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Coal Trends

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

~ Contrasting aspects of coal-fired power (mass-disposition in USA and huge spike in Japan) ~

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In this issue, we report on market conditions in Australia and South Africa and landed price trends in Japan. We also address the future trends in coal-fired power development for USA and Japan.

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 (December 2013–April 2014)

- A break in the declining trend, expanding market transactions -

Figure 1 shows contracted actual spot trading prices from December 2013 to April 2014, in a time-series for Newcastle (NC), Australia.

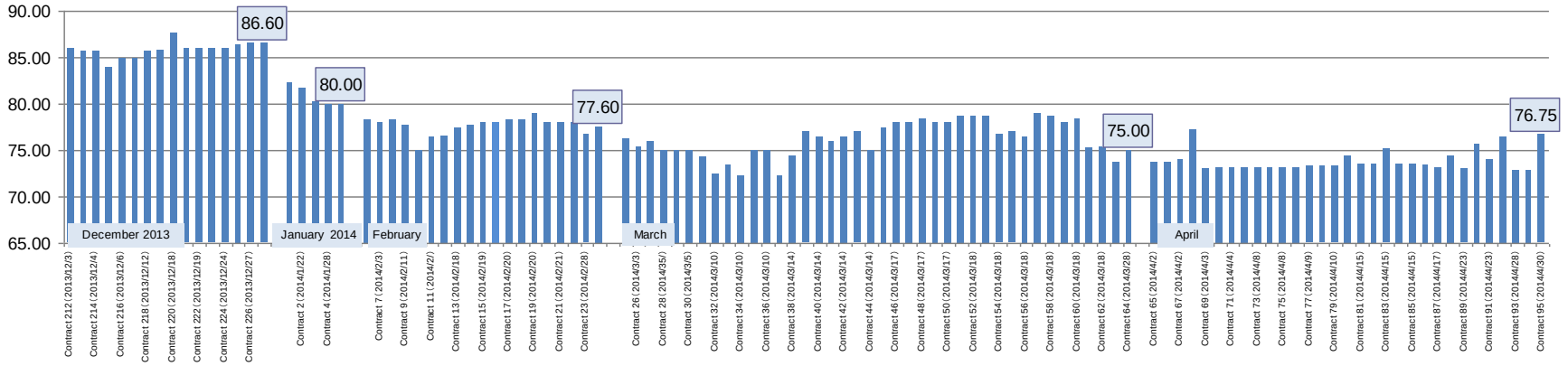
For Newcastle, the total number of trades recorded in 2013 was 227, and spot trades contracted between January and April 2014 totaled 95. This represents a 30 percent or higher year-on-year increase in 2014 over the contracted spot trades in January to April 2013, which totaled 70. In particular, a significant jump was observed year-on-year in March 2014, which saw a record 40 trades (26 in the same month of the previous year) and 31 in April (16 in the same month of the previous year).

The boxed amounts in Figure 1 indicate the final transaction prices for the relevant months. After having bottomed out in August 2013, spot prices began to rise from October to December, hovering slightly above the US$85 per metric ton mark, until a downturn trend was seen again in 2014. During the first three months of 2014, the final transaction prices moved from US$80.00 per metric ton in January, to US$77.60 per metric ton in February, then continued its decline to US$75.00 in March. At $76.75, only the closing price in April exceeded US$75.00 per metric ton, following a price transition around the range of US$72 to US$74.00 per metric ton throughout the month.

At the end of April 2014, the downward trend seen since the beginning of the year leveled off.

