

THE POWER WITHIN

Challenges for Thermal Coal Investment

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Arch Coal, Inc.

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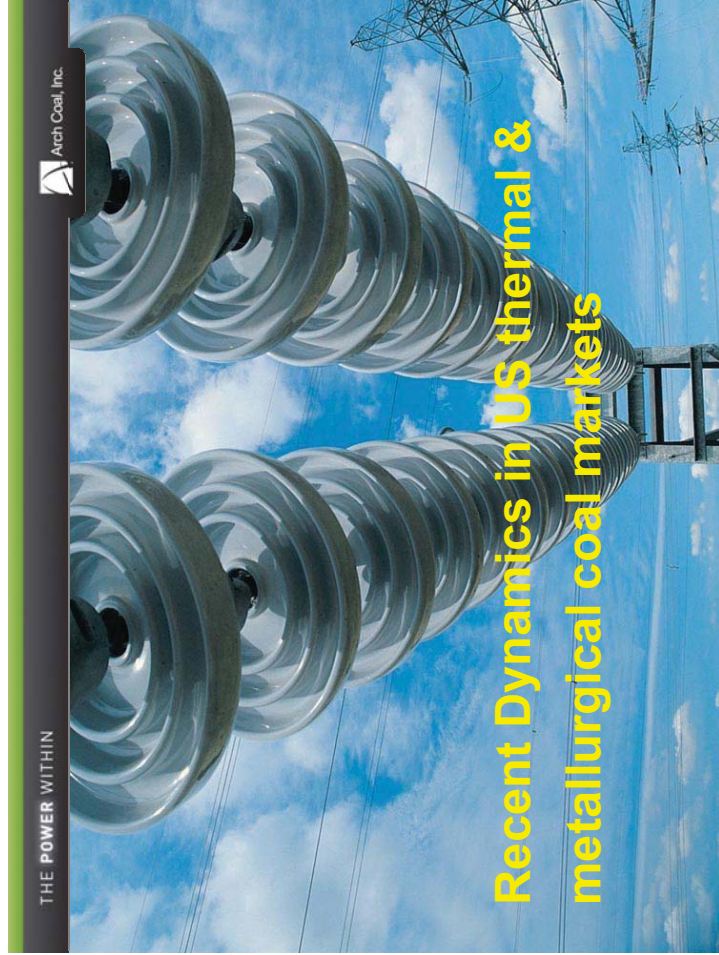


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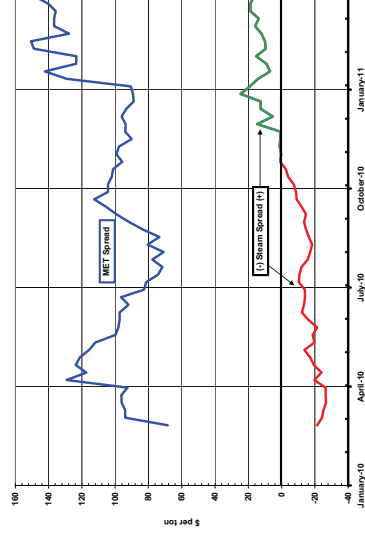
Comments limited to US & Australia to conserve time:
Recent dynamics in US thermal & metallurgical coal markets
Comments on Australia thermal & metallurgical coal markets
Investment Implications



Recent Dynamics in US thermal & metallurgical coal markets



Export metallurgical & thermal coal price spreads 2010-2011 ('typical CAPP high volatile mine')

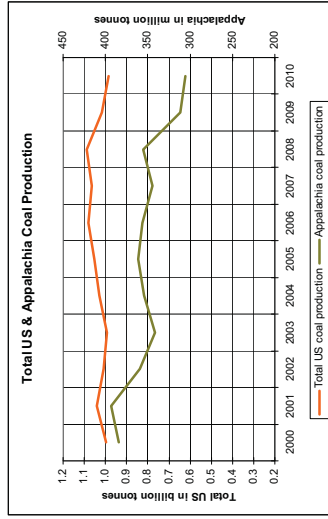


- The difference between the ICE CSX weekly avg. prompt thermal price on the OTC and:
 - The API 2 weekly avg prompt price (red/green line)
 - The Energy Publishing HR HV weekly met coal price (blue line)
- The 'take away': CAPP producers have a strong incentive to ship met coal
 - Met coal prices \$60 - \$140 more profitable than domestic thermal
 - Export thermal - about \$20 more profitable than domestic thermal since November
- Investors and analysts know this too—publicly traded companies are 'punished' if they are not expanding their metallurgical operation portfolio



