

SUPPLEMENTAL INFORMATION

World Coal Situation and Brown Coal

1. Supply

Half of the world's coal reserves consist of low-rank coal, such as brown coal and sub-bituminous coal.

2. Demand

The market for high-rank bituminous coal has become tight because of the sharp increase in coal shipments to China.

3. Supply and demand situation in Japan

- 1) Japan is nearly 100% dependent on imported coal.
- 2) Japan is the world's largest importer of coal.
- 3) Australian coal comprises a high 60% of Japan's total coal imports.
- 4) Most of the coal that Japan imports is bituminous coal.

4. Indonesia's Position

- 1) As a coal-exporting country in Asia and supplier to Japan, Indonesia has rapidly grown to become the third-largest producer after Australia and China.
- 2) Although bituminous coal is limited, Indonesia has six times more low-rank coal.

5. Coal Supplied to Japan

Japan consumes about 80 million tons of coal for power generation. Including the amount used for steelmaking, Japan uses a total of approximately 160 million tons of coal a year. Nearly the entire amount is imported, with about 59% coming from Australia, 18% from China and 13% from Indonesia.

High-heat value bituminous coal is predominately used, from the standpoint of power generation efficiency, cost, and logistics, including shipping and storage. In recent years, China's imports of raw materials for steelmaking have increased sharply. This trend has tightened the market for bituminous coal for power generation. On the other hand, low-rank coal is available, but Japanese users have found it difficult to use.

The UBC Process enables low-rank coal to be upgraded to the same heat value as bituminous coal for power generation. At the same time, it solves the problem of shipping and storage limitations, making possible the utilization of upgraded coal as a substitute for high-rank coal. In addition, the UBC Process aims to produce upgraded Indonesian coal at approximately the same cost as Australian bituminous coal, used for power generation, on a CIF Japan basis.

Diversifying the sources of coal is anticipated to contribute to the stable supply of energy resources.

6. Effective Utilization of Low-rank coal

Following Australia and China, Indonesia is the third country in the Asia-Pacific region to achieve high growth. However, out of Indonesia's total coal resources, bituminous coal, much of which is exported, comprises only 14% of the coal reserves. Brown coal comprises 59% and sub-bituminous coal 27%. Consequently, the commercialization of brown coal upgrading technology would contribute significantly to Indonesia's coal industry.

In addition, Indonesia became a net importer of oil in 2004, and demand for electricity is anticipated to increase considerably in the future. Under a long-term plan formulated by Indonesia's Ministry of Energy and Mineral Resources, upgraded coal production is forecast to rise to 25.5 million tons per year (90,000 tons per day) by 2020. Expectations are high that the utilization of low-rank coal will contribute to addressing Indonesia's energy problems.

7. Reducing the environmental burden for coal users

Indonesia's low-rank coal is noted for its low-sulfur and low-ash content. If high-heat value upgraded coal that is low in sulfur and ash can be utilized, it is hoped that coal users would benefit from a lower environmental burden.

8. Coal Production in Indonesia (in thousands of tons)

Company	2002	2003	2004
Bukit Asam (PTBA)	9,482	10,027	8,707
Adaro Indonesia	20,819	22,523	24,331
Kaltim Prima Coal	17,577	16,203	21,280
Kideco Jaya Agung	11,500	14,056	16,927
Arutmin Indonesia	10,557	13,615	15,019
Berau Coal	7,123	7,360	9,103
Indominco Mandiri	5,335	6,327	7,103
Other CCOWs	14,168	16,217	19,409
Local cooperatives	6,811	7,951	10,474
Total	103,372	114,278	132,352

Source: Directorate of Mineral and Coal Enterprises, Indonesia