

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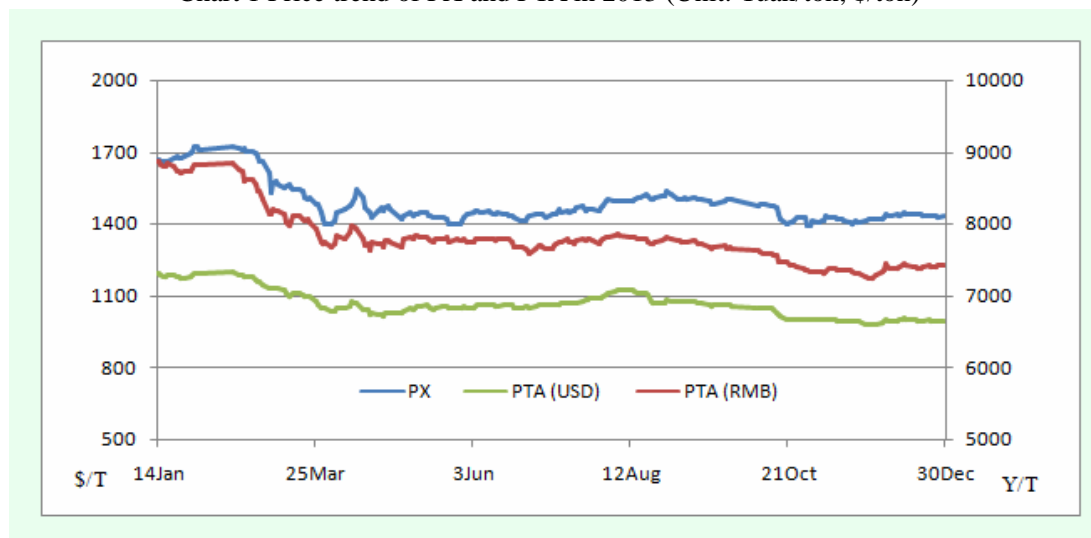
# PTA Annual Report (2013)

## 1. PTA Market Review & Price Trend in China in 2013

### 1.1 PTA Market Review in 2013

The PTA prices in China basically softened with fluctuation in 2013, and the trend is summarized as follows: dropping, correcting and dropping again, with details as what the chart shows.

Chart 1 Price trend of PX and PTA in 2013 (Unit: Yuan/ton, \$/ton)



After experiencing a round of capacity expansion in 2012, PTA industry was in the face of a question learnt as how to effectively balance the contradiction between supply and demand in 2013. Through continuous bargaining throughout this year, PTA suppliers worked hard to seek profits squeezed by both upstream and downstream. Therefore, PTA prices basically fluctuated in line with PX or PET prices in the whole year 2013, and it was particularly noticeable in RMB-based market. PTA price trend in H1, 2013 was similar to that in H1, 2012, fluctuating downward all the way following the end of the Spring Festival. However, it was obvious that the price hikes in the second half of the year 2013 were not so noticeable as that in 2012, as the the hikes were weak.

As for PTA price, domestic average price in the whole year 2013 was 7,821.5 yuan/ton, dropping by 473.5 yuan/ton from 2012, and the average import price was \$1,066.7/ton, down \$27.3/ton year on year. RMB-based price peak emerged in early January, at 8,980 yuan/ton, and the bottom appeared in late November at 7,230 yuan/ton. USD-based price peak also came out in early January, at \$1,212/ton, with the bottom seen in late November, at around \$978/ton. The erosion rates for RMB-based and USD-based prices amounted to 24.2% and 23.9% respectively.

In early period of Q1, 2013, PTA prices rushed quickly toward the highest level of the first half of this year. Thereafter, with more and more PET producers cutting run rates or stopping production before China's Lunar New Year, together with the price drop for PX caused by the startup of new PX unit run by South Korea's Hyundai Cosmo Petrochemical, polyester market

started a downslide in the first half of 2013. Later, as PET inventories cumulated before and after the Spring Festival could hardly decrease, while the failure in March settlement of Asian contract price for PX led to a sharp decline on spot PX value at the end of March, PTA prices started to go down gradually on the back of high inventory resulting from high PTA supply since the beginning of the second half of the previous year. By the end of March, the prices of Taiwan-origin and Korea-origin PTA cargoes had fallen to \$1,050/ton, and RMB-based central value plunged to 7,700-7,750 yuan/ton.

After entry into Q2, 2013, PTA producers saw effects from their production cutback activities starting in late Q1, 2013. Coupled with the gradual increase on the sales/production ratios of polyester products caused by good economic situation in May, PET product inventory had dropped to a relatively low position in mid Q2. Meanwhile, the run rates of polyester industry could be maintained at a high level of above 85%. Under this circumstance, together with the bottom-fishing attempt of downstream buyers, the bottom prices of PTA in Q2, 2013 had been set at \$1,050/ton and 7,600-7,700 yuan/ton respectively. On the other hand, since the stabilizing of prices is based on a low run rate, once the run rate is raised, the price rise for PTA would be hindered soon. Actually, PTA market was under a wide-range fluctuation as a whole in Q2, 2013.

In Q3, 2013, PTA prices saw a historical similarity. With crude oil price rebounding significantly in July under the influence from many aspects like geopolitics, PTA price regained further. USD-based prices for cargoes once hiked to above \$1,120/ton, and RMB-based prices also came close to 7,900 yuan/ton. With the run rate of PTA industry maintained at 80%, some external factors, such as price drop of crude oil and the pressure from funds at the end of the quarter, easily dragged down PTA sentiment. By the end of Q3, PTA prices softened again, with USD-based number retreating to \$1,050/ton and RMB-based value down to 7,650 yuan/ton.

In Q4, 2013, commodity market started to weaken, and the erosion of PET profit margins also caused some producers, particularly BGPET producers to cut production in a large range. Central PTA value started to plunge more quickly under the pressure from high cost, high production and low demand. On the other hand, the successive failures on the settlement of Asian PX contract prices for November and December also led to a loss of cost support to PTA contract price. Though PX spot values firmed up, PTA market sentiment did not show any substantial rise. Under such comprehensive influence, PTA prices hit the year lows one after another in November. Fortunately, the support from long-position players in futures market buoyed PTA market to stagger forward at the end of this year, even under a huge capital pressure. By the end of 2013, RMB-based PTA prices dropped to about 7,400-7,500 yuan/ton, and USD-based prices fell to \$900-1,000/ton.

## **2. Factors Influencing PTA Prices in China**

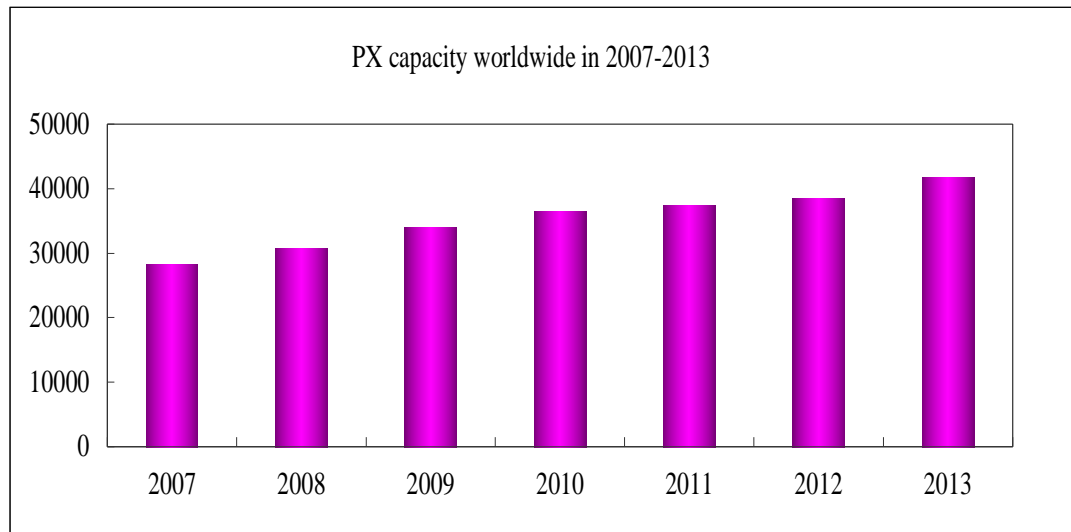
### **2.1 Influence from Paraxylene**

#### **2.1.1 Paraxylene Capacity Worldwide**

Following a massive production expansion in 2012, PTA supply incremented significantly in 2013, and the profits of the industry declined sharply as well. As a result, some projects that had originally been scheduled to start up in 2013 were delayed. On the other hand, some new PX projects were springing up after PX industry had seized the title of profit overlord in the PET industrial chain. However, in spite that many PX projects were put on record, the startups of new capacities were relatively slow, since the residents living near the production sites of new projects had been quite panic about pollution brought by PX production since two years ago after the news media in whole China demonized PX projects.

From the following chart we can find out that the increase of PX capacity in 2013 is not noticeable as the originally planned startups of several new units this year have been postponed. In other Asian countries except China, only South Korea's Hyundai Cosmo Petrochemical (HCP) started up one 800kt/yr PX unit early this year. Three large units located respectively in Saudi Arabia, India and Pakistan are all postponed to come into operation in the first half of 2014. In China mainland, two PX units with a combined capacity of 1,600kt/yr at Gulei Petrochemical have been brought on stream formally, but the operation is not stable; Pengzhou Petrochemical has postponed the commissioning of 700kt/yr PX unit to 2014, and Hainan Refining and Chemical started up its 600kt/yr PX unit at the end of 2013, with another two units being expanded.

Chart 2



**Table 1. PX Capacity Expansion from 2009 to 2013 (kt/yr)**

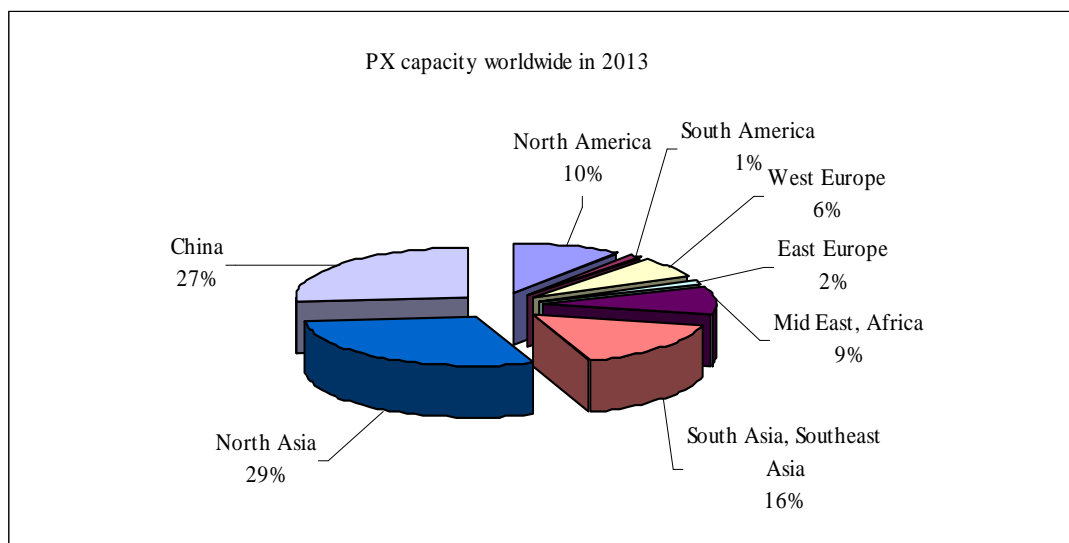
	2009	2010	2011	2012	2013
China	7,726	8,726	8,726	9,426	11,796
World	33,958	36,512	37,449	38,529	41,719

The PX capacity in the world is mainly concentrated in Asia and North America. Hereinto, the proportion of PX capacity in Asia rose to 72% of the world total, up 3 percentage points, and PX capacity in North America accounts for 10%, ranking the second. Compared with the Mid

East, North America's leading advantage is narrowing gradually. In Asia, the largest PX producer is China. Gulei Petrochemical turned to be an enterprise with the largest PX capacity in whole China after the startup of its two 800kt/yr units, followed closely by Dalian-based Fujia Dahua with a PX capacity of 1,400 kt/yr. Shanghai Petrochemical of Sinopec and Urumqi Petrochemical of PetroChina tied for the third place, with capacities both at 1,000 kt/yr.

South Korea is the world second largest PX producer, with GS Caltex learnt as the largest PX maker, which has three units with a total capacity of 1,350 kt/yr. With the startup of the second unit this year, Hyundai Cosmo Petrochemical has become the second largest PX maker in South Korea, with a total capacity of 1,160 kt/yr, surpassing Samsung Total. Japan is the world third largest PX producer, and the largest PX maker in Japan is JX Nippon Oil & Energy, having five units with a combined capacity of 1,470 kt/yr. Idemitsu Kosan is the second largest PX maker in Japan, having three units with a combined capacity of 970 kt/yr. These two major Japanese makers and ExxonMobil mainly supply contractual goods to customers in China. ExxonMobil's total PX capacity is a little larger than above two Japanese producers', as ExxonMobil has units in other countries such as Singapore and Qatar etc.

**Chart 3**



**Table 2. Newly Added PX Capacity worldwide in 2013 (kt/a)**

Country/Region	Company	Capacity	Startup Time
South Korea	Hyundai Cosmo	800	January
China Mainland	Gulei Petrochemical	800	April
China Mainland	Gulei Petrochemical	800	October
China Mainland	Sinopec Fujian Refining & Chemical	120 (expansion)	November
China Mainland	Sinopec Hainan Refining & Chemical	650	December
Algeria	Naftek	220	Q4
<b>Total</b>		<b>3,390</b>	

We can learn from the above table that global PX capacity growth was concentrated in Asia in 2013. Hereinto, PX capacity in China continued to expand at a high speed.

**Table 3. New PX Capacity in Asia in 2014 (kt/a)**

Location /Country	Producer	Capacity	Startup Time
Shandong/ China	Qingdao Lidong	100 (expansion)	Q1, 2014
Mangalore/ India	OMPL	900	Q1, 2014
Lasbela /Pakistan	Pakistan State Oil	92	Q1, 2014
Jubail /Saudi Arabia	Saudi Aramco	600	Q1, 2014
Sichuan/China	CNPC Pengzhou Petrochemical	700	Q1, 2014
Jurong /Singapore	Jurong Aromatics Corporation	800	Q1-Q2, 2014
Yanbu/Saudi Arabia	Yasref	700	Q1-Q2, 2014
Daesan/South Korea	Samsung Total	1,000	Q2-Q3, 2014
Incheon/South Korea	SK Energy	1,300	Q3-Q4, 2014
Ulsan/South Korea	Ulsan Aromatics	1,000	Q3-Q4, 2014
Yeosu/South Korea	GS Galtex	1,000	Q4, 2014
<b>Total</b>		<b>8,192</b>	

As shown in the table above, PX capacity in Asia will increase sharply in 2014. Of them, South Korea will welcome a noticeable expansion. The startup of several PX units is postponed from 2013 to 2014, so the combined new PX capacity in 2014 is assessed to go beyond 8,000 kt/yr. What's more, in 2015, another 7,000 kt/yr or above of new PX capacity will be brought on stream in Asia. However, since a large amount of new PTA capacities will be released in Asia in 2014, it still needs a certain period of time to realize a substantial relief on the contradiction between the supply and demand in PX and PTA sectors.

