

## Coal Trends

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

Another sharp downturn in the landed price of coking coal  
Concerns over coal import spending due to a significantly  
increased burden from the weakening yen

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While international coal trading prices have continued to fall since the start of 2011, thermal coal has remained at the level of US\$80-90 per metric ton since the mid-part of last year (FOB Newcastle, Australia (NEWC), FOB Richards Bay, South Africa (RB)). This issue takes a look at local trading conditions first of all, before reporting on current landed prices in Japan.

This issue will also attempt to estimate the extent of the impact that the weakening yen is having on coal purchasing.

In terms of the exchange rate, the yen has weakened rapidly as a result of expectations for “Abenomics”, the economic policies set out by Prime Minister Shinzo Abe since he came to power towards the end of last year. Although the weakening yen has been a breath of fresh air for export industries, it inevitably places an additional burden on power companies, which have been forced to suspend nuclear power generation. Estimates show the extent of the additional purchasing burden being placed on power companies.

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

#### (1) Spot price indexes for Australian and South African thermal coal (November)

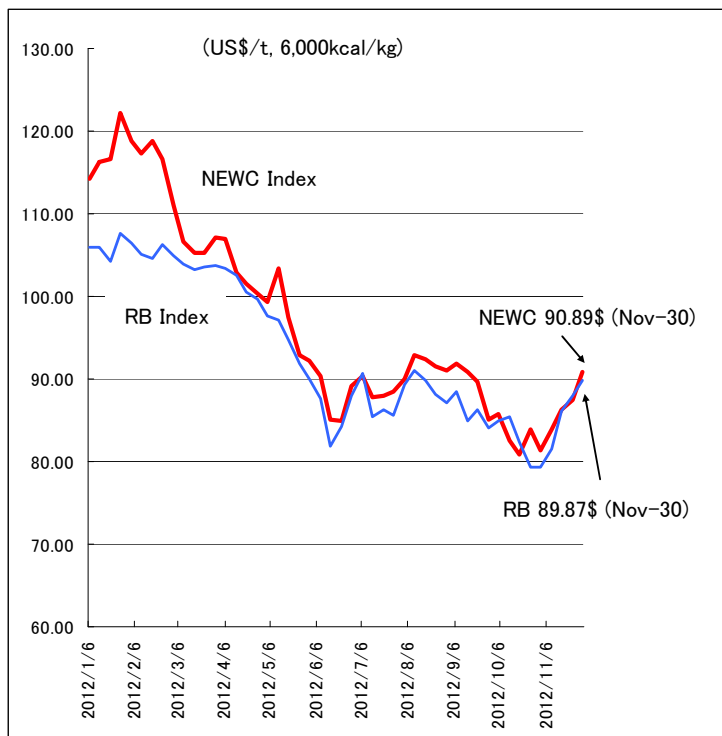
Figure 1 shows the changes in spot price indexes for thermal coal FOB Newcastle, Australia (NEWC), and FOB Richards Bay, South Africa (RB) over the course of 2012.

The NEWC Index bottomed out at US\$80.82 per metric ton on October 19, 2012, before recovering to US\$90.89 on November 30.

The RB Index has maintained a curve similar to the NEWC Index, albeit on a slightly lower level. From US\$79.30 per metric ton on October 26, it recovered to US\$89.87 on November 30.

Throughout November, both indexes remained within the narrow range of US\$80-90 per metric ton, where they have been since June last year.

