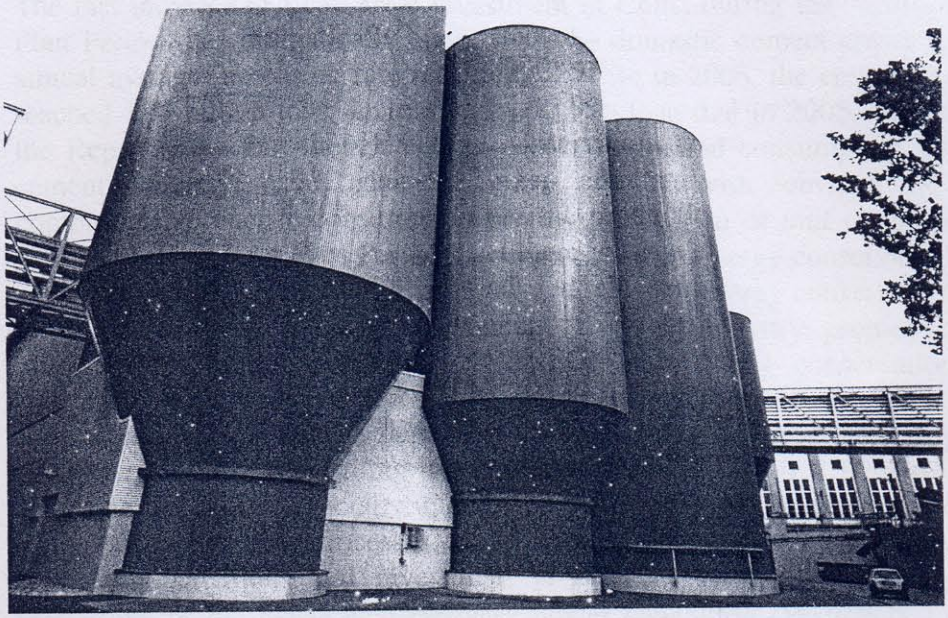

International Finance Corporation

Energy Efficiency Improvement Potential & Opportunities in China's Cement Industry

General Report

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SUMMARY

The fast increase of fixed asset investment in China during the "Tenth-Five Year Plan Period" has dramatically stimulated the domestic cement consumption with annual average increasing rate reaching 12.57%; in 2006, the cement output even reached 1.24 billion tons, increasing by 15.9% than that in 2005. The analyses of the Report show that though energy conservation and consumption reduction in cement industry have achieved great effects with obvious decrease of comprehensive energy consumption per the production of unit of product during the "Tenth-Five Year Plan Period", yet there is large energy conservation potential in cement industry. The Report has analyzed relevant energy conservation potential from the aspects of structural adjustments of cement industry, promotion of waste heat recovery power generation (WHRPG) and energy conservation refit of grinding system and implementation of electricity conservation refit of motor system, and pointed out the fields that CHUEE Program should give key supports and pay attention to according to the requirements of CHUEE Program. On such basis, the Report has specially undertaken comprehensive analyses and evaluation of the principles, flow processes, comparison of different technical routes, market application situations and investment profits and some others relating to the technology of the waste heat recovery power generation (WHRPG). Finally, the Report studies and gives the market opportunities that are suitable for CHUEE Program to supply financing support, set the principles to be followed during the selection of energy efficient projects in cement industry, undertakes the identification of the potential supporting objectives, puts forward suggestions to the control of relevant risks and recommend six energy efficient projects to be selected for the reference of CHUEE Program.

This study about the energy efficiency improvement potential and opportunities was organized by IFC's China Utility-based Energy Efficiency Finance Program. Poyry Energy Oy and its subsidiary in China, Energy Research Institute of the National Development and Reform Commission, and China Cement Association participated in the study. The study was co-funded by Global Environment Facility (GEF) and the Ministry of Trade and Industry of the Finnish government.

The findings, interpretations and conclusions expressed here are those of the authors and do not necessarily reflect the views of IFC.

Content

high and unreasonable grid interconnection fees have increased the electricity generation cost caused by simply man-made factors, and will impose significant influence on the investment profit of the project.

As for the second obstacle, it is mainly because the electricity generation projects by using residual heat needs large quantities of investments, normally RMB40 to 50 million, accounting for 15% of the total investment of the whole factory. As for financing organizations, no matter policy banks, commercial banks or other private capital, due to the traditional investment and development concepts, they seldom invest their funds in electricity generation project by using waste heat. At present, commercial banks are used to making investments in the production capacity construction or expansion projects with obvious cash flow, and such projects can easily follow the existing methodology concerning management, assessment methods and implementation procedures: the management and operation costs are low, and the risks are easy to control. As a secondary investment, the profits of energy efficient investment come from the reduction of energy expenses of the enterprises instead of the expansion of the production capacity and the increase of the sales income, so it is hard for banks to correctly and accurately grasp the cash flow.

As for the enterprises, many of them have sensed and learned about the huge investment rewards in the waste heat recovery power generation (WHRPG), but limited by the capital pressure, competitive pressure in the market and pressure to dominate the market and expand production capacity, the decision-makers always give their utmost priority to the expansion of the production capacity and the occupation of more market shares and bears no extra financial resources and energy to implement the Electricity generation project by using waste heat aim at the reduction of energy costs.

4.4.2 Financing Obstacles to implement Energy Efficiency Projects

Further to the analysis of market obstacles in 4.4.1, this part will specifically analyze the financing barriers. The main problems lie in the following:

1. Large quantity of cement enterprises are of a small size and suffer from low management levels and unreasonable property rights, and therefore they do not meet the minimum loan requirements of commercial banks.
2. Fierce competition in the cement market, the high dependency on macro policies of the State for the development of the industry, and the unstable profit level of cement enterprises are many risk factors that lead commercial banks to sometimes refuse to provide loans for energy efficiency projects to cement enterprises.
3. Construction of new production capacity already requires loans from banks and lead enterprises to have high ratios of debts to assets. Therefore they encounter difficulty to finance further their energy efficiency projects.
4. Commercial banks impose higher guarantee requirements on the financing of energy efficiency projects. Under realistic circumstances, it is hard for cement enterprises to produce the assets meeting these guarantee requirements, and a few of them actually gets loan support from commercial banks.