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PROJECT PERFORMANCE ASSESSMENT REPORT

INDIA

**RAJASTHAN POWER SECTOR RESTRUCTURING PROJECT
(LOAN 4954-IN)**

March 23, 2010

*Sector Evaluations (IEGSE)
Independent Evaluation Group (World Bank)*

Currency Equivalents (annual averages)

Currency Unit = Indian Rupees (INR)

1998	US\$1.00	INR 41.5
1999	US\$1.00	INR 43.1
2000	US\$1.00	INR 45.1
2001	US\$1.00	INR 47.3
2002	US\$1.00	INR 48.5
2003	US\$1.00	INR 46.3
2004	US\$1.00	INR 45.1
2005	US\$1.00	INR 44.0
2006	US\$1.00	INR 45.3
2007	US\$1.00	INR 40.8
2008	US\$1.00	INR 40.4
2009	US\$1.00	INR 48.5

Abbreviations and Acronyms

ABC	Aerial Bunched Cables
CAS	Country Assistance Strategy
CERC	Central Electricity Regulatory Commission
Ckt.km	Circuit Kilometers
EHV	Extra High Voltage
ERR	External rate of Return
FinRP	Financial Restructuring Plan
FRP	Feeder Renovation Program
FY	Financial Year
GOI	Government of India
GOR	Government of Rajasthan
GDP	Gross Domestic Product
GW	Gigawatt
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IEG	Independent Evaluation Group
IEGWB	Independent Evaluation Group (World Bank)
INR	Indian Rupees
ISR	Implementation Status and Results Report
IT	Information Technology
kV	Kilovolt
kWh	Kilowatt hour
LT	Low Tension
M&E	Monitoring and Evaluation
MTR	Mid-term Review
MVA	Megavolt-amperes
MW	Megawatt
PAD	Project Appraisal Document
PDO	Project Development Objective

PPAR Project Performance Assessment Report
PPF Project Preparation Facility
RERC Rajasthan Electricity Regulating Commission
RES Renewable Energy Source
RPSRP Rajasthan Power Sector Restructuring Project
RSEB Rajasthan State Electricity Board
RVPN Rajasthan Transmission Company
RVUN Rajasthan Generating Company
SEB State Electricity Board
SERC State Electricity Regulatory Commission
SPN Supervision Development Objective (rating)
TA Technical Assistance
USAID United States Agency for International Development

Fiscal Year

Government: April 1-March 31

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IEGWB Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEGWB annually assesses about 25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEGWB staff examine project files and other documents, interview operational staff, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEGWB peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. IEGWB incorporates the comments as relevant. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

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Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

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Principal Ratings

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Moderately Satisfactory	Moderately Unsatisfactory	Moderately Unsatisfactory
Risk to Development Outcome	Moderate	High	Substantial
Bank Performance	Moderately Satisfactory	Unsatisfactory	Moderately Unsatisfactory
Borrower Performance	Moderately Satisfactory	Unsatisfactory	Moderately Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.

Key Staff Responsible

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
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Preface

This is the Project Performance Assessment Report for the India: Rajasthan Power Sector Restructuring Project (Loan 4594-IN), for which the World Bank approved a loan of US\$180 million equivalent on January 18, 2001. At appraisal, the total project cost (excluding interest during construction) was estimated to be US\$221.5 million, with US\$39.5 million provided from the resources of the State of Rajasthan and its power utilities, and US\$2 million in a grant from USAID. At project closure, US\$166.2 million (92.3 percent) of the total loan amount had been disbursed and the balance of US\$13.8 million was canceled. The final total project cost was US\$221.3 million.

The project was selected for assessment because of the important lessons it provides for the design and implementation of projects supporting the ongoing process of power sector reform in India, especially at State level. There were also considerable differences in project outcome ratings between the Implementation Completion Report (ICR) and IEG's ICR Review which merited further analysis. The PPAR will, moreover, provide input to IEG's evaluation of the World Bank Group's experience with safeguard and sustainability policy over the past decade. IEG gratefully acknowledges the contribution of the local environmental consultant, Mr. A.K. Roy, concerning this aspect.

IEG prepared this report based on an examination of the relevant Project Appraisal Document (PAD), ICR, legal agreements, project files and archives, as well as other relevant reports, memoranda and working papers. Discussions were also held with Bank staff in both Washington DC and New Delhi. An IEG field mission visited India in June 2009, conducted site visits, and discussed both the project and the effectiveness of Bank assistance with relevant officials and stakeholders in Rajasthan and New Delhi. The mission appreciates the courtesies and attention given by these interlocutors as well as the support provided by the New Delhi office of the World Bank.

Following standard IEG procedures, copies of the draft PPAR were sent to relevant Central and State Government officials for their review, and responses received have been incorporated.

Summary

This is the Project Performance Assessment Report for the *India: Rajasthan Power Sector Restructuring Project (RPSRP, Loan 4594-IN)*, which was intended to support the restructuring and reform of the power sector in the Indian State of Rajasthan. The performance of the State's power sector prior to 2000 was characterized by a sharp demand/supply imbalance, frequent outages, and inadequate coverage. The sector was a major fiscal burden due to high distribution losses, low earning capacity, poor cost recovery and heavy debt reliance. In 1999, the Government of Rajasthan (GOR) initiated a reform program beginning with the unbundling of the Rajasthan State Electricity Board into five separate entities – a generating company, a transmission company, and three distribution companies. Private sector participation in generation was envisaged, and the distribution companies were destined for privatization. The program was to be implemented against the background of India-wide power sector reforms aimed at introducing greater efficiency through competition, commercialization, market liberalization, and increased private sector participation. The Rajasthan project was not an isolated case, but was the last in a series of five state power sector restructuring projects, the first of which (for Orissa) was approved in May, 1996.

The project, approved on January 18, 2001, had the following development objectives (PDOs): “to (a) support the ongoing power sector reform process in Rajasthan leading to higher sector efficiency and financial recovery; and (b) to improve power supply by removing the critical bottlenecks in the power distribution and transmission system.” This was to be achieved through investments in the transmission and distribution systems, the establishment of a fully functioning regulatory commission, the satisfactory implementation of a financial restructuring plan, and private investment in the distribution sub-sector.

Taking account of the progress made towards achievement of the PDOs, and the assessments of relevance, efficacy and efficiency, IEG's overall project outcome rating is *moderately unsatisfactory*. While the relevance of the objectives was substantial, design relevance was modest. The design failed to take adequate account of political realities in Rajasthan, and major risks were underestimated or even ignored. The preparation team envisaged a long term engagement of the Bank in Rajasthan's power sector, involving several follow-up operations which did not, in the event, materialize. Project design was over-ambitious, and the objectives were out of proportion to the financial resources made available. Major risks were underestimated or not taken into account at all. Intermediate targets (especially projected tariff increases and privatization of the distribution companies) proved unrealistic. The covenant in respect of the privatization of the distribution companies was especially unrealistic.

While the attainment of the objective to remove critical distribution and transmission bottlenecks through investments has permitted a better quality of supply to a larger number of consumers, efficiency gains must be set against the serious failure to achieve financial equilibrium. Distribution losses, although lower than they were, are still nearly 27%, which is high by international standards. Collection and billing efficiencies are quite impressive, but were already doing well in this area before the project, and so

limited credit can be claimed for this aspect. Demand/supply imbalances remain, and still lead to power shortages especially during peak demand periods. The regulatory function is weak and subject to political interference.

The financial recovery objective has not been achieved. After the first financial restructuring plan (FinRP) failed, a second plan was elaborated in 2003 following the dropping of the covenanted objective of private investment in distribution. Although this plan was predicated on more modest tariff adjustments, these too proved unattainable, and a third plan began to be implemented in November, 2005. The ICR's cautious optimism concerning this third FinRP was based on a better performance than the plan predicted in FY05 and reduced losses in FY06. However, the respite was short-lived – losses rose again in FY07 before soaring to unprecedented levels in FY08 and FY09. In the latter year, they were 2.5 percent of the State's GDP. By March 2009, accumulated losses amounted to US\$73 for every Rajasthani. The build-up in unpaid subsidies had reached almost US\$2 billion by the same date. Financial weakness on the scale recently recorded will, sooner rather than later, undermine the gains from project-financed improvements, through lack of funds for investment and maintenance.

The main causes of the power sector's persistent and worsening financial weakness can be summarized as (i) failure to adjust tariffs adequately (or, indeed, at all since December, 2004); (ii) highly subsidized power for agriculture, the financial consequences of which were exacerbated by prolonged drought; (iii) higher growth of demand than of supply from Rajasthan's installed generation capacity, forcing greater reliance on expensive purchases from India's wholesale market; and (iv) sharp increases in power purchase costs. The Regulator's credibility has also been adversely affected by political interference in tariff determination.

The Monitoring and Evaluation (M&E) design was, moreover, of poor quality. There were few quantitative indicators and no systematic translation of broad project objectives into measurable targets. M&E improved considerably during implementation. Overall, IEG rates the quality of M&E design and implementation as *modest*.

The Bank performed diligently in supporting the transmission and distribution companies' implementation of the project-financed investments, advising on the wider investment program, and building the entities' technical and managerial capacity. Supervision of the financial aspect was, however, much less impressive. By mid 2004, experience from the other four state power sector restructuring projects, as well as from Rajasthan itself, strongly indicated that a financial recovery would be unattainable so long as the issue of subsidized power for agriculture remained unaddressed. As this is a national issue, with strong political economy overtones, resolution is likely to be long term. An opportunity was missed to restructure the project and remove the financial recovery objective rather than embarking on a third FinRP. With the more limited and realistic goals of improving the availability and quality of electricity supply in Rajasthan, the RPSRP could have succeeded. IEG's overall rating of Bank performance, taking account of design and supervision, is *moderately unsatisfactory*.

The GOR's early reform efforts were commendable, and its failure to sustain momentum must be seen in the context of national political economy issues. The

transmission and distribution companies performed well, not only in implementing the project-financed investments, but in continuing their enhancement and expansion programs after project closure. The Borrower rating, overall, is *moderately satisfactory*.