Figure 1. GlobalCOAL NEWC and RB Indexes (Jan-Nov 2012)

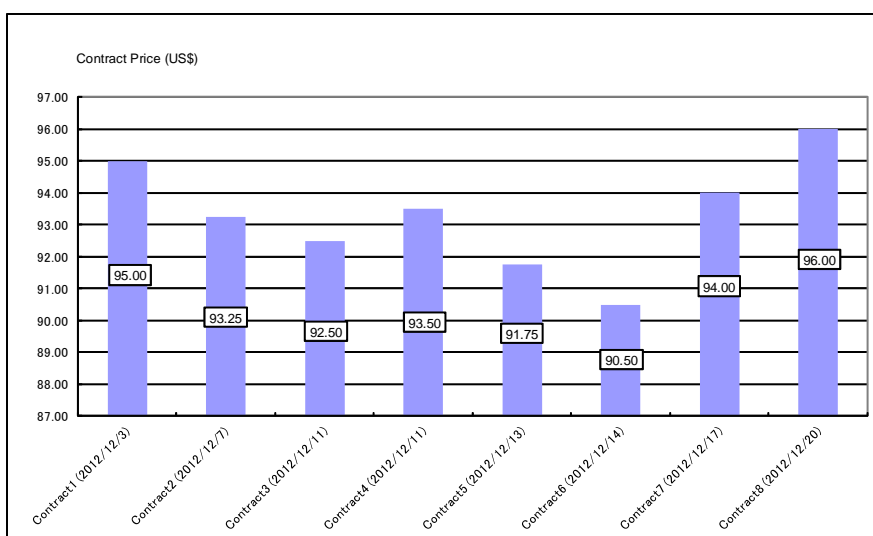


Note: NEWC Index: FOB Newcastle, NSW, Australia price for thermal coal (6,000 kcal/kg net)  
 RB Index: FOB Richards Bay, South Africa price for thermal coal (6,000 kcal/kg net)  
 Source: globalCOAL

(2) Actual trading prices for Australian and South African thermal coal (December)

Figures 2 and 3 show contracted actual spot trading prices in December on a time-series basis for Newcastle (Australia) and Richards Bay (South Africa), respectively.

Figure 2. Contract Prices FOB Newcastle, Australia (Actual)

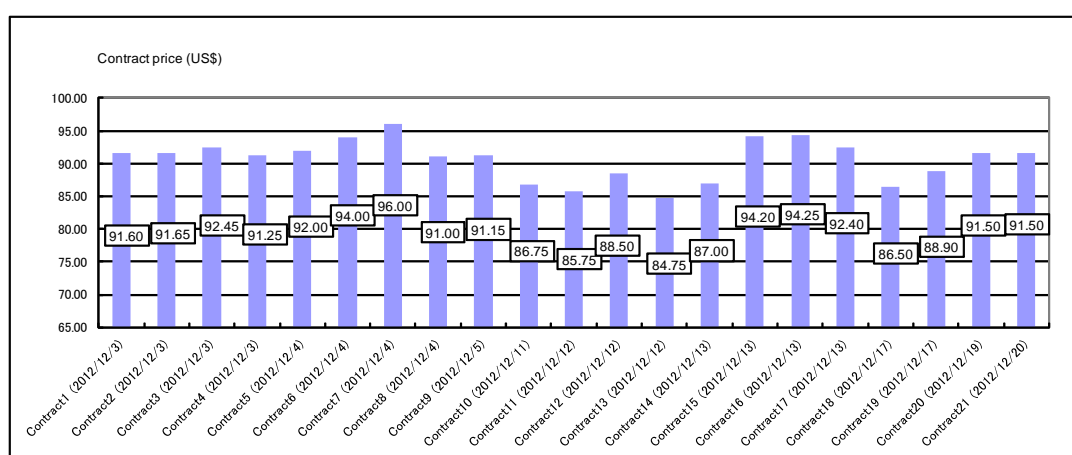


Source: Prepared using globalCOAL materials

For Newcastle, there were eight contracts during the period from the start of the month to December 20, in the immediate run-up to Christmas. Prices continued to fall for a time, from US\$95 per metric ton at closing on December 3 to US\$90.50 on December 14, and were expected to dip below the US\$90 mark. They picked up after that point however, with trading for 2012 closing at US\$96.00 per metric ton on December 20.

