

## Coal Trends

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

Signs of bottoming out of thermal coal import prices  
and predicted increase in imports in Taiwan

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

This paper first discusses trends in import prices of coal for Japan followed by a look at the status of Taiwan's coal imports.

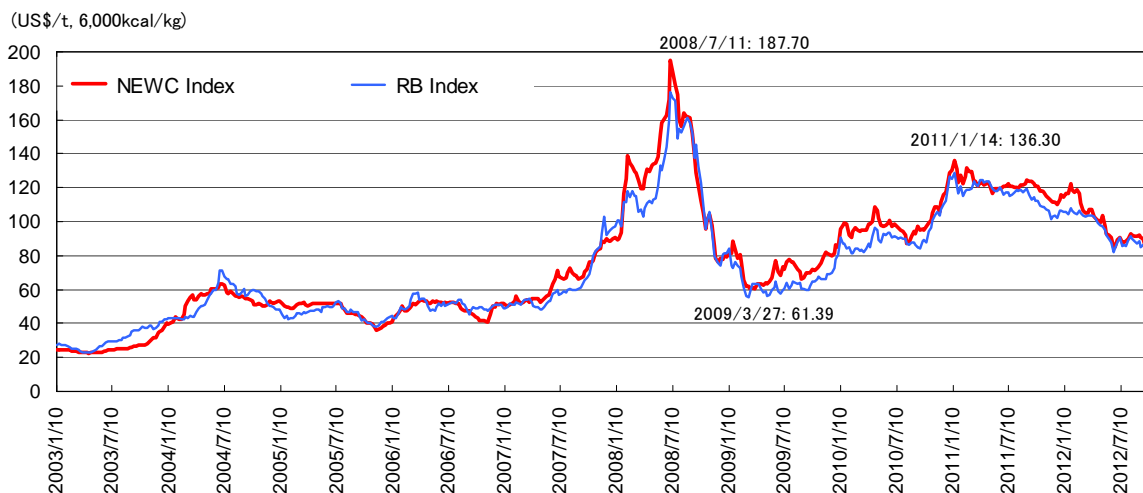
### 1. Japan's Coal Imports

#### (1) Spot prices

Figure 1 shows the transition of spot price indexes for thermal coal FOB Newcastle, Australia, (NEWC) and FOB Richards Bay, South Africa (RB).

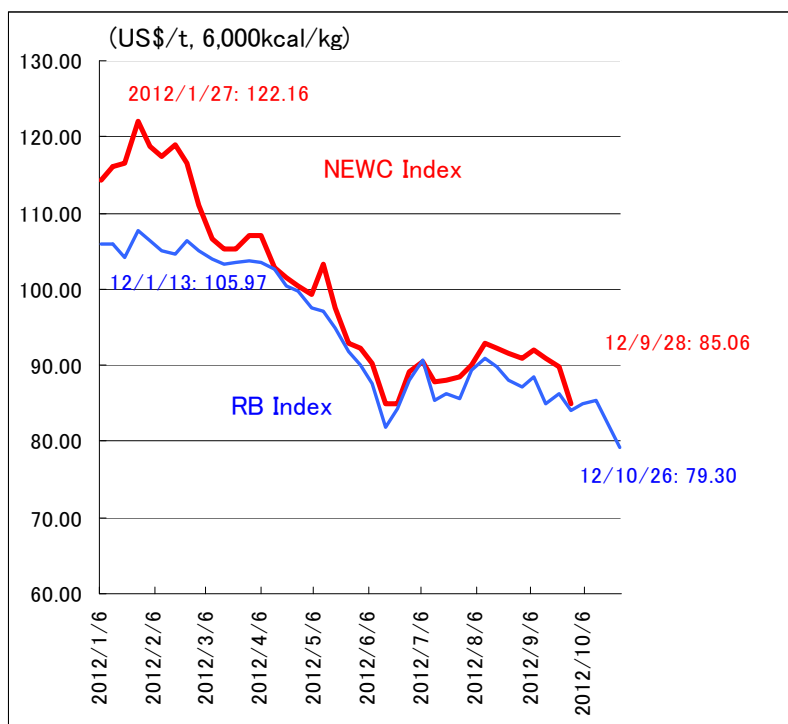
The NEWC Index peaked at US\$136.30 per metric ton on January 14, 2011 and then started to fall, and as can be seen in Figure 2; to US\$85.06 per metric ton on September 28, 2012, which was a staggering drop of US\$51 per metric ton in just one year and nine months.

