Why are customers in China important to U.S. Coking Coal producers?

- China is the primary growth area for worldwide steel production
- Traditional markets in the mature economies of Europe are struggling
- Coking coal exports to Brazil, and other South American countries, are stable but have not experienced the growth that has been forecasted for this region
- Growth in the North American steel market is limited
  - Low cost supplies of natural gas are displacing PCI coal at U.S. steel mills
  - Future production facilities in North America may shift to gas-based DRI production and reduce the demand for coking coal
World Blast Furnace Iron Production

![Graph showing World Blast Furnace Iron Production from 2003 to 2012. The graph compares production in Asia, ROW, and the total. The data shows an upward trend in production across the years.](image-url)
World Steel Production

![Graph showing world steel production from 2003 to 2012 with data points for Asia, ROW, and Total. The graph indicates an overall increase in production with fluctuations.]
# World Steel & Blast Furnace Iron Production CAGR 2003-2012

<table>
<thead>
<tr>
<th>Region</th>
<th>Blast Furnace Iron Production</th>
<th>Steel Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>8.83%</td>
<td>8.64%</td>
</tr>
<tr>
<td>ROW</td>
<td>(-1.42%)</td>
<td>0.13%</td>
</tr>
<tr>
<td>Total</td>
<td>5.18%</td>
<td>4.78%</td>
</tr>
</tbody>
</table>
World Steel - Capacity Utilization

[Graph showing World steel capacity utilisation ratio from November 2011 to April 2013, with values ranging from 73.5% to 82.0%.]
World Seaborne Coking Coal Trade-Imports (MT)
World Seaborne Coking Coal Trade-Imports (MT)
## World Seaborne Coking Coal Imports
### CAGR 1990-2012

<table>
<thead>
<tr>
<th>Region</th>
<th>Coking Coal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>6.05%</td>
</tr>
<tr>
<td>ROW</td>
<td>0.31%</td>
</tr>
<tr>
<td>Total</td>
<td>3.92%</td>
</tr>
</tbody>
</table>
World Seaborne Coking Coal Trade (MT)

Met Coal Seaborne Exports
- Australia
- Canada
- USA
- Other

2008: 242 MT
  - Australia: 134 MT
  - Canada: 43 MT
  - USA: 39 MT
  - Other: 27 MT

2009: 221 MT
  - Australia: 134 MT
  - Canada: 31 MT
  - USA: 34 MT
  - Other: 22 MT

2010: 288 MT
  - Australia: 159 MT
  - Canada: 51 MT
  - USA: 27 MT
  - Other: 51 MT

2011: 281 MT
  - Australia: 132 MT
  - Canada: 58 MT
  - USA: 63 MT
  - Other: 28 MT

2012: 296 MT
  - Australia: 144 MT
  - Canada: 63 MT
  - USA: 31 MT
  - Other: 58 MT
World Seaborne Coking Coal Trade-Exports (MT)
U.S. Coking Coal Exports

US Total Met Coal Exports - McCloskey

<table>
<thead>
<tr>
<th>Year</th>
<th>Metric Tons (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>29,284</td>
</tr>
<tr>
<td>2008</td>
<td>38,599</td>
</tr>
<tr>
<td>2009</td>
<td>33,803</td>
</tr>
<tr>
<td>2010</td>
<td>50,949</td>
</tr>
<tr>
<td>2011</td>
<td>63,078</td>
</tr>
<tr>
<td>2012</td>
<td>63,390</td>
</tr>
</tbody>
</table>
2012/2011 U.S. Coking Coal Exports

US Met Coal Exports- NMA

<table>
<thead>
<tr>
<th>Region</th>
<th>2012 (MT)</th>
<th>2011 (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>5,050</td>
<td>4,662</td>
</tr>
<tr>
<td>South America</td>
<td>7,948</td>
<td>8,190</td>
</tr>
<tr>
<td>Europe</td>
<td>25,921</td>
<td>28,878</td>
</tr>
<tr>
<td>Asia/Africa</td>
<td>24,472</td>
<td>21,350</td>
</tr>
</tbody>
</table>
Primary US Coking Coal Destinations