Compared to the 10 contracts in October (US\$76.00-88.75) and the 19 contracts in November (US\$79.25-90.00), prices are picking up slightly from that lower level.

Figure 3. Contract Prices FOB Richards Bay, South Africa (Actual)



Source: Prepared using globalCOAL materials

For RB in South Africa, there were 21 contracts in December, with actual market prices for thermal coal ranging from a low of US\$84.75 per metric ton on December 12 to a high of US\$96.00 on December 4.

As with Newcastle, the pattern for RB saw a dip during the mid-part of the month, with an underlying recovery towards the end of the month.

Compared to the 25 contracts in October (US\$77.00-94.25) and the 29 contracts in November (US\$79.00-93.00), prices picked up from that lower level during December.

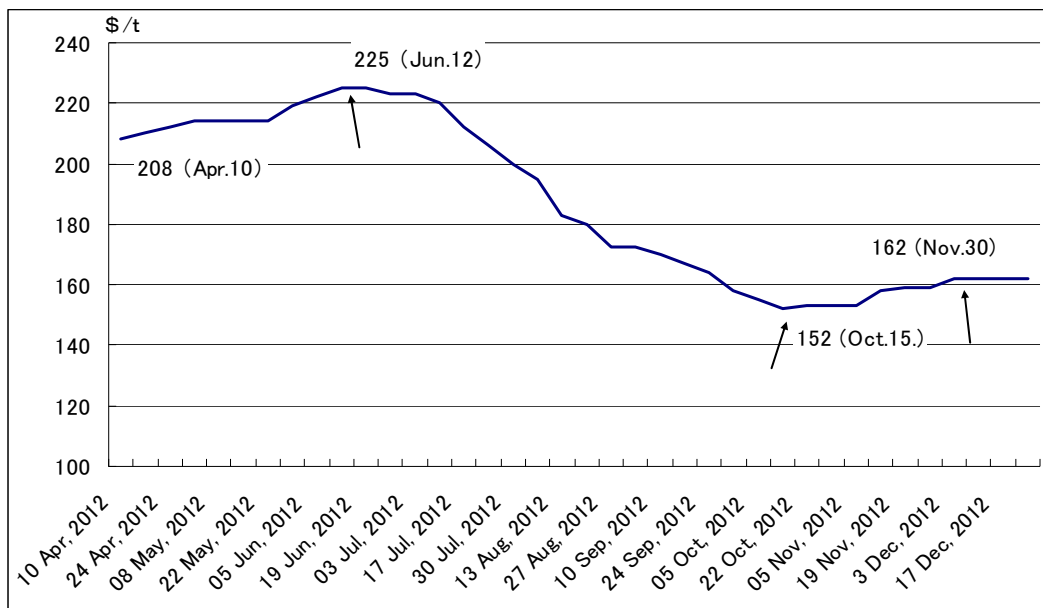
Although there have only been three contracts since the start of 2013 (as of January 16), one for Newcastle and two for RB, all the three have traded around the US\$90 mark, indicating little significant movement in the market.

(3) Coking coal spot index

Coking coal spot prices are also worthy of mention.

Figure 4 shows prices for Coking Coal Queensland (CCQ); in other words, the hard coking coal price index, ex East Coast Australia (Queensland), on a weekly basis.

Figure 4. Energy Publishing's Coking Coal Queensland (CCQ) Index



Source: Energy Publishing

Having continued to fall, from US\$225 per metric ton on June 12, 2012, prices bottomed out at US\$152 on October 15 and began to recover slightly, up to US\$162 on November 30. There have been no significant movements since then, with the market closing trading for the year at US\$162 per metric ton on December 21 (Energy Publishing website).

(4) Import price to Japan - Falling once again

As indicated in Table 1, the import price for all imports in November was US\$138.85 per metric ton, down US\$8.4 on October. Although the decline in landed prices in October was limited to just US\$0.15 per metric ton compared to September, prices have started to fall once again.