Figure 1. Transition of globalCOAL NEWC and RB Indices (Jan. 2003 - Oct. 2012)



The RB Index shows a similar track as that of the NEWC Index, as can be seen from both Figures 1 and 2, though at a slightly lower level; breaking the US\$80 barrier and falling to US\$79.30 per metric ton on October 26, 2012.

Figure 2. Transition of globalCOAL NEWC and RB Indices (Jan. 2012 -)



Note: NEWC Index: FOB Newcastle, NSW, Australia price for thermal coal (6,000 kcal/kg net)  
 RB Index: FOB Richards Bay, South Africa price for thermal coal (6,000 kcal/kg net)

Source: globalCOAL

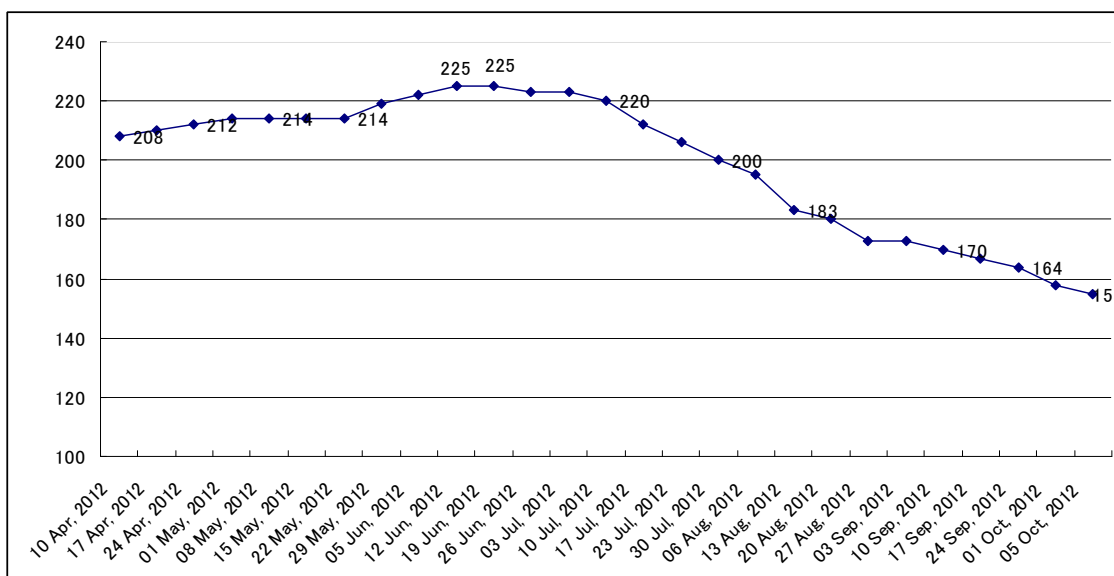
Since then, the declines shown in Figures 1 and 2 have not stopped, as prices have instead fallen even further, and a deal was closed for Australian NEWC spot at US\$76 per metric ton on October 15, 2012.

In the South Africa (RB spot) thermal coal market, a deal was closed at US\$77 per metric ton on October 24 (both for November delivery) (globalCOAL).

This is the first time thermal coal prices fell below US\$80 in both markets since the end of 2009 (Nov. - Dec.) as shown in Figure 1.

Figure 3 shows the transition of the Coking Coal Queensland (CCQ) Index, in other words, the price index for coking coal FOB east coast of Australia, on a weekly basis.

Figure 3. Transition of CCQ (Coking Coal Queensland) Index by Energy Publishing



Source: Energy Publishing

After hitting US\$225 per metric ton on June 12 and 19, 2012, it started to fall, to US\$200 per metric ton on July 30 and to US\$170 per metric ton on September 10. It did not stop there in October and continued to fall, breaking through US\$160 per metric ton on October 1 and hitting US\$155 per metric ton on October 8 (Energy Publishing website).

(2) Import price to Japan – Import price of thermal coal showing signs of bottoming out

As indicated in Table 1, compared with the import price in August, the average import price for this September fell from US\$149.79 to US\$147.40; a minor drop of US\$2.40 per metric ton. Considering that the average for Jan. - Aug. 2012 was US\$169.51 per metric ton, signs of bottoming after August can be seen.

