 

No. 11 (June and July 2013)

# Coal Trends

## Trends in coal supply, demand and prices as seen from statistics

### What is your preference, gas or coal?

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In this issue, we examine market conditions in Australia and South Africa and trends in landed prices in Japan. We also report on fluctuations and changes in market share for electric power generated from coal and natural gas sources in the United States.

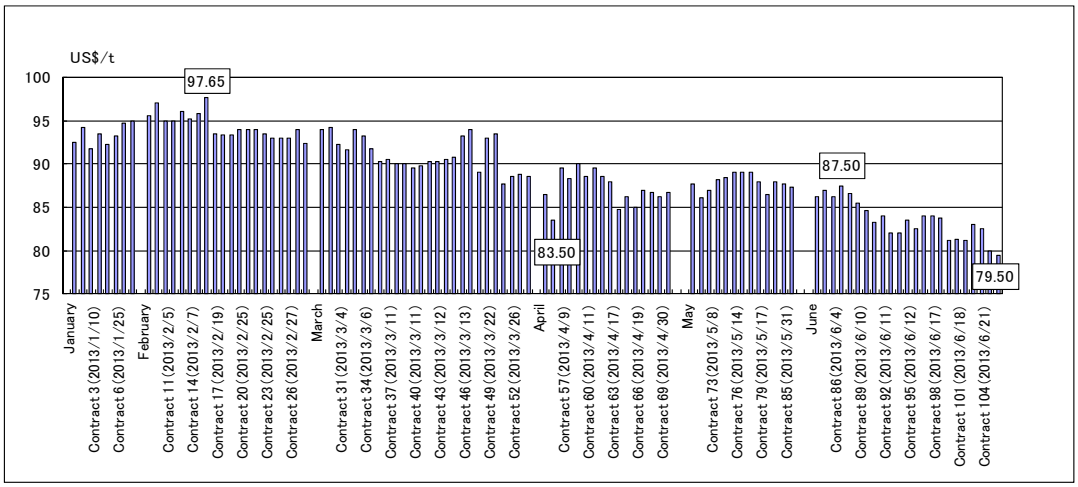
## 1. Spot prices for Australian and South African coal and landed prices in Japan

### (1) Actual trading price trends for Australian and South African thermal coal (Jan-June 2013)

– Spot prices depict a clear downward trend -

Figure 1 shows contracted actual spot trading prices in January to June in a time-series for Newcastle (Australia).

Figure 1. Contract Prices FOB Newcastle (NC), Australia (Jan-June 2013, actual)




Source: Prepared using globalCOAL materials

For Newcastle, 86 actual spot trades were recorded in the five months from January to May 2013. In June 20 actual spot trades had been concluded as of June 28 when this report was produced.

If we do a quick survey of the 106 trades from January to June listed in Figure 1, we see

that there is a consistent downward trend. In June, in particular, the trend is obvious.

In June, prices fell by US$8.00 per metric ton between the beginning and the end of the month with the peak price at US$87.50 per metric ton and the lowest price falling below the US$80 per metric ton mark to US$79.50 per metric ton. The price of US$79.50 per metric ton also fell short of the lowest price for the period from January to May (US$83.50 per metric ton) by US$4.00 per metric ton.

