

No. 10 (May 2013)

Coal Trends

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

LNG, oil and coal in the absence of nuclear power

Koji Morita, Board Member, Director, Charge of Electric Power & Coal Unit

In this issue, we report on market conditions in Australia and South Africa and trends in landed prices in Japan. We also discuss the operating situation for thermal power generation in the context of the absence of nuclear power since the great earthquake.

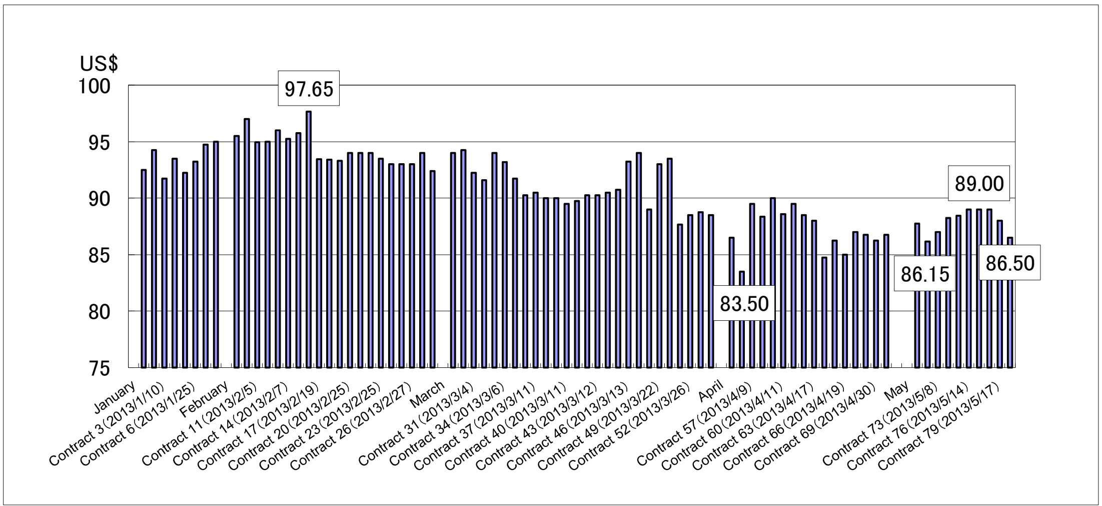
1. Spot prices for Australian and South African coal and landed prices in Japan

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

– No end to the fall in spot prices –

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

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



Source: Prepared using globalCOAL materials

For Newcastle, 70 actual spot trades were recorded in the four months from January to April, but there were fewer trades in May. As of May 29 when this report was produced, 10 actual spot trades had been reported.

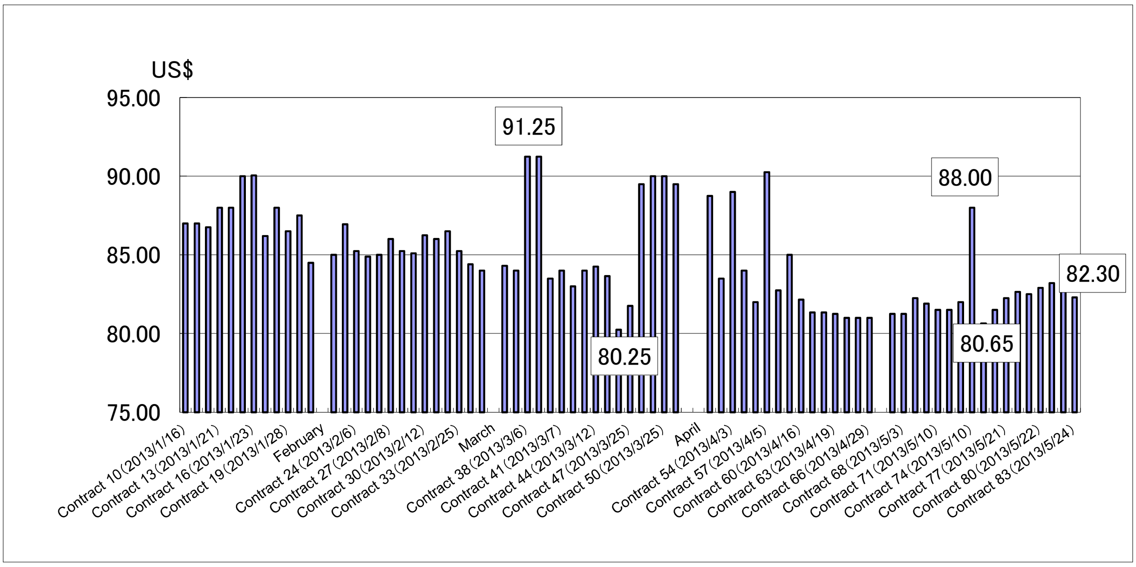
Price levels for May were in the range of US$86-89 per metric ton, or about the same level as the preceding month. The high was US$89.00 per metric ton (May 16) and the low was US$86.15 per metric ton (May 2).

