

*“World Coke & Coking Coal  
Market: Current Situation &  
Future Outlook”*

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Resource-Net  
Brussels, Belgium

*China Coke Market Congress  
Jinan, China  
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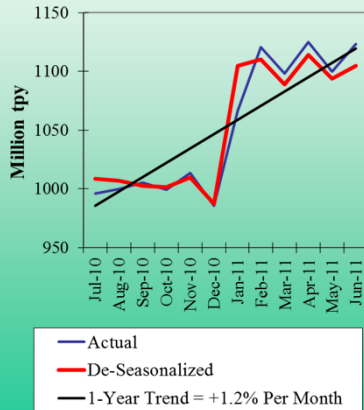
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**World Iron Output &  
Commodity Markets**

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## Global Annualized Pig Iron Output Data

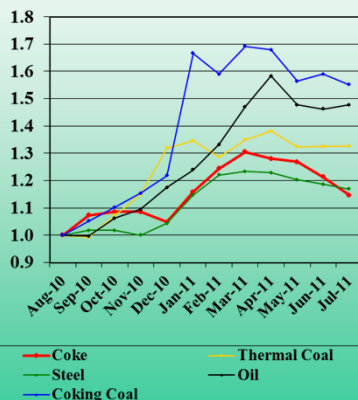
World Iron Output - Actual & Seasonally Adjusted



- World iron output was quite stable in first six months of year, following large rise from December 2010 to January 2011.
- Over the past six months, it has been difficult to perceive a trend in iron output. Rise in one month has been followed by decline in next month...
- Over one year, iron output has increased by an average of 1.2% per month.
- Second half 2011 may see decline due to poor sentiment in world economy.

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## Pricing for Coke Indexed vs Steel & Other Raw Materials – 2010-11



- Despite low growth in “western world” economies in 2010-11, commodity markets have risen by 20-60% over past 12 months.
- Coking coal prices increased substantially at start of year, due Australian floods; they have remained at high level in 2011.
- Prices for coke have not risen to same degree as coking coal, meaning there has been more profit in coal.
- Coke and steel prices show similar trend over past year, rising by 20-30%.
- Currently, instability in “Eurozone” economies had led to fears of economic downturn as severe as that of 2008-09.

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# Coke Market

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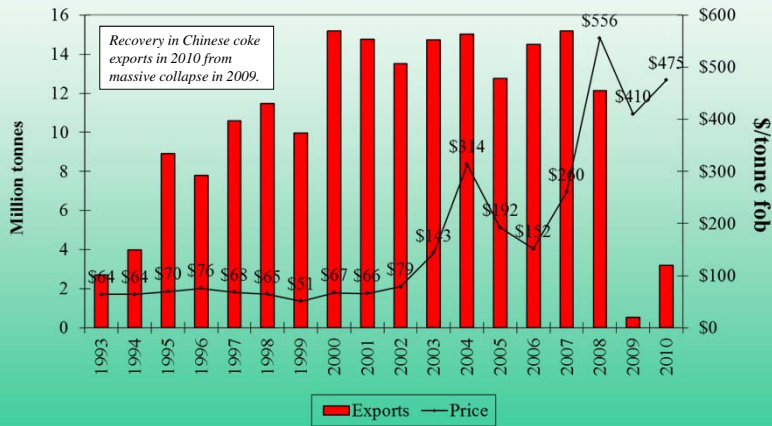
## Monthly Market Prices Reported by "Resource-Net"

<i>Grade</i>	<i>Basis, \$/tonne</i>	<i>Market Characteristics</i>
Blast Furnace Coke (30/90mm)	Europe cfr, India c&f, China fob	Main benchmark for the coke market, accounting for most of world trade. In the blast furnace, injection of coal (PCI) or of other materials can cut coke rate.
Nut (10/25mm)	Europe cfr, China fob	Reductant in some electric-arc furnace and other processes (e.g. ferroalloys, calcium carbide). Options exist for coke replacement. Apart from ferroalloys, this market is in decline outside China.
Foundry (80/220mm, 100/ 250mm)	Delivered Europe (Euro), China fob	Cupola furnaces (iron castings, stone wool). Long-term decline in iron foundry volumes in developed regions. Europe – quarterly pricing pattern.
Breeze (0/10mm)	Europe cfr	Used as fuel in ore-sintering and electrodes. Pricing tends to be "localized" due to relatively low value, so limited opportunities for international trade.
Coking Coal (hard & quality)	Australia fob, spot & contract China cfr	Switch to quarterly pricing from annual in 2010 in most international markets. We feel that import pricing (cfr) for Chinese market will be more meaningful than "fob" indications in the future.