### 2.1.2 Paraxylene Capacity in China

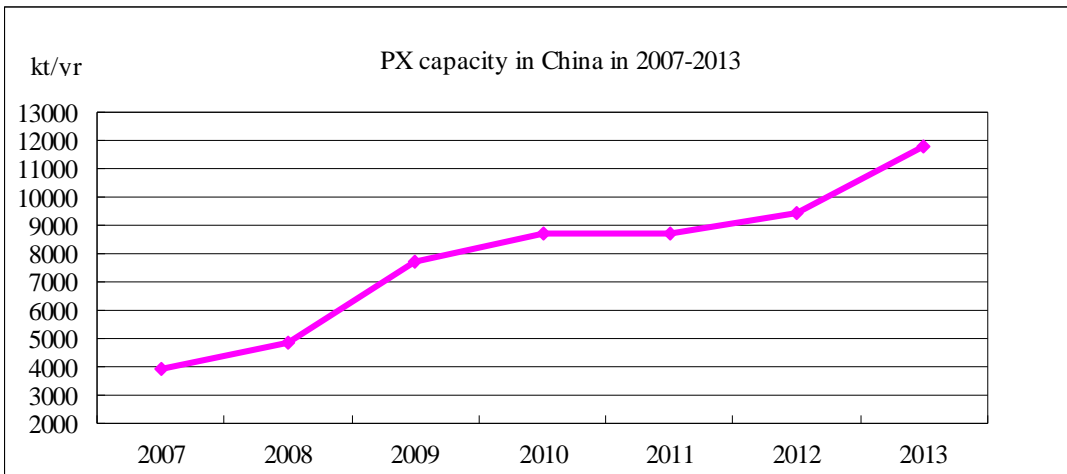
In China, PX capacity growth lagged behind PTA capacity expansion due to quick startup of new PTA units in recent years. In 2004, China's PX capacity was 2.34 million tons/year, accounting for 14% of the total capacity in Asia and about 10% of the world total. After Yangzi Petrochemical expanded its PX capacity to 800kt/yr in June 2006, and LG-Lidong started up its 700kt/yr PX unit, China's PX capacity increased to 3.896 million tons/year by the end of 2007. In 2008, only Jinling Petrochemical started up its 600kt/a PX unit. In 2009, several producers brought their new PX capacities on stream in succession, including Shanghai Petrochemical, Fujia Dahua, Yisheng Dahua, Fujian Refining & Chemical and CNOOC Huizhou, and domestic PX capacity grew by 60% or around 2.9 million tons/year to 7.726 million tons/year. But in 2010, China only saw one PX unit on stream, which is the new unit at PetroChina Urumqi Petrochemical, with a capacity of one million tons/year. In 2011, no new PX capacity came on stream in China, and the total capacity in China remained at 8.726 million tons/year. In 2012, only Fujia Dahua's 700kt/a PX unit was started up. As some new PX projects like Fujia Dahua's first-phase PX project, Dragon Aromatics' project in Gulei, and Zhenhai Refining & Chemical's expansion project all ignited the hot discussion about the "toxicity of PX" and also because PX projects need the support from upstream refinery projects, PX projects are more difficult to be approved compared with the projects for PTA or polyester, which led to imbalanced PX-PTA



fundamentals in China. After experiencing two consecutive years of profit-erosion for PTA and the enlargement of PX's dominant power in pricing, PX seemed to become welcomed in the PET industrial chain. More and more PTA producers turned their attention to the addition of upstream units. In 2013, Gulei Petrochemical, an enterprise subject to Xianglu Group, started up two PX units with a capacity of 800kt/a for each in succession, turning China to be a country with the largest newly added PX capacity this year. At the end of 2013 and the beginning of 2014, some other projects like those of Hainan Refining and Chemical and Pengzhou Petrochemical will be put into operation.

In the foreseeable future, state-run major producers like Sinopec and PetroChina and giant private companies such as Rongsheng and Hengyi will quicken their pace for new PX projects. Whereas, next-time massive capacity expansions in China will probably appear in 2015, as the new capacities need time for construction.

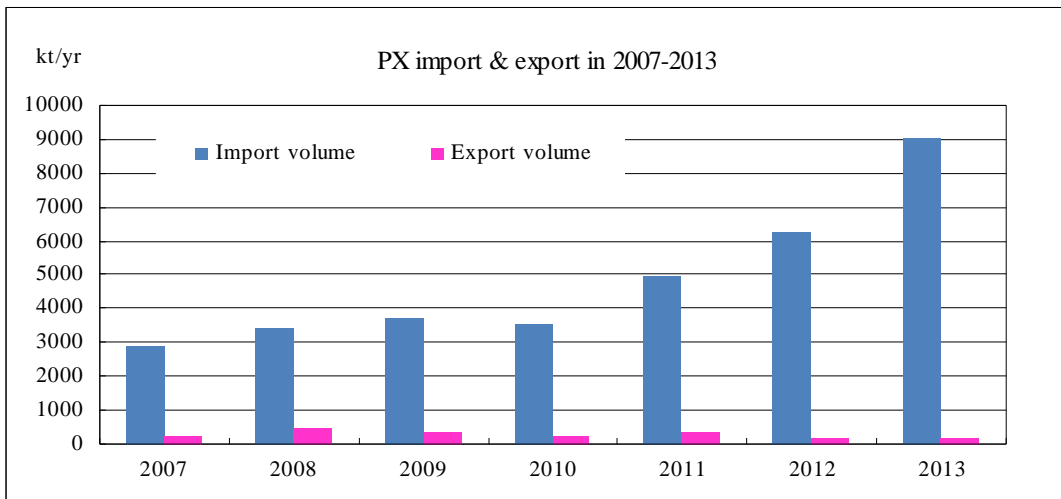
**Chart 4**



**2.1.3 Paraxylene Import & Export in China**

Influenced by rapid increase of PTA capacity in recent years, China's import dependency ratio of PX has been high, and the chart below is the import & export data of PX.

**Chart 5**

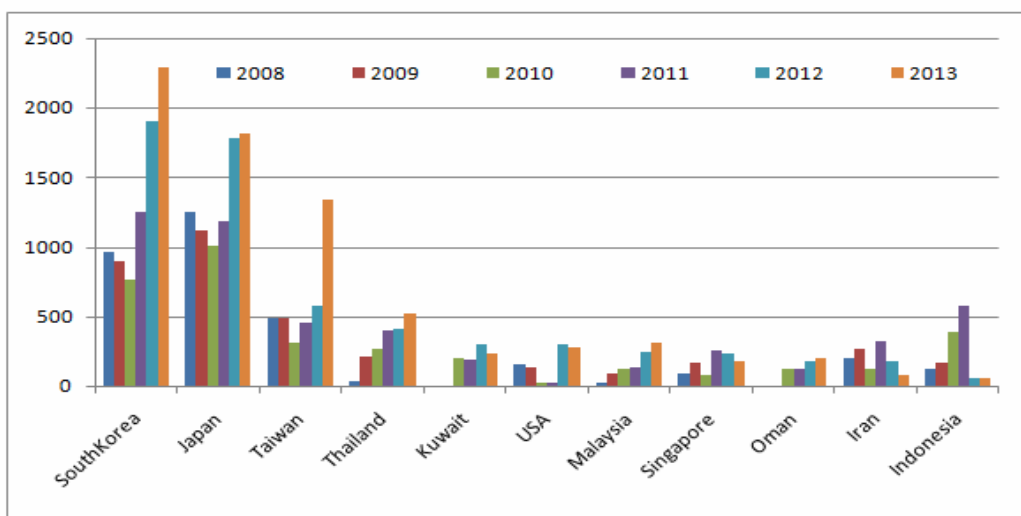


We can see from the above chart that PX import dependency ratio in China has been in an uptrend in past few year, as PX capacity growth in China lagged behind the capacity expansion of PTA industry after several 600kt/a PTA projects (no PX capacity in the upstream) were brought on stream since 2005. In 2006, China imported 1.84 million tons of PX, with the import dependency ratio of 43.7%; in 2007, China's PX import volume totaled 2.90 million tons, with an import dependency ratio of about 50%; in 2008, China totally imported 3.42 million tons of PX, with an import dependency ratio of about 54.53%; in 2009, with a handful of new PX units starting up in China, the uptrend of import dependency ratio began to change; import volume of the year is around 3.70 million tons, with import dependency ratio down to around 45%; in 2010, capacity growth in China slowed down again, and import volume slid to 3.66 million tons and import dependency ratio inched down to 43.3%; in 2011, import volume rose to 4.99 million tons, with import dependency ratio back up to 48.4%; and in 2012, accumulative PX import volume is 6.29 million tons, with import dependency ratio still high at 45.6%. In 2013, accumulated PX import volume has amounted to 9.04 million tons, with import dependency ratio hitting 51.8%.

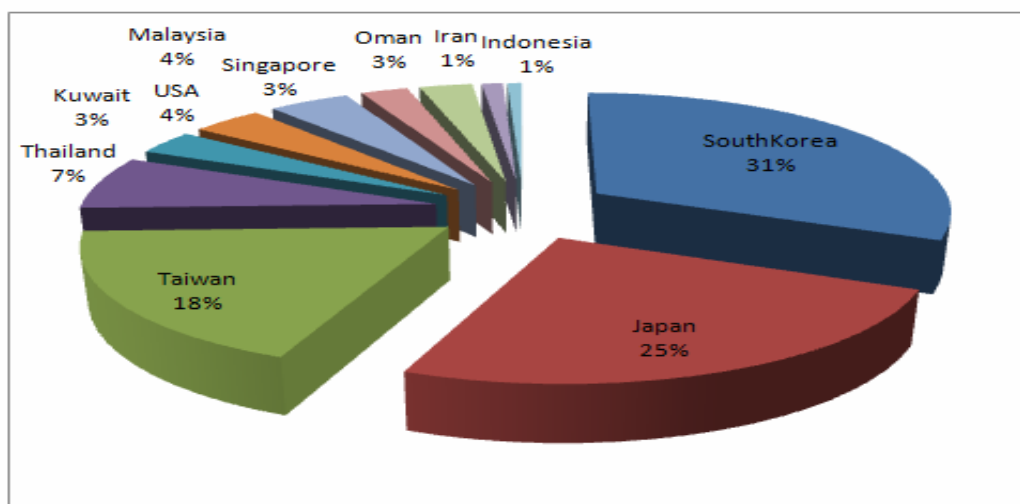
As for import sources, China mainly imported PX from South Korea, Japan, Chinese Taiwan and Thailand. In earlier years, China's PTA producers mainly bought Japan-origin PX as raw materials. However, following a sharp expansion of PX capacities in recent years, South Korea has steadily seized the first position in exporting PX to China. The total PX import volume from South Korea to China in 2013 amounted to 2.805 million tons, accounting for 32% of the total import volume of PX into China. Japan is still a major PX import source for China, exporting 2.168 million tons to China in 2013, which accounts for 25% of the total import volume into China. Chinese Taiwan held the third position. During the past two years, Chinese mainland imported about 400-500 kt of PX from Taiwan each year. In 2013, the import volume from Taiwan showed a significant increase, with total volume amounting to 1.626 million tons, accounting for 18.0% of the total. Thailand took the fourth position, from where China totally imported 633 kt of PX in 2013, accounting for 7.0% of the total.

What's more, the PX import sources for China diversified in the past two years. Besides the above four countries and regions, the import volumes from Kuwait, the United States, Malaysia, Singapore and Oman also increased year by year and almost on a par.

**Chart 6 Major PX import sources for China in 2013**



**Chart 7 Major PX import sources for China in 2013**



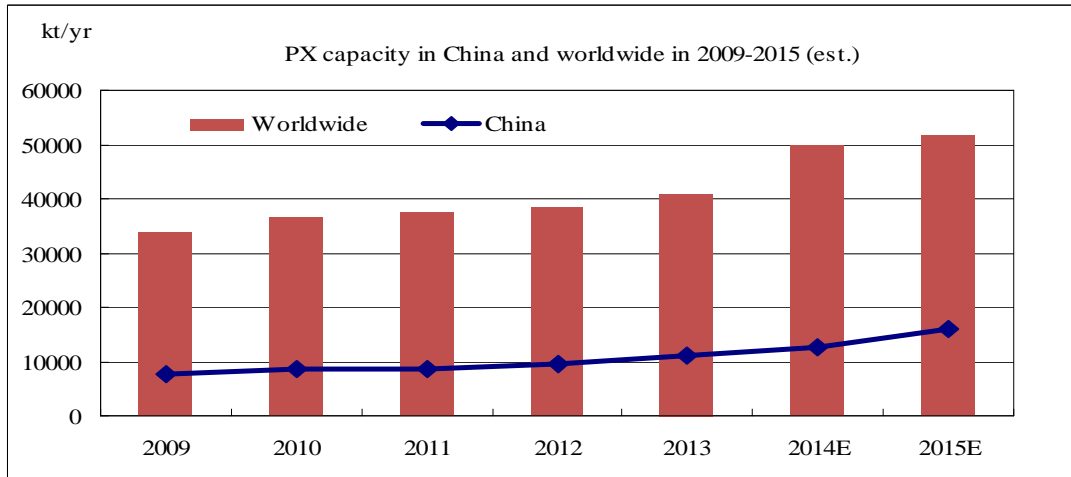
### 2.1.4 Paraxylene Supply

China's PX capacity growth slowed down in recent years following concentrated startups of new PX capacities in 2009, and general supply had a steady and gentle increase. However, as China has seen another round of massive startups of new PTA capacities in 2012, coupled with the fact that profit margins of PTA industry or the whole polyester chain except PX segment have narrowed significantly, many existing PTA producers have to turn their attention to integration toward upstream. As mentioned above, the approvals of PX projects are restricted by the factors like cost and project location. Therefore, apart from two Chinese state-run giants, PetroChina and Sinopec, which have crude oil refining facilities, some private companies refocus themselves onto investment abroad; for instance, Hengyi is building a PX plant in Brunei, and Hailun Petrochemical is constructing a PX plant in Singapore. Of course, some new projects also emerged, including Dragon Aromatics' PX unit in Zhangzhou, Fujian, which has been brought on stream in 2013, Rongsheng's PX project operated by its subsidiary Ningbo Zhongjin, and Tongkun Group's project in Leshan. We can say that China's PX

industry is still enjoying a high-speed development.