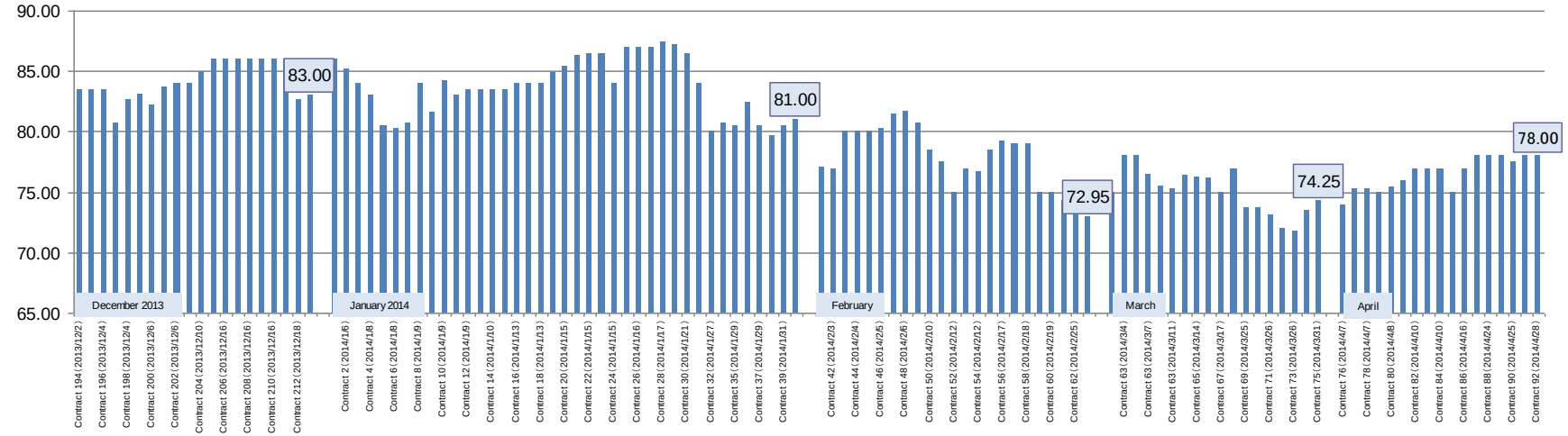
New contracts commencing in April 2014, which were entered into with domestic power companies, reflected such stagnant spot price trends, resulting in a sharp US$5.60 per metric ton drop in comparison to the contracts commencing in January 2014 at US$81.80 per metric ton.

Figure 1. Contract Prices FOB Newcastle (NC), Australia (December 2013-April 2014, actual)



Source: Prepared using globalCOAL materials

Figure 2. Contract Prices FOB Richards Bay (RB), South Africa (December 2013-April 2014, actual)



Source: Prepared using globalCOAL materials

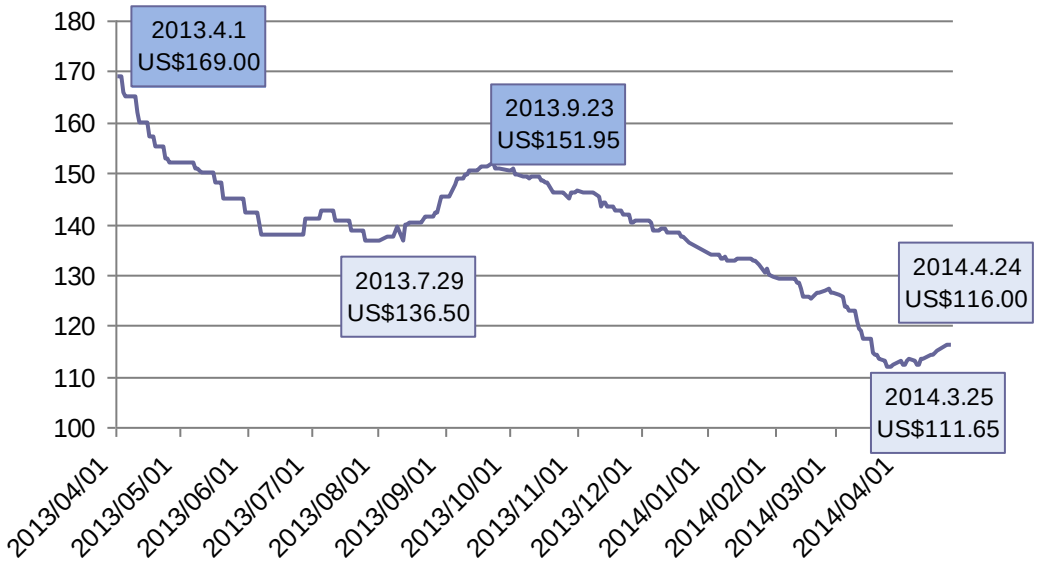
There were 213 contracts for FOB Richards Bay (RB) in South Africa during the period from January to December 2013, followed by 92 spot trades between January and April 2014. Given the January-April record of 66 last year, this increase in the number of contracted trades has surpassed that of NC.

