

# Natural Resources and Engineering Business



## MAIN PRODUCTS AND SERVICES

- Ironmaking plants (direct reduction)
- Other plants and equipment (nuclear power, pelletizing, petrochemicals, etc.)
- Erosion control and disaster prevention structures
- Civil engineering
- Advanced urban transit systems

Backed by a wealth of experience, the Natural Resources and Engineering Business offers equipment manufacturing and plant engineering services in the energy and chemical fields. Kobe Steel leads the world in both the development of direct reduction (DR) processes and new ironmaking technology that together work to eliminate the need for blast furnaces. While aggressively pursuing business development on the global stage, Kobe Steel aims to expand earnings.

## Outlook for Fiscal 2010 and Key Initiatives

In the iron unit field, with demand for steel soaring on the back of worldwide economic recovery, primarily in emerging markets, business discussions for DR plants have started to gain momentum. Furthermore, in line with plans to increase nuclear power plants worldwide as a way of cutting CO<sub>2</sub> emissions, demand is also steadily increasing for related equipment and facilities.

Kobe Steel will strive to secure orders for large-scale projects currently under discussion, such as for DR plants in the Middle East. In addition, Kobe Steel is also currently considering the formation of a business in Vietnam to produce and market iron nuggets using its ITmk3<sup>®</sup> Process. A detailed feasibility study is being conducted, aiming for construction to commence by the end of fiscal 2010.

## Medium- to Long-Term Business Vision and Key Policies

Kobe Steel anticipates that the business environment will see growth demand in the iron unit field. Factors for this include: the depletion and persistently high prices of both high-grade iron ore and coking coal; ever-more stringent CO<sub>2</sub> emission regulations; and a rising ratio of electric arc

furnace (EAF) steelmaking. Economic growth in emerging markets is also projected to lead to heightened demand in the energy field related to coal and nuclear power.

Given its leading position in the industry, Kobe Steel is particularly aggressive in its efforts to tap into rising demand in the iron unit field. Specifically, it will focus on ITmk3<sup>®</sup>—establishing a licensing business, the manufacture and marketing of iron nuggets, and other new business models. In tandem with these moves, Kobe Steel will also strengthen the competitiveness of its plant engineering business. Through these initiatives, Kobe Steel will work to globalize its business and increase earnings.

\*ITmk3<sup>®</sup> (pronounced "Eye-Tee Mark Three") is a process that uses a rotary hearth furnace to turn iron ore fines and pulverized steaming coal into high-purity iron nuggets (96%-97% metallic iron content), the same purity as pig iron from a blast furnace. Reduction, melting and slag removal occur in only 10 minutes in contrast to a reduction time of 8 hours using a blast furnace. No expensive coking coal is used in the production of the iron nuggets.

## Topics

### World's First Commercial ITmk3® Plant Successfully Begins Production

The world's first commercial plant to use the ITmk3® Process—the Kobe Steel-developed, new ironmaking technology—has been producing iron nuggets since January 2010.

The plant, which has an annual production capacity of 500,000 metric tons, was constructed in Hoyt Lakes, Minnesota, USA in cooperation with Steel Dynamics, Inc., a major EAF steelmaker.



The first iron nuggets produced at the commercial plant



Rotary hearth furnace

View of the world's first commercial ITmk3® Plant



### Bahrain Pellet Plant\* Completed

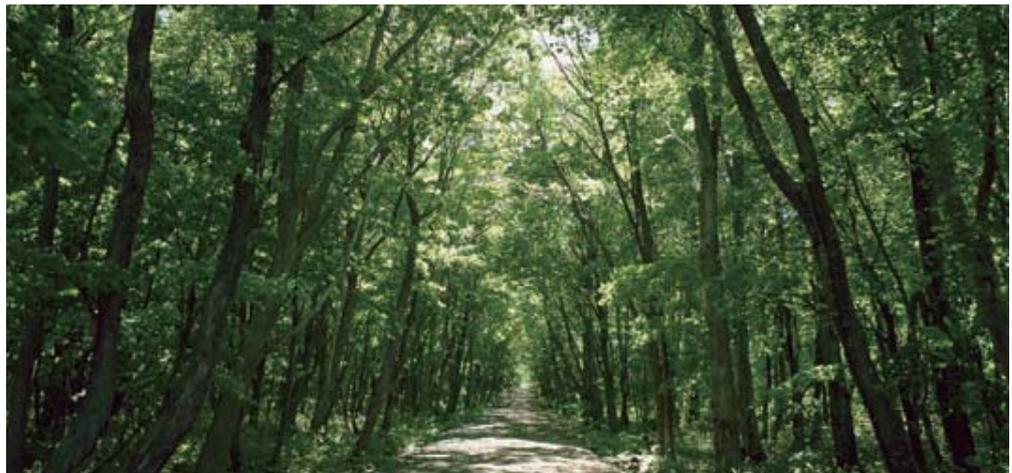
Kobe Steel has completed a pellet plant constructed for Bahrain-based Gulf Industrial Investment Co. (GIIC). This marks Kobe Steel's second pellet plant for GIIC, the first having been completed in 1985. In this project, Kobe Steel was responsible for the design, equipment supply, construction and startup of the plant, the operation of which covered everything from the supply of raw materials to the shipment facilities for the pellets. The new pellet plant has a world-class capacity of 6 million tons per year, significantly exceeding the 4-million-ton plant that Kobe Steel had previously delivered.

\*This plant pelletizes pulverized iron ore for use in blast furnaces or DR plants. The KOBELCO Pelletizing Process uses a rotary kiln in the high-temperature zone to enable a comparatively uniform firing of iron ore pellets.



GIIC's No. 2 Pellet Plant

## Kobelco Eco- Solutions



As "an environmental solutions company that meets the needs of the times," Kobelco Eco-Solutions Co., Ltd. contributes to society by providing products, technologies and services that protect nature and improve the living environment.