It's predicted that the global PX capacity will have amounted to over 50 million tons/year by the end of 2015, of which, China will have over 15 million tons/year of capacity, accounting for more than 30% of world total.

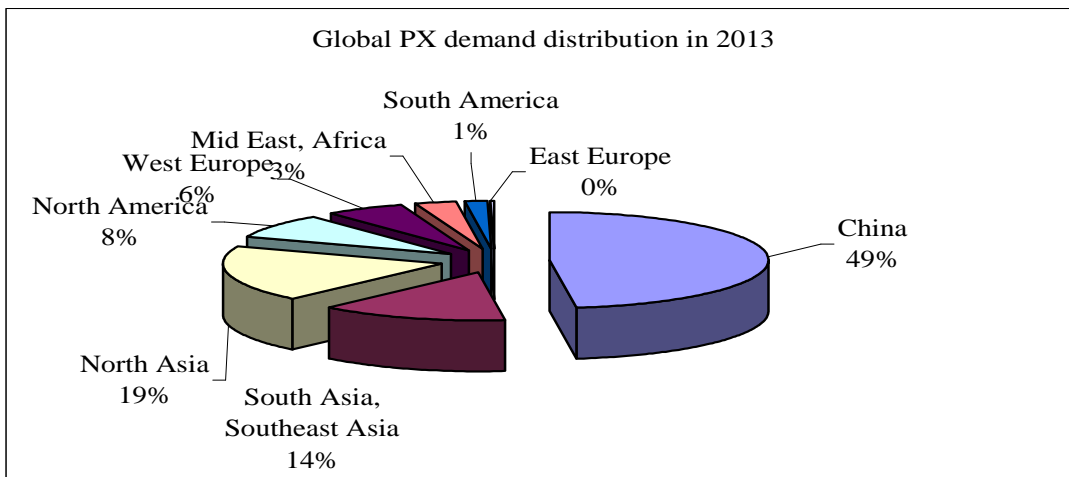
**Chart 8**



**2.1.5 Paraxylene Demand**

Due to steady growth of demand from PTA sector, PX is mainly consumed in PTA production in the world, with about 93% of PX output used in PTA production currently, and due to slow development of DMT industry during recent years, the proportion of PX used in PTA production will continue to increase. The PX consumption in Asia accounts for about 81% of the world total, and with the successive startups of the newly-invested PTA units there, the PX consumption in Asia will further increase, and it will account for a higher proportion of the world total. In Middle East where production cost is low and feedstock supply is ample, local investment in the petrochemical industry will grow steadily; there will be more PTA and PX units to be built in the region, and the proportion of PX used in PTA production will grow further as well.

**Chart 9**



The above pie chart shows that global PX demand is mainly concentrated in Asia, accounting for 81% of the world total, followed by North America and West Europe. Besides, in Asia, the PX consumption mainly happens in China. In 2011, China's PX demand accounted for about 38% of the world total, while in 2012, the number rose to 48% in line with startups of more than 10 million tons/year of newly added PTA capacities. In 2013, no new PTA capacity has been added except a debottlenecking expansion for two PTA units. Therefore, the proportion of China's demand against the whole world was still pegged at 48%. And in China, nearly 99% of the PX consumption is for PTA production.

**Table 4. PX Supply/Demand in China in 2013 (kt, %)**

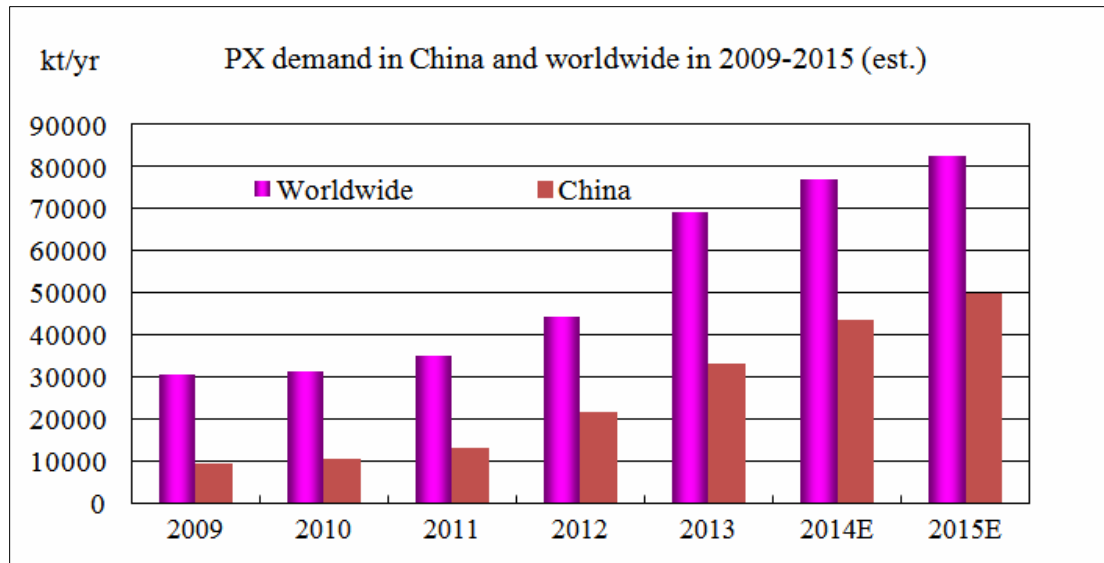
Month	Production	Import	Export	Apparent Consumption	Demand from PTA	Import Dependence (%)
Jan	723	681	10	1,394	1,445	48.9
Feb	726	745	14	1,457	1,242	51.1
Mar	710	829	26	1,513	1,223	54.8
Apr	658	800	15	1,443	1,199	55.4
May	710	688	15	1,383	1,500	49.7
Jun	733	646	21	1,358	1,540	47.6
Jul	706	787	10	1,483	1,498	53.1
Aug	620	788	20	1,388	1,505	56.8
Sep	661	787	15	1,433	1,479	54.9
Oct	755	670	5	1,420	1,441	47.2
Nov	670	850	15	1,505	1,487	54.92
Dec	707	783	15	1,475	1,524	47.18
<b>Total</b>	<b>8,379</b>	<b>9,048</b>	<b>181</b>	<b>17,252</b>	<b>17,083</b>	<b>51.80</b>

We can see from the above table that in 2013, total PX production is at 8,379 kt, import volume is at 9,048 kt, and export volume is at 181 kt, thus total supply is at 17,246 kt; while total demand from PTA sector is at around 17,083 kt, indicating that there is a surplus of 163 kt between the apparent consumption of PX and the projected demand from PTA sector. The statistics show that PX shortage mainly appeared in the second half of 2013. From Feb to Apr, domestic PX surplus increased as a great many PTA units were shut down for maintenance. In Q3, 2013, PX shortage enlarged again month by month following a sharp rebound on the run rates of PTA units. With Gulei Petrochemical bringing its two PX units into commercial operation from September, PX surplus dwindled month by month again.

As above mentioned, the PTA capacity expansion slowed down somewhat in 2013. Some originally planned projects, like Xianglu Petrochemical and Honggang Petrochemical's PTA projects as well as Yisheng Petrochemical's No.4 line in Ningbo, were all postponed to start up. In 2014, there will be some new projects to come on stream, such as Hengli's No. 3 line, BP Zhuhai's No. 3 line and Shengda Petrochemical's project. Coupled with the delayed projects in 2013, the demand for PX will remain high in 2014. In the coming few years, the growth on the

PX demand in the whole world will certainly continue to be focused in China.

**Chart 10**

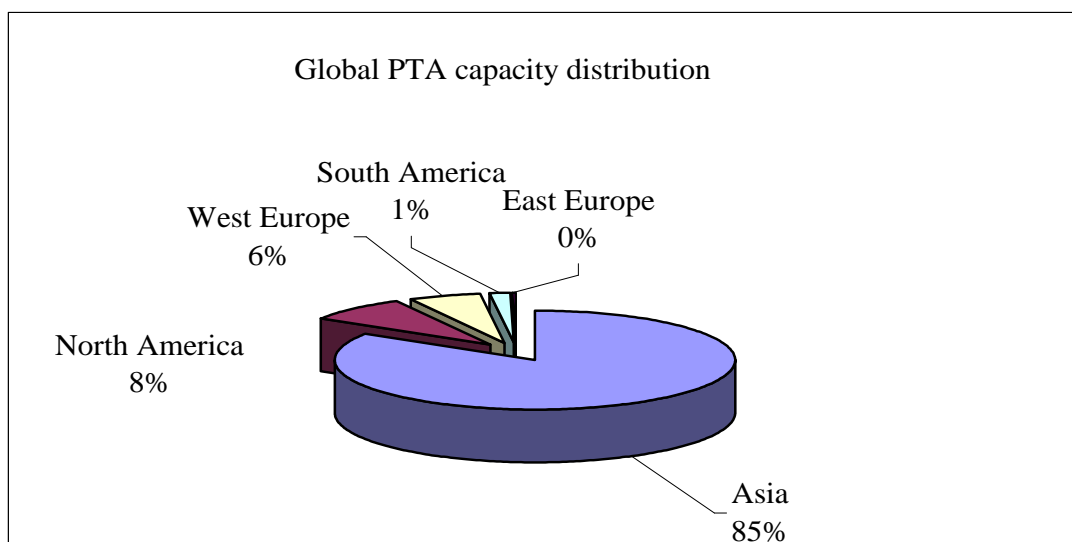


## 2.2 Influence from Supply

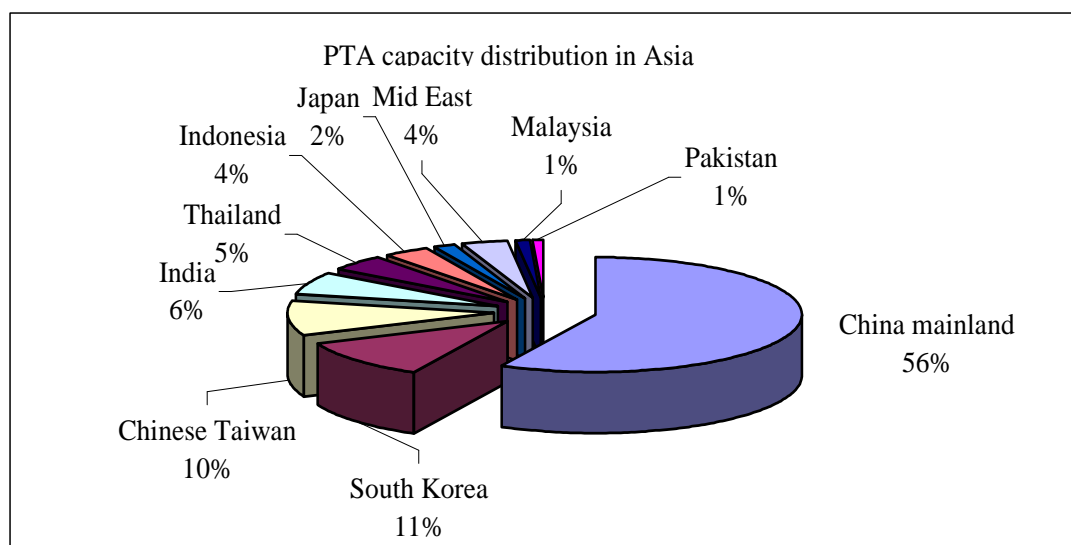
### 2.2.1 PTA Capacity Distribution Worldwide

The PTA production in the world is mainly concentrated in Asia, North America and West Europe, with combined PTA capacity of the three accounting for around 98% of the world total in 2013. Asia has the largest PTA capacity in the world, accounting for about 84% of the world total. Almost all the new PTA capacities in the world are located in Asia, while the newly added PTA capacities in Asia are basically concentrated in China.

**Chart 11**



**Chart 12**



As is shown in the above chart, the PTA capacity in Asia is mainly located in China Mainland, South Korea and Chinese Taiwan, with the combined PTA capacity of the three accounting for about 78% of the total in Asia, flat from that in 2012, while China’s PTA capacity (including Mainland and Taiwan) accounts for about 67% of the total in Asia, so China is the world’s PTA production and consumption hub.

**2.2.2 Major PTA Producers in the World**

Before 2012, though five Chinese PTA producers in Mainland and Taiwan could be seen in the list of top ten major PTA producers in the world, they were mostly listed in the last five positions, and the first place was not taken by a Chinese company. Since the beginning of 2012, the situation has changed. BP (British Petroleum)’s first place was taken by a private Chinese producer at the end of the year as Yisheng Petrochemical’s two PTA units respectively in Hainan and Dalian came on stream in November and December, which made its total capacity come to 10.6 million t/a. And with successive startups of Xianglu and Hengli’s new capacities in future, more than half of the world’s top ten PTA producers will be in China by the end of 2015.

Among the world top ten PTA producers, all the foreign companies except Indian Reliance provide PTA mainly to Chinese market, occupying a majority share of China’s import market.