While it is unlikely that there will be backtracking on the unbundling and other institutional changes already achieved, or on the determination to complete the pilot feeder renovation program in rural areas successfully, the key condition for longer term sustainability of the improvements is the financial recovery of the sector. There is little realistic prospect for this in the short-to-medium term. In the longer term, the State's ambitious investment program could lead to reduced power purchase costs, while at a national level the momentum of power sector reform is being sustained, albeit at a slower pace. Overall, IEG assesses the risks to development outcome as *significant*.

A number of important lessons can be gleaned from the design and implementation of this project:

- A thorough analysis should be made of the political economy of the reform program to be supported by the project, at both State and national levels. This should be done not only through extensive consultations at both a local and national level, but also through a realistic appraisal of national policies – such as those determining power subsidies to agriculture – which affect project outcomes. These should be addressed at the level of country policy dialogue. A careful assessment of international trends in power sector private investment in developing countries should also be part of the exercise.
- Risks to project outcome should be carefully analyzed and taken into account. In particular, attention should be paid to climatic hazards and to subsidy regimes in other States and their likely impact on the political viability of proposed reforms.
- Covenanted objectives should reflect a realistic judgment of the leverage accorded by investment projects on complex policy issues, and of factors outside the control of the project.
- More systematic monitoring of experience in other, similar projects (particularly in the same country) would have helped to avoid the repetition of over-ambitious design apparent in the five State power sector restructuring operations in India. Even though convincing evidence may not have been fully available at the preparation stage, the opportunity should have been taken during implementation to restructure and simplify the project.
- Such monitoring would facilitate a clearer and more objective assessment of progress towards achievement of the project development objectives during supervision missions. It is noteworthy that in the case of all five State power

sector restructuring projects in India, Implementation Status and Results Reports continued to rate progress towards the development objectives as satisfactory, when it must already have been obvious that certain objectives were highly unlikely to be attained.

Vinod Thomas
Director-General
Evaluation

1. Background and Context

The Power Sector in India

1.1 Awareness of key developments in India's national power sector is essential in order to fully understand the sector's evolution and remaining challenges in the State of Rajasthan. At the time of the Rajasthan Power Sector Restructuring Project (RPSRP)'s preparation in the late 1990s, India's power sector was characterized by inadequate and inefficient supply. Peak capacity and energy supply shortages were estimated, respectively, at about 20 percent and 10 percent. Demand was inflated by inappropriate pricing policies, while supply was held back by insufficient investments and implementation bottlenecks. Distribution system losses, both technical and non-technical, were very high, in some states in excess of 50 percent, while transmission losses were also high by international standards. The sector's financial performance was highly unsatisfactory with low or zero returns and no contributions to investment from internal sources. Commercial losses of the State Electricity Boards (SEBs) had reached almost one percent of India's GDP at the time¹.

1.2 Among the actions taken by the Government of India (GOI) to address these challenges, the following are the most relevant to the evolving situation in Rajasthan²:

- The Electricity Regulatory Commission Act of 1998 provided for the establishment of a Central Electricity Regulatory Commission (CERC) and State Electricity Regulatory Commissions (SERC) in an attempt to rationalize the tariff setting process and reduce political interference in it.
- The Electricity Act of 2003 brought together structural and regulatory reforms designed to foster competitive markets, encourage private participation, and transform the role of the state from provider to regulator. The Act directed the unbundling of SEBs and the creation of SERCs. In addition, it provided for open access for both producers and consumers across State boundaries and promoted power trade. The Act's stipulations were further developed in the statements of National Electricity Policy (2005), National Tariff Policy (2006), and Integrated Energy Policy (2007).
- Thanks to actions by the CERC and the GOI bulk power tariff reforms have improved grid discipline on a national level, encouraged more efficient use of generating capacity and fostered the development of a wholesale power market operating across State boundaries. The publicly owned pan-India transmission company,

¹ Project Appraisal Document

² Government of India: Ministry of Power: "Status of Power Sector Reforms," October, 2007.

POWERGRID, has become a profitable and well managed enterprise with a substantial resource mobilization capacity³.

- An intensive rural electrification campaign has brought power to an increasing number of villages, though the percentage of rural households with access to electricity is still only 44 percent.

1.3 Despite these reforms, a major demand-supply mismatch remains. At the end of March 2009, the peak deficit was 11 percent and the energy supply deficit just over 10 percent.⁴ Inadequate power supply was cited as the most severe constraint faced by Indian enterprises.⁵ There are a number of reasons for this. First, although supply has increased significantly faster than in the past, demand has grown much more rapidly than foreseen thanks to India's improved growth performance.⁶ Second, although private investment in generation and transmission capacity has started to pick up, it has been much slower to materialize than anticipated, mainly because the electricity utilities at State level, which are the main off-takers, are not creditworthy. Moreover, the regulatory risk, again particularly in the States, is regarded as high. Third, public sector project implementation remains constrained by technical limitations in the main government equipment supplier, delays in clearances for hydro projects, and poor sequencing in project planning. Fourth, the emphasis on boosting the rural economy has placed especially heavy demands on the State transmission and distribution networks, increasing their activities in areas where their costs are higher and their compensation lower⁷. Fifth, although significant power sector reforms have been made during the past decade, progress has been slower than expected and highly variable, particularly at State level; some States are yet to apply, even partially, the directives of the 2003 Electricity Act.

1.4 Recognizing that India's power sector performance lags seriously behind that of its main international competitors, the GOI has embarked upon an ambitious investment and institutional development program known as "Power for All by 2012." It involves, *inter alia*, a substantial increase in generation capacity (to 200 GW compared to a current 147 GW), relying as much as possible on private investment; expansion and improvement of transmission and distribution networks; and revamping the ongoing Accelerated Power Development and Reform Program, which will provide incentive and investment funds to State power utilities to reduce their technical and non-technical losses, and improve services to consumers.

³ World Bank: India: Fifth Power System Development Project (P115566), Project Appraisal Document.

⁴ It should be noted that these figures reflect the slowing of demand growth due to the international recession. A year earlier, at the end of March 2008, the peak deficit was 16.6 percent.

⁵ Investment Climate Assessment, 2007

⁶ Between 2004 and 2008, India's GDP grew by 8 percent per year in real terms, but electricity generation grew by only 4.9 percent.

⁷ Delivery costs in rural areas are higher, while rural consumer pay tariffs well below cost -- for which the utilities should receive a subsidy from the State governments. However, this subsidy is frequently inadequate and in any case rarely fully paid. This is certainly a major issue in Rajasthan.

The Power Sector in Rajasthan

1.5 Rajasthan, with a population of 56.5 million, is among the poorer States in India with a per capita income of US\$710 in 2008, compared to a national average of US\$1,016⁸. In terms of area, it is India's largest State. It covers 342,269 square kilometers, roughly equivalent to the size of Germany. The State encompasses most of the inhospitable Great Indian Desert (Thar Desert). The economy is primarily agricultural and pastoral. Wheat and barley are cultivated over large areas as are pulses, sugar cane and oilseeds. Cotton and tobacco are significant cash crops. Rajasthan is the largest wool-producing State in India and the second largest producer of oilseeds. Agriculture relies heavily on irrigation – the northwestern part of the State is irrigated by the Indira Gandhi Canal, and in recent years pumped groundwater has become increasingly important elsewhere. The main industries are mining, agro-industry and textiles. The State is the second largest producer of polyester fiber in India. Important chemical plants are located near the city of Kota in western Rajasthan. Mining and quarrying activities include marble, lignite, copper, and zinc, while the State is the second largest cement producer in India. More recent sources of growth are information technology (IT) and tourism. Rajasthan is now among India's preferred destinations for IT companies, and North India's largest IT park, covering 12 square kilometers, is located near the State capital, Jaipur. Five years ago, less than one-third of tourists visiting India went to Rajasthan; the figure now exceeds two-thirds.

1.6 Until 2000, Rajasthan's power sector was dominated by the Rajasthan State Electricity Board (RSEB), a vertically integrated utility formed in 1957. The State had access to just over 4,000 MW of generating capacity, of which 1,300 were fully owned and operated by RSEB. The system covers a large geographic area, of which two thirds is desert, with low population density. In 1998, per capita electricity consumption was 302 kWh, lower than the average in India. Electricity sales were growing at an annual average of 7 percent, while the estimated energy supply deficit was 15 percent (up from 7.8 percent in 1991), and the peak deficit 23 percent, both well above national averages. The sector had over 380,000 outstanding applicants for electricity, most of whom had been waiting for years, and whose needs could not be satisfied due to lack of generation capacity. Only 40 percent of the population had access to the power network, and inadequate power supplies, due mainly to funding constraints, had become a major drag on the State's economic development. Operations were characterized by long service interruptions, unacceptably high voltage and frequency swings, over-loaded transmission lines and substations, and technical and commercial system losses of over 40 percent.⁹ Financial performance was characterized by low earning capacity, poor cost recovery, heavy debt reliance and tight liquidity. Inadequate investments were the result of the policy of successive governments to charge low tariffs to residential and agricultural consumers.¹⁰

⁸ Government of Rajasthan: Directorate of Economics and Statistics; Government of India: Ministry of Finance: Census of India, 2008.

⁹ It is generally accepted that losses under the RSEB were underestimated.

¹⁰ Project Appraisal Document

1.7 In May 1999, the Government of Rajasthan (GOR) issued a policy statement outlining the reform of the power sector. In June 2000, the Power Sector Reform Bill was passed by the State legislature. This bill provided for the restructuring of the sector, and in particular the unbundling of the RSEB into five entities – a generating company (RVUN), a transmission company (RVPN), and three distribution companies. The Act also strengthened the role of the Rajasthan Electricity Regulating Commission (RERC).

1.8 The Bank played a significant role in supporting these reforms through its policy dialogue with the GOR and power sector entities. Its engagement in Rajasthan was not an isolated exercise. It stemmed from more widespread Bank support for improved power sector performance at the State level through unbundling of the State Electricity Boards, enhancing service quality, especially in rural areas, creating independent regulatory systems, strengthening payment discipline, and financial recovery. By the time the RPSRP was appraised, similar projects were already ongoing in four other states – Orissa, Haryana, Andhra Pradesh and Uttar Pradesh. Rajasthan was to be the last. Their approval and closing dates and outcome ratings are summarized in Table 1.1.

