Outlook for International Coal Market

The Institute of Energy Economics, Japan
Atsuo Sagawa
Manager, Coal Group, Fossil Fuels & Electric Power Industry Unit
Coal Prices (steam coal FOB)

- Steam coal market: While oversupply continued, China’s and India’s imports declined in 2015.
- The spot steam coal price (an FOB price at Newcastle port in Australia) fell from $61/ton at the beginning of 2015 to $48/ton in January 2016 before remaining in a 50-55/ton range.
- The spot price rose in June and topped $60/ton in early July.

**Spot prices of steam coal (FOB)**

Note: NEWC Index: Spot steam coal price at Newcastle port in Australia
RB Index: Spot steam coal price at Richards port in South Africa
DES ARA Index: Spot steam coal price at Amsterdam/Rotterdam/Antwerp ports in Europe

Source: globalCOAL website
Coal Prices (hard coking coal FOB)

- Coking coal market: While oversupply continued, China’s and other imports declined in 2015.
- The spot coking coal price (an FOB price for Australian hard coking coal) dropped from $114/ton at the beginning of 2015 to $85/ton in May 2015 and to $76/ton in December 2015.
- The price rose to $100/ton on an increase in China’s imports earlier in 2016 and stays in a 90-100/ton range at present.

Spot prices of hard coking coal (FOB)

Source: IHS
Global Coal Consumption Trends

- Global coal consumption increased mainly on growth in Asia before decelerating growth and turning downward in 2015.
- A downtrend started in Europe and Eurasia in 2013 and in North America in 2014.
- In Asia, China’s consumption has declined since 2014.

### Global Coal Consumption Trends

#### Consumption (Million toe)

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Year-on-year changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific</td>
<td>2,613.5</td>
<td>2,674.8</td>
<td>2,752.0</td>
<td>2,792.5</td>
<td>2,798.5</td>
<td>(6.0)</td>
</tr>
<tr>
<td>Europe/Eurasia</td>
<td>514.1</td>
<td>527.4</td>
<td>507.2</td>
<td>481.0</td>
<td>467.9</td>
<td>(-13.2)</td>
</tr>
<tr>
<td>North America</td>
<td>532.3</td>
<td>472.0</td>
<td>488.1</td>
<td>487.9</td>
<td>429.0</td>
<td>(-58.9)</td>
</tr>
<tr>
<td>Latin America</td>
<td>30.6</td>
<td>32.1</td>
<td>34.8</td>
<td>36.7</td>
<td>37.1</td>
<td>(0.4)</td>
</tr>
<tr>
<td>Middle East/Africa</td>
<td>109.5</td>
<td>108.1</td>
<td>108.6</td>
<td>113.1</td>
<td>107.4</td>
<td>(-5.7)</td>
</tr>
</tbody>
</table>

#### Growth (%)

<table>
<thead>
<tr>
<th>Region</th>
<th>11/10</th>
<th>12/11</th>
<th>13/12</th>
<th>14/13</th>
<th>15/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia-Pacific</td>
<td>1.6%</td>
<td>3.9%</td>
<td>6.6%</td>
<td>1.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Europe/Eurasia</td>
<td>8.8%</td>
<td>3.13%</td>
<td>5.2%</td>
<td>4.6%</td>
<td>2.0%</td>
</tr>
<tr>
<td>North America</td>
<td>6.6%</td>
<td>5.6%</td>
<td>7.4%</td>
<td>4.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Latin America</td>
<td>6.6%</td>
<td>7.4%</td>
<td>5.2%</td>
<td>4.6%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Middle East/Africa</td>
<td>3.9%</td>
<td>6.6%</td>
<td>7.4%</td>
<td>5.2%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

Source: BP

**Notes:**
- Consumption data is in million toe (tonnes of oil equivalent).
- Year-on-year changes reflect the percentage change from the previous year.
- Growth rates are calculated as the percentage change from the previous year.

---

Asia-Pacific: Consumption has been relatively flat, with slight increases in 2013 and 2014, followed by a decline in 2015.