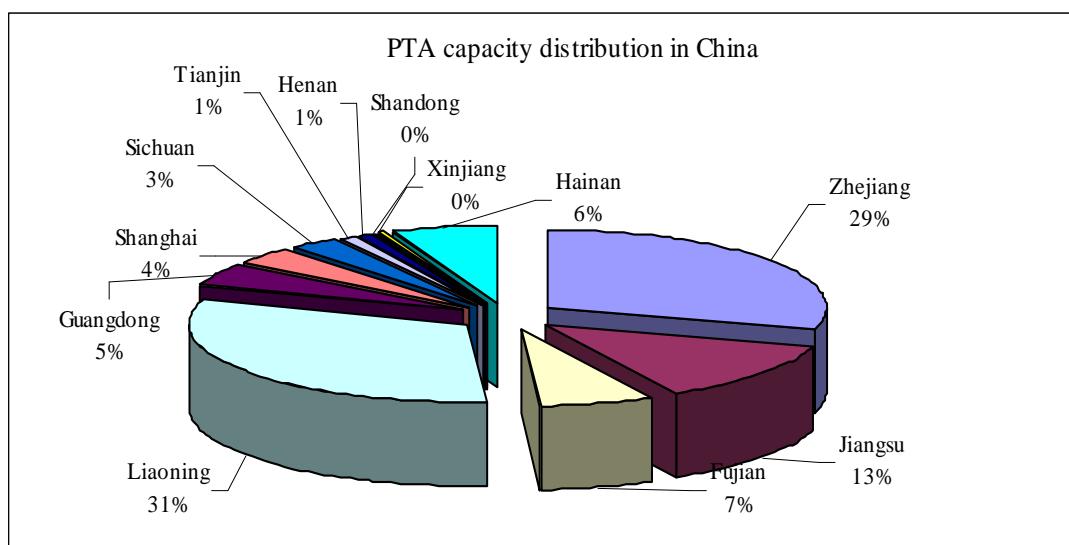
**Table 5. Top 10 PTA Producers worldwide in 2013 (kt/yr)**

	<b>Producer</b>	<b>Capacity (appro.)</b>
1	Yisheng Petrochemical	10,600
2	BP	9,000
3	Mitsubishi Chemical	5,300
4	Hengli Petrochemical	4,400
5	Sinopec Group	3,325
6	Yuandong Petrochemical	3,200
7	Mitsui Chemicals	2,615
8	Formosa Chemical Fiber Corp	2,600
9	Reliance Industries Limited	2,085
10	Samsung Petrochemical	1,800

### 2.2.3 PTA Production & Supply Balance in China in 2013

With the concentrated startups of PTA capacities in China during 2006-2007, China's PTA industry entered a booming phase. Before 2009, China's PTA units were mainly located in Zhejiang and Jiangsu; but now Liaoning province has exceeded those two and become the largest PTA production base in China after Yisheng Petrochemical and Hengli Petrochemical brought their new PTA units in Dalian, Liaoning on stream, with its PTA capacity accounting for 31% of total capacity in China. The PTA capacity in Zhejiang rose to 9.80 million tons/year after FCFC Ningbo expanded PTA capacity in 2013, still accounting for about 29% of domestic total, and Zhejiang's Ningbo has been one of the most important PTA production bases in Yangtze River Delta. Jiangsu province is at the third position by PTA capacity, and major PTA producers in Jiangsu are Yangzi Petrochemical and Yizheng Chemical Fiber etc that are affiliated to Sinopec, as well as Hanbang Petrochemical and Hailun Petrochemical who were originally polyester producers and extended their business upstream to PTA sector after 2010. The PTA capacity in Jiangsu accounts for about 13% of the total in China. What is worth of being paid attention to is the startup of Hainan Yisheng's PTA project in Hainan province at the end of 2012. Now the capacity in Hainan accounts for 6% of the total, nearly on par with that in Fujian and Guangdong.

**Chart 13**



Similarly to the distribution of PTA capacity worldwide, the majority of PTA capacity in China is also concentrated at certain producers. Currently, combined PTA capacities at China top 10 producers account for about 82% of the total in the country, including Yisheng's 10.55 million t/a, Hengli's 4.4 million t/a, Yuandong Petrochemical's 3.2 million t/a, BP Zhuhai's 1.65 million t/a, Xianglu Petrochemical's 1.60 million t/a, Jiaxing Petrochemical's 1.4 million t/a, Yangzi Petrochemical's 1.30 million t/a, FCFC's 1.2 million t/a, Hailun Petrochemical's 1.2 million t/a, and Yizheng Chemical Fiber's 0.95 million t/a. Among them, Yangzi Petrochemical and Yizheng Chemical Fiber both belong to Sinopec. The data indicate that private companies are quickly catching up with veteran state-run companies.



**Table 6. Capacities of Chinese PTA Producers in 2013 (kt/a)**

Producer	Location	Existing Capacity	Startup Time
Sinopec Shanghai PC	Shanghai	400	1984
Sinopec Yangzi PC	Jiangsu	1,300	1989/2006
Sinopec Tianjin PC	Tianjin	350	2000
Sinopec Luoyang PC	Henan	325	2000
Sinopec Yizheng CF	Jiangsu	950	1995/2003
CNPC Liaoyang PC	Liaoning	800	1996/2007
CNPC Urumqi PC	Xinjiang	96	1995
JNZHAF	Shandong	100 (idled)	1991
Xianglu PC	Fujian	1,600	2003
BP Zhuhai	Guangdong	1,650	2003/2008/2012 (expansion)
Yuangong PC	Zhejiang	3,200	2005/2007/2012
Mitsubishi Ningbo	Zhejiang	600	2007
Yisheng PC	Zhejiang	3,300	2006-2007/2011
Yisheng Dahua	Liaoning	5,250	2009/2012
Yisheng Hianan	Hainan	2,000	2012
FCFC Ningbo	Zhejiang	1,200	2008/2013 (expansion)
Oriental PC	Shanghai	800	2006/2012 (expansion)
Pengwei PC	Sichuan	900	2009
Jialong PC	Fujian	600	2010
Hanbang PC	Jiangsu	600	2010
Hailun PC	Jiangsu	1,200	2011
Jiaying PC	Zhejiang	1,500	2012
Hengli PC	Liaoning	4,400	2012
<b>Total:</b>		<b>33,121 (effective 33,021)</b>	

Total PTA production in China in 2013 amounts to 25.5 million tons, 5,180 kt higher from 20.32 million tons in 2012. The average run rate of the industry was at 77.04% in 2013, of which Mar and Apr saw the largest cutback, and since May the average run rate had been maintained at about 80%, with the higher number once hitting 85%.

Meanwhile China's polyester production (including PET chips bottle grade, chips fiber grade, filament yarn, staple fiber and film) is at 31.148 million tons, reflecting that demand for PTA from polyester sector is around 2.232 million tons per month on average, against average monthly PTA production of around 2.125 million tons in China. So China's import dependency ratio in 2013 declined further to 9.8% from 21% of last year, and the ratio is even all below 10% in the second half of 2013. The table below is China PTA market fundamentals in 2013.

**Table 7. PTA Market Fundamentals in China in 2013 (kt)**

Month	Production	Import	Export	Apparent Consumption	Demand from PET	Import Dependence %
Jan	2,156	332.4	1.6	2,487	2,048	13.4
Feb	1,854	257.9	0.5	2,111	1,969	12.2
Mar	1,826	242	3.0	2,065	2,153	11.7
Apr	1,790	267.6	2.5	2,055	2,300	13.0
May	2,239	250.9	7.6	2,482	2,376	10.1
Jun	2,299	211.7	10.9	2,500	2,356	8.5
Jul	2,236	190.9	19.1	2,408	2,328	7.9
Aug	2,247	200	26.8	2,420	2,235	8.3
Sep	2,208	224.7	22.7	2,410	2,266	9.3

Month	Production	Import	Export	Apparent Consumption	Demand from PET	Import Dependence %
Oct	2,150	192	6.2	2,336	2,279	8.2
Nov	2,220	185	10.1	2,395	2,180	7.7
Dec	2,275	190	15.2	2,450	2,296	7.8
<b>Jan-Dec</b>	<b>25,500</b>	<b>2,745</b>	<b>126</b>	<b>28,119</b>	<b>26,786</b>	<b>9.8</b>

From the above table we can see that China's apparent consumption of PTA in 2013 is lower than projected demand from polyester sector, with a gap of around 1,333 kt, approximated equal to the social PTA inventory at the end of 2013. Therefore, the PTA supply/demand imbalance in 2013 worsens further.

#### 2.2.4 PTA Projects in Construction and in Proposal in China

The run rate of domestic PTA plants was once under certain control in 2013 after a round of sharp capacity expansion and noticeable reduction of profit margin seen last year. Some old producers (like Liaoyang Petrochemical and Yangzi Petrochemical) and some producers with their locations inconvenient for spot trading (like Pengwei Petrochemical and Yisheng Hainan) had to make some "sacrifice", running at reduced rates in the whole year. In spite of this, the PTA industrial profit margin was still sad in 2013. So the speed of startup of new PTA capacities was under a good control in 2013. However, this part of new capacities will be released in 2014, which means a bad thing to the PTA market in the coming year. Meanwhile, more and more large-scale private or joint-venture enterprises added PTA lines for their own use in recent years, and such a trend can hardly be hindered in the future.

**Table 8. China's PTA Projects to Start up in 2014 (kt/a)**

Producer	Nameplate Capacity	Remark
Xianglu Petrochemical	4,500	Q1
Yisheng Ningbo	2,000	Q1-Q3
Hengli Petrochemical	2,200	Q1-Q2
Honggang Petrochemical	1,500	Q1-Q2
Shengda Petrochemical	1,200	Q2-Q3
Hailun Petrochemical	1,500	Q2-Q3
BP Zhuhai	1,250	Q3-Q4
<b>Total:</b>	<b>14,150</b>	

As is shown in the above table, there are 14.15 million t/a of new PTA capacity in China likely to come on stream in 2014, and by then China's PTA capacity may reach 47.49 million t/a, accounting for nearly 60% of the total PTA capacity in Asia. Of course, besides the above producers who are almost certain to start up new capacities in 2014, many others plan to expand or add new capacities in 2015 or even later, such as Jialong, Pengwei, Tongkun, Yuntianhua, Yisheng and etc. It is estimated that combined new capacity in next three years may amount to 25 million t/a or above. Therefore, China's PTA import dependence will decrease further in future. Though there will be some import demand for the trade of 'processing with customers' materials', it is still possible for China's PTA market to realize self-sufficient supply.

### 2.3 Influence from Import & Export

#### 2.3.1 PTA Import Data in China

China's PTA import dependency ratio had been significantly high before 2008, as China's polyester capacity expanded rapidly while the increase of domestic PTA capacity lagged behind. From 2005 to 2011, annual import volume for PTA lingered between 5-7 million tons. In 2012, however, with the PTA capacity increasing significantly during the year, the PTA import dependency ratio decreased remarkably.

**Chart 14**



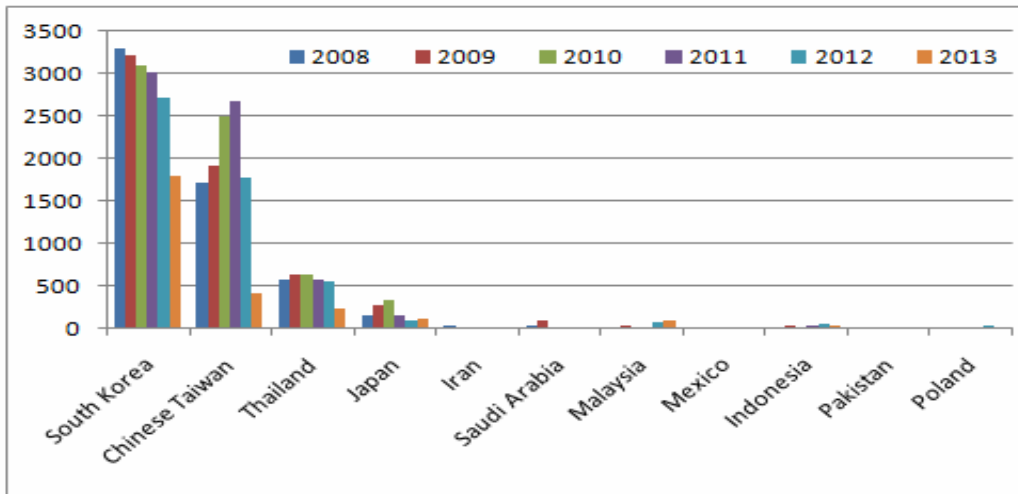
The import volume in 2005 was around 6.50 million tons, while PTA production that year was only at around 5.70 million tons, with an import dependency ratio of about 53.3%. After that, import dependency ratios started to reduce year by year. From 2009 on, the ratios have been below 40%. In 2011, as the startups of new capacities at Yisheng Petrochemical and Hailun Petrochemical push the total production in China to around 15.37 million tons, a rise of about 170% over the production in 2005, the import dependency ratios in 2011 dropped to around 30% and the number in 2012 further decreased to 21%. In 2013, the average import dependency ratio fell to 9.8%.

By import origin, China Mainland mainly imported PTA from South Korea, Chinese Taiwan, Thailand and Japan in recent years. China's annual import volume of PTA from South Korea had been increasing before 2008, but started to decrease from 2009 due to anti-dumping issue, with the import volume from the country in 2013 totaling around 1.795 million tons, accounting for 65.4% of the total imports into China; hereinto, the total volume of QTA is 584 kt, accounting for 32.5% of the total from South Korea. Annual import volume of PTA from Chinese Taiwan had been decreasing in past years, but started to increase from 2008 also owing to the anti-dumping issue. The accumulative import volume from Taiwan in 2011 once reached 2.689 million tons, but from 2012, the import volume reduced sharply following the self-sufficiency in China mainland. In 2013, the accumulative import volume of PTA from Chinese Taiwan is only at 416 kt, accounting for 15.2% of the total imports into China mainland. The third largest PTA exporter for

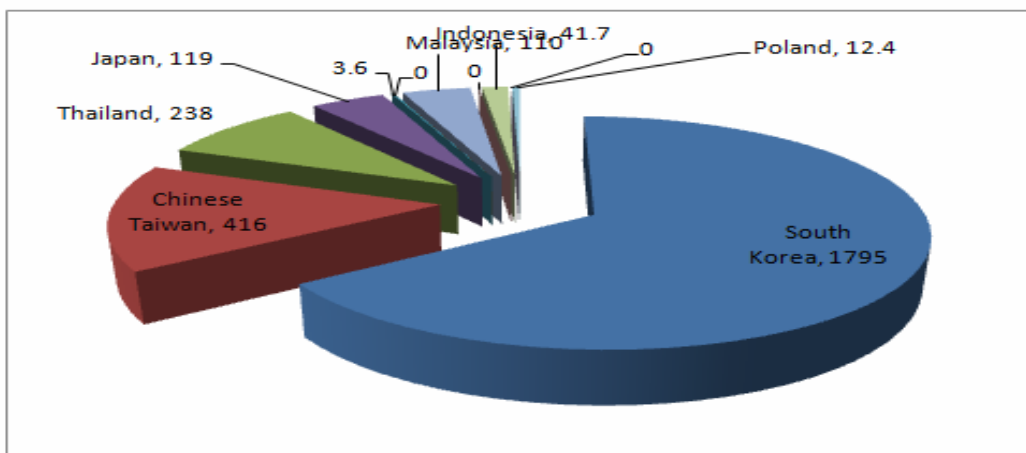
China is Thailand. The annual import volume from Thailand increased before 2008, while in 2008, the import volume declined sharply, and generally remained flat since then. The import volume from Thailand in 2013 reduced but in a smaller range than from Taiwan, at around 238 kt, accounting for 8.7% of the total. China's PTA annual import volume from Japan in 2013 totaled around 119 kt, growing somewhat from 2012 and accounting for 4.3% of the total.