Looking at the whole period since the start of the year, there was a high of US$97.65 per metric ton on February 8, and a low of US$83.50 on April 9. At the present point in time, no trades suggestive of a reversal have been observed.

Meanwhile, there were 66 contracts for FOB Richards Bay (RB), South Africa, from January to April 2013, with 17 actual spot trades reported for May (as of May 29).

With the second half of April as the baseline, price levels seemed to be moving upward, albeit gradually, but price movements were small with the first trade in May at US$81.25 per metric ton (May 3), the lowest price at US$80.65 per metric ton (May 14), and the last trade at US$82.30 per metric ton (May 24).

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

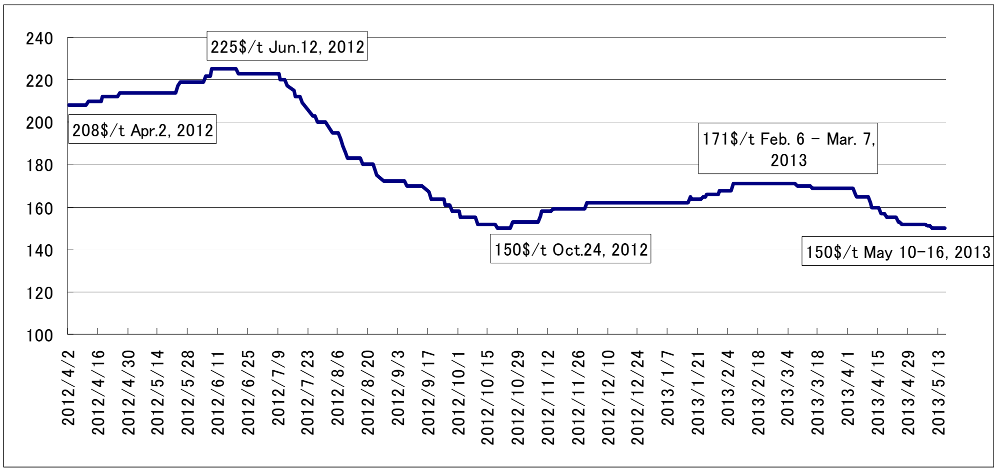


Source: Prepared using globalCOAL materials

(2) Trends in coking coal spot index

Figure 3 shows the prices 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

After bottoming out at US$150 per metric ton between October 19 and 25, 2012, the price of hard coking coal continued to recover at a gentle pace until reaching US$171 per metric ton on February 6. However, since March 7, the gentle downward trend started up again, and by May 10, the price had fallen to the previous low of US$150 per metric ton where it has since remained. (Energy Publishing website)

Compared to the preceding period (January-March 2013), the April to June 2013 prices of hard coking coal intended for blast furnaces in Japan rose by US$17 per metric ton to settle at FOBT US$172 per metric ton, but in the current market conditions, downward pressure is expected to bear down on the July-September 2013 price negotiations.

(3) Import price to Japan

– Coking coal rises for second month in a row, while the thermal coal price continues to decline –

Table 1 shows imported coal prices in fiscal 2012 and the four months from January to April 2013.

The price of coking coal in April was US$152.24 per metric ton with prices rising continuously for two months after bottoming out in February. Compared to the February price, this marks an increase of US$11.26 per metric ton. However, compared to fiscal 2012, the price is still down by US$20.84 per metric ton.

