International thermal coal trade: What will the future look like for Japanese buyers?

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### Agenda

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The global seaborne thermal coal market continues to evolve

Pacific demand now dwarfs that in the Atlantic...

...and Pacific suppliers are reaping the benefits

Source: Wood Mackenzie Coal Market Service
Pacific demand is surging, and traditional Atlantic suppliers are keen to participate in the upside.

The map shows 2012 trade flows from major exporting countries.

Source: Wood Mackenzie Coal Market Service
In 2012, low coal prices and a weak freight market supported a 12% rise in seaborne thermal coal trade.

95 Mt growth in trade in 2012 to almost 900 Mt

Chinese arbitrage played a major role. Now >25% of global seaborne trade.

Oversupply will continue to depress prices in the near term…


2013: Despite some pull-back of US exports and Colombian strikes, market remains over-supplied as Australians increase volume.

2014: Oversupply persists, further rationalization required…

Source: globalCOAL & Indonesian Govt (Hist), Wood Mackenzie (Forecasts)
...but this buyer’s market will not last forever as global operating margins shrink and supply rationalization is inevitable.

Global thermal operating margins, 2009 to 2013

Source: Wood Mackenzie Coal Supply Service
Australian miners are deferring capital spending

Capital spend for greenfield coal projects; old versus new forecast

Source: Wood Mackenzie Coal Global Economic Model
Longer term, demand growth will put pressure on the global supply chain

5.5 Bt of total coal demand growth to 2030

Increasing reliance on imports

JST = Japan, South Korea, Taiwan; TMPV = Thailand, Malaysia, Philippines, Vietnam; GT = Germany, Turkey

Source: Wood Mackenzie Coal Market Service
Over 1 Btpa of new capacity will be required from unknown sources

Global seaborne coal exports by destination (Mt)

Marketable production for export (Mt)

Source: Wood Mackenzie Coal Market Service and Coal Supply Service
Much of the new supply will need higher prices to be viable…

Source: Wood Mackenzie Coal Supply Service and Coal Market Service
...as will existing supply from the US Powder River Basin (PRB)

Source: Wood Mackenzie Coal Market Service and Coal Supply Service
And infrastructure hurdles remain for aspiring US suppliers

Gateway Pacific – SSA Marine (Cherry Pt., WA)
- Up to 48 Mtpa
- Throughput agreements with Peabody and Cloud Peak
- Permitting process underway; formal protest lodged by native American group (Lummi Nation) could be disruptive; also required to consider greenhouse gas emissions in Asia and rail transport impacts
- Earliest operation - 2018

Millenium Bulk Terminals – Ambre Energy/Arch Coal (Longview, WA)
- 25-44 Mtpa
- Brownfield renovation of Alcoa site
- Scoping period 8-Aug through 18-Nov, 2013
- Cloud Peak has a 5 Mtpa throughput option
- Earliest operation - 2017

Morrow Pacific – Ambre Energy (Port of Morrow/Port Westward, OR)
- Phase 1 = 3.5 Mtpa, Full Capacity = 8 Mtpa
- Coal barging and trans-shipment on Columbia River
- Scoping underway, deadline for public comment extended; Oregon not covered by state-level environmental protection (unlike Washington)
- Earliest operation - 2015
Competition for supply will intensify as China, India, and other emerging economies continue to ramp up imports.

Seaborne thermal coal imports – Pacific Basin (Mt)

Source: Wood Mackenzie Coal Market Service
Coal qualities are shifting…adaptability will be increasingly important

Average calorific value of coal consumed at JPUs

Source: FEPC, Wood Mackenzie Coal Market Service

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Long-term coal prices will increase

Thermal coal price forecast, FOB port (US$/t, Real 2012)

Source: globalCOAL and Indonesian govt. (History), Wood Mackenzie Coal Market Service (Forecasts)
Summary and conclusions

› The makeup of the global coal industry is changing, with demand shifting inexorably to the Pacific. Traditional Atlantic Basin suppliers are seeking means of participating in this growth market. Strong and sustainable demand, reliable infrastructure, and a supportive pricing environment are all critical to the long-term competitiveness of remote coals into the Asian market.

› Global suppliers are facing margin pressure from increasing costs and a persistent low price environment. Investment decisions are being delayed as a result, which could contribute to shortages once the current supply overhang is absorbed.

› China, India, and other emerging economies of Asia have shown a willingness to trade coal quality for a lower price, which is favoring lower rank coals from Indonesia and higher ash coals from Australia. The availability and pricing of higher quality coals favored by Japanese buyers may increasingly be under pressure as a result.

› While Japan’s market share will inevitably fall as demand from China and India increases, it will remain an important and attractive market for global suppliers. Buyers should be focused on developing a tolerance for a wider range of coal specifications in order to enhance supply security and reduce costs.
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Ellen Ewart has worked in and around the coal and energy industries over a career spanning more than 25 years. She joined Wood Mackenzie in July 2007 as Head of Americas Coal Consulting and three years later moved to into her current role in Coal Market Research.

Prior to joining Wood Mackenzie, she was Vice President of Investor and Media Relations for Foundation Coal, having moved to that role from Director of Market Research when the company went public in 2004. She joined Foundation (and its predecessor company, RAG American Coal Holding Co.) from Platts Research and Consulting, where she was a Principal.

Other notable stops along her career path include five years with CONSOL Energy (in Exploration and Corporate Planning) and two years with Price Waterhouse Management Consulting.

Ellen earned a BS degree in geology from Duke University and a MS degree in mineral economics from the Colorado School of Mines.
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Summary and conclusions

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