In addition, according to the Merchant Trading Protocol which was signed in Nov 2004, tariff between China and six ASEAN countries would gradually slip and reach zero by Jan 1st, 2012. Therefore, PTA import volume from Malaysia sharply increased from 2012, with the accumulative volume in 2012 up to around 88 kt, accounting for 1.6% of the total. In Jan-Dec 2013, the accumulative import volume from Malaysia amounted to 110kt, accounting for 4% of the total. Selling prices for Malaysia-origin cargoes sold to China are just the same as Taiwan-origin ones this year. However, there would be a large gap between the two after the materials actually arrive at Chinese ports. Similarly, import volume from Indonesia surged as well, with the accumulative volume in Jan-Dec 2013 up to 41.7 kt, accounting for 1.5% of the total. Given the advantage in tariff rate, the Indonesia-origin imports will be favored by Chinese buyers in the future.

**Chart 15 Major sources for PTA/QTA imports into China from 2008 to 2013 (Unit: kt)**



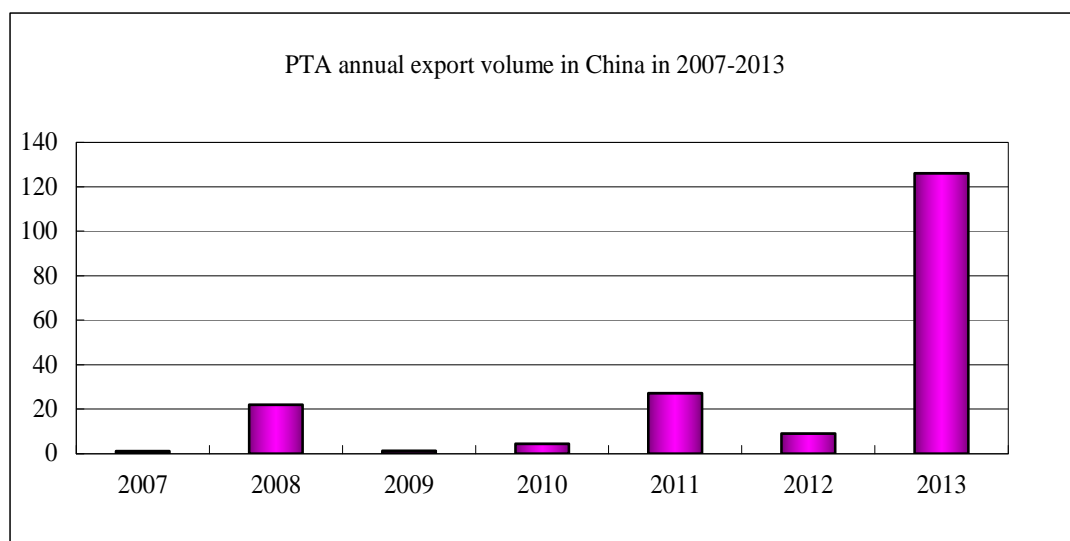
**Chart 16 Major sources for PTA/QTA imports into China in 2013 (Unit: kt)**



### 2.3.2 PTA Export Data in China

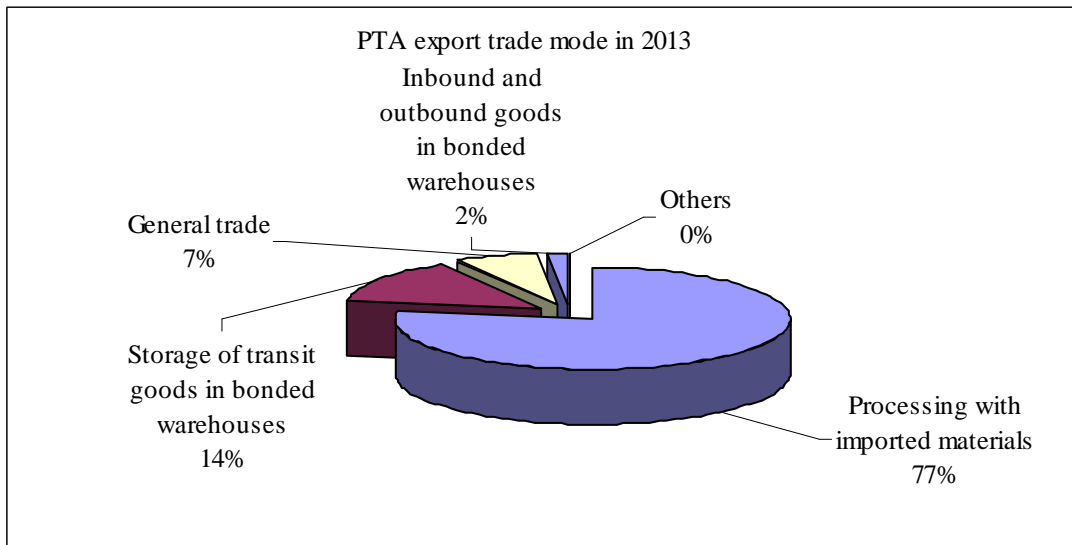
Besides a sharp increase in PTA production itself, the other significant growth in 2013 happens to the export volume. As is shown in the chart below, the annual export volumes for PTA in the past few years are all below 30kt. The export volume in 2008 increased slightly as domestic PTA capacity expanded continuously and domestic PTA suppliers could get higher profits in USD-based trade. In 2011, PTA export volume increased again, partly because some domestic producers sought opportunity in export market in anticipation of over-capacity in the future owing to another round of concentrated capacity expansion in China in the following few years, and another reason is that part of imports were re-exported to other countries for arbitrage when PTA prices in domestic market were trending down after hitting an all-time high in early 2011. China's export volume in 2013 is 126 kt, a historical high.

**Chart 17**



In terms of export destination and trade mode, China's PTA export trades in 2013 were mainly done by 'processing with imported materials', with export volume amounting to 97.8 kt, which accounted for around 77%, a further increase from that in 2012. The direct cause is the significant growth of domestic supply, which prompted some producers to make use of the policy of "refund of duty after entry into duty-free zone" and solve the problems like complicated procedures for the deep processing transit and no permission for drawback of duty for deep processing trade by means of "export first and then import". And the next comes to 'transit goods of warehouse in bonded area', and the export volume in this way in 2013 amounts to 17.6kt, which accounted for 14% of the total, and the export volume through 'general trade' is 8.7kt, accounting for 7% of the total. The export volume by means of 'inbound and outbound goods in bonded warehouses' is very limited.

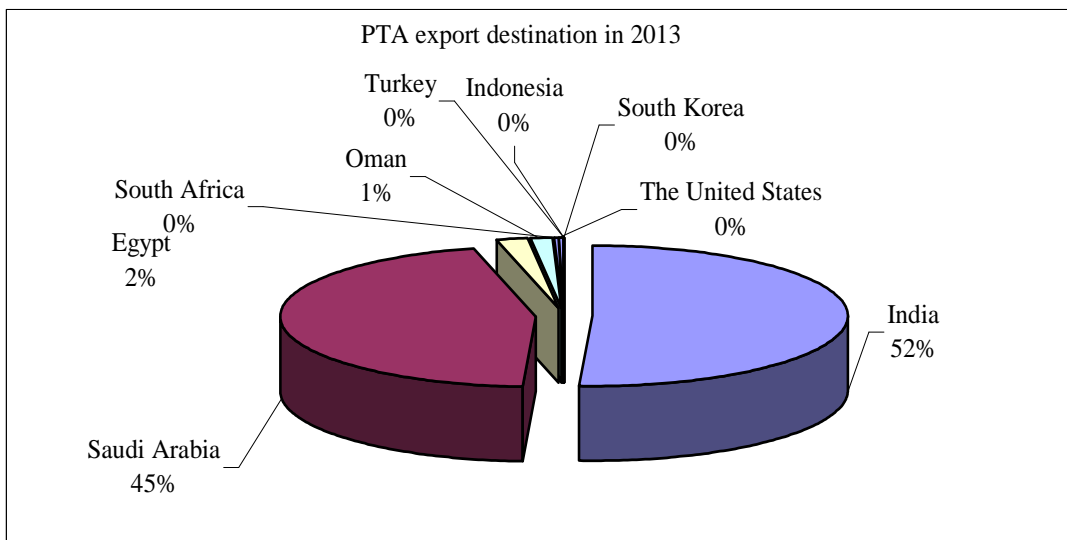
**Chart 18**



As for export destination, the PTA exports from China still mostly go to India and Saudi Arabia. The volumes exported to the two regions in 2013 respectively totaled 64,226 tons and 56,975 tons (mainly through processing with customers' materials to one BGPET producer in Saudi Arabia), accounting for 51.0% and 45% of the total PTA exports from China. Egypt, Oman and South Africa followed them.

Polyester capacities in Middle East gradually increased in the last 2 years. Participants in this area tend to import PTA from China before the release of local PTA capacities due to lower freight and prices. Therefore, more and more China domestic PTA producers are also considering export to the countries of this region owing to the sharp increase of PTA capacity in China.

**Chart 19**



**2.3.3 China PTA Import & Export Outlook**

From the speed for the startups of new PTA capacities in the past years, theoretically China

can achieve self-sufficient supply of PTA by around 2014. Therefore, domestic PTA producers need put more efforts to export market. And Middle East may be the best export destination for Chinese sellers given price advantage. In addition, Duty-free One-day Trip will be an important try for domestic PTA producers to seize the share of trade by 'processing and assembling with customers' materials' in the future. After all, given the average domestic price in 2013 at 7,821.5 yuan/ton against the average USD-based price at \$1,066.7/ton during the same period, there is a noticeable advantage for Duty-free One-day Trip. China's total annual export volume of BGPET chips is over one million tons, so why not hold the opportunities to domestic PTA producers?

On the other hand, there are some tariff advantages for imports from Malaysia due to the existence of the China-ASEAN Agreement on Trade in Services, so China cannot completely shrug off import by the trade mode of 'processing and assembling with customers' materials'. Moreover, purchasing USD-based goods by letters of credits could reduce the occupancy of capital. To polyester producers, it is an irresistible allure. Therefore, import volume of PTA can never reach zero.

In any cases, PTA producers will pay more attention to export market in and after 2014, and PTA export will undoubtedly become an important channel for Chinese PTA producers.

## 2.4 Influence from Demand in 2013

### 2.4.1 Influence on PTA Market from Changes in Polyester Sector

Polyester sector is the largest PTA consumption field. Therefore, the changes happening in polyester market directly impact PTA price trend.

China's polyester industry saw capacity expansion after 2001. After the global financial crisis in 2008, China's polyester industry welcomed further quicker development on the back of significantly reducing prices for production facilities as well as a booming startups following a great increase on the cash flow for polyester industry as the sentiment bottomed out in 2009 and 2010.

Table 9 PET Capacity & production and the demand for PTA in China in 2008-2013

Year	2008	2009	2010	2011	2012	2013
PET capacity (kt/yr)	27,030	26,180	29,040	31,800	39,600	<b>43,530</b>
PET production (kt)	17,466	19,432	21,907	25,277	29,864	<b>31,148</b>
Demand for PTA (kt)	15,021	16,712	18,840	21,738	25,683	<b>26,786</b>
Y-o-Y Growth on demand	-4.66%	11.26%	12.73%	15.38%	18.15%	<b>4.3%</b>

From the above table we can find out that the demand for PTA by China's polyester sector has grown gradually from 15.021 million tons in 2008 to around 27 million tons (estimated) in



2013, a sharp increase of 79.7% within the six years. Another point needing to be cared about is that the speed of the startup of new polyester projects slowed down notably in 2013 following a reduction of the cash flow margin of polyester industry from 2012. The newly added polyester capacity in 2013 amounts to 4,130 kt/yr, against a growth of 4.3% on the demand for PTA.

Table 10 Start-up of polyester capacity in China in 2013 (kt/yr)

Company	Location	Product	Capacity	Start-up time	Remark
Jiaxing Longteng	Jiaxing	Polyester filament	200	17 Jan 13	FDY
Fujian Jinlun	Fujian	Polyester filament	250	19 Jan 13	POY+FDY
Tongkun Hengteng	Huzhou	Polyester filament	400	25 Jan 13	POY
Xinfengming Zhongwei	Tongxiang	Polyester filament	250	6 Feb 13	POY
Fujian Billion	Fujian	Polyester filament	330	19 Feb 13	POY+FDY
Jiangsu Hongtai	Dongtai	Polyester filament	250	18 Mar 13	POY
Ningbo Keren	Ningbo	PET film	200	6 Apr 13	Mainly produce polyester chip
Hengli Hengke	Nantong	Polyester filament	200	12 Apr 13	FDY
Kanghui Petrochemical	Yingkou	PET film	300	6 May 13	Mainly produced PET chip; shut in Oct-end for change to film
Yizheng Chemical Fiber	Yizheng	PET film	200	11 May 13	
Wujiang Xinmin	Shengze	Polyester filament	100	Jun-13	FDY
Huaxing Tyre	Ningbo	Polyester filament	200	12 Jul 13	POY
Sanfangxiang	Jiangyin	BGPET chip	300	Sep 13	
Hainan Yisheng	Hainan	BGPET chip	500	Sep 13	
Fujian Jingwei	Fujian	Polyester staple	250	Oct 13	
Hengli Hengke	Nantong	Polyester filament	200	Dec 13	
<b>Total</b>			<b>4,130</b>		

#### A. BGPET Chip

The production capacity of China's BGPET industry has expanded rapidly since 2002, with the capacities of single production units mainly being 200kt/yr, and China has gradually changed into a BGPET exporter from an importer, with BGPET capacity also in an uptrend. In 2008, China's BGPET market basically achieved a stable market structure, but after entering 2009, the industry again witnessed concentrated expansion, as some enterprises turned their attention to the non-fiber-oriented polyester sector.