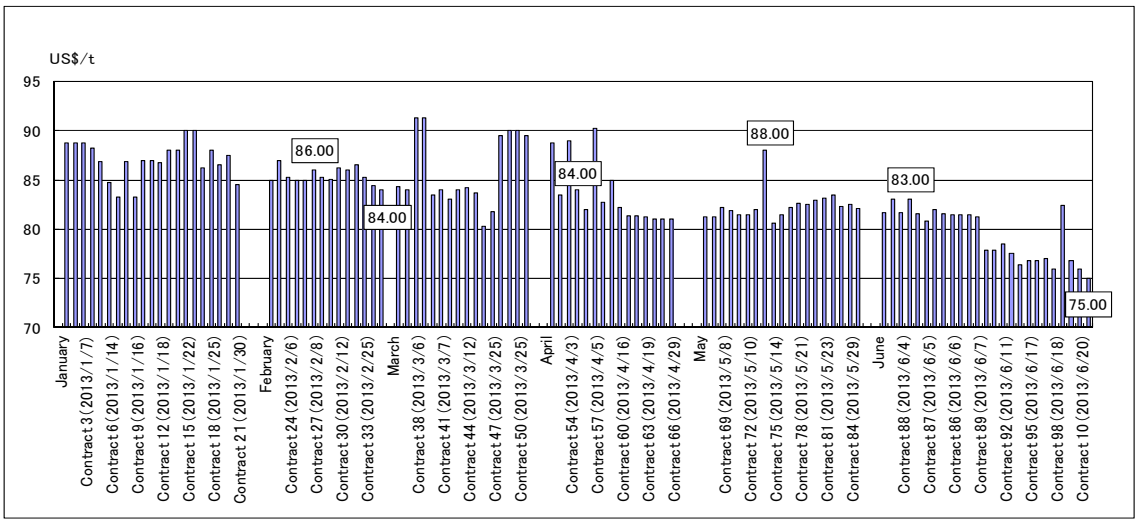
TEPCO has settled the price for the Australian coal contract starting in July 2013 at US$89.98 per metric ton FOBT (July 2013-June 2014). For the contract starting in April, the Japanese power company paid US$95.00 per metric ton, so the price is down by a little over US$5.

Considering that the peak spot price for June contracts was US$87.50 per metric ton, setting the price a little below US$90 per metric ton at US$89.98 per metric ton is impressive for its subtle understanding of the positions of the market, buyers and sellers.

Meanwhile, there were 85 contracts for FOB Richards Bay (RB), South Africa, for January to May 2013, with 17 actual spot trades reported for June (as of June 28).

The peak price in June was US$83.00 per metric on June 3 and 4, and the lowest price was US$75.00 per metric ton set on June 24. Similarly to NC, RB also recorded a drop of US$8.00 per metric ton between the beginning and the end of the month. A clear downward trend is visible here as well.

Figure 2. Contract Prices FOB Richards Bay, South Africa (Jan-June 2013, actual)

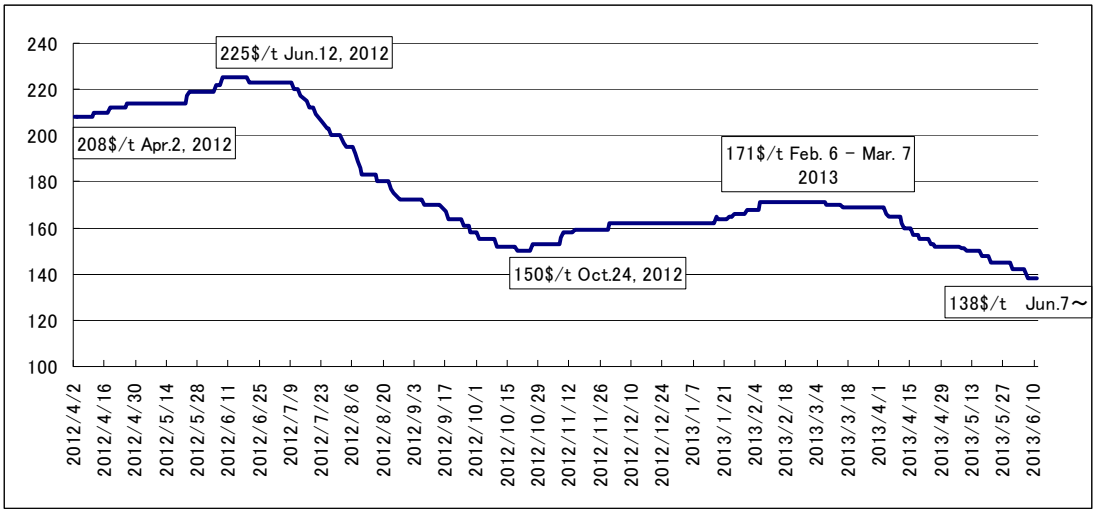



Source: Prepared using globalCOAL materials

(2)　Coking coal spot index

Figure 3 shows the indexes for Coking Coal Queensland (CCQ); in other words, the hard coking coal price index for East Coast Australia (Queensland), on a daily basis.