Viewed from the perspective of coal types, the signs are much clearer, and though coking coal showed a fall of US\$5.80 per metric ton compared to August, thermal coal showed a turnaround and rose by US\$1 per metric ton; from US\$126.17 to US\$127.13.

The US\$5.80 fall is presumed to stem from the strong effects of the fall of Australian coal that constitute a higher ratio of deliveries, by US\$7.70 per metric ton, while Canada and Russia both have staged turnarounds, albeit small ones.

For thermal coal, the import prices for Australian coal were at about the same level as for August, while prices from Canada and Russia rose, and seem to have bottomed out.

Table 1. Comparison of Japan landed imported coal prices  
(September and August 2012 and January-August 2012 average)

	Sep. 2012 price		Aug. 2012 price		an. - Aug. 2012 price		2011 price	
	yen/metric ton	\$/metric ton	yen/metric ton	\$/metric ton	yen/metric ton	\$/metric ton	yen/metric ton	\$/metric ton
All imports	11,676	147.40	11,767	149.79	13,800	169.51	14,033	175.48
By coal type								
Coking coal	13,684	174.26	14,129	180.01	16,031	201.78	18,238	228.01
Thermal coal	9,983	127.13	9,903	126.17	10,999	138.43	10,980	137.27
Anthracite	14,113	179.71	13,327	169.79	15,292	192.47	17,769	222.13
By source								
Australia	11,805	150.32	11,945	152.19	13,241	166.66	14,389	179.89
Indonesia	8,958	114.07	9,128	116.29	10,073	126.79	10,108	126.36
Canada	14,768	188.05	15,727	200.37	18,234	229.51	19,367	242.12
China	13,788	175.58	15,103	192.42	15,242	191.84	15,644	195.57
USA	16,237	206.76	18,677	237.96	20,513	258.18	20,439	255.52
Russia	10,482	133.48	10,699	136.31	12,002	151.06	13,431	167.90
South Africa	11,451	145.82	-	-	10,104	127.18	11,793	147.43
New Zealand	-	-	-	-	19,989	251.59	20,502	256.31
Vietnam	14,647	186.52	13,219	168.42	15,705	197.68	18,931	236.67
Mongolia	-	-	-	-	23,076	290.45	272,500	3406.68
Mozambique	16,825	214.25	-	-	21,860	275.14	-	-
Coking coal by source								
Australia	14,726	187.53	15,323	195.22	16,883	212.50	19,780	247.28
Indonesia	9,229	117.52	9,374	119.43	10,464	131.70	10,700	133.76
Canada	17,156	218.47	17,115	218.05	20,186	254.07	21,955	274.47
China	13,321	169.63	-	-	18,506	232.93	20,109	251.39
USA	17,661	224.89	18,934	241.23	21,327	268.43	21,456	268.24
Russia	14,387	183.20	14,238	181.40	16,374	206.09	19,932	249.19
New Zealand	-	-	-	-	19,989	251.59	20,502	256.31
Mongolia	-	-	-	-	23,076	290.45	-	-
Mozambique	16,825	214.25	-	-	21,860	275.14	-	-
Thermal coal by source								
Australia	10,272	130.80	10,249	130.57	11,360	142.98	11,360	142.02
Indonesia	8,636	109.97	8,822	112.39	9,700	122.09	9,689	121.12
Canada	10,675	135.94	9,887	125.96	11,176	140.67	11,101	138.78
China	11,071	140.98	12,141	154.69	12,378	155.79	11,753	146.93
USA	9,667	123.10	10,567	134.63	11,103	139.75	9,513	118.93
Russia	9,477	120.68	9,175	116.90	10,282	129.42	10,898	136.25
South Africa	11,451	145.82	-	-	10,104	127.18	11,793	147.43
	US1\$=¥78.53		US1\$=¥78.49		US1\$=¥79.45		US1\$=¥79.99	

Source: Trade of Japan

In predicting future import prices for thermal coal, the agreed upon price between Japan's power companies and the Australian suppliers will act as a reference.

FOB contract prices commencing January 2012 (January-December 2012) (GAR 6,322 kcal/kg; same to apply hereunder) have been reported at US\$115.50 per metric ton, US\$115.25 starting April (April 2012 - March 2013), US\$94.90 starting July (July 2012 - June 2013) and US\$96.90 starting October (October 2012 - September 2013).