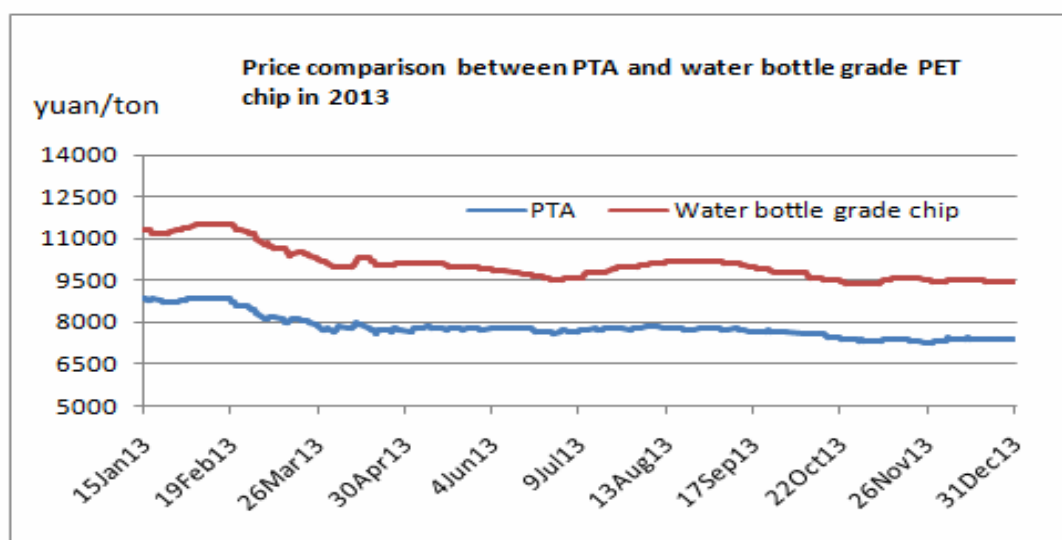


**Table 11 China's BGPET Production and Demand for PTA in 2008-2013**

Year	2008	2009	2010	2011	2012	2013
Capacity (kt/yr)	3,770	4,020	5,510	6,460	6,820	7,270
Production (kt)	2,510	2,732	3,390	4,010	4,670	5,340
Demand for PTA (kt)	2,133.5	2,322.2	2,881.5	3,448.6	4,016.2	4,592.4

From the above table we can see that demand for PTA from BGPET chip sector gradually increased to around 4.6 million tons (estimated) by 2013 from around 2.13 million tons in 2008, up 115.3% within just 6 years. In 2013, newly added capacities for bottle grade chips total around 800 kt/yr, so the demand for PTA remains strong.

In terms of the price trend, BGPET's price curve is similar with PTA's. BGPET prices fluctuated downward in the first half of the year, while in the second half of the year, BGPET chip market changed sharply due to noticeable seasonal reason. The correlation coefficient of domestic prices between PTA and BGPET chips in 2013 is 0.9660.

**Chart 20**

### B. Polyester Filament Yarn (PFY)

The capacity of China's PFY industry has expanded rapidly since 2004, and the capacities of single production units are mainly at 200 kt/yr. After the sharp capacity expansion during 2004-2005 in China, the PFY sale also gradually spreads into the international markets, with China changing from the original PFY importer into an exporter, and the net export volume has also been increasing continuously. With the increase of PFY capacity in China, its demand for PTA is also on the rise.

**Table 12. China's PFY Production and Demand for PTA in 2008-2013**

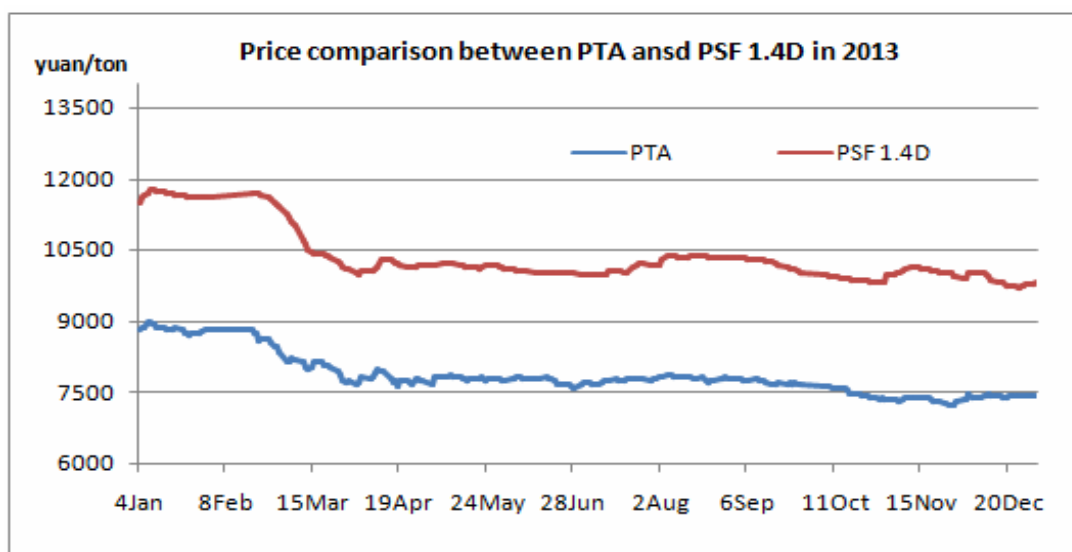
Year	2008	2009	2010	2011	2012	2013
Capacity (kt/yr)	17,905	19,105	20,785	23,860	26,660	29,080
Production	12,829	14,750	17,000	19,200	20,500	21,740
Demand for PTA	10,905	12,538	14,450	16,510	17,630	18,700

From the above table we can learn that PTA annual demand from PFY sector gradually increased to 18.70 million tons (estimated) in 2013 from around 10.905 million tons in 2008, with

a growth rate around 71.5% within the six years. From 2012, as margins for PFY production significantly decreased compared with earlier years, the companies with new PFY capacities due on stream in 2012 mostly slowed down their startups. In 2013, only 2.38 million t/a of new capacities were released, so the demand growth for PTA decreased obviously.

In terms of the price trend (taking POY150D/48F as an example), POY's curve is less similar with PTA's compared with BGPET. From the chart below we can see that the downside of POY in Q3 is steeper than that of PTA. Correlation coefficient between PTA and POY prices in 2013 is 0.9546.

**Chart 21**



### C. Polyester Staple Fiber (PSF)

China's PSF industry has basically had a surplus in capacity since 2004, mainly as the capacity expansion was too rapid during 2003-2004. Entering 2005, overall operating rates of PSF industry reduced to around 60%-70%, and the growth of its demand for PTA also slowed down gradually. By 2008, its demand for PTA saw a negative growth. In 2010, however, given cotton shortage, PSF sector enjoyed robust demand and good sales, so overall operating rates climbed up; but in 2011 and 2012, as margins shrank year by year, PSF producers had to cut production and thus its demand for PTA showed limited growth.

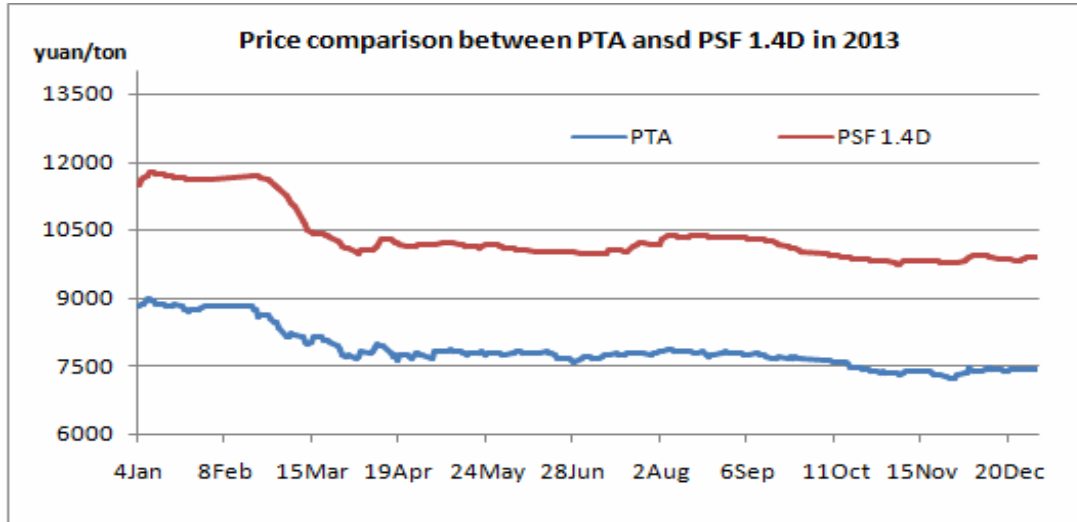
**Table 13. China's PSF Production and Demand for PTA in 2008-2013**

Year	2008	2009	2010	2011	2012	2013
Capacity (kt/yr)	5,350	5,580	5,600	5,750	6,120	6,270
Production (kt)	3,780	3,960	4,070	4,350	3,980	4,070
Demand for PTA	3,213	3,405.6	3,500.2	3,741	3,423	3,500

From the above table we can see that PTA annual demand from PSF sector gradually increased to around 3.50 million tons in 2013 from around 3.21 million tons in 2008. Newly added capacity of PSF in 2013 is only 250kt/yr for one unit of Fujian Jingwei, and the capacity growth obviously slowed down, just as that of PFY.

From the price trends of PTA and PSF we can learn that PSF has a similar trend with PTA in 2013. In the first half of 2013, PSF prices moved down, then ranged bound in mid year, and fluctuated in Q3. Correlation coefficient between PTA and PSF 1.4D is 0.9660 in 2013.

**Chart 22**



## 2.5 PTA Futures Market



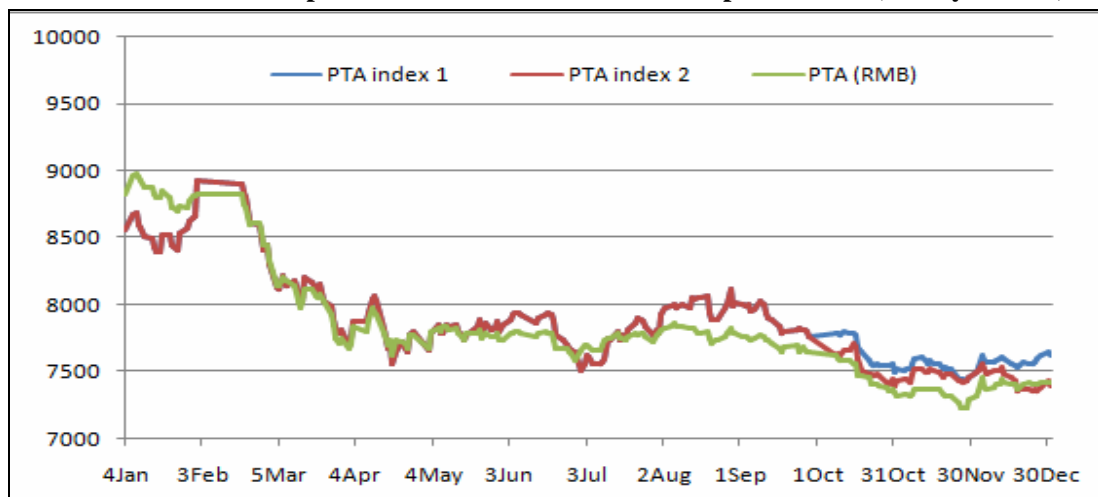
In the first half of 2013, PTA futures price basically ran along a similar downtrend as PTA spot price, except a small deviation in early Q1. Before the Spring Festival, PTA futures price moved up more quickly than spot price, and TA1309 once hit the mark of 9,000 yuan/ton. After the holiday, both showed the same trend. Affected by a sharp slump on the prices of petrochemical products in late April, TA1309 once retreated to the 7,400 yuan/ton mark. With spot price going steady later, TA1309 price also fluctuated between 7,500-7,900 yuan/ton.

In the second half of 2013, the arbitrage room for PTA futures in prompt months became clear gradually. Spot PTA price picked up step by step from 7,600 yuan/ton to 7,900 yuan/ton, and then fluctuated downward to about 7,250 yuan/ton. From early August to the end of October, PTA futures TA1401 always saw a premium of 200 yuan/ton over spot price. Players in long position

continued to inject funds to control the fundamental, and were said to squeeze positions in July and August. From October, the brisk liquidity of TA1401 weakened notably, while the transaction of TA1405 became more active. However, TA1405 saw smaller room to rise in October.

The chart below is the comparison of price trends of PTA spots and futures in 2013. The correlation coefficient between dominant PTA futures and PTA spots amounts to 0.956 in Jan-Dec 2013. From Feb to Jun, the correlation coefficient is as high as 0.983. Comparatively speaking, the correlation coefficient between TA1401 and spots is 0.953 after October, while that between TA1405 and spots is slightly weaker, at 0.657 during the same period.

**Chart 23 Price comparison between PTA futures and spots in 2013 (Unit: yuan/ton)**



(PS. PTA index 1 refers to the price of PTA futures of TA1401, and PTA index 2 refers to the price of PTA futures TA1405.)

## 2.6 Macroeconomic Environment in China

World economy generally presents the characteristics of recovery amid strong consolidations in 2013. On one hand, the economic performance in the developed economic entities like the US, Europe and Japan has showed signs of resurgence, but still can't get rid of the dilemma between economic stimulus and reduction of financial deficit, meaning still some challenges facing the prospect. On the other hand, that in the developing countries shows divergence. Some emerging economies have seen an obvious slowdown in growth, while sub-Saharan African countries maintain steady movements. Overall, it can be concluded that the North-South difference in growth of world economy is still in sight, while the economy of developing countries led by the emerging economies still keeps going upwards.

### 2.6.1 Economic situation and policies in China

In 2013, China's economic policy of stabilizing growth gradually took effect. While ensure economic growth rate and employment level above the floor and the margin of price rise below the ceiling, the pertinence and stability of macroeconomic policies are also maintained. It is expected that the annual GDP growth will reach 7.6 percent; hereinto, that of investment in fixed

assets will be at 20.1 percent, exceeding the target of 18 percent; that of total retail sales of consumer goods will be at 13 percent, below the target of 14.5 percent; and that of exports will be around 8 percent, close to the target.

Contribution of investment to economic growth strengthens. In the first three quarters, the contribution rate of investment to GDP was at 55.8 percent, up 5.3 percentage points over the same period last year, pulling up GDP growth rate by 4.3 percentage points. During the same period, the investment in real estate grew by 19.7 percent, up 4.3 percentage points from a year before, and it is expected that the annual growth of the item will be at 18.5 percent.

The reform measures, which focus on economic quality and tend to accelerate structural adjustment and enhance economic vitality and momentum, by the new government has played an active role, making the service industry, the emerging industries and the private economies become the highlights of this year's economic development.

In the consumer sector, the growth deceleration of resident income and the drop of retail price growth have led to the slowdown of consumption growth. Because of the strict control of official consumption, from January to September, the income growth of catering industry eased 4.3 percentage points from a year earlier, pulling down the growth rate of total retail sales of consumer goods by 0.5 percentage points. It is predicted that the annual growth rate of total retail sales of consumer goods will be at 13 percent, below the target of 14.5 percent. In the meantime, due to loose currency liquidity and rising pressure from wage cost, the whole-year CPI growth is predicted at 2.7 percent.

As for foreign trade, in the first nine months, China's exports climbed by 8 percent on a year-on-year basis. And if factoring out the export growth at only 4.6 percent of Hong Kong, the export growth rate during the period would increase to 8.5 percent. It is expected that the annual export growth would be at 8 percent, close to the target, while the import growth would be at 7.5 percent, with a trade surplus at \$258.5 billion, up 11.9 percent from a year-ago period.