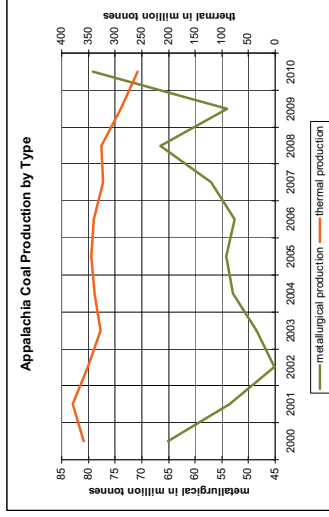
Total US and Appalachia coal production are down

- Total US coal production is off due to economic crash and challenge from natural gas; **but will recover**
- Appalachia coal production is down; and has been falling since 2001; (-15.4% t, -25.1% th, +65% met)
 - Reserve depletion is ending production
 - Low prices for alternatives lowers demand
 - Government regulation is limiting access to remaining reserves
- Appalachia is a traditional supplier of metallurgical and thermal coal to the Atlantic Market and has served as a backup to the Asia-Pacific Market in times of constraint



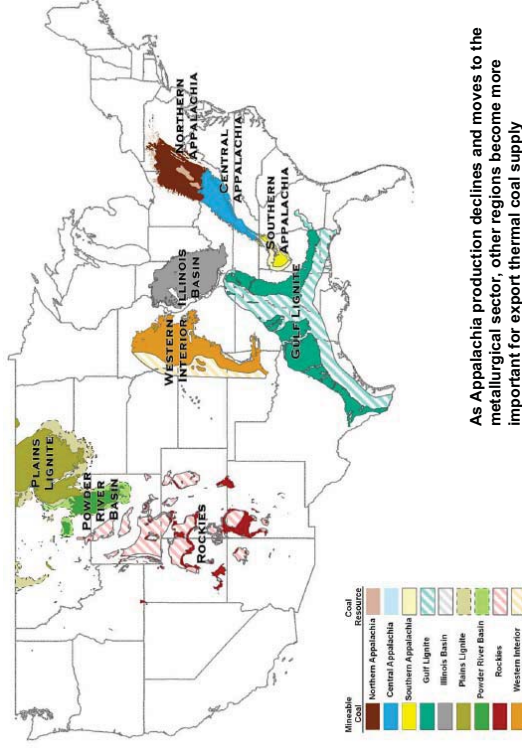
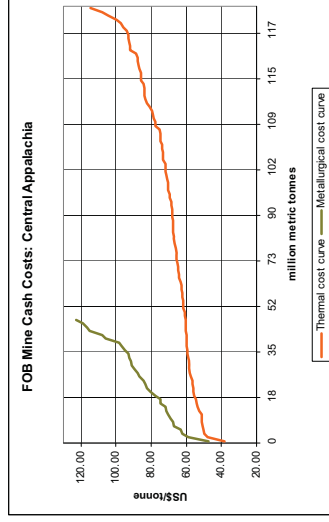
Appalachia is changing as a supply source

- Appalachia thermal coal production has decline 110 mm tonnes
 - At the same time, metallurgical coal production has increased 31 mm tonnes
 - Higher met prices have pushed producers to switch from thermal to met production
 - Low thermal prices have forced closure (or transition) of higher cost mines
 - The trend will continue as investors push Appalachia producers away from thermal towards metallurgical coal
- The competitive US thermal plays are in other regions



Appalachia cash costs push production towards metallurgical supply

- Only limited remaining reserves of thermal coal can be mined at international thermal prices: weighted avg. FOB Mine cost = US\$65/tonne
- Metallurgical coal production costs—though significantly higher—continue to return high profits: weighted avg. FOB Mine cost = US\$87/tonne
- Central Appalachia especially is transitioning to a major metallurgical supplier but a small thermal supplier



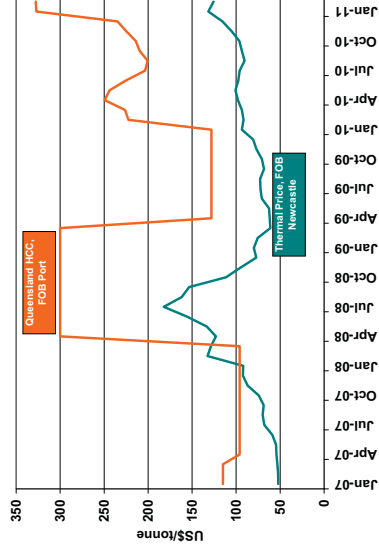
As Appalachia production declines and moves to the metallurgical sector, other regions become more important for export thermal coal supply