As mentioned above, since the price of hard coking coal intended for blast furnaces in Japan has risen by US$17 per metric ton for April-June 2013, to settle at FOBT US$172 per metric ton, the rise is expected to continue from May onwards.

Meanwhile, thermal coal continued to decline in April, decreasing by US$2.99 per metric ton compared to the previous month (March). Compared to fiscal 2012, the price is down by as much as US$11.34 per metric ton.

Since the Australian contract for thermal coal intended for power companies, which started in April 2013, was agreed at US$95 per metric ton FOBT, or down US$20 per metric ton compared to the preceding year, the landed price in Japan is expected to continue to fall from May onwards.

However, thermal coal continues to fall in dollar terms, but in yen terms, it is rising with the April price up by JPY919 per metric ton compared to the price in fiscal 2012. With the trend for yen depreciation continuing, it is unlikely that there will be any change in the phenomenon of “a fall in dollar terms, a rise in yen terms” in May.

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

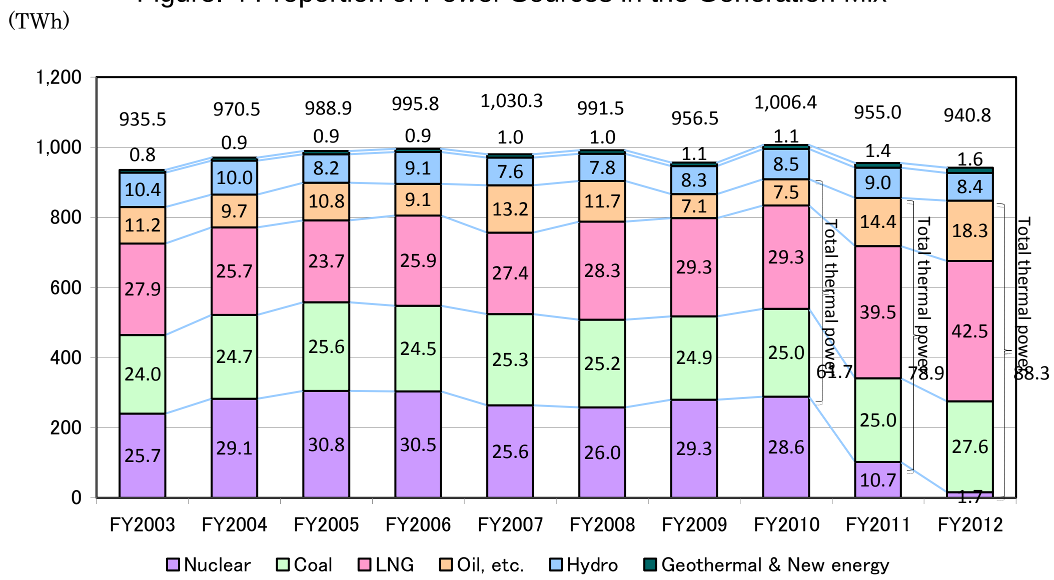
	FY2012		Jan 2013		Feb 2013		Mar 2013		Apr 2013	
	JPY/ton	US$/ton	JPY/ton	US$/ton	JPY/ton	US$/ton	JPY/ton	US$/ton	JPY/ton	US$/ton
Total imports	12,080	146.07	11,819	134.93	11,811	127.56	12,391	131.70	12,896	134.03
By coal type										
Coking coal	14,314	173.08	13,589	155.14	12,936	140.98	13,841	147.12	14,648	152.24
Thermal coal	10,468	126.58	10,477	119.61	10,912	118.92	11,124	118.23	11,387	115.24
Anthracite	14,014	169.45	13,699	156.39	14,228	155.06	14,780	157.09	15,961	165.89
By source										
Australia	12,192	147.42	11,904	135.89	12,170	132.63	12,462	132.45	12,567	130.61
Indonesia	9,708	117.38	9,841	112.34	10,190	111.05	10,712	113.85	10,711	111.32
Canada	16,354	197.74	15,317	174.86	14,595	159.06	17,296	183.83	16,920	175.85