A substantial US\$11.27 per metric ton month-on-month drop in prices for coking coal was a key factor in driving down total imports. At US\$126.17 per metric ton, prices for thermal coal also fell by US\$4.23 compared to the previous month.

For coking coal, a reduction of US\$55 per metric ton in the contract price for high-quality heavy coking coal from Queensland, Australia, established between the Japanese steel mills and Australian suppliers, was agreed and finalized, falling from US\$225 per metric ton in July to US\$170 in October (FOB). Statistics began to reflect the impact of the revised price in November.

Customs statistics for November indicate that the decline in the price of heavy coking coal was limited to US\$13.70 per metric ton. As such, the impact of the agreed price reduction of US\$55 per metric ton is expected to carry over into December.

A further reduction of US\$5 per metric ton in the contract price was reported for the period from January to March 2013, taking the price down to US\$165 per metric ton. The landed

price of coking coal in Japan is likely to keep on falling for the time being.

Table 1. Japan Landed Imported Coal Prices in November  
(Comparison with September and October 2012)

	Sep-12		Oct-12		Nov-12	
	JPY/ton	US\$/ton	JPY/ton	US\$/ton	JPY/ton	US\$/ton
Total imports	11,578	147.42	11,543	147.41	11,100	138.85
By coal type						
Coking coal	13,682	174.21	14,083	179.85	13,476	168.58
Thermal coal	9,990	127.21	9,818	125.39	9,686	121.16
Anthracite	14,113	179.7	13,538	172.89	13,172	164.78
By source						
Australia	11,807	150.34	11,757	150.13	11,010	137.72
Indonesia	8,958	114.06	8,980	114.67	8,979	112.32
Canada	14,767	188.03	14,981	191.3	14,737	184.35
China	13,785	175.52	11,760	150.17	14,164	177.18
USA	16,236	206.73	15,197	194.06	16,442	205.67
Russia	10,498	133.67	10,308	131.63	10,145	126.9
South Africa	11,451	145.80	-	-	-	-
New Zealand	-	-	16,977	216.79	-	-
Vietnam	14,647	186.52	16,119	205.62	11,587	144.94
Mongolia	-	-	-	-	-	-
Mozambique	16,825	214.23	17,114	218.54	-	-
Columbia	-	-	10,616	135.56	9391	117.47
Coking coal by source						
Australia	14,723	187.47	14,834	189.43	13,316	166.58
Indonesia	9,229	117.51	9,508	121.42	9,443	118.13
Canada	17,156	218.46	17,450	222.84	16,352	204.56
China	13,312	169.50	10,823	138.21	-	-
USA	17,661	224.88	16,668	212.85	18,849	235.79
Russia	14,387	183.19	13,938	177.99	12,953	162.04
New Zealand	-	-	16,978	216.81	-	-
Mongolia	-	-	-	-	-	-
Mozambique	16,825	214.24	17,115	218.56	-	-
Thermal coal by source						
Australia	10,279	130.88	10,186	130.08	10,108	126.44
Indonesia	8,636	109.96	8,434	107.7	8,642	108.11
Canada	10,675	135.93	9,141	116.73	8,018	100.3
China	11,071	140.97	11,111	141.89	11,027	137.94
USA	9,667	123.09	8,187	104.54	6,876	86.02
Russia	9,500	120.68	9,033	115.33	9,099	113.82
South Africa	11,451	145.81	-	-	-	-
Columbia	-	-	10,616	135.57	9391	117.48

US1\$=JPY78.53

US1\$=JPY78.31

US1\$=JPY79.94

Source: Prepared using Trade Statistics of Japan Monthly Reports

Contract prices for thermal coal were US\$115.50 per metric ton for contracts commencing January 2012, US\$115.25 for contracts commencing April 2012, US\$94.90 for contracts commencing July 2012, and US\$96.90 for contracts commencing October 2012, producing a simple average of US\$105.6 per metric ton (FOB). Factoring in shipping costs, there is seemingly little scope for the landed price for December to be significantly lower than US\$121.16 per metric ton in November.

