



1. Project Data:		Date Posted : 09/30/2003	
PROJ ID: P003641		Appraisal	Actual
Project Name: Cn-yangzhou Thermal Power	Project Costs (US\$M)	1,626.41	1,301.74
Country: China	Loan/Credit (US\$M)	350.00	337.21
Sector(s): Board: EMT - Power (99%), Sub-national government administration (1%)	Cofinancing (US\$M)	1260.00	109.19
L/C Number: L3718			
	Board Approval (FY)		94
Partners involved : American and Japanese Commercial banks	Closing Date	12/31/2000	12/31/2002
Prepared by:	Reviewed by:	Group Manager:	Group:
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2. Project Objectives and Components

a. Objectives

The sector reform and commercialization objectives of the project were to: (i) Support the power sector reform by developing Jiangsu Provincial Electric Power Company (JPEPC) as an autonomous company; (ii) rationalize power tariffs; (iii) promote more efficient and transparent financial management techniques; and (iv) to provide technical assistance in management and staff training programs. The physical objectives of the project were to: (v) provide cost-effective, environmentally sustainable generation capacity to alleviate shortages and improve the quality of power supply; and (vi) assist in the transfer of new power plant technologies for large, coal fired plants and the strengthening of environmental monitoring capability.

b. Components

The project had 8 components: (i) construction of the 1,200 MW coal fired plant(two 600 MW units) at Yangzhou thermal power plant in Jiangsu province; (ii) construction of two 500 kV transmission lines; (iii) engineering and construction management services; (iv) environmental management and monitoring program; (v) resettlement program; (vi) development and implementation of improved accounting and financial management system; (vii) management development and training; and (viii) a 500 kV transmission line from Yangzhou to Jiangsu.

c. Comments on Project Cost, Financing and Dates

The project was completed at a cost equivalent to US\$1,301.74 million (including taxes and interest during construction) or 20 percent below the US\$1,626.41million revised estimate as amended in 1998. In fact, the cost estimated at appraisal, including contingencies, taxes and interest during construction, was equivalent to US\$1,081.40. The higher revised cost estimate was the consequence of including in the project the Yangcheng-Huaiyin 500 kV transmission line (600 km). However, the cost savings were caused by a significantly lesser cost of the Yangcheng-Huaiyin transmission line (US\$297 million instead of the estimated US\$436 million), less interest during construction, and a cost reduction in power plant equipment and materials. These cost savings largely exceeded the increase in the cost of civil works and transmission network. The US\$350 million Bank loan financed the equivalent of US\$337.21 million in power plant equipment and materials, transmission system and technical assistance services. A US\$120 million expanded co-financing financed the procurement of goods worth US\$109.19 million. The Government and State/Provincial banks financed the equivalent of US\$855.30 million in civil works,

goods, services and interest during construction. A total of US\$12.79 million was cancelled from the loan, which was closed on December 31, 2002 after extension of the loan closing date by 2 years. The ex-post IERR of the project is estimated at 12.7 percent (14 percent ex-ante) assuming an economic electricity tariff of 34.2 fen/kW excluding the Valued Added Tax (VAT). An electricity tariff of 40.0 fen/kWh, including VAT, which is considered to be a better proxy for the consumer's willingness to pay, yields an IERR of 16.0 percent (17 percent ex-ante).

3. Achievement of Relevant Objectives:

The project objectives were fully achieved. Physically, the project constructed a large coal-fired power plant comprising 2x600 MW boiler-turbine-generator units and associated mechanical and electrical auxiliaries, and built coal and ash handling and storage facilities and a harbor. It also built the necessary 500 kV transmission lines, transformer and switching stations, and resettled the population of 524 households (about 1820 people) displaced by the construction of the power plant and transmission lines in accordance with a well designed resettlement action plan. Surveys indicate that the displaced population has improved their living conditions. An operational environmental management plan is monitoring air pollution, water pollution, noise levels, and electromagnetic field strength relevant to the construction and operation of the power plant and transmission lines. In 2002, sulfur pollution level (about 16,000 ton per year) was about 10 percent of allowed emission by Bank standard and 11 percent of the levels according to the Chinese standard, and concentration of dust is very low in the range 15-26 milligrams per cubic meter. About 40 percent of ashes are reduced to solid waste for utilization in cement plants (compared to less than 3 percent in other coal-fired plants).