China	15,074	182.27	16,861	192.48	15,352	167.31	17,627	187.35	16,533	171.83
USA	17,266	208.78	16,595	189.45	13,710	149.41	14,793	157.23	15,914	165.39
Russia	11,133	134.62	10,776	123.04	11,683	127.32	11,626	123.57	11,954	124.24
South Africa	10,090	122.01	10,567	120.63	9,834	107.17	-	-	-	-
New Zealand	19,054	230.40	-	-	-	-	17,741	188.56	-	-
Vietnam	14,171	171.36	12,401	141.57	13,656	148.82	13,856	147.27	16,537	171.87
Mongolia	19,763	238.97	-	-	20,995	228.80	-	-	-	-
Mozambique	16,943	204.87	-	-	15,358	167.37	15,053	159.99	-	-
Colombia	9,726	117.61	9,890	112.90	-	-	-	-	16,395	170.39
Coking coal by source										
Australia	15,010	181.50	14,454	165.16	14,406	157.00	14,501	154.13	14,391	149.57
Indonesia	10,120	122.37	10,133	115.68	10,404	113.39	11,071	117.67	11,212	116.52
Canada	18,273	220.95	17,210	196.47	16,999	185.27	18,989	201.84	18,397	191.20
China	15,551	188.04	-	-	15,611	170.14	17,599	186.63	13,269	137.91
USA	18,748	226.70	18,033	205.87	15,969	174.03	16,200	172.19	18,370	190.92
Russia	14,236	172.14	12,113	138.29	13,143	143.23	13,214	140.45	13,496	140.26
New Zealand	19,054	230.40	-	-	-	-	17,741	188.57	-	-
Mongolia	19,763	238.97	-	-	20,995	228.81	-	-	-	-
Mozambique	16,943	204.87	-	-	15,358	167.38	15,054	160.00	-	-
Thermal coal by source										
Australia	10,809	130.70	10,650	121.58	11,227	122.36	11,430	121.49	11,387	118.35
Indonesia	9,255	111.91	9,314	106.33	9,956	108.51	10,169	108.09	10,048	104.43
Canada	10,318	124.77	10,759	122.82	11,248	122.58	9,252	98.34	11,243	116.85
China	11,931	144.27	13,696	156.36	13,019	141.89	11,649	123.82	14,798	153.80
USA	9,753	117.93	10,808	123.38	10,185	110.00	10,438	110.95	10,067	104.63
Russia	9,919	119.94	10,089	115.18	10,558	115.06	10,540	112.03	10,697	111.18
South Africa	10,090	122.01	10,568	120.64	9,834	107.18	-	-	-	-
Colombia	9,726	117.61	9,891	112.91	-	-	-	-	-	-
	US1$=¥82.70		US1$=¥87.60		US1$=¥91.76		US1$=¥94.08		US1$=¥96.22	