The price movements are also similar to that which is observed in NC, showing a recovery close to $85 per metric ton during the last three months in 2013, and a downward trend in late January 2014 that led to an accelerated decline in February. The final transaction price at the end of February fell to US$72.95 per metric ton. This is a staggering drop of US$8.05 per metric ton in comparison to January's final transaction price. The declining movement, however, appears to have bottomed out before seeing the closing price of March transactions. The final transaction price at the end of April rose to US$76.75 per metric ton.

(2) Coking coal spot index

The figure below shows the indexes for IHS McCloskey Australian prime hard coking coal FOB; in other words, the hard coking coal price index for Australia, on a daily basis.

Figure 3. Australian Hard Coking Coal Price Index (April 1, 2013-April 24, 2014)



Source: IHS

Although there has been a continuous decline for six months following the peak on September 23, 2013, it bottomed out at US$111.65 per metric ton on March 25, 2014, turning to an upward trend since then. The price rebounded by April 24 to US$116.00 per metric ton.

The prices of the highest quality Queensland hard coking coal for blast furnaces in Japan in the first quarter FY2014 (April-June) declined by US$52 per metric ton to US$120 per metric ton, from the 2013 first quarter value a year ago.

(3) Import price to Japan

~ Import landed prices continuing to fall ~

Table 1 shows the changes in the import prices for all coal landed in Japan from January to March 2014, along with the landed prices recorded during 2013, for reference.

Reviewing the March 2014 landed price on a US dollar basis indicates a continued slow but steady decline in total import volumes since the beginning of this year.

While there was a significant drop of US$7 per metric ton for coking coal in March from the January figure, the pricing for thermal coal showed an US$1.60 per metric ton increase.

The continuing decline in coking coal prices can be attributed to the persistent downward trend seen in the price index since September 2013, as described above, and the accompanied reduction in the price of the highest quality hard coking coal for blast furnaces in Japan.

In this sense, the single US$5.60 per metric ton drop in prices for contracts commencing in April 2014 for Japanese power companies may lead to lower landed thermal coal prices after April.

A comparison of the 2014 March landed price to the previous year's average reveals a notable decline in total imports, coking coal, thermal coal, and anthracite pricing, especially a sharp US$18.67 per metric ton drop for coking coal.

Table 1. Japan Landed Imported Coal Prices (January 2014-March 2014)