Comments on Australia thermal & metallurgical coal markets

Wide export metallurgical & thermal coal price differentials exist in Australia

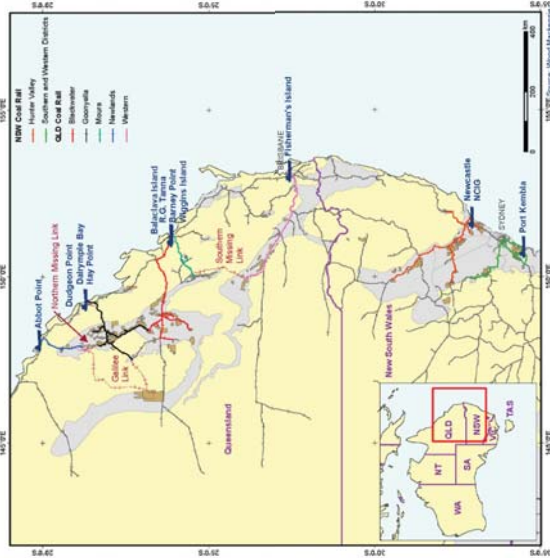


- The Newcastle weekly average thermal price and Queensland hard coking coal prices favor coking coal
 - Hard coking coal has commanded revenue premiums of \$50 to \$100 per tonne for the past three years
 - Premiums transfer to lower quality metallurgical coals as well
 - In periods of constraint, revenue premiums reach \$150 per tonne
- Investors and analysts know this too—publicly traded companies are ‘punished’ if they are not expanding their metallurgical operation portfolio



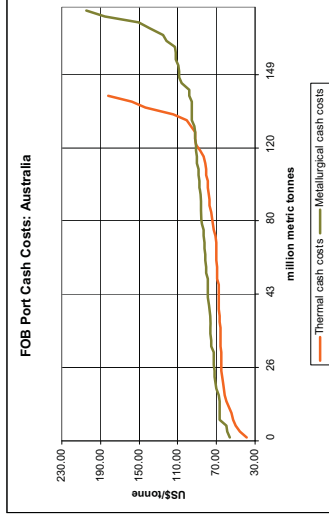
Australia has great further potential...but at a cost

- Much near term investment in QLD is targeted to improve metallurgical coal supply
- Huge additions to rail, port and social infrastructure are necessary to expand thermal coal supply from QLD and NSW
- Australia operating costs will also increase as haulage distances, ratios, materials and labor costs increase



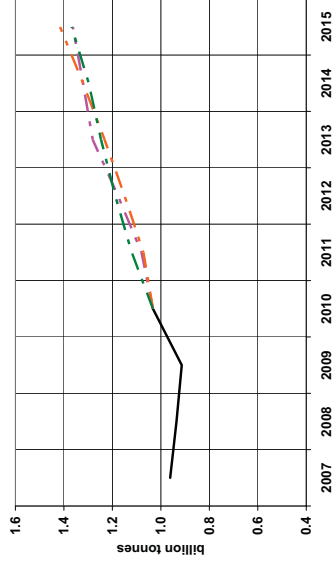
Australia cash costs and supply conditions push production towards metallurgical supply

- Remaining thermal coal reserves are large but profits at international thermal prices are smaller: weighted avg. FOB port cost = US\$61/tonne
- Metallurgical coal reserves are large but limited and costs are high but profits at international prices are higher: weighted avg. FOB port cost = US\$86.25/tonne
- Australia producers have a strong incentive to develop metallurgical coal reserves given profit differentials and reserve conditions



Dynamics for higher metallurgical production will not change soon!

Global Pig Iron Production



- Global pig iron production projected to increase 30% to 40% in the next 5 years
- Metallurgical coal demand projected to increase robustly
- Global metallurgical coal trade will grow to meet existing and new demand
- Although new sources are under development, traditional sources need to expand
- INVESTORS are looking for metallurgical plays

Investment Implications

- There are stronger incentives for publicly traded companies to invest in metallurgical coal capacity than thermal coal capacity
- Strong incentive to focus on metallurgical coal may impede the pace of investment in new thermal coal capacity
- In traditional global thermal coal sources, new production capacity must be supported by vast investments in transportation, ports and other infrastructure to access new reserve areas
- Countries relying on global thermal coal sources may need to increase participation in production capacity and infrastructure investment in supplying countries
- Countries supplying global markets may need to improve the climate for foreign investments in order to attract the capital they need to expand supply

