

Executive Summary of the Interim Report of the Clean Coal Cycle (C3) Study Group “Japan’s New Coal Policy Towards 2030”

June 16, 2004
Clean Coal Cycle (C3) Study Group

Key Points

- It is very important to use coal to a certain extent from the perspective of diversifying energy sources. Besides, how to overcome its disadvantages and to maintain/strengthen/make the best use of its advantages is the key to position coal as more influential energy source.
- The largest disadvantage of coal, its environmental load can be overcome by clean coal technologies (CCTs). What must be achieved is, (A) the improvement on thermal efficiency through coal gasification in short-term, (B) the realization of zero-emission by CO₂ sequestration in long-term.
- For making contribution to the global environmental issues while stimulating domestic economy, it is important to balance environmental protection and economic growth by disseminating CCTs made in Japan into Asian countries on commercial basis through utilizing Kyoto mechanism.
- In order to secure stable supply at lower prices, the largest advantage of coal in mid- to long-term, where demand of coal in Asia is expected to increase from now on, it is necessary to expand the supply potential of coal-producing countries, and/or to strengthen the relationship between those countries.
- Under the recognition above-mentioned, it is vital to carry out the “C3 Initiative”.

1. Necessity of a new coal policy

- Recently, derived from growing concern with global environmental issues, advancements in environmentally friendly use of coal are being requested for an energy resource that has a relatively larger emission of carbon dioxide (CO₂) per unit calorific value.
- In addition, as the price of coal has skyrocketed in an unprecedented manner in recent years, driven by both supply and demand side factors since the latter half of 2003, there is an ever-increasing need to establish an environment in which supply and demand coordination is rapidly secured corresponding to the increasing coal demand in Asian countries, especially in China.
- Considering these situational changes at a time when the domestic coal policy constituting the core of Japan’s coal policy for many years has been completed, a “new” coal policy is now required to address the issues confronting coal in the whole of Asia, with a long-term perspective extending to around 2030.

2. Study Perspective

(1) Pan-Asian perspective for taking measures against energy and environmental issues

Since energy/environment issues are beyond the framework of any individual country, it is essential to study measures to facilitate coal supply/demand stability and efficient, environmentally friendly use of coal, considering the two as common issues within Asia.

(2) Medium- to long-term perspective towards 2030

As it is possible for technological innovation in the energy sector or the difference in the amount of reserves to remarkably alter the position of each energy source in mid- to long-term, a medium- to long-term forecast is required, with a focus on 2030.

(3) All-round perspective from upstream(development) to downstream(use)

In order to reach an optimal solution to a series of tasks from coal development to coal use, it is necessary to deploy a comprehensive measure covering the complete process from upstream to downstream.

3. C3 Initiative towards the establishment of the Clean Coal Cycle

With a view to establishing **a virtuous cycle (Clean Coal Cycle) to position coal as more dominant energy source by maintaining and strengthening its stable, low-cost coal supply advantage and enlarging environmentally friendly use**, it is vital to carry out concrete action programs below, the “Clean Coal Cycle (C3) Initiative”.

(1) Promote the development/demonstration/dissemination of clean coal technology (CCT) for overcoming the environmental load, the largest disadvantage of coal

Promote the development of innovative CCT towards the realization of zero-emission

- The development of innovative, environmentally friendly coal use technology (CCT) should be actively promoted in forms such as next-generation high-efficiency gasification technology or CO₂ sequestration technology towards the realization of zero-emission utilization.
- For the practical application of CO₂ sequestration technology and in order to materialize substantial cost reduction, measures such as the enhancement of crude oil production through the injection of CO₂ into oil fields or the recovery of methane gas through the injection of CO₂ into coal beds should be promoted Asianwide.

(Examples)

- *Implementation of F/S on next-generation coal gasification technology (This year on)*
- *Implementation of demonstration test of integrated coal gasification combined-cycle (IGCC) (Continued)*
- *Implementation of research and development of integrated coal gasification fuel cells combined-cycle (IGFC) (Continued)*
- *Implementation of research and development of CO₂ separation/recovery/ sequestration technologies (Ocean /underground/coal bed sequestration) (Continued)*

Demonstrate diversified CCT models, with coal gasification as the core technology

- The demonstration of diversified CCT models, such as hybrid gasification with coal and biomass/waste plastics and others, co-production of electric power and chemical materials, and hydrogen production, should be implemented with the coal gasification technology—key to the technological development process targeting the realization of zero-emission utilization in 2030—as the core.
- In the deployment of demonstration models, taking measures in accordance with the characteristics of the region is to be promoted for the realization of a recycling-oriented society/hydrogen economy society appropriate to each region.