Europe/Eurasia: A significant decline is evident, starting in 2013.

North America: A sharp decline, starting in 2014.

Latin America: Consumption has remained relatively stable, with minor increases and decreases.

Middle East/Africa: Slight increases and decreases, with no clear trend.

---

**Graphical Representation:**

The graph illustrates the consumption trends for different regions, showing the total consumption growth and the growth rates for each year.
Steam coal imports:

- China and India had driven steam coal imports in the world before reducing them in 2014 and 2015, respectively.

Coking coal imports:

- Coking coal imports had been expanding due primarily to Chinese import growth before Chinese imports dropped in 2014 and 2015. Indian imports in 2015 remained almost unchanged from the previous year.
Coal Export Trends of Major Coal Exporting Countries

Steam coal exports:
- Steam coal exports had smoothly increased before Indonesian and U.S. exports declined in 2014. In 2015, Indonesia posted a large drop. Colombia also reduced exports. Australian exports leveled off.

Coking coal exports:
- In 2015, Australian exports remained almost unchanged from the previous year, with U.S., Canadian and Russian exports posting drops.

Year-on-year export changes (steam coal)

Year-on-year export changes (coking coal)

Source: Trade statistics in each country
Coal Consumption and Production Trends in China

- Coal consumption has declined since 2014 due to the following factors:
  - Stagnation of electricity, steel and cement demand under economic growth deceleration
  - Coal consumption and environmental regulations in large cities and coastal regions plagued with air pollution
  - Brisk hydro power generation, etc.
- Coal production has also fallen since 2014.
- The downturn continues in 2016.

Coal consumption trends

- (100 million tce)
- Year-on-year growth

Coal production trends

- (100 million tce)
- Year-on-year growth

Coal Import Trends in China

- Imports declined for the second straight year.
- Imports in 2015 declined by 123.2 million tons from a peak in 2013. The decline is broken down below:
  - 69 million tons in steam coal (steam coal and other coal):
  - 27.8 million tons in coking coal
- A brake was applied on the coal import decline entered in 2016. Imports in the first five months of this year increased by 3 million tons from a year earlier. The increase is broken down below:
  - Steam coal (steam coal and other coal): Down 3.01 million tons
  - Coking coal: Up 4.7 million tons

### Coal import changes (2013-2015)

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>(1,000 tons)</th>
<th>Year-on-year changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coking coal</td>
<td>75,400</td>
<td>62,440</td>
<td>47,624</td>
<td>-12,960</td>
<td>-14,816</td>
</tr>
<tr>
<td>Steam coal</td>
<td>113,051</td>
<td>111,740</td>
<td>65,843</td>
<td>-1,312</td>
<td>-45,897</td>
</tr>
<tr>
<td>Anthracite</td>
<td>39,601</td>
<td>30,366</td>
<td>24,765</td>
<td>-9,235</td>
<td>-5,601</td>
</tr>
<tr>
<td>Other coal</td>
<td>39,089</td>
<td>23,450</td>
<td>17,300</td>
<td>-15,639</td>
<td>-6,150</td>
</tr>
<tr>
<td>Subtotal</td>
<td>267,142</td>
<td>227,996</td>
<td>155,531</td>
<td>-39,146</td>
<td>-72,464</td>
</tr>
<tr>
<td>Brown coal</td>
<td>59,833</td>
<td>63,589</td>
<td>48,252</td>
<td>3,757</td>
<td>-15,337</td>
</tr>
<tr>
<td>Total</td>
<td>326,974</td>
<td>291,585</td>
<td>203,784</td>
<td>-35,390</td>
<td>-87,801</td>
</tr>
</tbody>
</table>