US Coking Coal Exports (MT)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>4,200,638</td>
<td>3,833,549</td>
<td>4,610,580</td>
<td>5,050,355</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>South America</td>
<td>3,330,914</td>
<td>7,445,538</td>
<td>8,242,443</td>
<td>7,947,604</td>
<td>-4%</td>
<td>139%</td>
</tr>
<tr>
<td>European Union</td>
<td>9,075,264</td>
<td>19,803,508</td>
<td>20,982,639</td>
<td>20,965,298</td>
<td>-0.1%</td>
<td>131%</td>
</tr>
<tr>
<td>Other Europe</td>
<td>705,297</td>
<td>4,843,660</td>
<td>7,891,895</td>
<td>4,954,855</td>
<td>-37%</td>
<td>603%</td>
</tr>
<tr>
<td>Asia &amp; Other</td>
<td>7,037,228</td>
<td>15,022,844</td>
<td>21,350,892</td>
<td>24,472,314</td>
<td>14.6%</td>
<td>248%</td>
</tr>
<tr>
<td>Domestic US Demand</td>
<td>22,000,000</td>
<td>19,000,000</td>
<td>21,400,000</td>
<td>21,800,000</td>
<td>2%</td>
<td>-1%</td>
</tr>
</tbody>
</table>
USA-Coking Coal Exports to Asia & Other 2000-2012

[Graph showing the trend of USA-Coking Coal Exports to Asia & Other from 2000 to 2012. The export quantities are increasing over time.]
USA-Coking Coal Exports to Asia 2000-2012 (by country)
China – Total Coal Imports in Mar. 2013

Note: Total imports=thermal coal+coking coal+anthracite+other coal+coal-based solid fuel
Primary Source: China Coal Resource (CCR)
China Thermal Coal/ Coking Coal Imports in Mar. 2013

Thermal Coal YTD '13 Qty (million tonne)
Thermal Coal YTD '12 Qty (million tonne)
Coking Coal YTD '13 Qty (million tonne)
Coking Coal YTD '12 Qty (million tonne)

Primary Source: China Coal Resource (CCR)
North American Coal Market

» Due to the decreased demand for all types of coal within the USA, exports reached a historic high in 2012

» In this market environment, most coal producers in the USA “need” to export coal to balance their sales portfolio and to realize sufficient revenue to sustain operations

» During 2012, significant quantities of coal were exported at aggressive prices to monetize inventories and sustain cash flow while companies restructured their operations

» Those surplus inventories have been depleted. Ongoing sales are being priced at prevailing market levels

» Coal producing companies continue to struggle to achieve profitability
In 2011 despite financial and regulatory restrictions, the U.S. mining industry was able to expand coking coal production.

- 2011 U.S. mining industry focused on coking coal investments / expansion / acquisitions.
  - Many companies placed large “bets” on coking coal (acquisitions).
- 2012 companies adjusted production to match demand.

Nevertheless two themes remain unchanged going into 2013:

- Capital directed toward coking coal vs. thermal coal
- Industry banking on export growth

Regulatory restrictions continue to impact productivity and cost structure.
For the first time since 2009, prices realized on export sales of thermal coal are at, or near, parity to prices achievable in the U.S. domestic market

Some U.S. coal producers now have the option to shift thermal coal tonnage to the U.S. domestic market

The evaluation for some CAPP producers, and most NAPP producers, is not based on the API2 price, but on the clearing prices in the domestic thermal market
Natural gas prices increased by 65% since May 10, 2012
U.S. Coal Producer’s Evaluation
Thermal vs. Coking / Domestic vs. Export

Our Northern App coal right now is going to 13 different countries. We have 53 different customers. Bailey coal goes into the high-vol coking coal market, it goes into the PCI market, and it goes to the thermal coal market. All these different markets including the Southeast. We're building a portfolio that gives us the flexibility to send the coal to the Southeast, if that's given us the best net back, or to keep it in the PJM markets if that’s the best net back, or to look overseas in other markets. Depending on the market, the net back, and the timing, that's where we'll send the coal to.