	(Reference) 2013 average		Jan 2014 price		Feb 2014 price		Mar 2014 price	
	JPY/ton	US$/ton	JPY/ton	US$/ton	JPY/ton	US$/ton	JPY/ton	US$/ton
Total imports	12,011	123.84	12,004	114.70	11,713	113.97	11,578	113.27
By coal type								
Coking coal	13,626	140.49	13,490	128.90	12,945	125.96	12,451	121.82
Thermal coal	10,743	110.76	10,900	104.15	10,861	105.68	10,810	105.75
Anthracite	14,545	149.97	14,670	140.17	13,561	131.95	14,770	144.50
By source								
Australia	12,146	125.23	12,111	115.72	12,004	116.80	11,840	115.83
Indonesia	10,059	103.71	10,035	95.88	9,881	96.14	9,693	94.83
Canada	15,382	158.59	15,774	150.72	14,397	140.08	14,283	139.73
China	15,604	160.88	16,247	155.23	12,789	124.44	15,680	153.40
USA	14,985	154.50	15,899	151.91	13,635	132.67	15,797	154.54
Russia	11,208	115.56	11,854	113.26	11,514	111.76	11,065	108.25
South Africa	10,061	103.73	11,573	110.57	-	-	-	-
New Zealand	16,974	175.00	-	-	-	-	-	-
Vietnam	15,386	158.63	14,118	134.89	15,015	146.10	14,021	137.17
Mongolia	21,004	216.56	-	-	790,000	7,687.06	-	-
Mozambique	15,708	161.95	-	-	-	-	-	-
Colombia	11,966	123.37	14,544	138.96	-	-	-	-
Coking coal by source								
Australia	14,271	147.13	13,958	133.37	13,990	136.13	13,220	129.34
Indonesia	10,510	108.36	10,638	102.13	10,356	100.77	10,055	98.37
Canada	17,051	175.80	17,106	163.45	15,793	153.67	15,497	151.62
China	13,597	140.19	11,952	114.20	12,839	124.93	15,859	155.15
USA	16,960	174.86	17,751	169.61	15,233	148.22	15,798	154.56
Russia	12,782	131.79	13,200	126.12	12,344	120.11	12,431	121.62
New Zealand	16,974	175.00	-	-	-	-	-	-
Mongolia	20,995	216.46	-	-	-	-	-	-
Mozambique	15,708	161.95	-	-	-	-	-	-
Thermal coal by source								
Australia	11,062	114.06	11,208	107.10	11,210	109.08	11,130	108.88
Indonesia	9,442	97.35	9,223	88.12	9,220	89.71	9,064	88.68
Canada	10,256	105.74	10,505	100.37	9,838	95.73	12,476	122.05
China	12,726	131.21	12,425	118.72	12,478	121.42	10,836	106.01
USA	9,824	101.28	9,198	87.89	10,791	105.01	-	-
Russia	10,329	106.49	10,711	102.34	10,696	104.08	10,359	101.34
South Africa	10,061	103.73	11,574	110.59	-	-	-	-
Colombia	10,319	106.39	14,544	138.97	-	-	-	-
	US1$=¥96.99		US1$=¥104.66		US1$=¥102.77		US1$=¥102.21	

Source: Prepared using Trade Statistics of Japan Monthly Reports

2. Contrasting aspects of coal-fired power (mass-disposition in USA and huge spike in Japan)

(1) US Coal-fired power expected to see a major suspension of operation

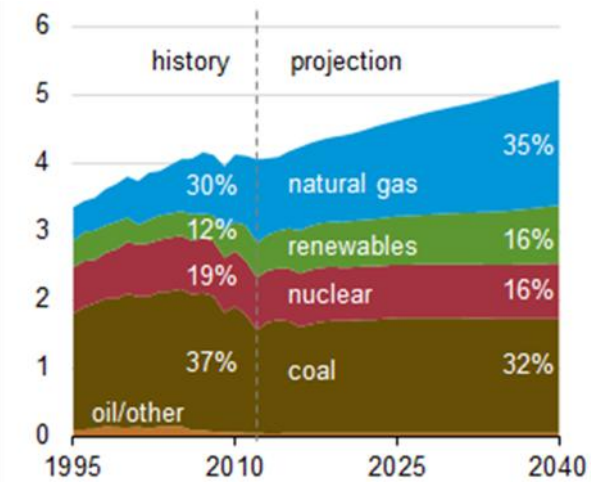
The US Energy Information Administration (EIA) of the US Department of Energy released the final 2014 Annual Energy Outlook (AEO2014) on May 7, 2014.

The report outlines that an abundant supply increase due to the shale gas revolution will significantly increase the use of natural gas for power generation and transportation.

With regard to electric power, it predicts that natural gas will replace coal-fired and nuclear energy, making natural gas the main fuel for power generation in 2035. The coal-fired power generation output was 1.733 trillion kWh in 2011 and 1.512 trillion kWh in 2012 (actual), and is expected to be 1.675 trillion kWh in 2040, remaining below the 2011 value (Reference case).