Prices obtained by informal communication with industry participants i.e. traders, consumers.

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## Chinese Coke Price vs Exports



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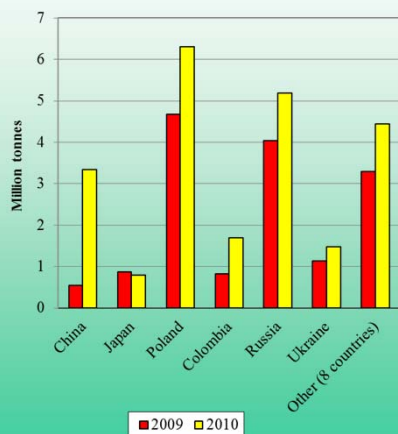
## Blast Furnace Coke Pricing



- Each month, “Resource-Net” reports blast furnace coke prices, obtained via dialogue with industry participants. For many years, the Chinese export price was the only world benchmark. However, due to 40% export tax applied from August 2008, Chinese pricing is not as meaningful for the world markets as it once was.
- Therefore, we now report prices for Indian imports and northern Europe as alternative indicators for the market.
- In 2009, there was large price gap between Chinese exports and world markets, so exports from China were only 0.5m tonnes.
- Since then, export prices from China and market prices in Europe and India have been on similar level. This has led to resumption of significant exports of coke from China – 3.3m tonnes in 2010 and 2.4m tonnes in first half of 2011.

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## Key World Coke Exporters



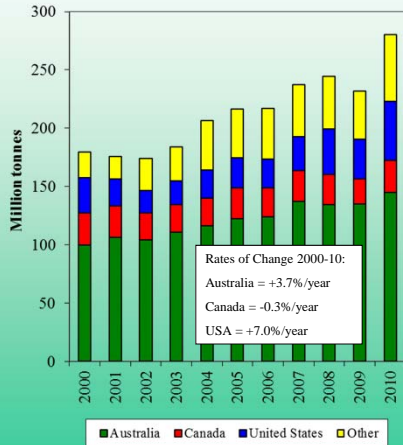
- Increase in export volumes from most suppliers in 2010 from previous year.
- China: 500% increase in export volumes from 2009 to last year due to rebound in world economy.
- Japan: exports in long-term decline, similar in 2010 compared to previous year.
- Poland: mainly supplies other European countries, though sales to India, Iran and Pakistan start in last three years.
- Colombia: traditional markets in Latin America, but also supplies Europe and India.
- CIS (Russia & Ukraine): becoming important suppliers to Middle East & India.

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## Coking Coal Market

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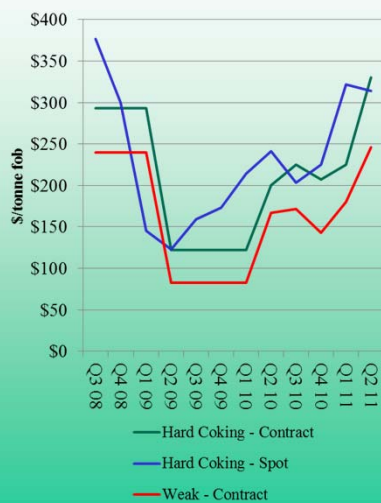
## Coking Coal Exports



- Between them, Australia, Canada and the US accounted for almost 80% of world coking coal trade in 2010.
- Australia alone accounted for more than half of world trade last year; it has taken 55-60% of the export volume in most years over the past decade.
- Previously in decline, US exports have rebounded in past ten years rising by an average of 7.0% per year. Canadian exports have been stable.
- The long-term supply structure will change from this year due to emergence of exports from Mongolia and Mozambique.

