Outlook for the International Oil, Gas and Coal Markets in 2014

Ken Koyama, PhD* Tetsuo Morikawa** Atsuo Sagawa***

1. International Oil Market (By Ken Koyama)

<Introduction>

In 2013, the average Brent futures price (the daily settlement price for the front-month contract), a benchmark for the international oil market, stood at $108.7 per barrel. The annual average West Texas Intermediate futures price came to $98.1/barrel. Crude oil prices in 2013 were slightly lower than in the previous year. But the Brent price remained above $100/barrel for the last three years on end. The high crude oil prices have resulted from a complex combination of oil supply/demand, geopolitical risk and financial factors. Future developments regarding these factors will attract global attention.

The crude oil price trend is significant for energy security and the trade balance of Japan that has increased its dependence on fossil energy due to a plunge in nuclear power generation following the March 2011 Great East Japan Earthquake. Therefore, it is very important to analyze the future outlook for the international oil market based on the latest situation. Recognizing this point, this report provides an outlook for the international oil market and crude oil prices in 2014.

＜Outlook for the 2014 International Oil Market (Summary)＞

In the reference scenario for the international oil market in 2014, (1) global oil demand is assumed to increase by about 1 million barrels per day from the previous year in line with a moderate world economy expansion. (2) Non-OPEC oil production is projected to rise by 1.5-1.7 million B/D from the previous year due to a sharp increase in U.S. shale oil (light tight oil) output. (3) The enhancement of economic sanctions on Iran is assumed to be frozen. Depending on future developments, Iran could expand crude oil exports slightly from the second half of 2014. (4) Oil supply is projected to remain sufficient despite the risk of oil production declines being caused by the possible destabilization of the Middle Eastern and African situation and security deterioration in major oil producing countries. (5) As a result, the international oil supply-demand balance is assumed to slowly ease in 2014. Under such supply-demand conditions, the annual average price is forecast at $105/barrel (±$10/barrel) for the Brent and at $95 (±$10/barrel) for the WTI. If crude oil prices soar or plunge sharply due to changes in the supply-demand relationship, Saudi Arabia may adjust oil production. Crude oil prices will continue to move within a certain range.

* Chief Economist, Managing Director, Charge of Strategy Research Unit, The Institute of Energy Economics, Japan
** Senior Economist, Manager, Gas Group, Coal & Gas Subunit, Fossil Fuels & Electric Power Industry Unit, The Institute of Energy Economics, Japan
*** Manager, Coal Group, Fossil Fuels & Electric Power Industry Unit, The Institute of Energy Economics, Japan

＜Basic Assumptions for the Above Outlook＞

1-1 World Economy

Global economic growth is expected to rise from 2.9% in 2013 to 3.6% in 2014 (as forecast by the International Monetary Fund published October 2013). While the U.S. economy is expanding thanks to a stock market upsurge under Japanese, U.S. and European monetary easing and the U.S. shale revolution, there are many destabilizing factors involving China and other emerging countries. We should also pay attention to how a possible monetary policy shift and the budget problem in the United States could affect the world economy. No optimism can be warranted about the course of the world economy in 2014.

1-2 Oil Demand

Annual global oil demand growth since 2011 has been limited to some 1%. In 2014, global oil demand is expected to expand by about 1 million B/D or 1% from the previous year to 92.2 million B/D. Driving oil demand growth will be China, India and the Middle East. But we may have to pay attention to uncertainties about the future courses of emerging economies and the growing impacts of high oil prices on these economies.

1-3 Non-OPEC Oil Production

Non-OPEC oil production will continue to increase, including expanding U.S. shale oil (light tight oil) output. Under high crude oil prices, shale oil production in Eagle Ford, Bakken and other regions will continue to expand. In 2014, U.S. oil output is projected to rise by 0.9 million B/D. In addition, Kazakhstan, Canada and Brazil may be able to increase oil output. Non-OPEC oil producing countries as a whole are estimated to expand output in 2014 by 1.5-1.7 million B/D from the previous year. In line with a natural gas output expansion, OPEC countries' natural gas liquid output is also projected to increase by 0.2 million B/D. As a result, "Call on OPEC" or demand for OPEC crude oil (oil demand minus non-OPEC oil supply) in 2014 is expected to decline by some 0.8 million B/D, prompting OPEC to adjust production to maintain the supply-demand balance.

1-4 Economic Sanctions on Iran

The November 2013 Geneva agreement has paved the way for Iran to freeze its nuclear development program and see an easing of US/EU lead economic sanctions toward Iran for six months in the first phase. The enhancement of a cut in Iran's crude oil exports will be frozen for the period, with the exports remaining unchanged from some 1 million B/D at present. Whether sanctions on Iran could be lifted on a full-fledged basis after the first phase is still very uncertain. But some increase in crude oil exports may be permitted. The fate of the sanctions will thus attract global attention. If sanctions on Iran are lifted on a full-fledged basis, a possible expansion of Iranian crude oil production capacity through foreign investment may come into sight over a medium term, exerting great impacts on the international oil market.