Source: Prepared using Trade Statistics of Japan Monthly Reports

2. LNG, oil and coal in the absence of nuclear power

Figure 4 shows the proportion of power sources in the generation mix, i.e., fluctuations in the amount of power generated and distribution ratios for the main sources of power, released on May 17 by the Federation of Electric Power Companies of Japan.

Figure. 4 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

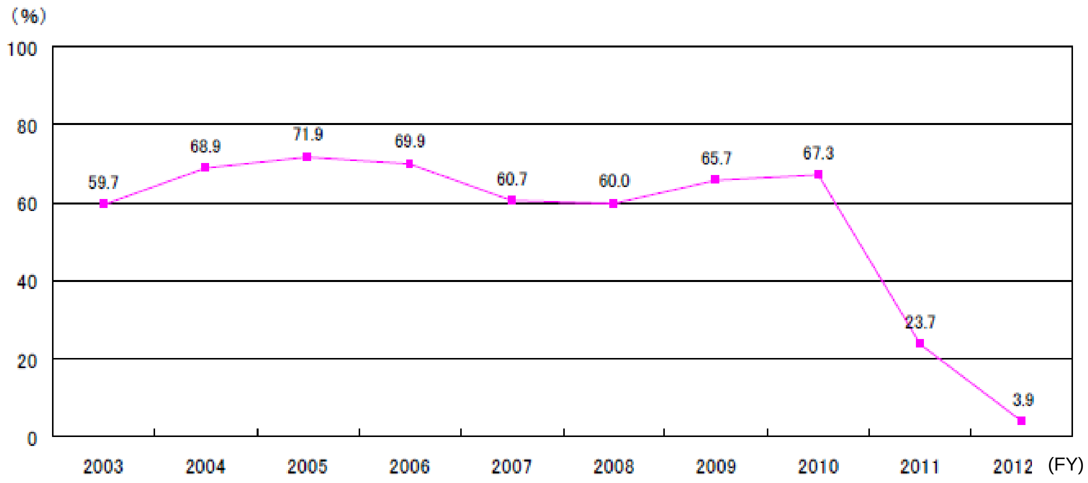
The Great East Japan Earthquake struck the northeast of Japan in the afternoon of March 11, 2011, in other words, on a day when only 20 days remained of fiscal 2010.

The amount of power generated by nuclear power in fiscal 2010 was 288.2 TWh, which accounted for 28.6% of total power generated, second only to LNG at 29.3%.

However, since the earthquake disaster, one by one, the nuclear power stations in Japan have been forced to come to a stop. As indicated in Figure 5, the nuclear power capacity factor has dropped from 67.3% in fiscal 2010, to 23.7% in fiscal 2011, and further to 3.9% in fiscal 2012. The amount of power generated by nuclear power has dropped steeply from 288.2 TWh in fiscal 2010, to 101.8 TWh in fiscal 2011, and to approximately 16.0 TWh[1] in fiscal 2012.

[1] The amount of power generated in fiscal 2012 is found by multiplying the total amount of power generated as shown in Figure 4 with the share of power generated by nuclear power.

Figure. 5 Capacity Factor for Nuclear Power Plants



Note: Includes the Japan Atomic Power Company

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

This dismal state of affairs has been salvaged mainly by LNG and oil-fired thermal power. The amount of power generated by LNG has increased from 294.5 TWh in fiscal 2010 (29.3% of the total amount of power generated), to 377.2 TWh (39.5%) in fiscal 2011, and then up to about 400.0 TWh (42.5%) in fiscal 2012.

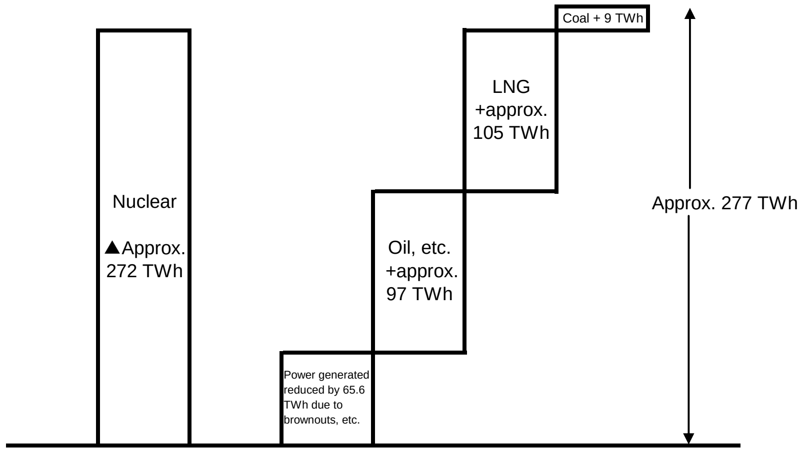
Similarly, oil (including LPG) has also expanded from 75.3 TWh (7.5%) to 137.2 TWh (14.4%), and then to 172.2 TWh (18.3%).

Meanwhile, if we compare fiscal 2011 with fiscal 2010, coal-fired thermal power still accounted for a 25.0% share of total power generated, but the amount of power generated had decreased from 251.1 TWh to 239.2 TWh, or a little under 5%.

The direct cause for the decrease is that a total of 7,050 MW of the grand total of 10,150 MW of coal-fired thermal power operating within the jurisdiction of the Tohoku Power Company and the Tokyo Power Company became inoperable due to the tidal wave that struck after the earthquake. However, by the end of the year when the earthquake disaster struck, in December 2011, the Haramachi thermal power station (1,000 MW x 2) of the Tohoku Power Company was still untouched, and the remainder of 5,050 MW was undergoing restoration.