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## Coking Coal Pricing



- Shown are quarterly averages for hard and "weak" (semi-soft) coking coal "\$/tonne fob Australia". Price appears to represent premium quality of hard coking coal; inferior grades sell at discount.
- Contract pricing switched to quarterly from annual system in 2010.
- Hard coking coal prices increased three-fold to \$330/tonne fob in second quarter. This due to was disruption to rail lines because of catastrophic floods in Australia at start of 2011. Mid-way in year, problems with rail appear to have been solved, yet prices remain on high level... In Q3 price declined to \$315/tonne fob, only \$15/tonne lower.
- Negative side of quarterly pricing is that more management time is being tied up in price discussions. For this reason, quarterly pricing could be half-way solution; and published coking coal indices may play an important role in future supply agreements.

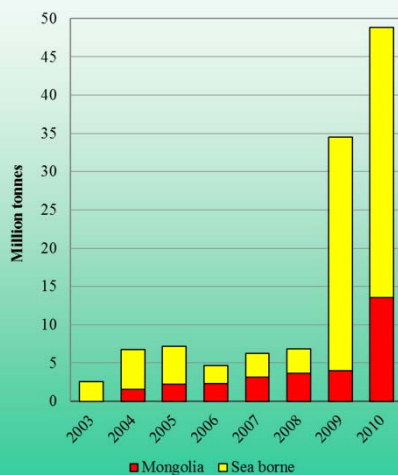
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## Coking Coal Price Indices

- From 2010, energy-publishing groups launched coking coal indices, based on bids and offers submitted on an electronic exchange. Various delivery points are specified, both “cfr” at the major markets and “fob” producer countries.
- Since there are currently few actual transactions made on these exchanges, our understanding is that the published indices are assessments by journalists via discussions with market participants using the bids and offers as a starting point.
- Long term, “cfr” pricing looks the best option as it will reflect all the major supply sources and provide true market transparency. If one takes Australian coal as the current benchmark, it makes more sense for other suppliers to match the “cfr” than the “fob” price for Australian coal.
- The often quoted problem with coking coal indices is the lack of standardization of coal types in the market. Whereas other commodities have broadly homogeneous specifications, this is not the case with coking coal.
- Pricing-adjustment mechanisms to take into account variations between coal types are unlikely to be successful unless they are frequently adapted to take into account market evolution. Even then, the value of a particular coal type depends to a large degree on the specific requirements of the end-user.
- Derivatives based on the coking coal indices are a likely long-term development. From history, such instruments are most likely to be used by those operating those on the margins of the business (e.g. investors in mining or steel equities) than those directly involved in the trade.

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## China's Coking Coal Imports



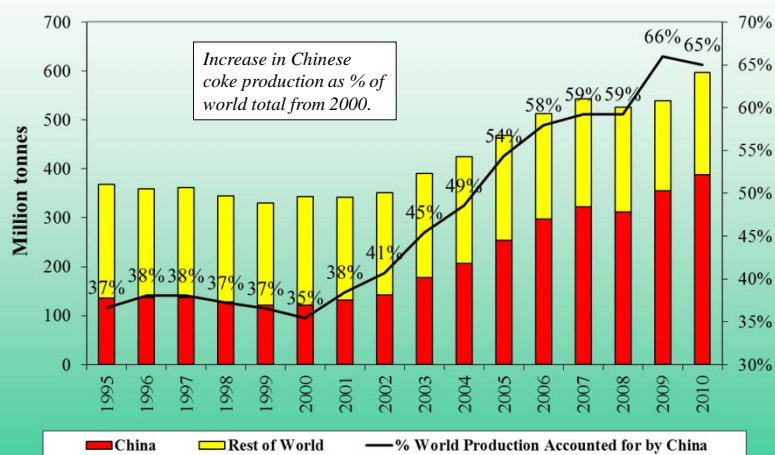
- China emerged as major import market for coking coal in 2009. Its imports of 34m tonnes in that year rose again to 49m tonnes in 2010. Of last year's quantity, more than 70% was sea-borne.
- We estimate that imports of coking coal were equivalent to 9% of total coking demand in China in 2010 (1-2% in years before 2009).
- In 2011, imports are likely to decline to 35-40m tonnes, with 40-50% likely to come from Mongolia.
- The shift away from sea-borne imports by China may lead to lower coal prices in second half.