It has been reported that no agreement has been reached regarding the price of thermal coal for contracts commencing January 2013. The price has therefore been concluded on an index-linked basis.

Viewed by source, prices have increased for the US and China, but fallen for all other sources. Prices for Australia which accounts for a high percentage of coking coal in particular have fallen by US\$12.41 per metric ton, with prices for Canada also down by US\$6.95. Coking coal supplies from China totaled zero for the second time this year, following on from August.

Viewed by coal type and source, there has been a significant fall in coking coal prices, down US\$22.85 per metric ton for Australia, US\$18.28 for Canada, and US\$15.95 for Russia. Prices for the US meanwhile have increased by US\$22.94 per metric ton. 0.688 million tons were imported from the US, putting it in fourth place behind Australia (2.636 million tons), Indonesia (1.219 million tons) and Canada (0.702 million tons).

Prices for thermal coal have also fallen across the board, with the exception of a slight increase of US\$0.41 per metric ton for Indonesia. Prices have not fallen by the same extent as coking coal however, down just US\$3.64 per metric ton for Australia, Japan's leading supply source.

## 2. The impact of the weak yen on coal purchasing

### Concerns over coal purchasing costs due to the increased burden

The yen is continuing to weaken at a considerable rate.

Having been hovering around JPY79 to the dollar during the first half of November 2012, the exchange rate had reached the JPY90 mark by January 18, at the time of writing this report, meaning that the yen had weakened by over JPY10 in the space of just two months.

The weakening of the yen is undoubtedly a breath of fresh air for export industries, but for energy-intensive industries, it is more like an icy north wind. It is making life harder for the power industry in particular, which has no option but to rely on imported fossil fuels with little prospect of nuclear power operations being restarted.

The following is an attempt to calculate just how much of an additional burden will be placed on coal purchasing as a result of all this.

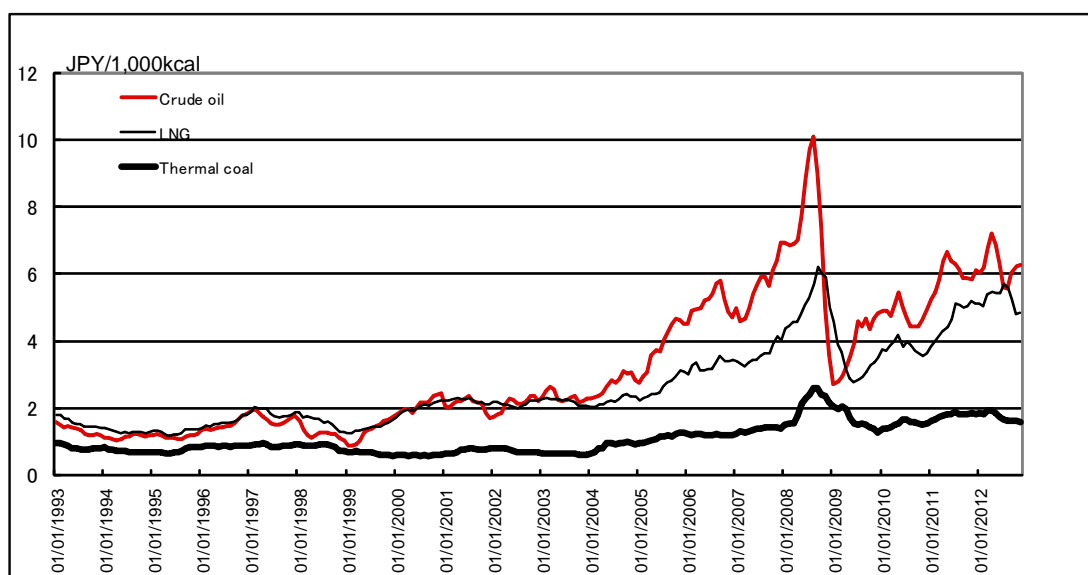
#### (1) The increasing price advantage offered by coal (compared to other fuels)

Although not directly related to the weakening yen, this section takes a look at the price advantage offered by coal over other fuels.