1-5 OPEC Production Policy

As crude oil prices have remained high since 2011, major OPEC countries have grown more willing to keep crude oil prices at the present high levels to support their spending expansion at home and abroad. At its 164th general meeting in December 2013, OPEC decided to leave the cartel's production limit unchanged at 30 million B/D. If the present production level (29.7 million B/D in November 2013) is maintained, however, it will exceed demand for OPEC oil (projected at 29.2 million B/D) in 2014, prompting OPEC to adjust (reduce) output depending on the easing supply-demand relationship. Even within OPEC, Iran may expand crude oil exports slightly toward the end of the year and Iraq is projected to increase output. In addition, oil production is possible to recover in Libya. If these expectations are realized, Saudi Arabia's response may be important.

1-6 Market-destabilizing Factors

In 2014, crude oil prices may rise beyond or fall below the forecast range. Factors for higher-than-forecast oil prices may include an oil demand expansion under faster-than-expected global economic growth, more-sluggish-than-expected non-OPEC production, the actualization of risks including the destabilization of the Middle East, and unsuccessful negotiations on Iran's nuclear development program and toughened sanctions on that country (a higher-price scenario). Factors for lower-than-forecast prices may include the actualization of downside risks for the world economy, a relevant slowdown in oil demand growth and greater-than-forecast non-OPEC oil production (a lower-price scenario). In these scenarios, crude oil prices will fluctuate upward and downward wildly.

1-7 Financial Factors

Financial factors, including effects of monetary easing and futures market transactions based on various motives, are closely involved in the formation of crude oil prices. Including the United States that has retained its third quantitative easing (QE3) initiative since September 2012, industrial countries as a whole have kept monetary easing policies. At present, excess liquidity under monetary easing has flown into stock, real estate and other traditional assets markets, rather than crude oil and other commodity markets. The linkage between stock and crude oil prices, which had once grown conspicuous, has weakened. The present crude oil price formation depends primarily on supply and demand factors. In 2014, the United States is expected to change its monetary policy. We may have to pay attention to the fate and impact of any U.S. monetary policy change.

1-8 Crude Oil Price Trend

Under the abovementioned market environment, the annual average Brent futures price in 2014 will be $105/barrel (±$10/barrel). The price may slip into a $90-100/barrel range on an easier supply-demand balance and rise beyond $110/barrel on a tighter supply-demand balance. The annual average WTI futures price is forecast at $95/barrel (±$10/barrel) and Japan's average crude oil import price at $105/barrel (±$10/barrel). In the higher-price scenario, the Brent will rise to

$115/barrel (±$10/barrel) and the WTI to $105/barrel (±$10/barrel). In the lower-price scenario, the Brent will fall to $95/barrel (±$10/barrel) and the WTI to $85/barrel (±$10/barrel). If large-scale oil supply disruptions emerge in the higher-price scenario, the annual average crude oil prices may be $10/barrel higher. Over a short term, crude oil prices may rise substantially.

2. International Gas Market (By Tetsuo Morikawa)

2-1 Demand of Natural Gas and LNG

Natural gas demand in January-August of 2013 was 597Bcm (down 3Bcm for the same period last year) in North America, 339Bcm in Europe (up 6Bcm), 244Bcm in Northeast Asia (Japan, China, Korea, Taiwan (up 9Bcm). While, at least on IEA statistics, Mexican demand decline pushed down the regional demand in North America, the US demand remains at high level. Although demand recovery in Germany pushed up the European demand, in Southern Europe, where LNG dependency is higher, the demand is still diminishing. In Northeast Asia, the demand growth is higher than those in North America and Europe, although the Japanese demand has slightly decreased.

LNG import in January-September of 2013 was 116.2 Million Tonnes (MT) in Northeast Asia (up 4.3 MT for the same period last year), 25.8MT in Europe (down 10.1 MT), and as little as 1.8MT (down 1.0MT) in the US. In Northeast Asia, Japan's import decreased by 0.4MT, while China and Korea increased imports by as much as 4.7MT. In Europe, many importing countries, especially Spain and the UK, imported less.

LNG projects in North America have made steady progress in 2013. LNG export authorizations for non-FTA countries were granted to Freeport LNG in May and Cove Point LNG in September, and expected to Cameron in 2014. Japanese companies already commit to lift about 17 MT/y from Freeport, Cove Point, and Cameron projects. There are several LNG projects under planning in Canada too. Japanese companies participate in LNG Canada, Triton LNG, Pacific Northwest LNG, and Aurora LNG. These projects in North America are extremely important in terms of supply and pricing diversifications.

