

1. Project Data:		Date Posted: 08/20/2001			
PROJ	ID: P010416		Appraisal	Actual	
Project Nan	e: Power Grid System Development	Project Costs (US\$M)	625.0	433.0	
Count	ry: India	Loan/Credit (US\$M)	350	225.9	
Sector	(s): Board: EMT - Power (100%)	Cofinancing (US\$M)	95.76	71.65	
L/C Numb	er: L3577				
		Board Approval (FY)		93	
Partners involved :		Closing Date	06/30/2000	12/31/2000	
Prepared by:	Reviewed by :	Group Manager :	Group:		

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2. Project Objectives and Components

a. Objectives

The project objectives were to: (a) assist the Government of India (GOI) to restructure the power transmission sub-sector, improve coordination in system operations, and promote inter-regional and inter-state power trading through regulatory, tariff, and institutional reforms; (b) support POWERGRID's institutional development and help introduce satisfactory financial performance targets and commercial arrangements; and (c) help POWERGRID to develop modern system coordination and control facilities and reinforce its transmission system by financing selected components of its investment program.

b. Components

The original project components were:

System Coordination and Control -- (i) implement a coordination and control system for the Southern region consisting of a regional load dispatch center in Bangalore, 4 State Electricity Board (SEB) load dispatch centers, about 14 area control centers, and about 300 associated remote terminals units in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu, together with related communications facilities; and (ii) prepare coordination and control system projects for the Eastern, Western, and North-Eastern regions, consisting of regional load dispatch centers, state load dispatch centers, area control centers, and associated remote terminal units.

Transmission System Reinforcement -- (i) construct the Vindhyachal-Dhule and Ramagundam-Hyderabad transmission lines; (ii) complete the transmission lines and substations under the Central Power Transmission Project (Loan 2283-IN) and the Rihand Power Transmission Project (Loan 2555-IN); (iii) provide software and hardware for interactive transmission system planning and related training; prepare a long-term transmission plan and pre-feasibility studies; prepare selected major transmission system improvement projects; and (iv) install tariff meter.

Technical Assistance -- to assist (i) POWERGRID's institutional development and refining of its development plans; (ii) utility cooperation arrangement with a grid company; and (iii) studies on bulk tariffs, transmission tariffs, and transmission regulation. The original components were expanded in 1996 to include an additional transmission system linked to the Kayamkulam Combined-Cycle Power Project and technical assistance to carry out preparatory work for POWERGRID's possible diversification into telecommunications.

c. Comments on Project Cost, Financing and Dates

The project was considered completed in year 2000 with a delay of six months at a cost of US\$433.0 million or 30.9 percent lower than the US\$625.0 million estimated at appraisal. The cost reduction was the result of competitive procurement of goods and services, depreciation of the local currency vis-a-vis the US dollar and an overestimate of 26 percent in the physical and price contingencies when project was appraised. The Bank loan financed part of the Vindhyachal-Dhule and Ramagundam-Hyderabad transmission lines, the Central Power and Rihand Power Transmission projects, the Kayamkulam transmission lines, and the Southern Region load dispatch centers, totaling

US\$225.9 million. The balance was financed by POWERGRID (US\$135.4 million) and the local financing market, plus US\$71.7 million co-financed mainly by the European Investment Bank and contributions to the technical assistance component by the Asian Development Bank and the UK's Department for International Development. The Bank loan was closed on December 31, 2000, following an extension of the closing date by six months at which time US\$37.5 million was canceled -- US\$75.0 million was canceled during project implementation. The pending components of the project costing about US\$22.0 million will be financed as a component of the POWERGRID II project approved by the Board on May 3, 2001. A mid-term review of the project was done on April 10, 1996.

3. Achievement of Relevant Objectives:

The ambitious physical objectives were substantially met. All power transmission systems financed by the project were successfully built and put into commercial operation. The implementation of the system coordination and control components of the project are well in progress and expected to be fully operational in year 2002. During that transition period and thereafter, the new tariffs for bulk power transmission services to be charged by POWERGRID will be gradually enforced by the Central Electricity Regulatory Commission. The non-physical objectives were also substantially met. POWERGRID was raised from an incipient company in 1993 into a large power transmission corporation in 2001. The study on bulk power transmission tariffs and regulation was completed and its implementation started in the Southern and Eastern regions in April-May 2001. POWERGRID refined its corporate plan and restructured its organization based on an institutional development study, prepared a transmission plan using new software and hardware, and upgraded its managerial and technical expertise through a twining arrangement with the National Grid Company of England and Wales of the United Kingdom.

4. Significant Outcomes/Impacts:

POWERGRID took over transmission and coordination and control systems and projects of several central and joint sector companies. It has become one of the largest transmission companies of the world, owning and operating about 40,000 km of power transmission lines transporting about 30,000 MW, equivalent to one third of the total power generating capacity of India.

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

POWERGRID was has not been able to meet the covenanted 2.0 months of billing for the accounts receivables indicator and has reached the very high level of 6.5 months. In March 2001, POWERGRID prepared, and the Bank accepted, an action plan for the gradual reduction of accounts receivable from the 6.5 months in early 2001 to 2.0 months by September 2002.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments		
Outcome:	Satisfactory	Satisfactory	The re-calculated economic rate of return of the project (21.3 percent) is very close to the appraisal estimate (22.1 percent). At 12 percent discount rate, the net present value of the project is about US\$542 million.		
Institutional Dev .:	High	Substantial	A high rating for project institutional development would have been justified had POWERGRID also met or been close to meeting the covenanted 2 months accounts receivable.		
Sustainability :	Likely	Likely			
Bank Performance :	Satisfactory	Satisfactory			
Borrower Perf .:	Satisfactory	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:

Three factors contributed to develop POWERGRID into a well-functioning and commercially viable transmission utility: (a) effective management with operational autonomy; (b) competent and experienced staff with a continuing human resource development program; and (c) adequate financial support.

8. Assessment Recommended?
Yes
No

Why? Because of the large amount financed by the Bank, the substantial institutional development

achieved by the project by creating a new power grid institution, and the possibility of drawing best practice lessons applicable to reforms of large power transmission systems, it is recommended to audit this loan in a cluster with the previous Loan 3237-IN.

9. Comments on Quality of ICR:

Generally, the ICR complies with the Bank guidelines for ICRs. It would have been enriched by including (i) the values of tariffs to be adopted for bulk power transmission, and (ii) the results of the mid-term review of the project. The project title on the cover page of the ICR is misleading because the borrower of Loan 3577-IN was not India but Power Grid Corporation Limited of India.