A simple average of the above four contract prices will result in US\$105-106 per metric ton.

Considering ocean freight's soft situation, the landed price of Australian coal in Japan by adding ocean freight to this is presumed to have a little more room to fall in comparison to US\$130.80 per metric ton, which was the landed price in September.

However, in the coming three months there should not be any large and rapid fall in prices, as was seen in the first half of this year, and prices are expected to transition in a settled manner.

For coking coal, the reported contract price for high-quality heavy coking coal from Queensland, Australia agreed upon between steel mills in Japan and Australian suppliers was set at US\$235 per metric ton for January 2012 contracts, US\$210 for April, US\$225 for July and US\$170 for October. As can be seen from Figure 3, Energy Publishing's Index shows US\$155 per metric ton on October 8, but considering the cost of ocean freight, the pricing seems to be just as that for the Index.

No signs of bottoming out can be seen from the statistics.

As far as can be seen from statistics, the price for thermal coal seems to have bottomed out and the landed price in Japan is expected to transition steadily, at least for the three months starting October.

However, for coking coal no numbers can be seen for mainstream Australian coal that indicate a sign of bottoming out.

## 2. Introduction of coal importing countries of North East Asia

### Taiwan: Steady expansion in coal import is predicted

#### (1) Coal import quantity

There is currently no coal production in Taiwan. Although production of around 80,000 metric tons was recorded in 2000, there have been no records of production since then. This means that the amount of import equals consumption. Both Japan and South Korea also have production around or less than 1% of imports and the fact that the three nations lacking in energy resources have managed to become the leaders in the Asian economy is noteworthy. I believe a paper could be written on this theme.

As for Taiwan, coal imports increased steadily in the 2000s, but fell significantly in 2009 after peaking in 2007-2008, probably influenced by the simultaneous global slowdown, but were on a recovery trend for 2010 and 2011.

Table 2. Transition of Taiwan's coal imports by source

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Australia	18.22	16.72	17.93	22.06	22.41	24.78	26.75	25.26	27.60	26.25
Indonesia	13.62	16.27	19.60	19.82	24.35	25.00	24.25	24.27	24.23	27.35
China	14.45	17.88	18.96	16.12	12.74	13.08	11.35	4.61	4.18	2.17
South Africa	1.56	1.16	1.34	0.34	0.07	0.57	0.00	2.28	2.75	4.41
Russia	1.91	1.22	1.40	1.21	1.31	1.33	1.20	1.98	1.22	3.72
Canada	0.98	1.28	0.83	1.14	1.27	1.13	1.21	0.77	0.70	1.05
Columbia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.95
USA	0.11	0.00	0.67	0.07	0.00	0.00	0.07	0.08	0.23	0.26
Mongolia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Other	0.39	0.44	0.38	0.31	0.24	0.29	0.16	0.17	0.10	0.19
TOTAL	51.23	54.96	61.11	61.08	62.40	66.18	65.00	59.41	63.11	66.49

Source: Bureau of Energy, Ministry of Economic Affairs, Taiwan

Looking at import (consumption) amount by coal type, we find a breakdown of 66.49 million metric tons in 2011; with 0.37 million metric tons for anthracite, 65.63 million metric tons for bituminous coal and 0.48 million metric tons for others (lignite). (Source: Same as for Table 2)

## (2) Steady growth expected for thermal coal for power generation

According to IEA Coal Information 2012 for usage of imported coal, of the 59.20 million metric tons of import (supply) amount in 2010, 41.80 million metric tons went to power generation, 3.20 million metric tons to steel manufacturing, 11.20 million metric tons for general industries and three million metric tons for others (including statistical errors). I apologize for the discrepancy in the import (supply) amount with Table 2, but the fact that power generation is by far the largest will not change even if we find statistics issued by the Bureau of Energy.

This demand for power generation is expected to greatly increase over the next few years.

According to the website of the Taiwan Power Company (Taipower), as of the end of May 2011, a total of 11,897 MW was being generated by coal-fired power plants, of which 8,800 MW was generated by power plants owned by Taipower and 3,098 MW through IPP, as indicated in Table 3, and an additional generating capacity of 9,600 MW is being planned, as indicated in Table 4.