Figure 4. Amount of Power Generated by Source during 1995-2040 (Reference case)

(Unit: trillion kWh)



Source: AEO2014

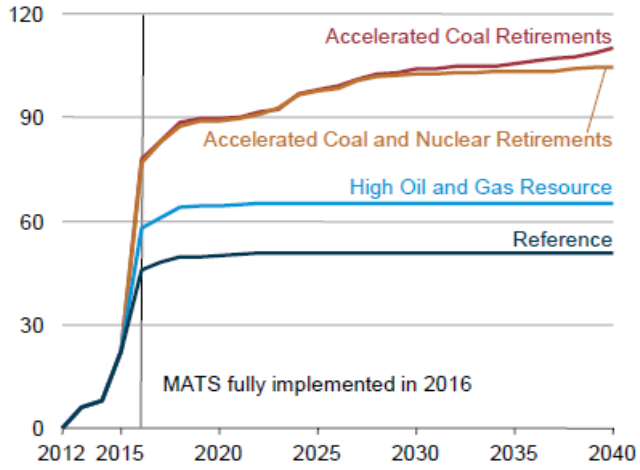
The Outlook also simulates cases in which lower natural gas prices will continue to supplant the future economic advantage of coal-fired and nuclear power generation, and accelerate the suspension/disposition trend of both types of power-generating facility operations (Accelerated Coal Retirement case, Accelerated Coal and Nuclear Retirement case).

Figure 5 indicates the accumulated capacity of coal-fired power being disposed. The 2016 Mercury and Air Toxics Standards (MATS) in effect will impact the coal-fired power facility capacity, which will experience a drastic 45GW disposal by 2016 compared to 306.6GW disposal in 2012. This will follow steady, continuous disposal, which will result in an accumulated total capacity disposal of 50.8GW by 2040. The coal-fired power facility capacity will be reduced to 258.4GW (Reference case).

Both in the Accelerated Coal Retirement case and the Accelerated Coal and Nuclear Retirement case, coal-fired power capacity disposed of by 2040 will reach 100GW each (Figure 5), resulting in a decline in facility capacity to 198.8GW and 204.7GW respectively. This indicates the capacity of coal-fired power facilities will be two thirds of their 2012 level.

Figure 5. Accumulated Capacity of Coal-Fired Power Disposed during 2012-2040 (4-case comparison)

(Unit: 1 million kW)

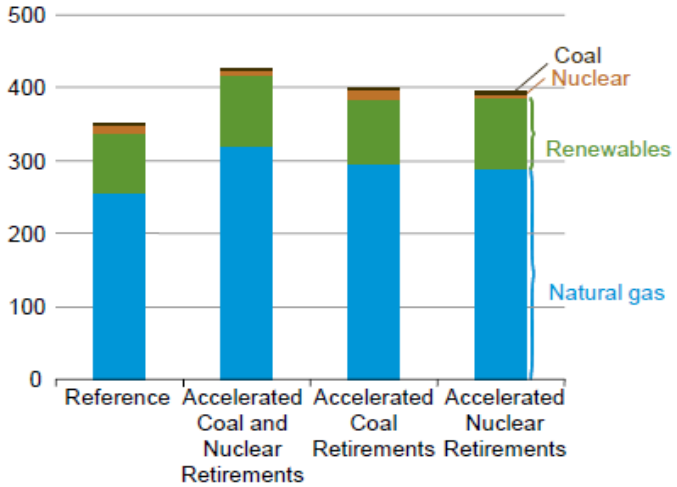


Source: AEO2014

As expected, newly developed/added coal-fired power facility capacity is extremely small, as shown in Figure 6. It remained at a projected value of 2.6GW for the Reference case, and 2.5GW each for the Accelerated Coal Retirement and the Accelerated Coal and Nuclear Retirement cases. Following the completion of coal-fired power and nuclear power generation, natural gas and renewable energy sources will fill the gap.