Table 1.1 The Five Bank-Supported State Power Sector Restructuring Projects

Name of Project	Approval date	Date of Closure	Outcome Rating (according to ICR)	Outcome Rating (according to IEG ICR Review)
Orissa PSRP	05/14/96	06/30/04	Unsatisfactory	Unsatisfactory
Haryana PSRP	01/15/98	12/31/00	Unsatisfactory	Moderately Unsatisfactory
Andhra Pradesh PSRP	02/18/99	08/31/03	Satisfactory	Satisfactory
Uttar Pradesh PSRP	04/25/00	12/31/04	Unsatisfactory	Unsatisfactory
Rajasthan PSRP	01/18/01	06/30/06	Moderately Satisfactory	Moderately Unsatisfactory

1.9 The objectives of the five projects were similar, though not identical. In all five, power sector technical and financial recovery was the anticipated result of unbundling and prospective privatization. While technical progress has been variable, in none of the five has private sector participation in distribution or transmission materialized, nor has sustainable financial recovery been achieved.

2. The Project

Project Objectives

2.1 The development objectives (PDO) of the RPSRP, as stated in the PAD and Loan Agreement, are as follows:

“(a) to support the ongoing power sector reform process in Rajasthan leading to higher sector efficiency and financial recovery; and (b) to improve power supply by removing the critical bottlenecks in the power distribution and transmission system.”

2.2 This was to be achieved through: (a) the establishment of a fully functioning electricity regulatory commission; (b) the satisfactory implementation of a financial restructuring plan, resulting in the financial recovery of the five successor companies to the RESB by FY2005¹¹; and (c) private participation in distribution by having strategic investors in place by end-2002. Investments in the transition and distribution systems would result in improved voltage levels, reduced outages and technical losses, and increased energy availability in the service areas affected by the investments. The investments financed by the project (some of them pilot schemes) were intended to be only a relatively small fraction of the total investment to be undertaken by the utilities, and especially the distribution companies benefiting from private investment, over the life of the project.

Project Components and Costs

2.3 Project components, with their costs at appraisal and closure, are shown in table 2.1, while table 2.2 shows the financing. With regard to the latter, the project was able to utilize US\$166.2 million of the total loan amount of US\$180 million. The balance of US\$13.8 million was cancelled.

¹¹ The financial years referred to in this report are, unless otherwise indicated, those of the Government of Rajasthan, i.e. April 1-March 31.

Table 2.1 Project Components and Costs

Component	Description	Cost (US\$ million)		Closure cost as percentage of Appraisal cost
		<i>At Appraisal</i>	<i>At Closure</i>	
A. Loss reduction	A.1. Procurement of transformers and distribution materials to replace poorly planned distribution systems, especially in rural areas, characterized by inefficiently lengthy, low tension lines, with more frequently spaced, smaller transformers, power factor correcting capacitors, and high tension lines capable of carrying larger loads with small conduction losses. A.2. Replacement of bare conductors on low tension lines by insulated aerial bunched cables to reduce non-technical losses	46.7	52.5	112
B. Transmission and distribution system	B.1. Expansion and improvement of the networks to supply about one-third of the additional 750,000 consumers expected during the project period, incorporating (a) new and improved 33,000 volt (33kV) substations and lines to reduce technical losses and improve system reliability; and (b) new and improved 220 and 132 kV substations, along with new and extended associated transmission lines. B.2. Maintenance (long delayed) and modernization of existing substations.	153.0	148.2	97
C. System and consumer metering	C.1. Replacement of 300,000 error-prone, easy-to-interfere-with mechanical meters by modern, accurate, tamper-proof, static (electronic) static meters. C.2. Inter-company boundary metering to measure power and energy exchanges. C.3. Metering to record and allocate the aggregate energy used by the consumers connected to each of Rajasthan's 8,400 11kV feeders.	13.6	14.8	109
D. Technical assistance	This component aimed to strengthen the capacity of the regulating and operating entities to adapt to the new business environment. Consultancy services were to be provided for (a) management of the reform process; (b) institutional development of the transmission company and the RERC; (c) the formation of joint venture distribution companies; (d) a socio-economic study of the impact of the sector reforms; (e) off-grid renewable energy development for remote areas of the State; (f) management of power sector impacts on the environment; and (g) demand-side management and energy efficiency initiatives which were to be cofinanced by a USAID grant of US\$2 million.	7.7	5.6	73
D. Information and dissemination	This component aimed to support a public information campaign to increase public awareness and acceptance of the sector reform program. It was to finance strategy, media campaigns, and the organization of workshops and meetings with the general public.	0.5	0.2	40
TOTAL		221.5	221.3	100

Table 2.2
Project Financing (US\$ millions)

Source of funding	Type of financing	Appraisal	Actual	Percentage of appraisal
Borrower's own resources		60.0	32.7	59.0
Local commercial banks	Loan	24.8	25.0	100.8
USAID co-financing	Grant	2.0	1.2	60.0
IBRD	Loan	180.0	166.2	92.3
TOTAL		266.8	225.1	84.4

Notes: The total financing requirement include IBRD's front end fee of US\$1.8 million and, at appraisal, interest during construction, which was estimated at US\$45.1 million.

Source: ICR

3. Implementation

3.1 No significant problems arose during implementation of the investment components. The procurement and installation of meters was successfully completed. This, in turn, enabled the distribution companies to identify the 100 worst 11kV feeders, which were made the initial target of a Feeder Renovation Program applying the "LT-less" concept¹². The targets for the reinforcement and expansion of the transmission and distribution systems were exceeded.

3.2 Although procurement was generally satisfactory, some issues arose. Complaints and delays were caused initially by differences between the procurement procedures of the former RSEB and those applicable in a Bank project. Several of the 55 packages prepared during appraisal and launched after approval contained lot sizes that were too large for Indian manufacturers, who were both the most likely source for much of the equipment, and often the only interested bidders. Arranging smaller packages so as to ensure such firms are not impeded from tendering would not hamper international competitive bidding, since international suppliers would be at liberty to bid for an entire package of lots. Mis-procurement was declared for a total of \$2 million worth of minor works (since Bank procedures had not been followed), and this amount was canceled from the loan.

3.3 Client agencies, especially the transmission company, reported to IEG that the technical assistance (TA) provided under the project was useful. The State had already made considerable progress with the reform program prior to appraisal – in particular, the unbundling of RSEB was largely complete. The TA was, therefore, able to build on this to provide a variety of benefits in the form of institutional strengthening of the unbundled entities and design of new systems and procedures.

¹² That is, the systematic replacement of long, low tension lines by low loss, high voltage lines augmented by appropriately sized and more frequently located transformers.

3.4 Two closely linked issues which rapidly arose during implementation were the multi-year drought in Rajasthan and the covenanted privatization of the distribution companies¹³. The former had a strongly deleterious impact on the sector's financial situation, discouraging private participation in distribution. Prevailing conditions in both the Indian and international markets had, moreover, become unfavorable to the privatization of distribution assets. The Rajasthan counterparts wanted, nevertheless, to continue pursuing the goal with a rewording of the Project Agreement to the effect that they would endeavor to achieve it by project closure. However, the text they proposed was not enforceable as a covenant, and the covenant was, therefore, deleted. In the opinion of the supervision team's legal adviser, "one of the objectives of the Project is to assist in the implementation of the power sector reform program and the program includes several aspects in addition to privatization of distribution. Therefore, deleting the privatization covenant will not materially affect the project objectives. Hence, the decision to delete the covenant may be made at the level of the Country Director." This conclusion was, in IEG's view, justified because, first, private participation in power distribution elsewhere in India had not resulted in improved transparency, accountability, or efficiency; and, second, Rajasthan's power sector had introduced alternative forms of private participation such as out-sourcing of billing, metering and the operation and maintenance of sub-stations, while attempting to encourage franchising in rural areas. Moreover, the objective had become unattainable. IEG considers, however, the inclusion of the covenant in the first place to have been inappropriate.

Safeguards

3.5 The project was selected as one of about 30 case studies providing input to an evaluation of the application, efficacy and efficiency of World Bank safeguards policies. These policies aim to prevent and mitigate undue harm to people and their environment, increase project efficacy and development impact, and provide a platform for stakeholder participation in project design and implementation.

3.6 *Design.* The project was placed in Environmental Category B. Environmental Management Plans (EMP) were prepared in line with the Environmental Framework and Safeguards Management Plan agreed with the Bank during appraisal. A beneficiary survey was also planned.

¹³ The covenant (Section 2.07 of the Project Agreement) states that "Rajasthan shall [with the participation of the three distribution companies], no later than July 1 2002, offer at least a majority of its equity in each such distribution company for sale to the private sector under terms and conditions satisfactory to the Bank with the objectives of divesting such equity and transferring management control in accordance with a program and timetable for divestment satisfactory to the Bank."

3.7 **Implementation.** Supervision missions kept regular track of compliance with environmental safeguards. The environmental management framework developed at appraisal was used for all the major transmission schemes financed under the project. The same framework has been incorporated by the transmission company into their project planning and implementation. The ICR suggests that there was room for improvement in monitoring and reporting of EMP implementation at the level of individual investments, but the company has since addressed this, and in early 2008 obtained ISO 9000 certification.¹⁴ Outside the transmission company, the Bank’s environmental safeguards appear to have had little impact on the sector and there is no capacity to ensure continuity. The ICR states that “the Distribution companies are working on ... integration of environmental management measures in their project planning and implementation.” However, there is no Environmental Unit in the companies to assume responsibility for this.

3.8 No resettlement was associated with the project, but there was a relatively small amount of land acquisition for new and expanded substations. Although compensation was paid, this was done in accordance with India’s social policy legislation (which, *inter alia*, does not provide for compensation for non-title-holders) rather than World Bank safeguards policy. This was considered acceptable by the Bank’s supervision team since there was no resettlement associated with the project. The planned beneficiary impact survey has not yet been carried out, and there appears to be little intention to do so. This is unfortunate, since lessons from other States show that communication with all stakeholders is important for building consensus for reform. Bank supervision missions did not include any social development experts and, *de facto*, stopped monitoring this safeguards dimension in the last two years of implementation.