In the first three quarters, the tertiary industry grew by 8.4 percent year-on-year, taking up 45.5 percent of GDP, which is 1.6 percentage points over the same period last year. Besides, the proportion of the investments from private enterprises in infrastructure construction was close to 25 percent, with the investment value surging by 35.6 percent year-on-year.

### **2.6.2 Import and export situation of textile industry in China**

According to the statistics from the General Administration of Customs (GAC), in January-September 2013, the total export and import value of textiles and apparels in China amounted to \$229.64 billion, up 11.8 percent over the same period of last year; hereinto, the export value was at \$209.53 billion, up 12 percent, while the import value was at \$20.11 billion, up 10.7 percent, leading a trade surplus of 189.42 billion, up 12.1 percent.

In Q1, the export and import value of textiles and apparels in China reached \$63.78 billion, up 15.1 percent year-on-year; hereinto, the export rose 15.7 percent to \$57.89 billion, while the import increased 9.1 percent to \$5.89 billion, leading to a surplus of \$52 billion, up 16.5 percent.

During the period, the export and import each month all presented obvious fluctuations. In January and February, the exports realized growths, especially in February when the rate hit as high as 70 percent, but in March, a decline of 11 percent was detected. As for the import, growths were found in January and March, with the rate in the former at 66.6 percent, but in February, the growth was trapped in negative territory of nearly minus 30 percent. In March alone, the transaction value of textiles and apparels arrived at \$19.05 billion, down 8.9 percent year-on-year; hereinto, the export fell by 11 percent to \$16.72 billion, while the import ascended by 9.6 percent to \$2.33 billion, causing a surplus of \$14.39 billion, down 13.7 percent.

In Q2, the export growth of textiles and apparels in China slackened somewhat. Due to the distortion for exports in April and the correction in May, the fluctuations remained. In May and June, export growths obviously retarded, resulting the overall growth at 9.2 percent for Q2, down from 15.7 percent in Q1. In June alone, the transaction value of textiles and apparels were at \$26.22 billion, up 5.2 percent year-on-year; hereinto, the export moved up by 5.3 percent to \$24.09 billion, while the import rose by 4.6 percent to \$2.13 billion, leading to a surplus of \$21.96 billion, up 5.3 percent.

In Q3, as the period is the conventional busy season for foreign trade, the textile and apparel exports kept hiking, with the growth rates recording two digits for two consecutive months in July-August. In September, due to the high base number of last September, the rate dipped slightly, albeit still at close to 6 percent. The overall export growth in the third quarter was seen at 11.8 percent, higher than that in Q2, while the overall import growth was even faster at 12.8 percent, exceeding that in both January and February.

### **2.6.3 China's policy and economic outlook in 2014**

On the backdrop of stabilizing economy domestically, the frequent implement of favorable policies and improving external environment, China's textile and apparel export situation received substantial enhancement in the first three quarters, with the growth rates of cumulative import and export both at two-digit numbers, exceeding the general growth rate of domestic goods trade. Despite the mild rally of export situation, it will still take some time for the traditional market economy to restore, as the economy of emerging markets has slowed with more uncertainties, while the RMB appreciation also brings about more pressure. Coupled with the fact that export stabilized in the fourth quarter of 2012, it is predicted that in Q4 2013, the export growth will decrease somewhat.

The regulation on overcapacity will remain one of the key points of macroeconomic policy, as the maldistribution of industrial capacities will greatly affect the real economy in China, in view of the facts that, on one hand, the excess capacity is very severe; and on the other hand, the continuous decline of product prices will mire the enterprises amid smaller profit margins. However, such situation will relieve in the coming two years. On the flip side, the admittance to some special fields in China, such as petroleum and financial fields, has been freed, with non-public and public sectors of the economy on the impartial position, which will irritate the



confidence and activity of private investment.

Moreover, the RMB depreciation stemming from US dollar appreciation should also be monitor, as it may lead to the massive withdrawal of hot money in China domestic market. Chinese players are advised to pay close attention and guard against the impact from the above issue. Of course, if the US Fed quits the quantitative easing (QE) programme, the pressure on RMB appreciation may ease, and in turn the dilemma facing the monetary policy will also reduce. Currently, RMB appreciation is mainly passive, caused by dollar depreciation. If the US authority stops QE measures, the dollar depreciation will also come to an end. Then, RMB appreciation pressure will also be alleviated. And from the aspect of stabilizing growth, it will help to recover China's exports, bringing substantial benefits to domestic exporters in China.

To sum up, in 2014, the factors that will pillar the economic growth of China lie in the improvement in export situation and the emergence of this year's policy effect and reform advantages.

### 3. Industry Performance

#### 3.1 Unit Consumption of Main Feedstock

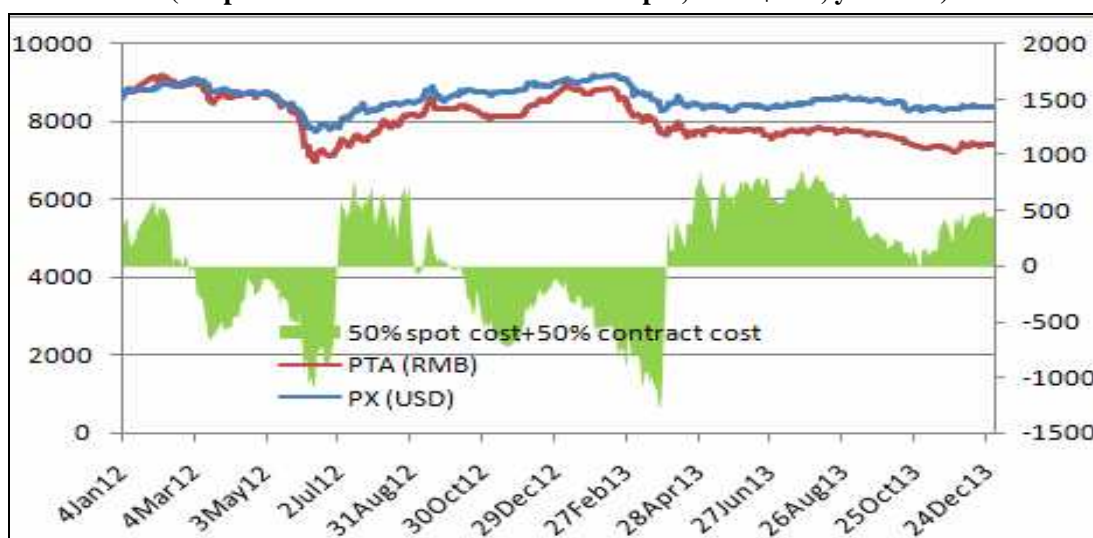
With the development of PTA process technologies, the production cost of PTA has decreased in certain degree. Currently, the production costs excluding feedstock PX cost are at around 900-1,000 yuan/ton, with those for new units at 1,100 yuan/ton and those for old large-scale units at 800 yuan/ton or below.

$$\text{PTA Cost} = \text{PX} \times 0.667 + \text{Acetic Acid} \times 0.040 + \text{Others (RMB 15/mt)} + \text{Electricity \& Water \& Sewage Utilities (RMB 400/mt)} + (\text{Machinery Depreciation} + \text{Management} + \text{Wages and Welfare RMB 500-600/mt})$$

#### 3.2 Profit Margins of PTA Producers in 2013

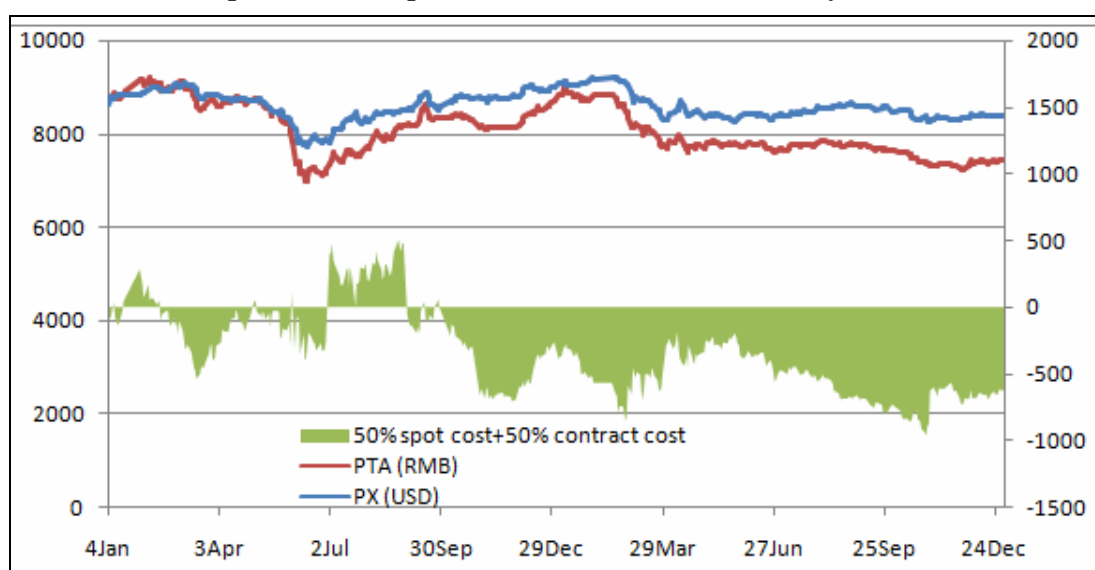
In 2013, with unsatisfactory macroeconomic environment and increasingly prominent short availability of PX caused by fast expansion of PTA capacity, Chinese PTA producers suffered from sharp reduction of profit margins showed in the chart below.

**Chart 25 PTA cash flow margin from 2012 to 2013**  
(PX price one month earlier than PTA spot, unit: \$/ton, yuan/ton)



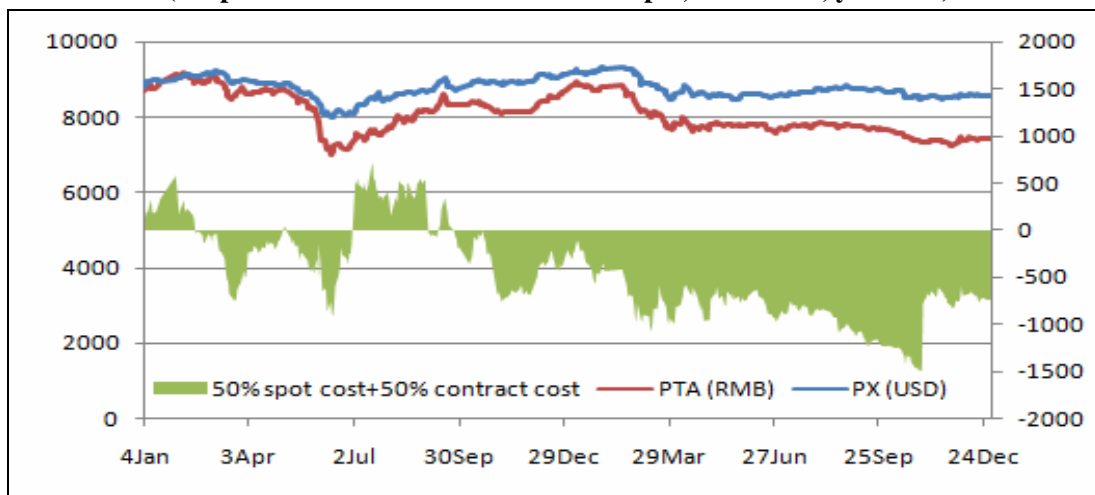
The above chart shows PTA cash flow margin between January 2012 and the end of 2013. The calculation is based on USD-based price for PX ACP and PX spots, with the processing fees of variable costs at 900 yuan/ton and the approximate  $\alpha$  value of 2013 at 7.5. Meanwhile, the price of PX spots is one month earlier than that of PTA spots. From the chart we can find that, PTA producers can gain passable margin given one-month spread between PX spots and PTA spots, and from the second quarter of 2013, their margin is positive. The average dynamic margin in 2012 was -110.4 yuan/ton based on such kind of calculation method, while the number in 2013 is 228.1 yuan/ton. However, such kind of calculation method does not completely tally with the actual situation. Then let's have a look at the following chart.

**Chart 26 PTA cash flow margin from 2012 to 2013**  
(PX price and PTA price at the same time, Unit: \$/ton, yuan/ton)



The above chart shows the variable cost calculated based on PX ACP, spot PX and PTA at the same month. Under this circumstance, the average variable margin in 2012 was -140.3 yuan/ton, and the number in 2013 is -519.6 yuan/ton, far away from the actual situation in 2013.

**Chart 27 PTA cash flow margin from 2012 to 2013**  
(PX price half month earlier than PTA spot, unit: \$/ton, yuan/ton)





Let's have a look at the third method to calculate the variable margin. Here the price of PX spots is half month earlier than that of PTA spots, while there is little difference from the second method. Based on the third method, the average variable margin in 2012 was -120.5 yuan/ton, and the number in 2013 is -554.9 yuan/ton.

Table 14 PTA cash flow from 2012 to 2013 (Unit: yuan/ton)

	One month spread	No time spread	Half-month spread
2012	-110.4	-140.3	-120.5
2013	228.1	-519.6	-554.9

To sum up, PX purchasing timing is very important in calculating PTA variable margin. We can see quite different results based on three different PX purchasing timings. Actually, because of great changes in market sentiment and the funds pressure, PTA producers could hardly store up a large volume of PX inventories. So the first kind of situation (one-month spread) cannot happen, which means most PTA producers actually have no chance to make profits. Besides, since we just calculate an average number when choosing the processing fees and the  $\alpha$  value, producers with low processing fees (below the average level of 900 yuan/ton) and  $\alpha$  value at 5 (the lowest level in China in 2013) will have certain cost advantages.