In 2003, JPEPC is operating as a commercial, autonomous power company, following the transfer of government functions to the Jiangsu Provincial Planning and Trade Commission, in line with the Company Law established in 1994. JPEPC has also incorporated its power plants in preparation for separation/divestiture of generation assets. Its master plan contemplates follows the Power Sector Reform Strategy approved by the State Council in 2002 with the objectives of separating the generation business from transmission and distribution by June 2003, establishing a competitive wholesale power market by 2005, and developing JPEPC into a modern grid company.

The power tariffs were rationalized by removing various fees, charges, surcharges and taxes applied to different sources of power generation and eliminating the discrimination between consumers with the same consumption pattern. Average tariff (52.7fen/kWh) is now consistent with long-run marginal cost of supply, and the uniform tariff in rural areas (55-65 fen/kWh) is significantly lower than the previous unduly high prices.

JPEPC has improved the efficiency and transparency of its financial management systems in harmony with changes made to its structure by upgrading its existing systems which now enable JEPEC to handle modern financial planning and budgeting.

The project exceeded its training objective by 10 percent in terms of staff months of training. In terms of substance, the combination of training and expert assistance permitted JPEPC complete the 2x600 MW power units within the original construction time schedule, procure and operate larger and more efficient coal-fired generating units, and introduce and use state-of-the-art financial management systems.

The project added 1,200 MW in coal-fired power generating capacity. This cost-effective electricity generating capacity (12.7-16 percent IERR), very efficient (consumption of 310 grams of coal per kWh) and highly reliable source of electricity (90 percent availability) has avoided shortfall in electricity supply in the Jiangsu province since 1999.

4. Significant Outcomes/Impacts:

In the institutional development front, the Central Government enacted the Electricity Law in 1996, which broke the state's monopoly on power generation, and established the State Power Corporation to replace the Ministry of Electric Power. In 1998, the Central Government established provincial power companies as direct subsidiaries of the State Power Corporation and selected six provinces to pilot the power sector reform. Finally, in 2002, the Government established a comprehensive reform program for competition and the establishment of a State Regulatory Commission to ensure fair competition and

enable private participation. This new legal and institutional framework, in line with the 1993 Bank policy for the power sector, is a significant project outcome (well beyond its original objectives) resulting from the flexible dialogue maintained between the Bank and the Government during project implementation.

5. Significant Shortcomings (including non-compliance with safeguard policies):

None

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Satisfactory	
Institutional Dev.:	Substantial	Substantial	
Sustainability:	Highly Likely	Highly Likely	
Bank Performance:	Satisfactory	Satisfactory	
Borrower Perf.:	Highly Satisfactory	Highly Satisfactory	
Quality of ICR:		Satisfactory	

NOTE: ICR rating values flagged with '*' don't comply with OP/BP 13.55, but are listed for completeness.

7. Lessons of Broad Applicability:

Two lessons will be highlighted because of its broad applicability to institutional development.

(i) A clear, long-term vision for the power sector combined with a baseline of achievable actions and strategic flexibility in supervision can allow the project to advance sector reform when the opportunity arises. In this project, the Bank and the Government had a long-term vision for power sector reform. The project included foundational elements, but a flexible time frame for the additional intermediate steps, towards a competitive market. It was open-ended for the opportunity to make progress in the power sector reform. The opportunity appeared when the Government decided to open the sector to independent power producers.

(ii) A gradual and realistic approach to reform the power sector towards market orientation can be very effective in creating a solid foundation from which to launch accelerated reforms. In this project the approach was to commercialize before privatization, combined with a package of technical assistance, transfer of modern technologies, and separation of purely government-oriented functions from the power company. Building on successful commercialization, the policy dialogue advanced towards a competitive market for electricity generation during project implementation which materialized under a follow up project.

8. Assessment Recommended? ☒ Yes ☐ No

Why? The Bank would be highly interested in following up the development of the power sector reform in China. The audit could be in a cluster with other power projects completed in China.

9. Comments on Quality of ICR:

The ICR complies fully with the Bank guidelines for ICRs and OED rates it as satisfactory. It presents a good description, discussion and evaluation of the project objectives, components, results and implementation supported with contributions made by the implementing agency. The ICR would have been enriched by indicating why and when the loan closing date was extended from 12/31/2000 to 12/31/2002 and explaining a couple of inconsistencies that apparently exist between the project financing numbers as shown in both the text of the ICR and the SAR and the numbers shown in Annex 2 of the ICR (the Bank loan was US\$350 million but Annex 2 shows US\$372.20 million at appraisal estimate; the SAR indicates an Expanded Cofinancing Operation of US\$120 million but Annex 2 shows US\$160 million).