Figure 3. Energy Publishing's CCQ (Coking Coal Queensland) Index




Source: Prepared using Energy Publishing data

The CCQ Index has slid downward from the level of US$171 per metric ton held from February 6 to March 7, continuing its gentle descent with the value falling to US$138 per metric ton on July 7.

According to press reports, the July to September 2013 price of the highest quality hard coking coal Queensland intended for blast furnaces in Japan has been agreed at US$145 per metric ton FOBT. This is a reduction of as much as US$25 per metric ton from the price of US$172 per metric ton for the period from April to June 2013, but apparently local market conditions are more severe.

(3)　Import price to Japan

– Coking coal turns downward, decline continues for thermal coal –

Table 1 shows changes in import prices for all coal imports to Japan from January to May 2013.

First of all, if we look at the landed price for total imports in dollar terms, the price

bottomed out in February, but in May, the price fell again by as much as US$6.43 per metric ton compared to April. Coking coal prices also followed a similar trend with the price for May falling US$6.60 per metric ton compared to April.

For thermal coal, the downward trend has continued since January. Prices in May were down by US$1.74 per metric ton compared to April, and US$6.06 per metric ton compared to January.

If we look at landed prices by source, Australia, the largest supplier source for Japan, has seen a consistent drop from January to May, with the range of decline between January and May reaching US$7.68 per metric ton.

In March, Indonesia saw an increase of US$2.80 per metric ton compared to the previous month, but prices fell in April and May. The range of decline was not insignificant for May, reaching US$8.22 per metric ton compared to March, and US$5.71 per metric ton compared to April (in dollar terms).

No imports of coking coal from New Zealand, Mongolia or Mozambique were recorded in April or May. The average landed price for coking coal in May was US$145.77 per metric ton. When the price falls to this level, it is probably not possible to reach an agreement in terms of cost with these three countries.

Thermal coal has not been landed from Colombia since February, or from South Africa since March.

Table 1. Japan Landed Imported Coal Prices (January 2013 - May 2013)