Figure 6. Additional Generation Capacity by Power Source during 2012-2040 (4-case comparison)

(Unit: 1 million kW)



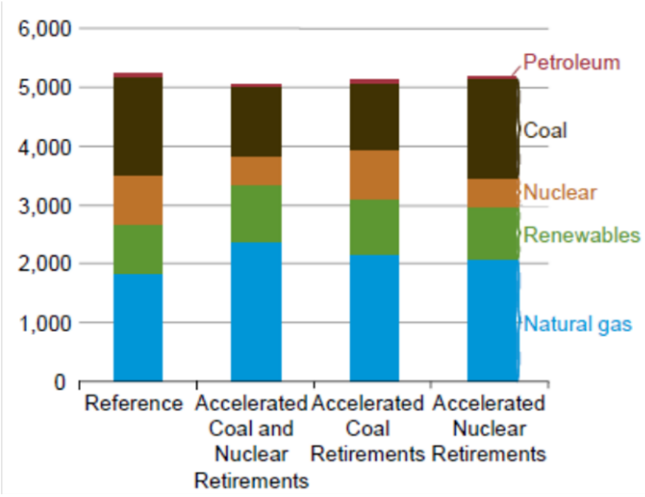
Source: AEO2014

Consequently, the coal-fired power facility capacity in USA will continue to decline, from 306.6GW (28.8%) in 2012 to the 2040 projected values of 258.4GW (19.6%) for the Reference case, and 198.8GW (15.3%) for the Accelerated Coal Retirement case.

The amount of power generated also shows a fall from 1.4990 trillion kWh (37%) in 2012 to 1.661 trillion kWh (31.8%) in 2040 for the Reference case, and 1.1180 trillion kWh (21.9%) for the Accelerated Coal Retirement case, lowering its positioning as a power supply source (Figure 7).

Figure 7. Generation Capacity by Power Source for 2040 (4-case comparison)

(Unit: 1000 million kWh)



Source: AEO2014

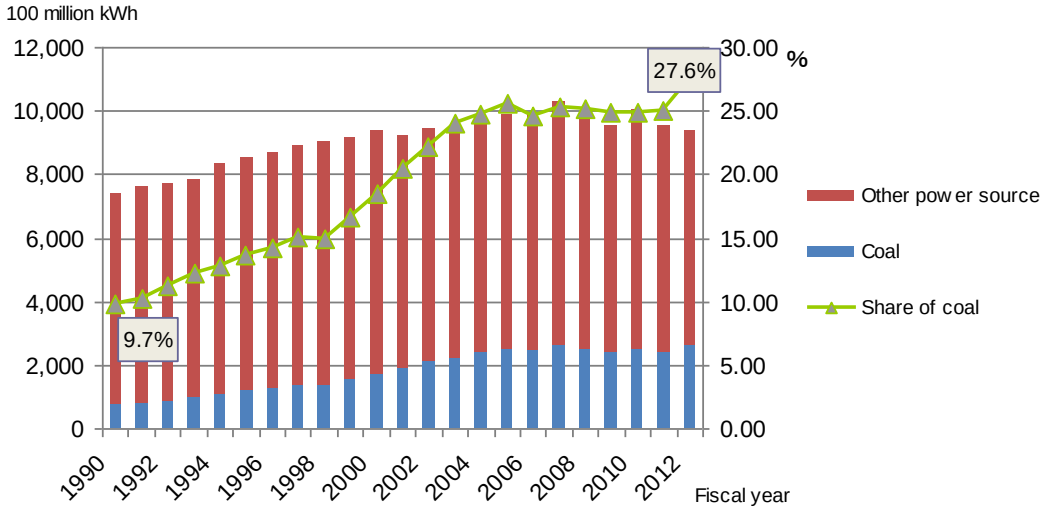
(2) Emerging construction plans for coal-fired power in Japan

(2)-1 Increasingly important coal-fired power

Figure 8 represents the changes in the amount of power generated by 10 domestic power companies since FY1990 by coal-fired power and other sources.

An annual expansion rate of 11.3% was recorded in the amount of coal-fired power; 78,800 million kWh in FY1990 and 259,700 million kWh in FY2012. As the total amount of power generated increased only 2.0%, the share of coal-fired power out of the total generated power jumped from 9.7% to 27.6% during the same period. Coal-fired power has been playing a significant role in Japan's power supply.