Jim Grech
Consol Energy Earnings Call
April 25, 2013
2011–2013 Significant Themes - Global Coking Coal Market

» 2011 and 2012 – Strong start, followed by a global economic slowdown, during the second half of each year.

» Encouraging developments in early 2013 petered out. Will 2013 follow the same pattern as 2011 and 2012?
  • Chinese Domestic Coking Coal prices in May 2013 lower than trough pricing in Oct 2012
  • Weakness in market conditions could persist through Q3.
  • Recent weakness in the Australian Dollar could exacerbate the situation as it might allow Australian suppliers to put off difficult supply cut decisions.

» Concerns related to the global financial situation created an environment where many buyers did not want to make long-term commitments in 2012. Sentiment turned positive in 2013 but now concerns about China now coming to forefront.

» The result may be more quarterly and less spot buying, similar to buying patterns before the 2008/2009 and 2011/2012 downturns
In 2010 and 2011, higher levels of U.S. seaborne coking coal tonnage were needed to balance the market.

2012 exports were stable but strong by historical standards
- US export levels returned to levels not achieved since the 1990’s

A structural shift in seaborne coking coal trade
- U.S. origin coal remains as a long term, sustainable supply source
- Customers worldwide implemented diversification strategy

Expect U.S. origin coking coal exports to remain relatively strong over the coming year
Seaborne Coking Coal to Customers in China

» Quality does matter.
  • Although imports of seaborne coking coal are price sensitive, Chinese customers require unblended coking coals that satisfy their quality requirements
  • New suppliers may have the perception that “you can ship anything to China”. This perception is not true

» Suppliers need to establish coal brands that provide customers a reliable, consistent, and sustainable supply of coking coal.
  • The customer needs to know that “Buchanan” coking coal, “Windber” coking coal, “Toms Run” coking coal, “Bailey” coking coal, etc., will be consistent on a shipment by shipment basis

» Suppliers need to provide technical support to ensure the customers utilize the seaborne coking coal to their maximum benefit.
  • Since Chinese customers were not familiar with U.S. origin coking coal when imports of U.S. coal started in 2009, it has taken a few years to educate customers on the benefits of U.S. origin coal
U.S. Origin Coking Coal to Customers in China
The Challenges

» The coking coal deposits in the U.S.A. are located in the Appalachian Mountain region of the eastern United States.
  • Exports are primarily from U.S. East Coast and U.S. Gulf Coast ports, i.e. a long way from the customers in China

» U.S. coking coal producers also supply domestic customers in the U.S.A., customers in Europe, and customers in South America.
  • These customers are located closer to the export terminals for U.S. origin coking coal

» Coking coal production in the U.S.A. represents approximately 9% of total U.S. coal production.
  • Most coking coal producers also produce other grades of coal
U.S. Origin Coking Coal to Customers in China
The Benefits

» U.S. origin coking coal exhibits strong coking characteristics with high Y and G index values
  • U.S. origin coking coal, when properly used in a coking coal blend, offsets lower grades of coking coal from other sources

» Low Volatile (Shou Jiao Mei and Zhu Jiao Mei), Mid Volatile (Fei Mei), and Hi Volatile (1/3 Jiao Mei and Qi Fei Mei), are available from the U.S.A.