Meanwhile, gas infrastructures are rapidly developed in China in 2013. Myanmar pipeline started operation in July. LNG receiving terminals commissioned in Dongguan, Zhuhai, Tangshan, and Tianjin in September-December. Gas demand reached 123Bcm in January-September 2013 (up 10Bcm for the same period last year). Gas imports also increased especially via pipeline since high cost LNG has lost competitiveness in the Chinese domestic market.

Spot and short-term LNG trading market have been expanding. In January-November of 2013, 341 cargoes are assumingly traded under spot deals, which are estimated to be more than those in the whole 2012 period. LNG market is expected to be more liquid with these flexible supplies.

LNG demand in 2013 is likely to increase from 2012, mainly due to sluggish European demand. The demand in 2014 is expected to recover to 241MT, the similar level as in 2011. Supply capabilities of LNG are estimated to be 247MT in 2013 and 255MT in 2014, enough to cover the demand for those years.

2-2 Natural Gas Prices and Possibility of Natural Gas Bench Mark Price in Asia

Natural gas import prices in August 2013 were $16/MMBtu in Japan, $10/MMBtu in the UK, and $3/MMBtu in the US. While Japan's import price hovered at $15-16/MMBtu level in 2013, import value is likely to increase by 1 trillion yen due to the weaker yen. This is a serious problem in terms of macro economy and outflow of national wealth.

LNG import prices into Japan under long-term contracts are usually determined in relation to Japan's crude oil import price. Spot and short-term trade prices have also strong correlations with long-term contract prices. Considering crude oil import price for FY2014 is expected to be $105/bbl, LNG import price for the same fiscal year is assumed to be $15/MMBtu.

Oil-linked pricing is one of the reasons behind the Asian Premium of LNG. Developing benchmark gas prices in Asia is important for medium and long term to reflect demand and supply balance in accurate and timely manner. Wholesale gas price formation like Henry Hub in the US and NBP in the UK requires domestic gas market reform and more than a decade is needed for a hub to be liquid enough. For LNG futures contract plans in Japan and China to be successful, governments and market players are required to contribute to more liquid physical LNG market in Asia by eliminating destination clause and lower Take or Pay levels.

3. International Coal Market (By Atsuo Sagawa)

3-1 Coal Trade

Steam and coking coal imports in the Asian market will increase, centering on those into China and India. In the European market, steam coal imports, which may change depending on the economic recovery conditions, natural gas prices and emissions trading prices, will level off. European coking coal imports will increase slightly.

Meanwhile, coal exports from coal exporters such as Indonesia, Australia, Russia and South Africa will increase, matching imports.

3-2 Coal Prices (FOB)

Spot steam coal prices (for shipments from Australia's Newcastle) will decline toward the low-demand spring season. In the overall supply-demand balance, the supply surplus that continued until 2013 will be eliminated. The average spot price for 2014 will be $90/ton (±$5), up $5 from the previous year. In the high-demand winter season, the price will be $95/ton (±$5).

Spot hard coking coal prices (for output in Australia's Queensland) will remain in the present low range of $140-150/ton in early 2014 and rise back to around $155/ton (±$10) on a moderate economic recovery later, against the range of $135-170/ton in 2013. As a result, the average for 2014 will stand at $147.5/ton, down $4 from the previous year.

3-3 Coal Price Trend

Spot coal prices rose rapidly due to heavy rainfalls in Australia from November 2010, reaching $136.30/ton for steam coal and $365/ton for coking coal. Prices remained high later

before plunging from $123.57/ton in September 2011 to $84.98/ton in June 2012 for steam coal and from $310/ton in August 2011 to $150/ton in October 2012 for coking coal.

Major factors behind the plunge included (1) slowing growth in demand for steam and coking coal through European economic stagnation and Chinese and Indian economic growth deceleration, (2) a U.S. shale gas output expansion leading to more U.S. coal exports and less imports, and (3) a coal supply capacity increase through production capacity enhancement by Australia and other coal exporting countries anticipating global coal demand growth. As a result, both the Asian and European coal markets saw oversupply.

Spot steam coal prices ranged from $80/ton to $95/ton from June 2013 before slipping below $80/ton in June 2013. The prices turned upward in September just before the high-demand winter season and stand around $85/ton now. But we must pay attention to growth in Chinese and Indian imports even amid the two countries' economic growth deceleration, the coal supply side's adjustments including Australia's shutdown of unprofitable coal mines and an emerging stall in a U.S. export rise and an import fall. In the circumstances, the steam coal market apparently sees shrinking oversupply.

Spot coking coal prices moved between $150/ton and $170/ton from October 2012 before dropping below $140/ton in June 2013. They rose back to $150/ton in September and are moving around $140/ton. As is the case with steam coal, oversupply of coking coal is diminishing, though with demand remaining weak.