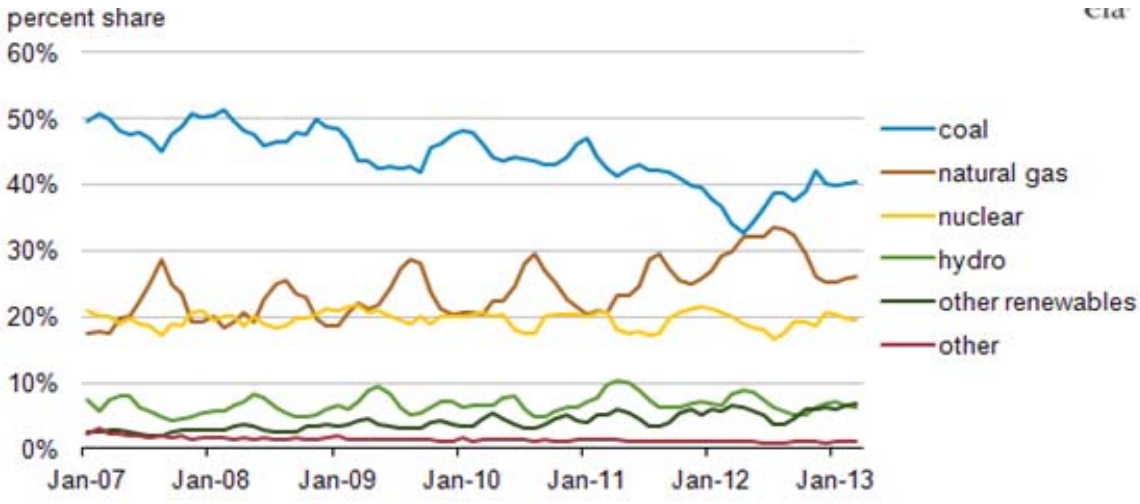
| | January-13 | | February-13 | | March-13 | | April-13 | | May-13 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | JPY/ton | US$/ton | JPY/ton | US$/ton | JPY/ton | US$/ton | JPY/ton | US$/ton | JPY/ton | US$/ton |
| Total imports | 11,819 | 134.93 | 11,811 | 127.56 | 12,391 | 131.70 | 12,905 | 134.12 | 12,712 | 127.69 |
| By coal type | | | | | | | | | | |
| Coking coal | 13,589 | 155.14 | 12,936 | 140.98 | 13,841 | 147.12 | 14,661 | 152.37 | 14,511 | 145.77 |
| Thermal coal | 10,477 | 119.61 | 10,912 | 118.92 | 11,124 | 118.23 | 11,093 | 115.29 | 11,304 | 113.55 |
| Anthracite | 13,699 | 156.39 | 14,228 | 155.06 | 14,780 | 157.09 | 15,961 | 165.89 | 15,367 | 154.36 |
| By source | | | | | | | | | | |
| Australia | 11,904 | 135.89 | 12,170 | 132.63 | 12,462 | 132.45 | 12,567 | 130.76 | 12,764 | 128.21 |
| Indonesia | 9,841 | 112.34 | 10,190 | 111.05 | 10,712 | 113.85 | 10,713 | 111.34 | 10,516 | 105.63 |
| Canada | 15,317 | 174.86 | 14,595 | 159.06 | 17,296 | 183.83 | 16,920 | 175.85 | 15,093 | 151.61 |
| China | 16,861 | 192.48 | 15,352 | 167.31 | 17,627 | 187.35 | 16,533 | 171.83 | 17,745 | 178.25 |
| USA | 16,595 | 189.45 | 13,710 | 149.41 | 14,793 | 157.23 | 15,914 | 165.39 | 15,529 | 155.99 |
| Russia | 10,776 | 123.04 | 11,683 | 127.32 | 11,626 | 123.57 | 11,956 | 124.26 | 12,370 | 124.25 |
| South Africa | 10,567 | 120.63 | 9,834 | 107.17 | – | – | – | – | – | – |
| New Zealand | – | – | – | – | 17,741 | 188.56 | – | – | – | – |
| Vietnam | 12,401 | 141.57 | 13,656 | 148.82 | 13,856 | 147.27 | 16,537 | 171.87 | 17,099 | 171.76 |
| Mongolia | – | – | 20,995 | 228.80 | – | – | – | – | – | – |
| Mozambique | – | – | 15,358 | 167.37 | 15,053 | 159.99 | – | – | – | – |
| Colombia | 9,890 | 112.90 | – | – | – | – | 16,395 | 170.39 | – | – |
| Coking coal by source | | | | | | | | | | |
| Australia | 14,454 | 165.16 | 14,406 | 157.00 | 14,501 | 154.13 | 14,418 | 14985.00 | 14,876 | 149.43 |
| Indonesia | 10,133 | 115.68 | 10,404 | 113.39 | 11,071 | 117.67 | 11,212 | 116.52 | 10,975 | 110.25 |
| Canada | 17,210 | 196.47 | 16,999 | 185.27 | 18,989 | 201.84 | 18,397 | 191.20 | 16,643 | 167.19 |
| China | – | – | 15,611 | 170.14 | 17,599 | 186.63 | 13,269 | 137.91 | 17,661 | 177.41 |
| USA | 18,033 | 205.87 | 15,969 | 174.03 | 16,200 | 172.19 | 18,370 | 190.92 | 16,836 | 169.12 |
| Russia | 12,113 | 138.29 | 13,143 | 143.23 | 13,214 | 140.45 | 13,513 | 140.45 | 14,100 | 141.64 |
| New Zealand | – | – | – | – | 17,741 | 188.57 | – | – | – | – |
| Mongolia | – | – | 20,995 | 228.81 | – | – | – | – | – | – |
| Mozambique | – | – | 15,358 | 167.38 | 15,054 | 160.00 | – | – | – | – |
| Thermal coal by source | | | | | | | | | | |
| Australia | 10,650 | 121.58 | 11,227 | 122.36 | 11,430 | 121.49 | 11,394 | 118.42 | 11,654 | 117.07 |
| Indonesia | 9,314 | 106.33 | 9,956 | 108.51 | 10,169 | 108.09 | 10,052 | 104.48 | 10,132 | 101.77 |
| Canada | 10,759 | 122.82 | 11,248 | 122.58 | 9,252 | 98.34 | 11,243 | 116.85 | 10,566 | 106.14 |
| China | 13,696 | 156.36 | 13,019 | 141.89 | 11,649 | 123.82 | 14,798 | 153.80 | – | – |
| USA | 10,808 | 123.38 | 10,185 | 110.00 | 10,438 | 110.95 | 10,067 | 104.63 | 10,574 | 106.22 |
| Russia | 10,089 | 115.18 | 10,558 | 115.06 | 10,540 | 112.03 | 10,694 | 111.15 | 10,773 | 108.22 |
| South Africa | 10,568 | 120.64 | 9,834 | 107.18 | – | – | – | – | – | – |
| Colombia | 9,891 | 112.91 | – | – | – | – | – | – | – | – |
| | US$1=JPY87.60 | | US$1=JPY91.76 | | US$1=JPY94.08 | | US$1=JPY96.22 | | US$1=JPY99.55 | |