Figure 8. Changes in Power Generated by 10 Power Companies in Japan
(coal vs total power generation)



Source: Federation of Electric Power Companies of Japan (FEPC)

(2)-2 Emerging construction plans for coal-fired power

As Table 2 lists, construction plans for the coal-fired power plants that are either currently being planned or constructed in Japan will provide a total of 3.40 million kW.

It is significant that even companies with little experience using coal have planned to build coal-fired power facilities. This decision is no doubt based on the high economic efficiency of coal-fired power generation.

Table 2. Construction Plans for Coal-Fired Power Plants

	Scale (thousand kW)	Startup schedule	Remarks
Suzukawa Energy Center	110	May 2016	
Mitsubishi group, Tokyo Electric Power	500	2020	
Mitsubishi group, Tokyo Electric Power	500	2020	
Hitachinaka Generation	600	2020	
Kashima Power	640	2020	
Nippon Paper Industries (Ishinomaki Factory)	110	2016	
Nippon Paper Industries (Fuji Factory)	110	2014	
Monbetsu Biomass Power	50	December 2016	Blended coal: 50 thousand ton
Marubeni Corporation (Chiba)	100	Around 2016	
Marubeni Corporation (Kanagawa)	100	Around 2016	
ITOCHU ENEX	36	2015	
ITOCHU ENEX	100	2014-2016	
ITOCHU ENEX	100	2016-2017	
Orix Corporation (Fukushima)	125	2016	
Orix Corporation (Fukuoka)	112	2017	Coal: 330 thousand ton
Osaka Gas	110	Second-half 2016	Biomass mixed combustion rate: 30%
Total	3,403		

Note) The amount of coal consumption is estimated based on a simulated operating rate and efficiency (values shown in the table).

Source: Plans by Coal & Power Report, coal consumption estimated by IEEJ

Table 3 indicates the bidding status for the power generation plants scheduled to be constructed in FY2014 by electric power companies.

With some of the currently unconfirmed fuel selections, it is difficult to produce a definite number for coal-fired power capacity. With that said, it still reaches 2 million kW when we include the coal-fired power plans of the Tohoku Electric Power Co., Inc. and Kyushu Electric Power Co., Inc. which use publicized companies' own plans for a more efficient bidding process. The outcome of the bidding processes for the Tokyo Electric Power Company, the Chubu Electric Power Co., Inc., and the Kansai Electric Power Co., Inc., will potentially drive up the coal-fired power facility capacity significantly.

Table 3. Bidding Status for Electric Power Companies in 2014

	Scale (thousand kW)	Fuel	Supply start
Tohoku Electric Power	600	Coal	June 2020 - June 2022
	600	LNG	June 2023 - June 2024
Tokyo Electric Power	6,000	n.a.	April 2019 - March 2024
Chubu Electric Power	1,000	n.a.	April 2021 - March 2023
Kansai Electric Power	1,500	n.a.	FY2021-FY2023
Chugoku Electric Power	400	Coal	2027 or later
Kyushu Electric Power	1,000	Coal	To June 2021
Total	11,100		

Note) Tokyo Electric Power Company has bids for Noshiro Unit No.3 (0.6 million kW, coal) and Jyoestu Unit No. 1 (0.6 million kW class, LNG), and Kyushu Electric Power Co., Inc. for Matsuura Unit No.2 (1 million kW, coal).
With regard to the Chugoku Electric Power Co., Inc., the company is not currently holding bids; its Misumi Unit No.2 (0.4 million kW, coal) has been included in the table.

Source: Plans by Coal & Power Report and official websites of relevant companies

On the third page of the Denki Shimbun dated May 9, 2014, there were articles entitled, “US Stanford University Decides to Pull out Investment in Coal Mining Companies,” and next to it “ Kobe Steel’s Urban Thermal Power; Potential Supporting Kansai Area Baseline.”

In USA, the shale gas revolution tipped the future prospects of coal-fired power to the negative direction. On the contrary, in Japan, it is regarded as a savior, a shining light, in a time when nuclear power plants are riddled with difficulties.

(To be continued in the next issue)

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