3-4 Viewpoints for Analyzing the Future Coal Situation

3-4-1 China's coal imports

China's coal imports in the first 10 months of 2013 totaled 216 million tons. Including brown coal, its coal imports in the period aggregated 263 million tons in the period and are likely to expand to more than 300 million tons for the whole of the year. Both steam and coking coal imports into China are expected to increase in line with domestic demand growth in 2014. But the following measures may drag down coal import growth. We must note that Chinese steam and coking coal imports may fluctuate depending on gaps between domestic and overseas prices.

- In response to environmental problems, China is considering or implementing (1) the enhancement of measures against air pollution and global warming to conserve coal consumption, (2) the introduction of highly efficient coal utilization technologies to reduce coal consumption and (3) restraints on coal production to prevent nature destruction through coal mining. Over a medium term, coal demand growth is expected to slow down gradually due to these measures.
- Toward 2014, China is considering (1) banning the production, use and import of low-quality coal with higher ash and sulfur contents, and (2) imposing a tax on coal imports and repealing a tax on coal exports. These measures will drag down coal imports.

3-4-2 India's coal imports

India's coal imports have increased substantially. They totaled 81 million tons in the April-September first half of FY2013 and are projected to reach 160 million tons for the whole of the fiscal year. Steam coal imports are expanding remarkably due to growing demand for electricity. This trend will continue into 2014.

India's coal imports cover the portion of total demand that domestic output cannot fulfill. Coal import growth thus changes depending on the tempo of economic development. Basically, however, India's coal imports will continue a steady increase. In its 12th five-year development program, the Indian government forecast that India's coal imports in the program's final fiscal year (April 2016-March 2017) will reach 185.5 million tons (including 150 million tons in steam coal and 35.5 million tons in coking coal).

3-4-3 European market's (15 EU members') coal imports

In Europe, steam coal consumption for electricity generation has increased as coal has enhanced its competitiveness against natural gas due to falls in coal and emissions trading prices. As a result, steam coal imports have expanded since 2011. European coal imports from the United States and Colombia have increased while those from South Africa have decreased. South African coal has increasingly been exported to Asia including India.

The European market's coal imports totaled 120 million tons in the first eight months of 2013 and are expected to reach 180 million tons for the whole of 2013, unchanged from the previous year. Those in 2014, though being affected by the economic recovery conditions, natural gas price and emissions trading prices, are expected to level off from 2013.

In the future, the European coal market is expected to shrink due to environmental regulations. Coal exporters to the European market are attempting to switch their exports to the growing Asian market.

3-4-4 U.S. trends accompanying shale gas output growth

In the United States, coal exports (mainly to Europe) have increased with coal imports (primarily from Colombia) declining as oversupply of coal has emerged on a natural gas price plunge amid a shale gas output expansion that has led to a fall in demand for coal for power generation.

As coal-fired power generation's share of total electricity output in the United States has remained around 40% since the summer of 2012 following its drop to 32% in April 2012, domestic coal consumption has got on a recovery path. As a result, the coal export expansion and import decline have stopped. U.S. coal exports in 2013 are projected to be slightly below the 2012 level. In 2014, they are likely to level off from the previous year in continuation of the present trend, though being affected by natural gas prices and European market developments.

If environmental regulations including restrictions on carbon dioxide emissions are imposed, new coal power plants will be required to have carbon capture and storage systems and will become more difficult to construct, affecting coal consumption in the power generation sector. As a

result, the United States may expand steam coal exports.

3-4-5 Australian coal exports

Australian coal exports declined due to heavy rainfalls in Queensland in 2011 and rose back to a still sluggish level in 2012. Exports in 2013 have increased smoothly and are expected to exceed 345 million tons against 316 million tons in 2012.

While coal demand in the Asian market is expected to expand in 2014, Australia, which has proceeded with coal mine and transportation infrastructure development, is likely to secure its coal export capacity meeting demand for both steam and coking coal.

But coal prices have remained low as noted above. The average FOB cost for Australian steam coal is estimated at $80/ton. Low coal prices have prompted Australia to shut down unprofitable mines and shift to higher-productivity mines. New mine and infrastructure development has been delayed. On the assumption of growing demand in and after 2015, we may have to closely watch Australian coal development.

3-4-6 Indonesian coal exports

Indonesian coal exports, though expected to peak out due to strong domestic demand, have still continued a substantial expansion. Indonesia replaced Australia as the world’s largest coal exporter in 2011. Its coal exports in 2013 are likely to increase close to 400 million tons against 348 million tons in 2012. In 2014, Indonesian exports may be able to continue meeting demand. In the future, however, coal export growth is expected to decelerate due to rising domestic demand.