4. Monitoring and Evaluation

Design

4.1 Project preparation took place between 1998 and 2000, before it was common practice in the Bank to give serious attention to Monitoring and Evaluation (M&E) in all sectors, but even by the standards of that time design was weak. There is no systematic translation of broad project objectives into quantifiable targets, with a clear causal chain and hierarchy between them, and no analytical framework for assessing the achievement or otherwise of objectives. Indeed, quantifiable targets are few and far between, being confined to progress in metering and annual collections. For example, goals such as “loss reduction” or “improved revenue generation” are included in the performance indicators table in the PAD without any measurable indicator attached to them or any way of assessing the extent to which achievements might be attributed to the project. There are no indicators of the quality and reliability of power supply, or of the independence or predictability of regulation. Except for (with hindsight, highly unrealistic) assumptions of a 26 percent annual increase in

¹⁴ According to the ICR, the transmission company was aiming for ISO 14001 certification, but the IEG mission was informed that ISO 9000, which they have obtained, is considered adequate for the purpose of environmental impact analysis.

agricultural, and a 10 percent annual increase in non-agricultural, tariffs, the PAD contains little quantified discussion of tariff policy and there are no tariff-related performance indicators.

Implementation

4.2 The weakness of M&E design reflects in part insufficient baseline data. These were impossible to define at appraisal due to the unbundling of the sector, and it was agreed in negotiations that they would be finalized during the first few months of implementation. In the event, it took almost two years for the distribution companies to collect the information since data could only be made available through boundary metering¹⁵ which was installed by the companies following their creation. As time went on, the timeliness and quality of the data collections improved. Additional indicators were added at the Mid Term Review (MTR).

4.3 Although the ICR contains some useful statistics on the implementation of distribution and transmission improvements, as well as on the sector's financial performance, its log-frame makes little further use of the data collected. The latter contains four development objective indicators and one intermediate indicator, reflecting the model in the PAD. All are general and largely non-quantified. Further research by IEG was, therefore, undertaken to determine State-wide progress of such key indicators as number of customers, percentage of coverage, quality of service and regulatory performance.

Utilization

4.4 During project implementation, the data base of indicators for managerial and financial planning services gradually improved, although there was no electronic data base or management information system. A consultancy contract for establishing such a data base and system was designed before project closure but implemented afterwards. The system was ready for use by the end of 2007. While it is being used for internal planning purposes within the transmission and distribution companies, including for decision-making concerning further system improvements, there is room for improvement in dissemination. The quality of the websites of the State Energy Department and of the five power companies is variable. The transmission company's site contains reasonably up-to-date technical and financial information. The distribution companies' sites, by contrast, contain relatively little technical or financial data and the general information that is there is somewhat out-dated. The Department's website contains little data after 2006.

4.5 The IEG mission was, nonetheless, provided with extensive information which not only shows that it exists but that it is available at least for internal utilization and planning purposes. Overall, IEG rates the design, implementation and utilization of M&E as *modest*.

¹⁵ Boundary metering is provided to ensure an accurate measure of energy crossing the boundary between the jurisdiction of one Distribution Company and that of another. This is required for accurate billing and for loss management and monitoring within each network.

5. Project Outcomes

5.1 This Section reviews the outcomes of the project in accordance with its development objectives – (a) to support the ongoing power sector reform process in Rajasthan leading to higher sector efficiency and financial recovery; and (b) to improve power supply by removing the critical bottlenecks in the power distribution and transmission systems. For greater clarity and ease of analysis, the sub-objective of higher sector efficiency is considered together with removing bottlenecks to improved power supply rather than with financial recovery. These are closely connected and directly related to the physical investments and associated enhancements which the project supported. The financial recovery objective is considered separately. The overall assessment of the project outcome is given in Section 6 which discusses ratings.

Removal of Critical Power Supply Bottlenecks in Distribution and Transmission and Enhanced Sector Efficiency – Substantially Achieved

Distribution

5.2 The project was successful in assisting Rajasthan to address systemic bottlenecks and inefficiencies in the distribution system, which led to poor service quality for existing customers through overloading and impeded the expansion of the system for new consumers, notably in the rural areas. These bottlenecks also contributed to substantial inefficiencies, especially high technical and non-technical system losses. Specifically, the project supported the initial stages of the Feeder Renovation Program (FRP) and its associated metering plan, targeted especially to rural areas. During the project's implementation period (2001-2006), a total of just under US\$106 million was spent on the FRP (including metering), of which the project contributed US\$67.3 million, or about two-thirds. Between project closure and March 31 2009, the State and the distribution companies went on to invest a further US\$531 million on the program, reducing the project's share to just over 10 percent. By that latter date, the FRP had reached 73 percent of the State target number of new rural feeders, while the number of villages benefitting had reached its target of 36,494. Progress in the program's implementation is shown in Table 5.1, while the project's direct contribution to distribution system investments is shown in Table 5.2.

Table 5.1: Rajasthan: Progress in Implementation of Feeder Renovation Program (FRP)

Distribution company	No. of rural feeders renovated			No. of villages benefiting		Installation of meters (nos.)	
	<i>Final target</i>	6/30/06*	3/31/09	6/30/06*	3/31/09	6/30/06*	3/31/09
Jaipur	2,468	451	2,125	5,580	13,117	40,000	538,424
Ajmer	2,975	198	1,970	573	12,529	31,952	596,317
Jodhpur	3,407	496	2,377	1,257	10,848	367,836	480,868
Rajasthan	8,850	1,145	6,472	7,410	36,494	439,788	1,615,609

Distribution company	No. of small transformers installed		Aerial bundled cables (ABC) utilized (km.)		Capital expenditure on FRP (Rs. millions)	
	6/30/06*	3/31/09	6/30/06*	3/31/09	6/30/06*	3/31/09
Jaipur	3,938	59,346	3,413	22,989	3,540	13,930
Ajmer	4,514	52,526	1,451	32,738	400	10,320
Jodhpur	9,673	28,184	4,785	23,468	930	5,060
Rajasthan	18,125	140,156	9,649	79,194	4,870	29,310

* Project closure

Sources: 2006 data from ICR; other information from distribution companies.

5.3 The main focus of the project was in insulated aerial bunched cables (ABC)¹⁶ and in the rehabilitation and extension of the 33/11 kilo-volt (kV) substations. In all other distribution related items, it was directly responsible for less than 15 percent of the expansions (Table 5.2). In IEG's view, however, the project's favorable impact on the program's development was much greater than might be suggested by its small share of the financing and of most of the physical investments. It was the main source of funding for a pilot program in eight districts in which 100 of Rajasthan's worst feeders were located. Prior to the pilot, the project had also financed the procurement and installation of meters on about 98 percent of Rajasthan's 8,400 11kV feeder lines. This enabled the distribution companies to attribute losses and identify the worst feeders for the pilot program. The pilot demonstrated that the "low-tension-less" approach could be successful. It enabled the distribution companies to understand and resolve the numerous and complex technical problems involved, and the difficulties of managing the extensive FRP. Based on the lessons from this experience, the three companies began to implement the FRP proper, starting with 1,125 feeders. Most of these had been completed by project closure. The project thus played a key role in justifying the concept of the FRP and laying the groundwork for the installation of the remaining 7,705 feeders.

¹⁶ These make illegal consumer connection impractical – an important consideration, especially in remote rural areas.

Table 5.2: Expansion and Enhancement of Rajasthan’s Distribution Network and Related Facilities Financed by the Project and from All Sources During Project Implementation (2001-2006)

Facility	Unit	Financed by the project	Total expansion	Percentage financed by the project
New and capacity-augmented 33/11 kilo-volt (kV) substations	Numbers	583	1,113	52.4
	Mega-volt amperes (MVA)	814	3,769	21.6
33 kV lines	Kilometers	580	6,376	9.1
33 kV capacitor banks	MVA	175	603	29.0
11/04 kV substations	Numbers	13,800	121,536	11.4
11 kV lines	Kilometers	5,950	43,087	13.9
Low tension lines	Kilometers	2,950	24,279	12.1
Meters	Numbers	511,100	4,605,130	11.1
Aerial-bunched cables	Kilometers	10,000	12,398	80.7

Source: Distribution companies

5.4 The ICR anticipated that the costs per feeder of the expanded program would be lower than those of the initial phases given that the distribution companies renovated the worst feeders early on. This diminishing unit cost has not yet materialized – the cost per feeder of the first 1,145 feeders was Rs.4.25 million while the subsequent 5,327 feeders cost Rs.4.59 million each (although this does represent a small decrease in real terms). The ICR, however, also noted that construction standards need to be improved if the FRP is to produce sustained results. The IEG mission was informed that higher standards are now being applied, and this may account for part of the unanticipated higher unit costs.

5.5 The project financed a major portion of the inter-company boundary metering which was completed during implementation. The original target of 750,000 electronic static meters was well exceeded, and nearly 4.5 million had been installed by project closure. The expansion of metering has continued since, especially in the rural areas, where an additional 1.2 million were installed between 2006 and 2009.

5.6 The implementation of the feeder renovation and metering programs had already resulted in a 30 percent drop in average distribution losses, a 30 percent increase in billed energy, and a reduction in the rate of transformer burn-outs of 10 percent or more by project closure. The financial return on the FRP is, therefore, substantial. The ICR calculated, and IEG confirms, that the capital and operating expenditures in the first phase of the program would be paid back within a maximum period of 3.5 years.

5.7 While these results are encouraging, distribution losses, at 26.8 percent, remain high by international, if not by Indian, standards¹⁷.

Transmission

5.8 Rajasthan has accomplished a major reinforcement and expansion of its transmission system since 2001. The growth in the extra high voltage (EHV) network is particularly impressive (Table 5.3).