### Coal import changes (January-May 2016)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cokng coal</td>
<td>25,321</td>
<td>16,555</td>
<td>21,217</td>
<td>-8,766</td>
<td>4,662</td>
</tr>
<tr>
<td>Steam coal</td>
<td>51,103</td>
<td>30,035</td>
<td>25,456</td>
<td>-21,068</td>
<td>-4,578</td>
</tr>
<tr>
<td>Anthracite</td>
<td>14,622</td>
<td>9,698</td>
<td>9,839</td>
<td>-4,924</td>
<td>141</td>
</tr>
<tr>
<td>Other coal</td>
<td>13,411</td>
<td>6,109</td>
<td>7,577</td>
<td>-7,303</td>
<td>1,469</td>
</tr>
<tr>
<td>Subtotal</td>
<td>104,457</td>
<td>62,396</td>
<td>84,202</td>
<td>-42,061</td>
<td>1,694</td>
</tr>
<tr>
<td>Steam coal</td>
<td>30,672</td>
<td>20,849</td>
<td>22,182</td>
<td>-9,823</td>
<td>1,333</td>
</tr>
<tr>
<td>Total</td>
<td>135,129</td>
<td>83,245</td>
<td>86,271</td>
<td>-51,884</td>
<td>3,026</td>
</tr>
</tbody>
</table>

Source: TEX Report (based on China customs statistics)
Coal Consumption, Production and Import Trends in India

- Coal consumption has steadily increased and will rise on the expansion of demand for coal for power generation in the future.
- Coal production has also increased, reaching 680 million tons in 2015. India has a policy of enhancing coal production.
- Coal imports steadily increased mainly in steam coal imports from FY2011 but declined in FY2015. Steam coal imports decreased while coking coal imports leveled off.
- Coal imports will increase again in FY2016?

**Coal consumption trends**

Year-on-year growth

(Million tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Other coal</th>
<th>Anthracite</th>
<th>Steam coal</th>
<th>Coking coal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>240</td>
<td>73.3</td>
<td>68.9</td>
<td>102.8</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>259</td>
<td>73.3</td>
<td>68.9</td>
<td>102.8</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>283</td>
<td>73.3</td>
<td>68.9</td>
<td>102.8</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>330</td>
<td>73.3</td>
<td>68.9</td>
<td>102.8</td>
<td>0</td>
</tr>
<tr>
<td>2015</td>
<td>389</td>
<td>73.3</td>
<td>68.9</td>
<td>102.8</td>
<td>0</td>
</tr>
</tbody>
</table>

**Coal import trends**

(Million tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>73.3</td>
</tr>
<tr>
<td>2010</td>
<td>68.9</td>
</tr>
<tr>
<td>2011</td>
<td>102.8</td>
</tr>
<tr>
<td>2012</td>
<td>145.8</td>
</tr>
<tr>
<td>2013</td>
<td>166.9</td>
</tr>
<tr>
<td>2014</td>
<td>212.1</td>
</tr>
<tr>
<td>2015</td>
<td>199.9</td>
</tr>
</tbody>
</table>

**Coal production trends**

(Million tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Other coal</th>
<th>Anthracite</th>
<th>Steam coal</th>
<th>Coking coal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>479</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>2009</td>
<td>515</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>2011</td>
<td>557</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>2013</td>
<td>606</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
<tr>
<td>2015</td>
<td>677</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>
Coal Import Trends in Other Asian Countries

- Malaysia, the Philippines, Vietnam and Thailand have gradually increased coal imports. New coal power plants will be constructed in line with electricity demand expansion in the future.

- South Korea has slightly increased coal imports over the past years. According to South Korea’s The 7th Basic Plan for Long-term Electricity Supply and Demand, nine new coal power plants will launch operation in 2016, being followed by one in 2017.

- Japan’s coal imports have remained around 190 million tons per year over the past years.

Coal import trends in Japan

Coal import trends in South Korea

Sources: Statistics in each country, TEX Report
Source: Trade Statistics
Source: TEX Report (based on South Korean trade statistics)
Coal Consumption and Import Trends in Europe

- Coal consumption plunged on the Lehman Shock and increased gradually until 2012. Since 2013, however, coal consumption has followed a downtrend due to the following factors:
  - Renewable energy’s share of power generation has expanded with total generation slumping.
  - Gas prices have declined.
  - Measures against air pollution and climate change have been enhanced.
- In line with the consumption trend, steam coal imports have fallen since 2014.
- The current trend will continue in the future.
Australia’s Coal Exports

- Australian coal exports in 2011 declined due to heavy rain in Queensland before recovering steadily from 2012.
- In 2015, however, coal exports leveled off on a fall in demand.
- Under stagnant demand and low prices, unprofitable coalmines have been shut down, with low-productivity mines being forced to suspend production. Asset consolidation is going on in the coal industry.