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# Coke Production

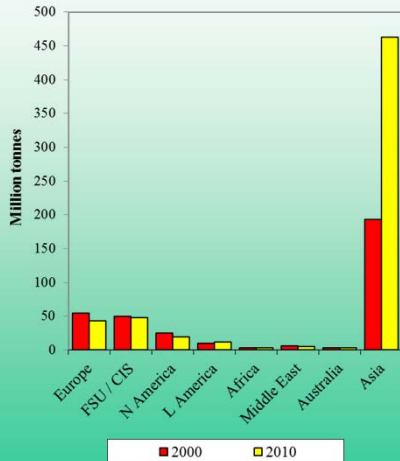
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## World Coke Production



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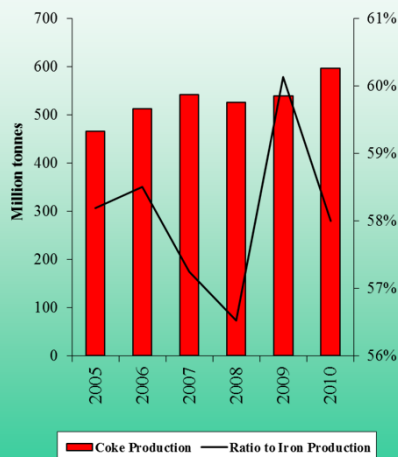
## Coke Production by Region



- World coke production has become increasingly dominated by Asia, and in particular China, over the past decade.
- From 2000 to 2010, Asian coke production increased from less than 200m tonnes to 460m tonnes.
- In contrast, European coke production has fallen by 22% over the same period. In North America, it has declined by 21% using the same comparison.
- The Fmr Soviet Union (CIS) has also seen some decrease in coke production, down by 3% over the past ten years.

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## World Coke Production & Ratio versus Iron Production



- Chart shows **world coke production** and **coke production as ratio over world iron production**. Over time, the ratio should tend towards same figure for technical reasons; variation is due to changes in coke stocks, i.e.:
  - High ratio = rise in stocks
  - Low ratio = decline in stocks
- Decrease in ratio in 2007-08 reflects declining stocks and tight market for coke.
- Increase in ratio in 2009 reflects high coke stocks due to world recession.
- In 2010 there was a decline in the ratio and therefore lower coke stocks.

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# Summary & Conclusions

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## Closing Comments

In first six months of 2011, world iron output has been on stable level, following significant rise from 2010. Lower iron output is likely in second half due to precarious economic situation.

Over the 12 months to July, coking coal prices increased by 50-60% due to Australian floods at start of 2011. Coke and steel prices have risen by only 15-20%, hence coke production has been uneconomic to date this year.

Export prices "fob China" have lost their significance as the main benchmark for the world market due to 40% export tax levied since August 2008. As Chinese coke pricing does not always show the real market, we have adopted prices for Europe and Indian imports as alternative indicators.

Coking coal producers have adopted quarterly pricing from 2010, adding a new factor to the coke market. Published indices for coking coal are likely to play a role in price setting in future.

Although weakness in prices is likely to emerge for the next six months, longer term the coke market will remain tightly supplied due to:

1. Closure of 14m tpy of coke capacity outside China since 2009 due economic crisis;
2. Delays in some new coking projects;
3. Imposition of 40% export tax on Chinese coke exports;
4. Growth of blast furnace capacity with no associated coke capacity in Asia.

Coking coal market may have peaked in 2011, however, due to:

1. Lower sea-borne imports by China;
2. Development of coking coal supply from Mongolia and Mozambique.

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