Table 5.3: Growth in the EHV Network of Rajasthan’s Transmission Company Since 2001

Facility	Unit	As on 3/31/01	As on 3/31/07	As on 5/31/09
400 kilo-volt (kV) lines	Kilometers	287	620	1,358
400 kV substations	Number	1	4	4
400 kV capacity	Megavolt-amperes (MVA)	1,065	2,955	2,955
220 kV lines	Kilometers	6,353	8,418	9,420
220 kV substations	Number	39	54	65
220 kV capacity	MVA	7,255	10,405	12,155
132 kV lines	Kilometers	9,941	12,017	12,853
132 kV substations	Number	175	259	281
132 kV capacity	MVA	7,420	11,830	14,469

Source: Transmission Company

5.9 Although transmission was the largest component of the project (US\$148.2 million out of US\$221.3 million), it financed only a small proportion of Rajasthan’s total program (Table 5.4). The main focus of the project was on the rehabilitation and extension of the 220 kV and 132 kV substations where it funded 31.3 percent and 45.3 percent of the improvements. However, IEG shares the transmission company’s view that the benefits of the project were, once again, more than the share of financing would imply. The high standards of the procured materials and construction work served as a model for the company’s main expansion program, and a great deal was learned about procurement and asset management as a result of the experience of working with the Bank.

¹⁷ In 2007, the latest year for which comparative data is available, Rajasthan’s losses of 30.1 percent were lower than the 35.3 percent Indian national average of States which had carried out sector unbundling reforms. The averages for the other reforming States which had received Bank support were: Maharashtra 39.5 percent, Andhra Pradesh 18.6 percent, Haryana 31.6 percent, Orissa 39.6 percent, and Uttar Pradesh 45.5 percent.

Table 5.4: Expansion of Rajasthan's Transmission Networks Financed by the Project and from All Sources during Project Implementation (2001-2006)

Facility	Unit	Financed by the project	Total expansion	Percentage financed by the project
220 kV lines	Kilometers	49	1,790	2.7
220 kV substations and extensions	Number	800	2,550	31.3
22 kV capacity	Mega-volt amperes (MVA)	100	1,450	6.9
132 kV lines	Kilometers	272	1,536	17.7
132 kV substations and extensions	Number	586	1,295	45.3
132 kV capacity	MVA	275	1,800	15.3

Source: ICR and Transmission Company.

Overall Sector Outcomes

5.10 Since project approval, Rajasthan's power sector has seen considerable expansion and improvement, though key challenges – notably power shortages and acute financial weakness -- remain. An overview is given in Table 5.5. The main outcomes of the investments in improved transmission and distribution have been (i) improved voltage levels (27 percent since 2001); (ii) reduced transmission losses (24 percent down); reduced distribution losses (30 percent down), increased net availability of power (plus 65 percent), thereby providing a more reliable and higher quality service to a consumer population which has risen by 47 percent. Also noteworthy are the 58 percent increase in installed capacity (Table 5.4) and the quadrupling of energy sales.

Table 5.5: Rajasthan: Installed Generating Capacity (MW)

A. By Source of Supply	2001	Percent	2009	Percent	Percentage increase 2001-2009
State generating company (RVUN)	1,302	32.1	2,382	37.1	82.9
Central generation allocation	1,805	44.5	1,975	30.7	9.4
Partnerships	949	23.4	973	15.1	2.5
Wind farms and biomass	--	--	693	10.8	--
Others	--	--	403	6.3	--
Total	4,056	100.0	6,426	100.0	58.4
B. By Source of Power					
Thermal	2,598	64.1	3,837	59.7	47.7
Hydro	1,116	27.5	1,394	21.7	24.9
Nuclear	342	8.4	469	7.3	37.1
RES	n.a.	0.0	726	11.3	n.a.
Total	4,056	100.0	6,426	100.0	58.4

Sources: PAD and Rajasthan Department of Energy.

5.11 Despite these improvements, Rajasthan still faces a serious demand/supply imbalance. Peak demand has risen by 72 percent since 2001, while over the same period per capita electricity consumption more than trebled from 302 kWh to 932 kWh per year. Between 2001 and 2006, net availability kept pace with peak demand, but since 2006, the latter has outstripped the former by 5 percent. The persistent imbalance is principally attributable to (i) higher than anticipated demand growth; (ii) continuing high distribution losses especially in rural locations; (iii) reduction in hydro output due to climatic factors; and (iv) the long time required to bring new generation capacity, whether public or private, on stream. The imbalance has two main negative consequences. First, while load shedding has considerably diminished since the early years of this decade, it still occurs, especially in periods of maximum demand just before the monsoon. The distribution companies no longer have scheduled blackouts. Although, in one sense, this indicates an improvement, commercial and industrial consumers complain that the unscheduled interruptions to power supply which now occur are more damaging for their operations. Second, Rajasthan's power utilities are forced to purchase increasingly expensive energy from India's interstate wholesale market.

Table 5.6: Rajasthan: Growth in Electricity Infrastructure, Demand and Supply 2001-2009

Financial year	FY01	FY06	FY09
Number of consumers	5,601,438	6,721,513	8,257,866
Number of agricultural and rural consumers	2,012,274	2,670,841	3,044,922
Percentage rural and agricultural	35.9	39.7	36.9
Peak demand (MW)	3,547	4,822	6,101
Net installed capacity (MW)	4,056	5,453	6,426
Gross energy availability (MU)	22,498	35,496	78,350
Energy sales (MU)	13,923	21,682	52,695
Net energy availability (MU)	23,580	31,803	38,871
High tension/Low tension ratio	0.86	0.95	1.09
Distribution losses (%)	38.1	40.2	26.8
Transmission losses within State (%)	5.8*	4.6	4.4
Kutir Jyoti connections (number)**	124,034	259,248	789,758
Peak deficit (%)	-1.2	-13.2	-12.7***
Energy deficit (%)	-1.0	-3.7	-3.1***

Notes: * FY02

** Kutir Jyoti is a Central Government financed program supporting the connection of rural households who live below the poverty line. In April 2005, it was subsumed under the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) rural electrification program.

*** FY08 (FY09 data unavailable).

Sources: GOR Department of Energy, power sector companies.

Financial Recovery of the Power Sector – *Negligibly Achieved*

5.12 **The project objective of financial recovery has not been achieved.** After a period in which it appeared – as reported in the ICR – that financial losses were starting to come down, they exploded once again from FY07 onwards to higher levels than ever (Table 5.6). In FY09, the annual deficit of Rs.45.8 billion (about US\$1 billion) amounted to 2.5 percent of the State’s GDP, while the accumulated loss of Rs.190.7 billion (US\$4.2 billion) was equivalent to Rs.3,376 (US\$73) for every Rajasthani, or roughly 10 percent of average annual income. This is the highest deficit ever recorded for the State’s power sector.¹⁸

Table 5.7: Rajasthan: Financial Losses of the Distribution Companies Since Unbundling (Rs. millions)

Financial year	As per PAD	As per FinRP of August, 2003	As per FinRP of November, 2005	Actual	Accumulated Actual Losses
2001	12,480	8,200	8,200	8,200	8,200
2002	10,130	12,910	12,190	12,190	20,390
2003	5,730	15,880	15,830	15,830	36,220
2004	1,710	15,170	17,330	17,330	53,550
2005	-230	9,700	23,230	20,140	73,690
2006	-240	8,500	15,300	16,290	89,980
2007	-250	2,390	12,050	17,410	107,390
2008	-270	n.a.	7,420	37,510	144,900
2009	-300	n.a.	5,570	45,820	190,720
2010	-330	n.a.	-240	n.a.	n.a.
2011	n.a.	n.a.	-2,310	n.a.	n.a.
2012	n.a.	n.a.	-6,820	n.a.	n.a.

Notes: 1. *FinRP = Financial Restructuring Plan*

2. *Negative figures indicate surplus*

3. *Losses are before subsidy*

4. *Actual figures for FY08 and FY09 have still to be audited and are, therefore, provisional.*

Sources: ICR and distribution companies.

5.13 For greater clarity, it is useful to divide discussion of the sector’s ongoing financial weakness into two periods – project implementation between 2001 and 2006, and the period since project closure in mid 2006. According to the financial restructuring plan (FinRP) contained in the PAD,¹⁹ and described in that document as “conservative,” the distribution

¹⁸ The financial losses are focused on the distribution companies. The tariffs between the transmission company and the generating sources (whether in or out of State) are regulated in a way which allows both roughly to break even. Only the distributing companies are not permitted to pass on their higher costs to the consumer.

¹⁹ This was based on a FinRP prepared and approved by the GOR in March, 2000. The plan provided for a clean-up of RSEB’s balance sheet, offset cross debts between the GOR and RSEB, and canceled remaining debts, thereby liberating the five companies created through the unbundling from any debt overhang.

companies were to break even in 2004 and be rapidly privatized. These expectations were predicated on (i) real tariff increases for agricultural consumers of 26 percent per year and for other consumers of 10 percent per year for the period 2001-2004; (ii) a rapid decline in distribution losses, which were to reach 22 percent by FY07; and (iii) financial support from the GOR in the form of a one-time restructuring grant of Rs.31.1 billion, plus a further Rs. 24.5 billion in ongoing subsidies during the transition period.

5.14 In fact, none of these conditions materialized. There was some improvement in non-agricultural consumer tariffs, which were increased by 13.6 percent in FY02 and by a further 10 percent in FY05 (Table 5.7). However, this fell far short of what had been expected at appraisal. Agricultural tariffs, which apply to almost 40 percent of the State's total number of consumers, rose gradually from an average of about Rs.0.55 per unit in the late 1980s to about Rs.0.95 (roughly two US cents) per unit after a final adjustment in December 2004, since when they have not been increased. During project implementation, Rajasthan was struck by a series of droughts or poor monsoons. Together with low ground water, these substantially increased farmers' power needs by requiring both greater pump capacity and more irrigation to save crops. The GOR reacted to the drought with (i) a rapid, and previously unplanned, expansion in the number of heavily subsidized agricultural connections; (ii) additional hours of below-cost power for all connected rural consumers in order to save crops; and (iii) a directive to the distribution companies after December 2004, to base collections on the previous rather than the revised tariff for a period pending the determination of additional subsidies. In addition, intensified anti-theft and stronger policing measures, which were meant to accompany the technical improvements to the distribution system, were not applied. It should, however, be noted that the drought was not the cause of the continued financial difficulties faced by Rajasthan's power sector; rather, it aggravated the consequences of a policy stance favoring heavy subsidies for agricultural consumers that existed, and continues to exist, independently of it.²⁰ The political leverage exercised by the farming community in Rajasthan is extremely important, particularly by the richer farmers who use more electricity and who are the principal beneficiaries of State power subsidies. The political difficulties in adhering to a more rigorous tariff policy were exacerbated by the practice in neighboring States of providing free power to rural consumers.