Large coal companies have concentrated business resources on high-productivity mines to maintain production levels.

- However, coal development plan delays or postponements under low prices are feared to affect supply and demand in several years.

Source: TEX Report (based on Australian trade statistics)
Indonesia’s Coal Exports

- Indonesia’s coal exports have declined since 2014 after a rapid increase meeting the expansion of the Asian market. Exports to China have declined sharply. Those to India also fell in 2015.

- According to a production plan released in early 2015, production will gradually decrease from 425 million tons in 2015 to 400 million tons in 2019.

- Production in 2015 totaled 392 million tons, slipping below a planned level.

- Exports decreased on domestic demand growth.

### Production plan and domestic demand/export outlook

*Source: Presentation material for Clean Coal Day (September 2015) by Directorate General of Mineral and Coal, Ministry of Energy and Mineral Resources*

### Coal export trends

*Source: TEX Report (based on Indonesian trade statistics)*
Coal consumption has declined due to gas price drops and coal power plant shutdowns under air pollution regulations.

Coal exports have fallen rapidly since 2013.

Falling international coal prices and exports, and decreasing domestic consumption have forced many coal producing companies, including the two largest ones, to file for protection under Chapter 7 or 11 of the U.S. Bankruptcy Act.
Russian coal exports including steam coal increased gradually before leveling off in 2015.

Colombian coal exports decreased gradually in the past several years excluding 2014.

South African coal exports remained above 78 million tons in 2014 and 2015, including those to India that increased rapidly.

### Russian coal export trends

![Russian coal export trends](source)

- Africa, Middle East, Americas, etc.
- Former Soviet Union
- Europe
- Other Asian countries
- East Asia (Japan, South Korea, Taiwan)

### Colombian coal export trends

![Colombian coal export trends](source)

Source: TEX Report (based on Russian trade statistics)

### South African coal export trends

![South African coal export trends](source)

Source: TEX Report (based on South African trade statistics)

Source: TEX Report (based on Colombian trade statistics)

Russian, Colombian and South African Export Trends

- Russian coal exports including steam coal increased gradually before leveling off in 2015.
- Colombian coal exports decreased gradually in the past several years excluding 2014.
- South African coal exports remained above 78 million tons in 2014 and 2015, including those to India that increased rapidly.
Summary (International Coal Market in 2016-2017)

Coal demand

- Asian steam coal demand will increase, with growth centering on India and Southeast Asia.
  ⇒ Steam coal imports in these regions are expected to increase. However, India is enhancing coal production, holding down the increase of imports.

- Asian coking coal demand will increase, with growth centering on India.
  ⇒ Imports are expected to increase in line with demand growth.

- A brake has been applied to a decline in China’s imports. Steam coal imports into China are expected to level off in the future. Coking coal imports into China are likely to increase slightly.

- European coal demand will decline due to renewable energy expansion, competition with gas, enhanced air pollution measures and climate change measures.
  ⇒ In line with the demand trend, imports are expected to decrease.

Coal supply

- Under weak prices, coal mining companies are shutting down coalmines, suspending production or consolidating assets, making adjustments responding to a demand fall.
  U.S. and other coal companies have failed one after another.

- Under such situation, a coal glut is fading away.
Spot steam coal price (FOB price for shipments from Newcastle, Australia)
- 2nd half 2015: Ranging between $55/ton and $60/ton
- 2017: Rising to around $60/ton

Spot coking coal price (FOB price for Australian hard coking coal)
- 2nd half 2016: Ranging between $90/ton and $95/ton
- 2017: Rising above $95-/ton