Source: Prepared using Trade Statistics of Japan Monthly Reports

## 2. What is your preference? Gas or coal?

Figure 4 is excerpted from *Coal regains some electric generation market share from natural gas*, a report published on May 23, 2013 by the U.S. Department of Energy, Energy Information Administration.

Figure 4. Fluctuating Configuration of Electric Power Generation by Energy Source in the U.S.
(U.S. monthly net electric power generation, July 2007 – March 2013)




Source: U.S. Energy Information Administration

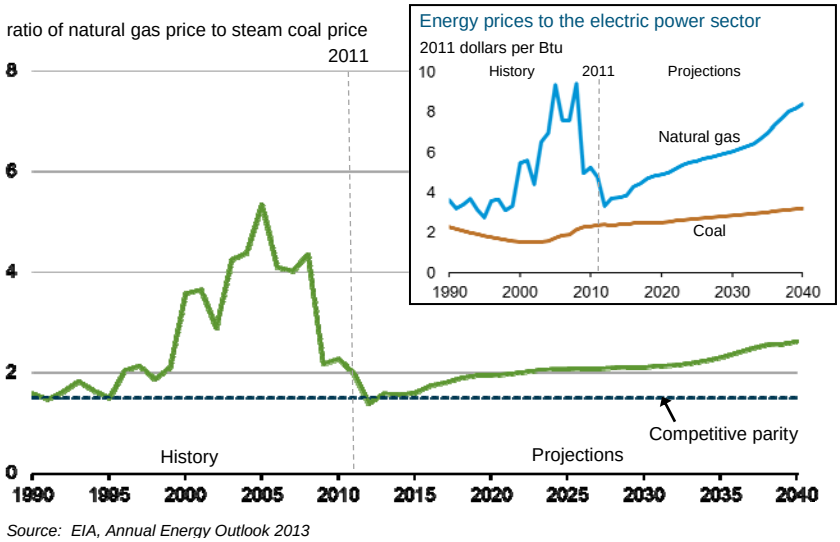
This figure indicates that since 2008 when shale gas production increased and the price of natural gas started to fall markedly, natural gas has increased its share of the market as fuel for electric power generation, while coal has been losing market share, and finally in April 2012, the market share held by coal-fired and natural gas-fired power generation reached a point where both competed against each other with market shares of 32-33%. However, since then, coal has taken back some of its market share (natural gas has lost market share), and by March 2013, coal had recovered 40% of the market share. Conversely, the market share for natural gas has fallen to 25%.