²⁰ Project Appraisal Document; interviews with Distribution Company and GOR officials. The average costs of delivering power to rural consumers was about Rs.7 per unit in FY09, while the average tariff was about Rs.0.95. The actual subsidy disbursed falls far short of filling this gap (see paragraph 5.20 below).

Table 5.8: Rajasthan: Average Non-Agricultural Consumer Electricity Tariff Adjustments (percent)

Financial year	Foreseen in PAD	Foreseen in FinRP, August, 2003	Foreseen in FinRP, November, 2005	Actual
2001	10	0	0	0
2002	10	13.6	13.6	13.6
2003	10	0	0	0
2004	10	0	0	0
2005	2	12	10.2	10.2
2006	2	5	0	0
2007	3	8	0	0
2008	n.a.	n.a.	0	0
2009	n.a.	n.a.	0	0
2010	n.a.	n.a.	8	n.a.
2011	n.a.	n.a.	0	n.a.
2012	n.a.	n.a.	0	n.a.

Sources: PAD, ICR and distribution companies.

5.15 Distribution losses, rather than improving, in fact worsened during the first years of project implementation, and peaked at 42.6 percent in FY03 (Table 5.8). Moreover, the finances of the distribution companies were adversely affected by the increasing tendency of industrial consumers, whose distribution losses were minimal, to invest in their own captive generation in response to the unreliability and increasing cost of publicly-provided power. Regarding the financial support from the State, this also failed to materialize to the extent required. The consequences of Rajasthan's fiscal weakness were, in fact, foreseen in the PAD. Unlike the Governments of several other reforming States, the GOR did not have the capacity to shoulder the major part of the costs of transition towards creditworthiness, and had little room for rescheduling debt and payables. Given the gap between the requirements of the sector during the first six years of project implementation, and the financial capacity of the Government, it was clear that "the financial viability of the [FinRP] hinged upon new investments by private shareholders in the distribution business" (PAD, p. 20).

Table 5.9: Rajasthan: Transmission (T) and Distribution (D) Losses (percent)

Financial year	T&D losses as foreseen in PAD	T&D losses as foreseen in 2003 FinRP	Distribution losses as foreseen in 2005 FinRP	Actual distribution losses
2001	40.6	42.0	n.a.	37.2
2002	38.2	39.5	n.a.	40.0
2003	35.7	40.9	n.a.	42.6
2004	32.3	37.9	n.a.	41.1
2005	28.2	34.8	40.3	40.2
2006	25.1	31.6	37.3	34.7
2007	22.0	27.9	33.3	30.1
2008	n.a.	n.a.	29.8	26.8
2009	n.a.	n.a.	26.6	26.8
2010	n.a.	n.a.	23.9	n.a.
2011	n.a.	n.a.	21.6	n.a.
2012	n.a.	n.a.	20.0	n.a.

Note: Actual figures for FY08 and FY09 are provisional.

Sources: PAD, ICR, transmission and distribution companies

5.16 It soon became apparent that the FinRP approved at appraisal was unrealistic. A new plan was approved by the GOR in August, 2003. It envisaged a break-even point by FY07, and hinged upon (i) a reduction in distribution losses to 28 percent by FY07; (ii) increasing the agricultural tariff to 50 percent of the cost of supply (i.e. to roughly Rs.2.5 per unit at the time); (iii) non-agricultural tariff increases of 12 percent, 5 percent and 8 percent in FY05, FY06 and FY07 respectively; (iv) annual financial support of Rs.4 billion from the GOR plus allowing the distribution companies to retain the sales tax on electricity through FY12; and (v) allowing the generation and transmission companies to break even through FY05 and to earn a return thereafter.

5.17 The preconditions for the success of this FinRP were not met. Agricultural tariffs were not increased, while non-agricultural tariffs rose by only 10.2 percent. Distribution losses remained stubbornly high at over 40 percent in both FY04 and FY05. Accordingly, the FinRP was further revised by the GOR in November, 2005. This time, the emphasis was switched from tariff increases (in particular, no augmentation of agricultural tariffs was assumed) to enhanced efficiency and reduction of technical and non-technical losses. The plan foresaw a sector break-even point in 2012 with substantial improvement already apparent in FY09. No further revisions have been made, and this plan remains theoretically under implementation.

Developments since Project Closure

5.18 The ICR, which was issued in January 2007, states that, while the financial state of the sector is still unhealthy, the 2005 FinRP was being implemented and that the deficit was beginning to fall. Indeed, the FY05 shortfall was less than that foreseen in the FinRP, and the FY06 loss, which fell by about 20 percent to Rs. 16.3 billion, only slightly more. As noted,

however, the respite was short-lived – losses rose again in FY07 before soaring to unprecedented levels in FY08 and FY09.

5.19 The major reason why the sector’s financial situation has deteriorated so markedly in the three years following project closure is the increased cost of power purchased by the distribution companies which they have been unable to pass on to consumers. Between FY07 and FY09, the average power purchase cost from all sources rose by 31 percent from Rs.3.53 to Rs.4.63 per unit. According to the companies’ management, this alone accounts for nearly three-quarters of the Rs.83 billion increase in the accumulated deficit during the three years ending in March, 2009. Much of the rest is the rising commercial debt servicing burden, which almost tripled to Rs.16 billion over the same period.

5.20 The increased cost of power reflects a combination of factors. First, due to climatic conditions, Rajasthan has been forced to rely less on its installed hydro capacity and more on relatively expensive thermal and renewable energy source (RES) power. The shares of each source in 2001 and 2009 are shown in Table 5.5. However, the figures in the table show theoretical capacity; because of drought conditions actual take-off from the hydro stations has been considerably less. Second, the demand/supply imbalance, especially at the peak, has increased markedly since FY06. This has forced Rajasthan to purchase power on the Indian wholesale market at prices that have been driven up by the general power shortage in the country. At times of national peak demand, which coincide roughly with maximum demand periods in the State, the ruling price has been as high as Rs.15 per unit, and has averaged Rs.8 per unit over the past two years. According to the State’s Energy Department, as much as 5 percent of total power consumption has to be acquired in this way. Third, much of the increased generating capacity within the State that was foreseen in the Tenth National Development Plan (2002-2007) failed to materialize due to perception of high financial and regulatory risks, delays in bidding procedures and obtaining clearances, and slow implementation. This is important because, while the cost of purchase from in-State generating facilities has also increased, it is, at about Rs.2.7 per unit in 2009, only 60 percent of the overall average unit costs incurred by the distribution companies.

5.21 Distribution losses, while improving, are still high by international standards and continue to impact negatively on distribution company finances. This is especially so in rural areas. In most urban zones, losses are at or below 15 percent, indicating an average loss for rural consumers of between 40 and 45 percent. Nonetheless, the improvements due to the FRP have benefited the distribution companies substantially – without them, accumulated losses would be at least Rs.40 billion higher according to company management.

5.22 There is a significant fiscal dimension to the power sector’s financial crisis. In each of the FinRPs, the GOR was supposed to grant subsidies to the distribution companies to compensate them for inadequate tariff adjustments and to help them finance the transition to commercial viability. At first, the support was provided in a timely manner. However, since the onset of the drought in 2002, the Government proved unable to sustain its payments in full. From FY02, the accumulated shortfall in subsidy payments rose from Rs.6.9 billion to Rs.55.2 billion in FY06. According to sector and GOR sources, it had reached about Rs.80 billion by the end of FY09. This is entered in the distribution companies’ balance sheets as “receivables” and is an asset. In fact, there is no possibility of the GOR ever being able to

pay this debt. Experience in other States (for example, Gujarat, Haryana, Madhya Pradesh, Uttar Pradesh) suggests that if the debt were to be written off as a one-time loss, this would not adversely affect the utilities' ability to raise commercial funds.

5.23 In the short-to-medium term, there would seem to be little realistic perspective of a financial turnaround for the sector, and the objectives of the 2005-2012 FinRP are virtually unattainable. Given India's growth prospects and electric power requirements, it would seem unlikely that energy costs will fall significantly nationwide. As for tariffs, the massive subsidization of agriculture electricity consumers is a fundamental national issue which remains to be addressed. In Rajasthan, it was a major topic of debate in the recent General and State Elections; the newly elected Chief Minister declared in June 2009, that agricultural tariffs would not be raised during his five-year term of office.

Other Project Outcomes

5.24 The project pursued a number of other objectives, which were to reinforce the two primary ones – strengthening of the regulatory function, further liberalization and commercialization of the power market, improved financial management of the utility companies, and increased private sector participation in distribution. Outcomes have been mixed.

5.25 **Regulation.** On the one hand, the RERC, which was established by an Act of the State's Parliament in 1998, has been strengthened. IEG confirms that it is fully-staffed and functional. The staff display good technical proficiency and there have been, to date, relatively few losses of key professionals. The Commission has autonomy of funding and manages its own budget. Its deliberations are complex and lengthy and involve public hearings. It has a good website. In these respects, the TA provided under the project has been fruitful. On the other hand, the RERC's ability to regulate the sector is in question. Its credibility has been undermined by four years without any consumer tariff adjustments and of mounting losses by the distribution companies. Adjustments have not been recommended, or even considered, by the Regulator, because the companies have been instructed by the political authorities not to file tariff increase requests. A further issue concerns the membership of the Commission. The 1998 Act establishes three Members – a Chairman, a Technical Member, and a Finance Member. All three offices have been simultaneously occupied relatively rarely. For several years consecutively there were two Commissioners at a time, and occasionally only one. Even when all three are in office, as of June 2009, questions are raised concerning the degree of independence enjoyed by the RERC.

5.26 **Liberalization of the power market.** In 2005, the RERC issued regulations permitting open access and trading in electricity, making Rajasthan the first State in India to introduce this liberalizing measure. In 2006, after the Government of India notified a change in tariff policy under the provisions of the 2003 Electricity Act, the RERC specified surcharge and wheeling charges²¹ for open access transactions. It has also established transmission charges (currently Rs.0.26 per kilowatt-hour) to facilitate transactions through the power exchange.

²¹ A wheeling charge is an amount charged by one electrical system to transmit the energy of, and for, another system or systems.