In fiscal 2012, coal-fired thermal power grew its share of the total amount of power generated to 27.6%, and compared to fiscal 2010, the amount of power generated also expanded by approximately 9.0 TWh. However, as indicated in Figure 6, the majority of the lost 272.0 TWh of nuclear-generated power has been shouldered by other power sources but coal.

Figure. 6 Comparison of Amount of Power Generated (FY2010/FY2012)



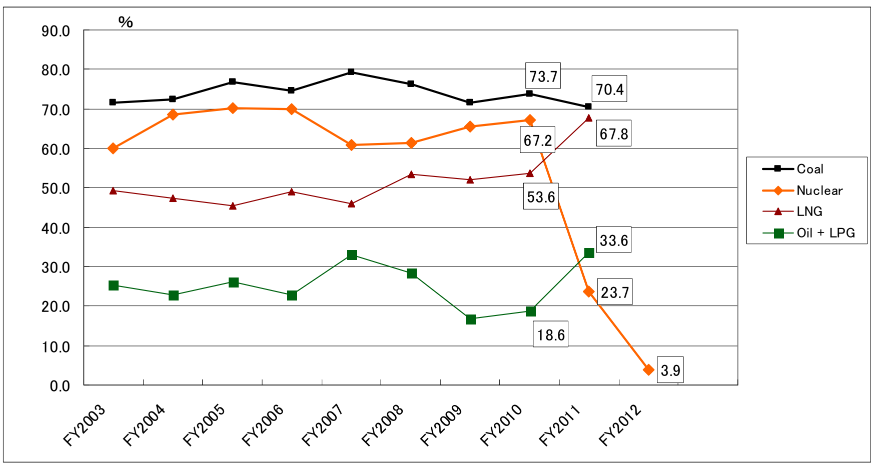
Source: Prepared by the author based on the website of the Federation of Electric Power Companies of Japan

Now then, compared to LNG and oil-fired thermal power, what are the reasons behind the lack of major contributions by coal to the amount of power generated?

The answer lies in the invariably high capacity factor for coal-fired thermal power.

Figure 7 shows fluctuations in the capacity factor for each power source calculated by the author based on figures from the public database of the Federation of Electric Power Companies of Japan. Readers will be familiar with the operational format used by electric power companies where the capacity factor becomes higher when nearing base load, and diminishes when approaching peak load.

Figure. 7 Capacity Factor (Utilization Factor) for 10 Japanese Power Companies by Power Source



Source: Prepared based on data from the Federation of Electric Power Companies of Japan

As indicated in Figure 7, before the earthquake disaster, the capacity factor for coal ranged between 70 and 80%, LNG was about 50% and oil operated at around 20%.

These facts suggest that there was scope to raise the capacity factor for both LNG and oil, but the same was not true for coal. In fact, as shown in Figure 7, the capacity factors for LNG and oil-fired thermal power increased noticeably in fiscal 2011.

Combined with the inoperable stricken coal-fired thermal power within the jurisdiction of the Tohoku Power Company and the Tokyo Power Company, this is one of the main reasons for coal-fired thermal power not being able to expand the amount of power generated to compensate for the rapid decline in the capacity factor for nuclear power.

The capacity factors for LNG and oil-fired thermal power plants were not as high as coal and so were able to rapidly increase the volume of power generated in the absence of nuclear power.

However, in fiscal 2011, the LNG capacity factor rose to 67.8%,[2] and it is forecast to rise further to 71-72% in fiscal 2012.[3] This begs the question of how far it will be possible to increase the capacity factor in the future.

Once again, we keenly sense that LNG, oil and coal have nuclear power to thank for their presence.

(To be continued in the next issue)

Please direct inquiries to: report@tky.ieej.or.jp

[2] Calculated by the author based on data from the Federation of Electric Power Companies of Japan.
[3] Calculated on the premise of the installed capacity for LNG-fired thermal power remaining the same as in FY2011.