The sharp drop in market share for natural gas in 2012 forced increased dependence on coal-fired thermal power due to the sharp increase in electricity demand during the summer months on top of the rise in the natural gas price.

Figure 5 is excerpted from *Fuels Used in Electricity Generation* (published on the website of the U.S. Energy Information Administration) presented by Mr. Adam Sieminski, administrator of the U.S. Energy Information Administration, on June 5, 2013, shortly after the abovementioned report was published on May 23.

Figure 5. Natural Gas and Coal Prices: Coal Regains Competitive Advantage Relative to Natural Gas over Time on a National Average Basis




Source: U.S. Energy Information Administration

Figure 5 combines two graphs. The graph at top right indicates price fluctuations for coal and natural gas. It shows that the price of natural gas fell sharply in 2011 when it was fast approaching the price of coal, but since then the difference between the two energy sources has again widened.

The line indicated in green in the graph at the bottom (left) shows the relative price of natural gas and coal (thermal coal), while the dotted line indicates competitive parity, i.e., the level where competitive advantage for natural gas and coal is even in economic terms. Reading the figure, parity is probably about 1.5 to 1.6.

Natural gas and coal were on an even footing in economic terms when the green line dropped to the level of the dotted line in 2012. As a result, both sources had the same share of the market for electric power generation as indicated in Figure 4.

In short, when the price of natural gas drops to about twice the price of coal, the operating ratio for coal declines, boosting the operating ratio for natural gas-fired thermal power for U.S. producers of electric power.

It is also possible to read from Figure 4 and Figure 5 that an increase in the relative ratio leads to a decline in market share for natural gas.

Supposing this is the case, the projection that shows the green line rising well beyond a twofold increase by 2040 may constitute a prediction of heavy use of coal in the long term. The direction of environmental regulations will, of course, have major impact on the fate of coal-fired thermal power.

Now then, what about the electric power suppliers in Japan?

The author emulated Figure 5 to produce Figure 6, replacing the data with actual results for Japan.

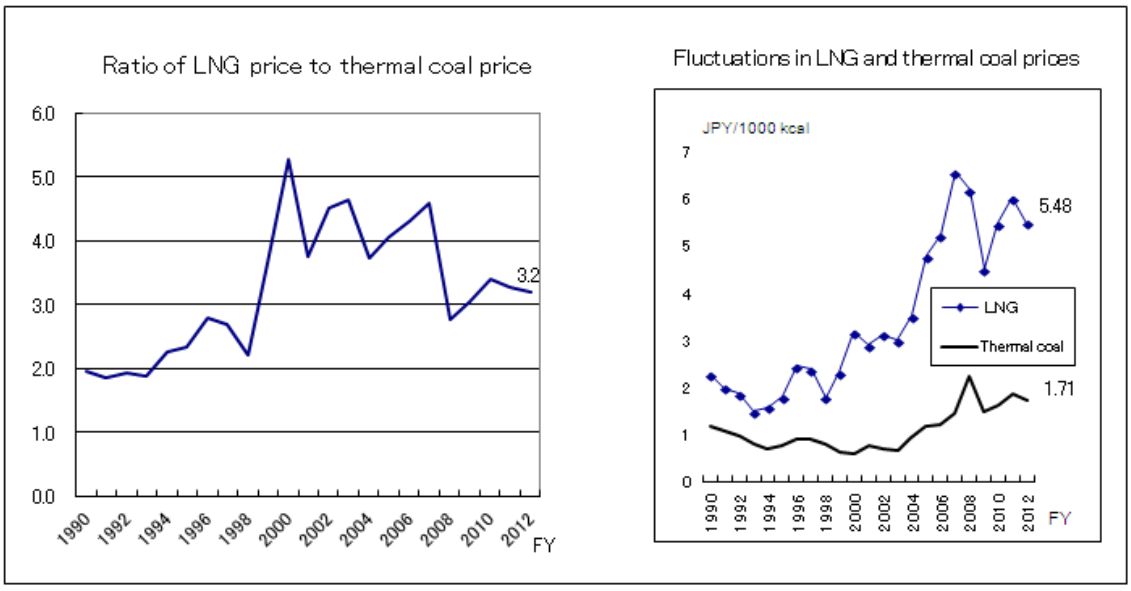
As you can see from the graph on the right in Figure 6, the LNG landed price rose swiftly in the early 2000s. The rise was particularly striking from fiscal 2004-05 to fiscal 2008. In this period, the relative ratio of LNG to thermal coal price fluctuated from 3.7 to 4.6 times (average per fiscal year).