The intention is for consumers to benefit by enabling them to buy from whomever and wherever they wish. However, the opportunity has been used mainly by owners of captive generating plants selling surplus power, and few consumers have yet sought to purchase power from outside the grid. The reasons are the costs and restrictions attached to open access: (i) a surcharge²² must be paid on power not purchased from a distribution company; (ii) bill paying becomes considerably more complex and difficult to understand. Instead of the simple, uniform, unit charge from the distribution companies, consumers purchasing power from elsewhere are supplied in blocks of fifteen minutes. Any consumption over and above what is scheduled would be charged at the marginal price currently ruling in the wholesale market. Most companies would need to hire specialized staff to manage this complex scheduling and billing process; (iii) all power acquired must be for own use and cannot be resold;²³ (iv) most consumers in urban areas are satisfied with their current arrangements to purchase from the distributing companies whose service quality has improved in recent years; and (v) even were a customer dissatisfied with such arrangements, she/he would need to have a fairly large undertaking to support the costs of open access, and would likely prefer in such circumstances to acquire captive plant, any surplus from which could then be sold under the legislation. The fact that open access legislation has benefited only captive plant owners, all of whom sell to the highest bidder inside or outside the State, has caused some controversy at times of power shortage in Rajasthan.

5.27 Financial management of the power utilities. Partly thanks to the TA provided under the project and partly to the informal interchange with Bank staff during supervision missions, the transmission and distribution companies have notably improved the quality of their financial management. Recruitment of qualified professional staff helped the companies to cope with the transition from the Electricity Board system to corporate accounting. Incremental improvements continued throughout project implementation and, as a result, annual financial statements, asset registers, cost records, trust accounts etc. are produced and audited in a timely fashion. Real efforts have been made to follow audit recommendations. While some key financial decisions relating to debt management²⁴ remain centralized, most accounting functions have now been decentralized. Individual companies have autonomy concerning investments, borrowings, and expenditures. Nevertheless, IEG's assessment indicates further room for improvement. Public access to audited accounts is *de facto* limited – the latest set of full accounts available on line is for FY03. The accuracy of some of the non-financial data published (for example, on the number of villages benefiting from the rural electrification program) is viewed with skepticism by private sector and NGO observers. As noted in paragraph 3.17, a study of the social and economic impact of the reform program has not yet been carried out. Finally, while there has been a great improvement in the collection and use of financial and technical data for M&E purposes, the

²² The surcharge was fixed at Rs.0.91 per kilowatt-hour in 2007 but has been reduced by 20 percent each year thereafter to stand at Rs.0.36 in FY2010. Access charges are published on the RERC website.

²³ Purchasers are prohibited from constructing any distribution facilities, though they may possess their own dedicated line for receiving the power they have bought.

²⁴ The debts of the RSEB were very costly to service. Since unbundling, about Rs. 76 billion worth have been successfully rescheduled leading to savings of about Rs.6.5 billion.

Enterprise Resource Package, which was stated in the ICR to be under preparation, has not yet been completed, still less applied.

5.28 An important dimension of the financial management of utilities is the efficiency of bill collection. Rajasthan has traditionally had a good collections record, especially by Indian standards – the RSEB’s average during the three years preceding unbundling was allegedly 95 percent, though distribution company officials question the reliability of these figures. The collection efficiency of the distribution companies was adversely affected from FY03 through FY06 (Table 5.9) because (i) the GOR decided in November 2002, in view of the drought, to defer collection of minimum charges from agricultural consumers; (ii) agricultural consumers were billed at the revised tariff (in accordance with the tariff order of December 2004), but collections continued to be based on the previous tariff pending a review of agricultural tariffs and subsidies by a GOR committee; and (iii) non-payment by local and municipal authorities in rural areas. These issues were resolved from FY07 onwards.

Table 5.10: Rajasthan: Collection Efficiency of the Distribution Companies

Company	Average FY99-FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
RSEB	95								
Ajmer		101.5	98.2	96.5	96.4	94.0	100.0	98.0	97.0
Jaipur		99.5	99.6	99.4	98.6	97.4	99.0	99.0	99.0
Jodhpur		98.8	97.9	96.3	95.0	93.8	100.0	97.0	97.0
All companies	95	100.1	98.6	97.6	96.9	95.3	99.0	99.0	98.0

Notes: 1. Figures for FY09 are provisional

Sources: PAD, ICR and distribution companies

5.29 **Private Participation in Distribution.** The suppression of the covenant of a majority stake for strategic investors in the distribution sub-sector by 2002 was partly justified by the fact that progress had been made in introducing private participation in distribution in other ways, notably through the outsourcing of billing and collection, and the introduction of franchising in the rural areas. Billing has been entirely outsourced as has collection in most urban locations. This has, indeed, been successful as the degree of collection efficiency indicates. Any implication that this is largely attributable to the project is, however, erroneous. Outsourcing in urban areas was already very widespread under the RSEB before project implementation began, as the following quotation from the PAD indicates: “Billing is computerized and carried out by private firms under contract to RSEB. Collections are also carried out by outside agencies for the majority of urban locations” (page 57).

5.30 There is now a major question mark over the future of the policy to encourage franchising in rural areas. Very little interest has been expressed for a number of reasons: (i) few entities possess, or can afford to acquire, the necessary expertise; (ii) collection of utility bills in rural locations is difficult, time consuming and, at times, physically hazardous; and

(iii) franchising terms in Rajasthan are unattractive, especially given the risks involved. The franchisee is paid a fixed sum for collecting the revenues which accrue to the distribution companies²⁵. A target loss level is usually built into the contract, with bonuses and penalties attached to lower and higher losses respectively. There is a risk that the penalty would exceed the fee. The distribution companies and the GOR are exploring other possibilities, including giving responsibility for billing and collection to village councils.²⁶

6. Ratings

Relevance of Objectives and Design

Objectives

6.1 The project's development objectives – improved power supply through removal of critical transmission and distribution bottlenecks; enhanced sector efficiency; and financial recovery – were, and remain, substantially relevant. They are consistent with the aims of the GOR's Policy Statement of 1999 which laid out the power sector reform program as an essential precondition for the achievement of fiscal sustainability. They are also highly relevant to the 1998 CAS goals of reducing infrastructure bottlenecks by promoting power sector reform, involving independent and technically competent regulation, operation of commercially viable utilities in a competitive market, and creation of an enabling environment for private investment in the sector. These concerns were continued in the 2004 CAS, with others added to which the project is also highly relevant – in particular, reform of power distribution as the first priority for improving the commercial performance and financial viability of the power sector. The latest CAS – covering the 2009-2012 period – aims to create a well-regulated but competitive enabling environment, enhancing private sector participation in infrastructure development. However, as noted below, development objectives were too broad and ambitious given the realities of the political background in which the project would be implemented. Project outcomes were determined by factors over which neither the Bank nor its client exercised any control.

Design

6.2 Design relevance is rated as modest. While design was of a good technical standard, and focused on the sector's principal technical, institutional and financial constraints, it was over-optimistic in terms of what could be achieved within the framework, and with the leverage, of a single investment project. The covenanted objective of offering a majority

²⁵ This is different from the franchising model in operation in other Indian States under which the franchisee takes over the management of distribution assets for a designated time in an earmarked zone under a lease arrangement. Most zones chosen are those combining high consumption levels with high aggregate technical and commercial losses.

²⁶ Under Indian law, since 2007, franchising is mandatory for rural electrification schemes under the RGGVY (see Table 5.4). Franchisees could be NGOs, users' associations, cooperatives or individual entrepreneurs.

private sector stake in the distribution companies to private investors by July 2002 was especially unrealistic. Two key risks -- a severe, prolonged drought and rising power purchase costs -- were not taken into account at all. Others, such as the strength of resistance to tariff increases, were under-estimated. Overall relevance of objectives and design is rated as *modest* since, in IEG's view, the adverse consequences of design shortcomings outweigh the substantial relevance of the project's objectives.

Efficacy

6.3 Improvements in transmission and distribution have enabled increased power supply at a higher quality to a considerably larger number of customers. Efficiency improvements, while significant, have been less impressive. Although distribution losses have been reduced, they remain, at just over 26 percent, high by international standards. Billing and collection efficiency have been slightly enhanced, but were already at a satisfactory level before the project began. A serious demand/supply balance persists, particularly during peak periods. The regulatory function, while technically satisfactory, is institutionally weak and subject to political interference. Taken together, the objectives of improving power supply through removal of critical transmission and distribution system and enhancing sector efficiency have been achieved to a *substantial* extent.

6.4 Financial recovery has been *negligible*, and continued financial weakness threatens to undermine the gains from system investments. With hindsight, it is clear that it should never have been included as a PDO, and there was certainly a strong case for dropping it through a restructuring at the MTR stage, since, by then, the experiences of similar projects in other Indian States were becoming clear. As an investment operation, with the limited and realistic objective of improving the availability, efficiency and accountability of electricity supply in Rajasthan through strengthening the transmission and distribution systems, the RPSRP would have succeeded since this objective has been substantially achieved. As it is, the overall efficacy must be rated as *modest*.

Efficiency

6.5 The ERR for the investments financed by the project is estimated at closure to be 22 percent (39 percent for the distribution component and 18 percent for the transmission component). These rates are somewhat lower than the overall ERR of 35 percent calculated in the PAD, but remain well in excess of the estimated 12% opportunity cost of capital. The ERR is, moreover, based on a conservative value of Rs.2.5 for each unit saved through loss reduction. However, the ICR and the PAD are not measuring the same things. The rate of return in the PAD refers to the sector wide reform program and State-wide investments in improved transmission and distribution. For the ICR, it was felt, justifiably, that a State-wide analysis would have limited comparative meaning since there had been so many changes in the power supply scenario – in particular, many large industrial consumers had moved from the grid to captive power while successive droughts caused the utilities to provide more hours of supply to agriculture. The high level of economic efficiency must be set against the failure to achieve financial equilibrium. Overall, efficiency is rated as *substantial*.

Overall Rating

6.6 With relevance and efficacy rated modest, and efficiency substantial, IEG's overall rating is *moderately unsatisfactory*. The sector's financial weakness threatens to undermine the project's important technical achievements.