Table 3. Coal-fired power plants operating in Taiwan

			Output (1,000 kW)	Operation startup
Taiwan Power Company (Taipower)	Taichung	Unit 1	550	May, 1991
		Unit 2	550	Aug. 1991
		Unit 3	550	Jun. 1992
		Unit 4	550	Oct. 1992
		Unit 5	550	Mar. 1996
		Unit 6	550	May, 1996
		Unit 7	550	Oct. 1996
		Unit 8	550	Jun. 1997
		Unit 9	550	May, 2005
		Unit 10	550	May, 2006
		Subtotal	5,500	
	Linkou	Unit 1	300	Jul, 1968
		Unit 2	300	Mar, 1972
		Subtotal	600	
	Hsinta	Unit 1	500	Sep, 1982
		Unit 2	500	Jul, 1983
		Unit 3	550	Jun, 1985
		Unit 4	550	Apr, 1986
		Subtotal	2,100	
	Talin	Unit 1	300	Nov, 1969
Unit 2		300	Sep, 1970	
Subtotal		600		
Total Taipower			8,800	
Independent Power Producers (IPP)	Mailiao	Unit 1	600	Jun, 1999
		Unit 2	500	Jul, 1983
		Unit 3	550	Jun, 1985
		Subtotal	1,800	
	Hoping	Unit 1	649	Jun, 2002
		Unit 2	649	Sep, 2002
		Subtotal	1,297	
Total IPP			3,097	
Grand Total (Taipower + IPP)			11,897	

Source: Data from Taiwan Power Company website

Note: Linkou plants numbers 1 and 2 are to be decommissioned in January 2016.

However, in March 2012 some changes were reported on the plans for 9,600 MW shown in the right part of Table 4. The Changhong power plant has now been changed to a gas-fired plant, resulting in a slight downward revision, but still, construction of 8,000 MW by coal-fired generation is being planned.

With the completion of each step of the new plan, the import of thermal coal for power generation will increase, and by the time all planned power plants come on-stream in 2022, an import demand of about 20 million metric tons will be generated.

Table 4. Coal-fired power plants planned by Taiwan Power Company

		Taipower website, as of end May 2011		Revision of plan as of March 2012		
		Output (1,000 kW)	Scheduled commercial operation	Output after revision (1,000 kW)	Scheduled commercial operation after revision	Remarks
Linkou	New Unit 1	800	Jan, 2012	800	Jan, 2016	
	New Unit 2	800	Jul, 2012	800	Jan, 2017	
	New Unit 3	800	Feb, 2017	800	Jan, 2021	
Changong	New Unit 1	800	Apr, 2012	0	-	Change to gas-fired
	New Unit 2	800	Oct, 2012	0	-	Change to gas-fired
Shenao	New Unit 1	800	Jul, 2012	800	Apr, 2018	
	New Unit 2	800	Jan, 2013	800	Apr, 2019	
Talin	New Unit 1	800	Jul, 2014	800	Jul, 2016	
	New Unit 2	-	-	800	Jul, 2017	New addition
Taichung	Unit 11	800	Jul, 2015	800	Jan, 2020	
	Unit 12	800	Jul, 2016	800	Jan, 2021	
Hsinta	New Unit 1	800	Jan, 2017	800	Jan, 2022	
	New Unit 2	800	Jul, 2017	0		Cancelled?
Grand Total		9,600		8,000		Some report 8,200

Source: Data from Taiwan Power Company website

The construction of the Linkou Power Plant units 1-3 indicated above was jointly awarded to Mitsubishi Heavy Industries, Ltd. and CTCL Corporation, the largest engineering and construction company in Taiwan. Mitsubishi Heavy Industries, Ltd. will manufacture and provide the three boilers and three steam turbines for this power plant adopting supercritical pressure technology, while Mitsubishi Electric Corporation will manufacture the three generators.

### (3) Sudden increase in spot procurement by tender

The second installment of this series reported on the sudden increase in spot coal procurement through tender in South Korea and procurement through tender has now also become similar with Taiwan.

In 2011, 11.47 million metric tons were opened to tender, of which 7.2 million metric tons were closed. It was reported that 7.2 million metric tons, the same amount as in the previous year, was closed during January-June 2012.

(To be continued in the next issue)

Please direct inquiries to: [report@tky.ieej.or.jp](mailto:report@tky.ieej.or.jp)