Figure 5 shows how landed prices in Japan have changed over the last 20 years for thermal coal, crude oil and LNG (per 1,000kcal).

In January 1993, the earliest point on the graph below, the ratio of thermal coal to LNG price (thermal coal/LNG) was 0.52, meaning that the calorific unit price for thermal coal was half that of LNG. In November 2012 however, the most recent point on the graph, that ratio had reduced to 0.33. In other words, the price of thermal coal has fallen from half that of LNG to one third over the last 20 years.

Figure 5. Prices for Thermal Coal, Crude Oil And LNG



Source: Prepared using Trade Statistics of Japan Monthly Reports

No matter how weak the yen becomes, the fact that fuel prices per unit are running at one third means that additional costs will also be one third as much.

By way of a specific example to illustrate this, let us assume that the price per calorific unit is US\$2 for coal and US\$6 for LNG. If the exchange rate were to shift from JPY80 to JPY90, the additional costs in yen would be JPY20 and JPY60 respectively. Assuming that coal and LNG offer the same utility levels per calorific unit, it makes sense to use more coal wherever possible.

That is based solely on calorific units however. In reality, it isn't always cheaper to use coal than LNG. Specific factors such as environmental and storage costs also need to be taken into consideration. LNG is considerably cheaper in terms of the unit cost of power plant construction (construction cost per kW) for instance, and enables plants to generate power more efficiently too.

The fact remains however that the weakening yen and price fluctuations are undoubtedly having less of an impact on coal as an energy source, compared to other fuels.

(2) Increasing imports and spending on coal

Table 2 shows the amount of coal being imported into Japan, according to coal type.

Table 2. Coal Imports According to Coal Type

Unit: 1000 tons

	Thermal coal	Coking coal	Anthracite	Total
2000	66358	75241	3679	145278
2001	72461	78650	4673	155784
2002	74691	78952	4891	158534
2003	82429	79604	4986	167018
2004	94460	79673	5851	179984
2005	96171	78747	5890	180808
2006	91568	79684	5957	177209
2007	100927	80031	5528	186486
2008	105054	80732	5885	191671
2009	91796	65778	4237	161811
2010	101614	76682	6263	184560
2011	101184	68659	5395	175239
2012 (Jan-Nov)	99239	65939	5506	170683

Source: Prepared using Trade Statistics of Japan Monthly Reports

The amount of coal being imported into Japan continued to increase after the start of the new century, peaking at 191.67 million tons in 2008, the year before the global recession was triggered by Lehman Brothers crisis.

Based on Table 2, it is evident that this increase was primarily due to increasing imports of thermal coal for power generation.

Thermal coal imports inevitably declined year on year in 2011 due to the Great East Japan Earthquake, which took coal-fired power stations operated by Tohoku Electric Power and Tokyo Electric Power out of commission along the Pacific coast of the Kanto region. Figures for the period from January to November 2012 however indicate that imports for 2012 are likely to be the highest on record, even surpassing 150.5 million for the same period in 2008.

Needless to say, as imports have continued to increase, so has the amount being spent on imports, as shown in Table 3. In 2011, JPY1.111 trillion was spent on thermal coal and JPY1.2522 trillion on coking coal, with overall spending totaling JPY2.4591 trillion, including anthracite.

The key point to focus on here is the exchange rate. Whereas the exchange rate averaged out at JPY79.97 to the dollar over the course of 2011, the yen has already weakened to around the JPY90 mark.

If the exchange rate has been at JPY90 to the dollar in 2011, overall spending on coal imports would have totaled JPY308.4 billion, resulting in an additional burden of JPY139.4 billion from thermal coal alone.