As described above, when the relative ratio for the price of natural gas in the United States fell below the twofold mark, we have a phenomenon where coal loses market share while natural gas increases its share of the market.

However, in Japan, we have not been able to observe any facts suggesting that coal superseded natural gas because the relative ratio increased by a factor of 3.7 to 4.6 in the period between fiscal 2004 and fiscal 2008. (See Figure 7)

Traditionally, the operating ratio for coal-fired thermal power has been high, so one reason could be that it is not possible to further increase its operating hours. In addition, there is respect for the role given to each power source, and the industry also makes an effort to consider the environmental load of operations.

Figure 6. Comparison of LNG and Coal Prices in Japan

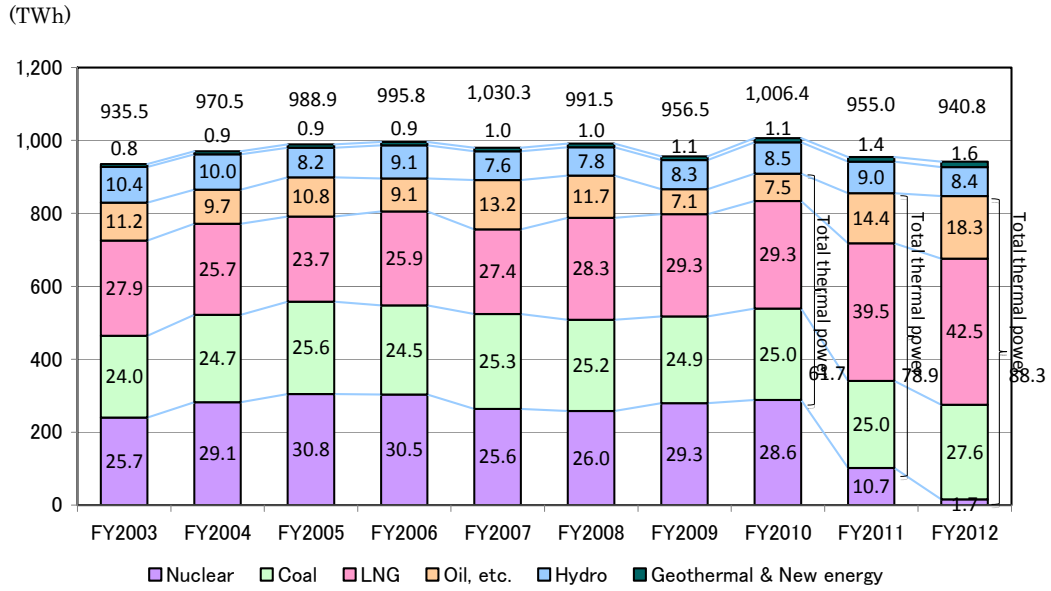



Source: Produced by IEEJ based on Trade Statistics of Japan

However, as the liberalization of the electric power market moves forward, there is a good likelihood that one day in the near (?) future many electric power producers, fatigued by the constant competition with other companies, will say that in terms of new power sources, they prefer coal to gas since the relative ratio is not likely to fall below the twofold mark (since it is still more than three times as high).

When the majority of new power stations show a preference for coal, the environmental regulators will be busy.

(Reference) Figure 7. Proportion of Power Sources in the Generation Mix




Note: The total for the 10 power companies includes power received from other companies. Oil, etc. includes LPG and other gases. The figures in the graph refer to distribution ratios (%). Total distribution ratios may not equal 100% due to rounding.

Source: Website of the Federation of Electric Power Companies of Japan

(To be continued in the next issue)

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