## 4. PTA Fundamental Outlook in China in 2014

### 4.1 PTA Supply Outlook in China

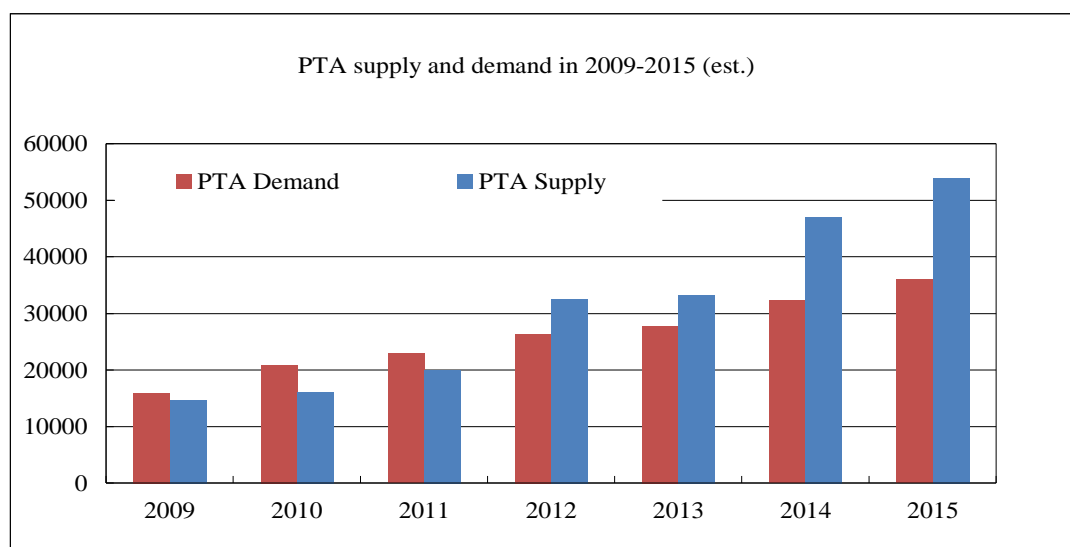
As mentioned above, because of the delay of startups in 2013, about 14.15 million t/a of new PTA capacities will be brought on stream in China in 2014. And the total PTA capacity in China will amount to 47.49 million t/a. What's more, it's almost certain that the startup of PTA unit of Xianglu Petrochemical will be postponed to February 2014, so the pressure from a massive capacity expansion in the first half of 2014 will be larger than that in the second half of 2014. As for the polyester sector, it's predicted that over 6 million t/a of new PET capacities will be put into market in 2014, following a delay on the capacity expansion in 2013. However, only two PSF units and two BGPET chip units have been confirmed to start up in 2014, while it is still doubtful how many new PFY units will be brought on stream in 2014. Moreover, the time schedules for the startup of most units are in the second half of 2014, and the first half of 2014 will only see the startup of some units that have originally be scheduled to come on stream in 2013. Therefore, there will still be a noticeable contradiction between the supply and the demand of PTA. The theoretical run rate in 2014 will probably be below 70%, down another 6-7 percentage points from 2013. Of course, the substantial average run rate of PTA units in 2013 is far above the theoretical level of 75%.

Table 15 New polyester capacities in China in 2014 (Unit: kt/yr)

Company	Capacity	Expected start-up time	Remark
Huaxiang High-tech Fiber	400	Q1, 2014	Polyester filament
Hongjian Polyester	400	Q1, 2014	Polyester filament
Zhejiang Southeast Space Frame	200	Q1, 2014	Polyester filament

Company	Capacity	Expected start-up time	Remark
Longqiwan Chemical Fiber	400	Q1, 2014	Polyester filament
Shandong Huahong	120	Q1, 2014	Polyester staple
Hainan Yisheng	500	Q1, 2014	BGPET Chip
Fujian Shanli	200	Q2, 2014	Polyester staple
Ningbo Huaxin	500	Q2-Q3, 2014	Polyester filament
China Resources Zhuhai	300	Q2-Q3, 2014	BGPET Chip
Kanghui Petrochemical	200	Q2-Q3, 2014	PET film
Hengli Hengke	400	Q2-Q4, 2014	Polyester filament
Fujian Jinxing	200	Q3, 2014	Polyester staple
Xiaoshan Shuangtu	500	Q3-Q4, 2014	Polyester filament
Xinfengming Huzhou	500	Q3-Q4, 2014	Polyester filament
Jiangsu Lixin	250	Q3-Q4, 2014	Polyester filament
Guowang High-tech	500	Q4, 2014	Polyester filament
Haixin Group	400	Q4, 2014	Polyester filament
Tongkun Hengbang	400	Q4, 2014	Polyester filament
Fujian Shanli	200	Q4, 2014	Polyester filament
合计		6570 kt/yr	

Chart 28



#### 4.2 PTA Demand Outlook in China

As mentioned above, the macro-economic environment in 2014 will not improve too much compared with that in 2013. There are still too many uncertainties, and the largest possibility is the formal exit of QE, which will probably have some bad influence against the financial market. The supply and demand situation in 2014 has been analysed in the above, coupled with the delayed startup of some PX units from 2013 to the first half of 2014, so the pressure in the first half of 2014 will still be very heavy, no matter from the aspect of cost or from the supply in PTA market itself.

On the other hand, the competition among PTA suppliers will be more fierceful in 2014. The market trend in 2014 will be similar to that in 2012 and 2013, which means, the market stays low in early 2014, and then moves up, while the sentiment in the fourth quarter of 2014 will depend on the macro-economic situation and whether new PTA capacities can be brought on stream as scheduled.

It's predicted that PTA prices will not fluctuate too violently throughout 2014, and the fluctuation range will be probably between 6,800-8,000 yuan/ton.

## Attachments:

### 1. Price

**Appendix 1 Monthly average trading values for PX and PTA in 2013**

Month	PX (Spot, CFR China)	PTA	
		RMB	USD
Jan	1,681.2	8,825	1,188
Feb	1,696.7	8,588	1,171
Mar	1,522.2	8,021	1,098
Apr	1,465.0	7,773	1,040
May	1,427.0	7,784	1,050
Jun	1,437.0	7,738	1,057
Jul	1,452.1	7,734	1,071
Aug	1,505.8	7,795	1,097
Sep	1,498.3	7,702	1,065
Oct	1,446.2	7,479	1,019
Nov	1,415.0	7,317	992
Dec	1,434.7	7,398	996
<b>Average in 2013</b>	<b>1,498.4</b>	<b>7,846.2</b>	<b>1,070.3</b>

**Appendix 2 Contract Nominations and Settlements of Major Suppliers in 2013**

Month	PX (yuan/ton)			PTA (yuan/ton)	
	Nominations	ACP (\$/ton*)	Settlements of Sinopec	Nominations	Settlements
Jan	1,650-1,690	1,625	12,500	9,200-9,500	9,200
Feb	1,720-1,750	1,685	12,800	9,200-9,500	9,125
Mar	1,740-1,800	1,517 (Spot)	11,550	9,000-9,400	8,400
Apr	1,580-1,650	1,400	10,700	8,400-8,600	8,050
May	1,520-1,620	1,427 (Spot)	10,600	8,100-8,200	8,075
Jun	1,470-1,520	1,400	10,550	8,100-8,200	8,075, 8,100
Jul	1,490-1,550	1,410	10,650	8,100	8,050, 8,080
Aug	1,510-1,540	1,440	10,950	8,100-8,300	8,125
Sep	1,550-1,580	1,498 (Spot)	11,050	8,200-8,300	8,050, 8,200
Oct	1,540-1,560	1,470	10,750	8,100-8,200	7,850
Nov	1,470-1,480	1,415 (Spot)	10,400	7,600-7,700	7,550, 7,600, 7,625, 7,650
Dec	1,470	1,435 (Spot)	10,550	7,700	7,635

\*: USD-based price CFR Asia, L/C 90 days

### 2. Producers

**Appendix 3 New PTA Capacities Started up in China in 2013 (kt/yr)**

	Company	Location	Capacity (kt/a)	Startup Time
PX	Gulei PC	Zhangzhou, Fujian	800	Apr 2013
PX	Gulei PC	Zhangzhou, Fujian	800	Oct 2013
PX	Fujian Refining & Chemical	Fujian	120 (expansion)	Nov. 2013
PX	Hainan Refining & Chemical	Hainan	650	Dec. 2013
<b>Total</b>			<b>2,3700</b>	
PTA	FCFC Ningbo	Ningbo, Zhejiang	300 (expansion)	Mar 2013
<b>Total</b>			<b>300</b>	

**Appendix 4 Capacities of Chinese PX Producers in 2013 (kt/a)**

<b>Producer</b>	<b>Location</b>	<b>Current Capacity</b>	<b>Startup Time</b>
Sinopec Zhenhai R&C	Zhenhai	650	2003
Sinopec Jinling PC	Nanjing	600	2008
Sinopec Yangzi PC	Nanjing	800	1986, 2006
Sinopec Tianjin PC	Tianjin	410	2000
Sinopec Yanshan PC	Beijing	30	
Sinopec Shanghai PC	Shanghai	400+600	1985, 2009
Lidong Chemical	Qingdao	700	2006
CNPC Liaoyang PC	Liaoning	750	
CNPC Jilin PC	Jilin	120	
Sinopec Luoyang PC	Luoyang	220	2000
Sinopec Qilu PC	Shandong	80	1989
CNPC Urumqi PC	Urumqi	1,066	1997, 2010
Fujian R & C	Quanzhou	820	2009 (expansion in 2013)
Fujia Dahua	Dalian	800+700	2009, 2012
CNOOC Huizhou	Huizhou	800	2009
Gulei PC	Zhangzhou	1,600	2013
Hainan R & C	Hainan	650	2013
<b>Total:</b>			<b>11,796</b>

**Appendix 5 Capacities of Chinese PTA Producers in 2013 (kt/a)**

<b>Producer</b>	<b>Location</b>	<b>Existing Capacity</b>	<b>Startup Time</b>
Sinopec Shanghai PC	Shanghai	400	1984
Sinopec Yangzi PC	Jiangsu	1,300	1989/2006
Sinopec Tianjin PC	Tianjin	350	2000
Sinopec Luoyang PC	Henan	325	2000
Sinopec Yizheng CF	Jiangsu	950	1995/2003
CNPC Liaoyang PC	Liaoning	800	1996/2007
CNPC Urumqi PC	Xinjiang	96	1995
JNZHAF	Shandong	100 (idled)	1991
Xianglu PC	Fujian	1,600	2003
BP Zhuhai	Guangdong	1,650	2003/2008/2012 (expan.)
Yuangong PC	Zhejiang	3,200	2005/2007/2012 (expan.)
Mitsubishi Ningbo	Zhejiang	600	2007
Yisheng PC	Zhejiang	3,300	2006-2007/2011
Yisheng Dahua	Liaoning	5,250	2009/2012
Yisheng Hainan	Hainan	2,000	2012
FCFC Ningbo	Zhejiang	1,200	2008/2013 (expansion)
Oriental PC	Shanghai	800	2006/2012 (expansion)
Pengwei PC	Sichuan	900	2009
Jialong PC	Fujian	600	2010
Hanbang PC	Jiangsu	600	2010
Hailun PC	Jiangsu	1,200	2011/2013 (expansion)
Jiaying PC	Zhejiang	1,500	2012
Hengli PC	Liaoning	4,400	2012
<b>Total:</b>			<b>33,121 (effective 33,021)</b>

**Appendix 6 PX Capacity Expansion in Asia in 2014 (kt/a)**

Location /Country	Producer	Capacity	Startup Time
Fujian/ China	Fujian Refining and Chemical	300 (expansion)	Q1, 2014
Mangalore/ India	OMPL	900	Q1, 2014
Lasbela /Pakistan	Pakistan State Oil	92	Q1, 2014
Jubail /Saudi Arabia	Saudi Aramco	600	Q1, 2014
Sichuan/China	CNPC Pengzhou Petrochemical	700	Q1, 2014
Jurong /Singapore	Jurong Aromatics	800	Q1-Q2, 2014
Yanbu/Saudi Arabia	Yasref	700	Q1-Q2, 2014
Daesan/South Korea	Samsung Total	1,000	Q2-Q3, 2014
Incheon/South Korea	SK Energy	1,300	Q3-Q4, 2014
Ulsan/South Korea	Ulsan Aromatics	1,000	Q3-Q4, 2014
Yeosu/South Korea	GS Galtex	1,000	Q4, 2014
<b>Total</b>		<b>8,392</b>	

**Appendix 7 Asian New PTA Capacities to Start up in 2014 (kt/a)**

Producer	Nameplate Capacity	Remark
Xianglu Petrochemical	4,500	Q1
Yisheng Ningbo	2,000	Q1-Q3
Hengli Petrochemical	2,200	Q1-Q2
Honggang Petrochemical	1,500	Q1-Q2
Shengda Petrochemical	1,200	Q2-Q3
Hailun Petrochemical	1,500	Q2-Q3
BP Zhuhai	1,250	Q3-Q4
Oriental Petrochemical	1,500	Q2-Q3
Reliance Industries Limited	2,200	Q1-Q2
Indian Oil Corporation	600	Q1-Q2
<b>Total:</b>	<b>18,450</b>	

**3. Import & Export**

**Appendix 8 Monthly PX & PTA Import Data in 2013 (kt, \$/ton)**

Time	PX		PTA		QTA/EPTA	
	Imp. Vol.	Ave. Val.	Imp. Vol.	Ave. Val.	Imp. Vol.	Ave. Val.
Jan	680.9	1,629	258.3	1,181	74.1	1,153
Feb	744.6	1,676	213.0	1,195	44.9	1,165
Mar	829.3	1,681	194.9	1,176	47.1	1,154
Apr	799.8	1,557	206.3	1,083	61.3	1,075
May	687.9	1,463	191.8	1,043	59.0	1,021
Jun	646.4	1,443	161.9	1,051	49.8	1,029
Jul	786.8	1,445	146.2	1,062	44.6	1,031
Aug	787.5	1,461	141.4	1,088	58.6	1,045
Sep	786.7	1,502	161.6	1,101	63.1	1,055
Oct	670.4	1,504	157.1	1,069	33.3	1,028
Nov	849.6	1,462	146.3	1,018	38.6	983
Dec	782.9	1,419	157.6	1,000	32.0	958
Total & average	9,047.9	1,520	2,134.5	1,097	607.6	1,066

**Appendix 9 Monthly PX & PTA Export Data in 2013 (kt, \$/ton)**

Time	PX		PTA		QTA/EPTA	
	Exp. Vol.	Ave. Val.	Exp. Vol.	Ave. Val.	Exp. Vol.	Ave. Val.
Jan	10.4	1,533	1.6	1,198	—	—
Feb	22.8	1,700	0.5	4,580	—	—
Mar	25.9	1,611	3.0	1,215	—	—
Apr	15.4	1,552	2.5	1,120	—	—
May	15	1,512	7.6	1,065	—	—
Jun	20.8	1,439	10.9	1,083	—	—
Jup	10.2	1,451	19.1	1,080	—	—
Aug	20.1	1,490	26.8	1,076	—	—
Sep	14.9	1,517	22.7	1,088	—	—
Oct	4.9	1,545	6.2	1,080	—	—
Nov	15.0	1,491	10.1	1,019	—	—
Dec	14.5	1,429	15.2	1,011	—	—
Total & average	181.1	1,520	126.1	1,073	0.2	510

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