Will the yen keep on weakening in the future?



Table 3. Spending on Coal Imports According to Coal Type

Unit: JPY Million

	Thermal coal	Coking coal	Anthracite	Total
2000	247,085	321,412	14,766	583,263
2001	336,395	394,991	21,306	752,692
2002	343,743	419,486	22,753	785,982
2003	331,558	389,671	22,672	743,902
2004	520,899	538,223	34,654	1,093,775
2005	655,520	799,071	58,235	1,512,826
2006	665,259	889,817	56,848	1,611,924
2007	827,714	857,471	55,279	1,740,465
2008	1,322,894	1,612,451	115,159	3,050,504
2009	931,197	1,070,494	55,218	2,056,909
2010	955,636	1,068,365	86,698	2,110,699
2011	1,111,052	1,252,235	95,868	2,459,155
2012 (Jan-Nov)	1,057,610	1,015,724	81,593	2,154,926

Source: Prepared using Trade Statistics of Japan Monthly Reports

(3) How much additional burden will be placed on power companies?

Nobody knows for certain how far the yen will weaken. The figure of JPY120 to the dollar sticks out from memory, maybe from the cover of a weekly magazine. Given that the average exchange rate was JPY125.1 to the dollar in 2001 and JPY121.9 in 2002, there is no denying that the magazine's prediction could come true.

With that in mind, the following is an attempt to calculate just how great a burden will be placed on Japanese power companies in the future as a result of the weakening yen.

Table 4 shows estimated spending on coal imports by the ten regional power companies in Japan and Electric Power Development Co. Ltd. (J-POWER).

Estimates indicate that JPY670.9 billion was spent on coal imports in 2010, JPY771.1 billion in 2011, and JPY640.8 billion during the period from January to October 2012.

Although coal prices increased by almost 30% in 2011 compared to 2010, as shown in the table below, that increase was kept in check by a 10% strengthening of the yen. Assuming that the exchange rate from 2010 had remained unchanged throughout 2011 and 2012, I estimate the additional burden would have been JPY78.3 billion in 2011 and JPY68.6 billion in 2012 (Jan-Oct).

Table 4. Spending on Coal Imports by Japanese Power Companies  
(10 Regional Power Companies + J-POWER)

	A. Imports (1,000 tons)	B. Import price (US\$/ton)	C. Exchange rate (JPY/US\$)	D. Spending (JPY Million)
2010	71,348	106.76	88.09	670,994
2011	70,229	137.31	79.97	771,145
2012 (Jan-Oct)	60,135	133.93	79.57	640,868

(Notes) 1.  $D = A \times B \times C$

2. Yearly average figures for import prices and exchange rates

Source: Prepared using Trade Statistics of Japan (Ministry of Finance)

The estimated figures in Table 5 show how much the additional burden would have been if the exchange rate had reached JPY100 or JPY120 to the dollar.

Figure 5. Additional Burden Based on a Weakening Yen

	E. Additional burden at JPY100/US\$ (JPY Million)	F. Additional burden at JPY120/US\$ (JPY Million)
2010	90,720	243,063
2011	193,148	386,006
2012 (Jan-Oct)	164,546	325,629

(Note)  $E = A \times B \times 100 - D$ ,  $F = A \times B \times 120 - D$

Source: Prepared using Trade Statistics of Japan (Ministry of Finance)

At JPY100 to the dollar, which is not an unrealistic figure, estimates show that there would have been an additional burden of JPY90.7 billion based on imports and coal prices in 2010, and JPY193.1 billion in 2011.

If the yen had continued to weaken to JPY120 to the dollar, the additional burden would have been almost double that at JPY100 to the dollar.

It is worth keeping in mind that an increased burden of this kind could affect the people of Japan, through increased electricity bills or different methods of charging.

(To be continued in the next issue)

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