Cost Trends in Mining

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Today’s Presentation

- Relative Cost Competitiveness of Major Coal Exporting Countries
- Comparative Cost Analysis
- Historical Cost Escalation
- Productivity Impacts
- Future Cost Trends
Cost Competitiveness

• Production costs in the major coal exporting countries are determined by:
  • a) Physical Parameters
  • b) Commodity Costs

• FOB loading port costs are lowest in those countries with both favorable mining conditions and lower commodity prices
Cash Cost Ranges for Export Steam Coal

United States
New South Wales
Venezuela
Queensland
Colombia
South Africa
Indonesia

FOB VESSEL CASH COST (US$/tonne)
Physical Mining Cost Factors

- Seam Geology (thickness, dip, etc.)
- Coal Quality
- Deposit Size
- Stripping Ratio
- Production Tax & Royalty Levies
- Distance to Export Ports & Mode of Transport
Production Cost Comparison

Graph showing FOB vessel cash cost (US$ per tonne) for various locations and costs:
- Mining
- Coal Processing
- Taxes & Royalties
- Inland Transport
- Port & Loading

Locations include:
- Ind. Sub-Bit.
- S. Africa O/C
- Colombia
- S. Africa U/G
- Indonesia
- Qld. O/C
- NSW O/C
- US-NAPP U/G
- NSW U/G
- US-CAPP U/G
Commodity Cost Factors

- Labor
- Diesel Fuel
- Electric Power
- Tires
- Explosives
- Parts
- Steel Products
Production Cost Comparison by Cost Component
Production Cost Increases

• **Costs of coal production are increasing due to:**
  • Escalating commodity prices
  • Depletion of lowest cost reserves
  • Increasing work effort – higher stripping ratios, longer inland transport distances, etc.
  • Increasingly more stringent environmental & governmental regulations
Average Cost Increase 2003 to 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>% Increase</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>45%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>46%</td>
</tr>
<tr>
<td>S. Africa</td>
<td>47%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>49%</td>
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</tbody>
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• Mining commodity costs have increased dramatically in the past few years
  i) Labor costs in certain exporting countries have increased by 30% to 45% since 2003
  ii) Diesel fuel prices in major exporting countries have increased by 100% to more than 500% since 2003
  iii) Tire prices have increased by 20% to 35%
  iv) Repair parts costs have increased by 15% to 25%
  v) Steel products costs have increased by 50% to 90%
  vi) Electricity costs have increased by 20% to 25%
Labor Escalation

% Change

2003 2004 2005 2006 2007 2008

US South Africa Australia

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Diesel Escalation

% Change

US  Colombia  Indonesia  South Africa  Australia
Tire Escalation

% Change

US
Colombia
South Africa

MARSTON
Repair Parts Escalation

% Change

Jan-03  Apr-03  Jul-03  Oct-03  Jan-04  Apr-04  Jul-04  Oct-04  Jan-05  Apr-05  Jul-05  Oct-05  Jan-06  Apr-06  Jul-06  Oct-06  Jan-07  Apr-07  Jul-07  Oct-07  Jan-08  Apr-08

US  Colombia  South Africa
Steel Escalation
Electricity Escalation

% Change

0%  5%  10%  15%  20%  25%  30%

2003  2004  2005  2006  2007  2008

US  South Africa  Australia
Productivity Impacts

- Increases in productivity have helped offset cost increases in some major producing countries
- However, productivity improvements have required increased levels of capital spending
Productivity
Productivity vs. Capital Requirements - Australia

![Graph showing productivity and capital requirements over time.](image-url)
Foreign Exchange Impacts

- Deteriorating foreign exchanges rates relative to the US$ have also adversely impacted mining costs in terms of local currencies
Foreign Exchange Impacts on South African Mining Costs (2003 to 2008)

- New US$ Cost: 15.14
- Increase due to Stronger Rand: 1.52
- Increase due to SA Inflation: 4.61
- Original US$ Cost: 9.01
Future Cost Trends

• In the short-term, increased upwards pressure on mining costs can likely be at least partially offset by continued improvements in productivity, technological advancements, and achievement of greater economies of scale

• In the longer-term
Cost Curves
Major Seaborne Steam Coal

FOB Vessel Cost (US$/tonne) vs. Steam Coal Exports (Mt)

- 2007
- 2015

Source: MARSTON
Cost Curves
Major Seaborne Steam Coal

Escalated Labor @ Recent Historical Trend

Steam Coal Exports (Mt)

FOB Vessel Cost (US$/tonne)

2007 2015 2015 Escal
Thank You!

Q&A