» U.S. coking coal producers can supply unblended coking coal of consistent quality
  • Shipments of blended coking coal from trading companies is not representative of U.S. coking coal supplied by producers
### Xcoal / Rosebud Mining - Coal Brands

<table>
<thead>
<tr>
<th>Product</th>
<th>Volatile Matter</th>
<th>CSN</th>
<th>Y Value</th>
<th>G Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windber (Shou Jiao Mei)</td>
<td>17.50%-19.50%</td>
<td>8-9</td>
<td>22.5</td>
<td>94</td>
</tr>
<tr>
<td>Twin Rocks (Fei Mei)</td>
<td>24%-26%</td>
<td>8-9</td>
<td>37</td>
<td>101</td>
</tr>
<tr>
<td>Toms Run (Fei Mei)</td>
<td>27%-29%</td>
<td>8-9</td>
<td>35</td>
<td>102</td>
</tr>
<tr>
<td>Dutch Run (Fei Mei)</td>
<td>31%-33%</td>
<td>7-8</td>
<td>34.5</td>
<td>101</td>
</tr>
<tr>
<td>Little Toby (Qi Fei Mei)</td>
<td>34.50%-35.50%</td>
<td>7-8</td>
<td>33</td>
<td>100</td>
</tr>
</tbody>
</table>
## Xcoal / Consol Energy - Coal Brands

<table>
<thead>
<tr>
<th>Product</th>
<th>Volatile Matter</th>
<th>CSN</th>
<th>Y Value</th>
<th>G Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buchanan (Shou Jiao Mei)</td>
<td>18.50%-19.75%</td>
<td>8-9</td>
<td>17</td>
<td>88</td>
</tr>
<tr>
<td>Bailey (Qi Fei Mei)</td>
<td>37.50%-38.75%</td>
<td>7-8</td>
<td>25</td>
<td>101</td>
</tr>
</tbody>
</table>
Overcoming the Geographical Challenge

Xcoal’s “top off” operation has been recognized by World Coal magazine in its Annual Review of major coal projects.
Capesize Vessel Top-off Operation
Capesize Vessel Top-off Operation
Summary (1)

» China will remain a major factor in the Spot Seaborne coking coal market.

» Mongolia – still an important source of coking coal into China. However, constrained by regulatory & political environment in Mongolia as well as infrastructure and logistical hurdles.

» Chinese buyers are interested in overall “Value” proposition and buying patterns vary from province to province and also depending on market conditions and domestic supply. However, US Hi-Vol “Cross over” Coals and low-vol coals will always find a home in China.
Summary (2)

» The market for U.S. origin coking coal and thermal coal is challenging

» Demand remains “fragile” as consumers and producers struggle to generate profits

» Although 2012 was a challenging year for U.S. coal producers, 2013 is not shaping up to be much better but U.S. origin coal will be able to maintain a significant share of the seaborne market

» Coal produced by U.S. origin low cost producers, with value added products, will benefit from the adjustment in the marketplace
Summary (3)

» Although global consumers may not be concerned about the pricing of U.S. origin coals, a sudden “departure” of U.S. origin coal from the global markets would have an affect on market pricing.

» There will be fewer U.S. coal mines / companies, i.e. “survivors”, when the U.S. domestic market reaches equilibrium (expected in late 2013/2014).

» The global market for U.S. coal exports will not save “every” mine / every company.
Summary (4)

» Exports of premium grades of U.S. origin coking coal will continue to play a significant role in the seaborne coking coal market, including China.

» When utilizing Xcoal’s top off operation, capesize shipments of U.S. origin coking coal will remain competitive, on a delivered basis, to customers in China and throughout Asia.

» Everyone involved in the supply chain, i.e. the coal producers, railways, export terminals, and vessel owners, is committed to ensuring the sustainable supply of U.S. origin coal to customers in China.
Credits

» American Iron & Steel Institute
» China-National Bureau of Statistics
» CRU Analysis
» International Iron and Steel Institute
» John T. Boyd Company
» Macquarie Research
» McCloskey Group
» National Mining Association (USA)
» T. Parker Host
» World Steel Association
» World Steel Dynamics
» China Coal Resources
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