(Examples)

- *Implementation of F/S on an integrated model of the hybrid gasification/hydrogen/ CO₂ sequestration system (This year)*
- *Implementation of F/S on co-production system with reduced iron (This year)*

Promote the dissemination of CCT to balance environmental protection and economic growth

- It is necessary to bring to fruition the first CDM-approved project at an earlier date in each CCT field, such as high-efficiency coal-fired power generation by establishing a crediting calculation method (greenhouse gas reduction effect) resulting from the introduction of CCT under CDM.
- It is necessary: to collaborate with other governments to enact stricter environmental regulations; to improve the investment environment in Asian countries through bilateral policy dialogue.
- To promote CCT dissemination domestically, the active utilization of a subsidy system for the introduction of facilities that realize a considerable energy-conservation effect should be promoted.

(Examples)

- *Investigative excavation of CDM model projects utilizing CCT (This year)*
- *Implementation of feasibility study concerning effective utilization of coalmine methane gas (CMM) (This year)*

(2) Improve the environment for securing stable supply at lower prices, the largest advantage of coal

Construct a flexible and robust coal supply-demand structure to secure rapid coordination of supply and demand

- To resolve bottlenecks to stable coal supplies in terms of infrastructure like railways/ports, we aim to expedite coalmine development and infrastructure improvement through enhanced investigation of infrastructure improvement and mobilization of policy finance.
- We intend to accelerate measures for the practical application of low-grade coal refinement technology that contributes mitigating the supply and demand stringency of high-grade coal, the major type of coal demanded in Japan as well as to exchange coal supply and demand forecast information within the Asian region by utilizing multilateral organizations such as APEC and ASEAN+3 (Japan, China, and Korea).

(Examples)

- *Enhanced investigations of infrastructure improvement in coal-producing countries (This year)*
- *Implementation of research and development of Upgraded Brown Coal technology (UBC) (Continued)*

Establish diversified risk management methods for securing stable procurement

- In an attempt to establish an environment in which domestic coal consumers are able to properly manage risks in connection with changes in individual demand and securing the necessary quantities, and fluctuations in market prices, a study should be initiated immediately towards the establishment of a liquid spot market and a futures market.
- Utilization of policy finance should be promoted to enhance the support for coal consumers who intend to minimize losses due to price fluctuations by gaining investment profit through securing concessions as one means to hedge the risk of coal price fluctuations.

(Examples)

- *Start of a study on the establishment of a liquid spot market and futures market (Summer, this year)*

(3) Construct a policy implementation infrastructure, the basis for all action plans

Construct a pan-Asian coal network as a basis for taking measures against international energy and environmental issues

- Efforts should be made to reinforce the relationship with Australia, China, Indonesia, Vietnam, etc. through bilateral policy dialogue. Concomitantly, information with each country should be sought on the coal supply and demand forecast within the Asian area and the tasks for the dissemination of CCT by utilizing multilateral organizations such as APEC and ASEAN+3.
- As a basis for taking measures for stabilizing coal supply and demand and disseminating CCT in a form suited to each country, construction of an international information network on coal should be implemented, and the training of coal professionals should be conducted.

(Examples)

- *Implementation of policy dialogue with major countries (This year on)*

Improve system efficiency, enforce thorough policy evaluation, and reinforce public relations to maximize policy effectiveness

- The efficiency of the policy implementation system should be enhanced by clarifying the role of each policy implementation organization, and the thoroughness of the preliminary, interim, and final evaluations of policies should be assured by regularly conducting follow-up on the progress of each policy and also by performing quantitative evaluation to the extent possible.
- With a view to securing a stable supply of coal by transmitting precise information to the market continuously to enable the market to function efficiently, public relations activities should be reinforced.

(Examples)

- *Start of study toward enhancing the efficiency of a policy implementation system (Summer, this year)*
- *Reinforcement of public relations (Summer, this year on)*

As of June 16th, 2004

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Yamazaki, Aya. Director General, International Finance Department 2, Japan Bank for International Cooperation