Risks to Development Outcome

6.7 The main risks to the positive outcomes of the project – enhanced transmission and distribution systems – stem from the financial precariousness of the sector, and in particular of the distribution companies. On a technical level, the utilities are demonstrating their ability to manage the transmission enhancement and the FRP together with the corresponding assets. At closure, the transmission and distribution companies provided the Bank with their detailed plans for operation and maintenance of the Bank-funded plant and equipment along with that funded from their own resources. These plans were judged to be satisfactory. However, the high financial losses of recent years pose a question mark over the ability to fund adequate maintenance and supplementary investment, even though the losses have not, to date, caused a significant slowdown in FRP implementation.

6.8 The key condition for longer-term sustainability is the financial turnaround of the sector. As noted in paragraph 5.19 of this report, there is little realistic prospect for this in the short-to-medium term since it depends, *inter alia*, on reducing power purchase costs through substantial investments in new generation and on a resolution of the agricultural tariff issue. Prospects are not, however, entirely negative. In Rajasthan it is unlikely that there will be backtracking on the unbundling and other institutional changes already achieved, or on the determination to complete the FRP successfully. There is, moreover, an ambitious investment program in new generation facilities within the State²⁷. At a national level, the momentum of power sector reform is being sustained, albeit at a slower pace than originally envisaged, and there are indications that States will be encouraged and assisted in the continuation of their restructuring programs. Overall, the risks to development outcome are assessed as *significant*.

Bank Performance

Quality-at-Entry

6.9 The project was not reviewed by the World Bank's Quality Assurance Group prior to approval. The ICR team judged it moderately satisfactory at entry. In IEG's view, however, Quality-At-Entry is rated as *moderately unsatisfactory*. On the one hand, the PAD contained a thorough and useful diagnosis of the technical and institutional issues facing the power

²⁷ For the 11th Five Year Plan Period, ending in 2012, it is anticipated that the net installed generating capacity of the State will increase by 4,260 MW or by 66.4 percent. 3,570 MW of this are to be within the State and 690 MW from central allocation. With the exception of 440 MW of nuclear power, all this will be thermal. Of the in-State additional capacity, 2,490 MW will be in the public sector and 1,080 MW in the private sector. Previous experience has shown similar plans to be over-ambitious and subject to considerable delays. However, all of the total increase in capacity is said to be "under construction."

sector in the wake of unbundling. The technical solutions it proposed, as reflected in the investment components of the project, were well designed. Implementation arrangements, though complex, were appropriate. The PAD acknowledged that sector reform would be a long term process, and envisaged a series of Bank operations to support it, totaling some US\$1 billion, and continuing beyond 2006²⁸. This perception did not, however, impede an over-ambitious design. Project-financed investments affected directly only about ten percent of the State's distribution and transmission investments during the implementation period. The project goals of sector-wide loss reductions and a financial turnaround sufficient to attract private investors were thus out of proportion to the leverage offered by the Bank loan. The goal of offering strategic investors a majority stake in the distribution companies by the end of 2002 was especially unrealistic, and the relevant covenant was dropped during implementation. The PAD suggests that the reforming zeal in Rajasthan was such that the Bank's relatively small financial leverage would be inconsequential. Nonetheless, even with unwavering political will, the targets were likely to take very considerably longer to achieve than the time foreseen for the project's implementation.

6.10 The political economy of the State of Rajasthan was misread; too much weight was placed upon the ability of sector reformers to achieve what they promised and intended, while too little attention was paid to the immense political power wielded by the State's richer and larger farmers, and to the nationwide adherence to heavily subsidized agriculture. Insufficient account was taken of national and international trends in the power sector -- by the time the project was prepared, fast-track reform of the power sector in India was already running into serious trouble, and the country had reverted to a more gradual approach. Monitoring and evaluation design was inadequate even by the standards of the time.

6.11 The PAD also underestimated, or failed to take into account, significant risks to the project's outcome, which in the event materialized. One key risk, that of a severe drought, and the reaction of the State Authorities to it, was not addressed at appraisal. This risk was, nonetheless, highly pertinent.²⁹ Others, such as the strength of resistance to tariff increases and the weakening of the political will to continue with the reforms, were rated as "substantial" while, in retrospect, they were clearly high. The risk that the regulatory agency would not allow sufficient tariff increases was classified as "moderate;" this overestimated the regulator's *de facto* independence. The need for parallel economic reforms, especially with regard to State fiscal policy, and possible Bank support for them, was discussed in the PAD, indeed it was a lesson learned from other projects, but its absence was not a risk that was clearly identified in the risk matrix.

²⁸ These did not materialize because Rajasthan financed the bulk of transmission and distribution investments from its own resources (including commercial borrowing), while, in generation, the State is relying principally on thermal projects for which it would have been difficult to obtain World Bank financing.

²⁹ A drought increases demand for groundwater-based irrigation and hence for electricity to power the pumps. At the same time, water availability for hydro-generation is reduced, so that power production costs rise. The financial consequences for the power sector were exacerbated still further by the State Government's reaction to the drought, including the decision not to raise rural sector electricity tariffs (see paragraph 5.13 below of this report).

Supervision

6.12 With four utilities as implementing agencies and a very large number of procurements, this was a complex and difficult operation to supervise. With regard to the technical components, the Bank did a good job of supporting the agencies, and in particular the distribution companies, with implementation. Although most of the innovations used in the FRP were known to the client, this knowledge was largely theoretical. Not only were the project-financed pilot feeders and metering a model for the client-executed extension of the program, but the companies informed IEG that the informal advice of Bank staff during supervision missions was extremely useful. Monitoring of the financial dimensions was less impressive. While the failure to achieve financial turnaround could not reasonably have been tackled at the level of regular supervision missions, given its complex political economy dimensions, more consistently realistic ratings of development objective (DO) achievements would have been useful. Of the ten Implementation and Status Results reports (ISRs) through November 2005, eight rate DO progress as Satisfactory. The two exceptions are in late 2002 and late 2004, when it became evident that financial recovery was not being achieved. These exceptions were just before the preparation of the two revised FinRPs; after the new plans were put in place, ratings reverted to Satisfactory. Only in the last two ISRs, of April and June 2006, is DO progress assessed as Moderately Satisfactory, the same rating that was given for outcomes in the ICR. Finally, as noted in paragraph 5.29 above, an opportunity for restructuring and simplifying the project at the MTR was missed. Supervision is rated as *moderately satisfactory* and overall Bank performance as *moderately unsatisfactory*.

Borrower Performance

6.13 The GOR performed well at the preparation stage, and took bold steps to restructure the State's power sector. Its later failure to sustain the reform momentum must be seen in the broader political context of India-wide power-supply subsidies to agriculture, the onset of the drought, the strength of the large farmer lobby in Rajasthan, and the policy of neighboring States to supply agriculture with free power. Without addressing national political economy issues, it would have been unrealistic to expect the GOR to have acted differently. IEG rates government performance as *moderately unsatisfactory*.

6.14 The transmission and distribution companies did a good job, not only in implementing the project-financed investments, but in continuing their enhancement and expansion programs after project closure. They have also built up significant new capacity in both financial and technical fields including asset management and procurement. There is still room for improvement, notably in areas like M&E and public disclosure, but management is aware of these shortcomings. The distribution companies cannot be blamed for failure to file timely requests for tariff adjustments since they were ordered to desist by the political authorities. Implementing agency performance was satisfactory. Overall, IEG rates Borrower performance as *moderately satisfactory*.

7. Lessons

Learning the Lessons from Similar Projects

7.1 The RPSRP was not an isolated exercise: it was the latest in a series of five Bank projects supporting State level power sector restructuring (see paragraph 2.4 above). The PAD (page 6) states that: “The project has been designed drawing from the lessons learnt from implementation of similar programs in India (Orissa, Haryana, Andhra Pradesh and Uttar Pradesh) and in other countries, adapted to local realities.” This statement raises an important issue concerning the extent to which, or at least the speed with which, the Bank does in fact learn from negative experiences in other projects. With regard to worldwide trends, a World Bank Board Discussion Paper³⁰ notes that: “Following the post-1997 downturn in private investment, reforming countries have experienced particular difficulty in attracting and retaining private investors to their distribution businesses.” Concerning the other four projects in India, the outcomes of three of them were rated as Unsatisfactory by their respective ICRs (table 1.1 of this report) mainly because of failure to carry out the necessary reforms needed to turn sector finances around and attract and retain private investors.

7.2 It could be argued that at the time of project preparation, in 1999 and 2000, the full extent of the world wide aversion to private investment in power distribution in developing countries was not yet apparent. Moreover, none of the other four similar State power sector restructuring projects in India had yet closed. The latest information available to the RPSRP

BOX 1

Selected Lessons from Power Sector Restructuring in Four Indian States

Subsidized power supply to agriculture is a deeper public policy issue and not a mere sectoral issue. The problem of subsidized power supply to agriculture and resistance to metering is embedded in distorted agricultural policies and political economy factors. Both the Bank and India have to recognize that sustainable improvement in power sector requires addressing this complex economic and political problem stemming from the agriculture sector. National consensus of the political parties is necessary for a meaningful solution. While there is growing awareness and recognition of this issue, the progress is likely to remain modest in the next few years. (Andhra Pradesh ICR)

Financial restructuring of the power utilities is akin to a bankruptcy proceeding where burden sharing by various stakeholders is required. The GOAP provided substantial support for financial restructuring, but the support from financiers and suppliers of power (central PSUs) was delayed. It was only recently in 2003 that the GOI finalized a securitization scheme to restructure the overdue liabilities of the state power companies to reinforce reforms. Until the full cost recovery through tariffs is achieved by the utilities, timely and full payment of subsidy support by the state government will be important to ensure adequate cash flow for the utilities to enable them to operate and maintain the power system. (Andhra Pradesh ICR).

The financial crisis of the power sector is so deep and the reforms initiated by Haryana so comprehensive (and disruptive) that it would be difficult (if not impossible) to capture, over the initial two or three years of a reform program, and through standard financial covenants (profitability and financial performance of the utilities) any meaningful improvements. (Haryana ICR)

The scope and nature of reforms pursued under a loan should be consistent with the lending instrument and firmly grounded in a realistic appreciation of the Bank’s relative leverage in a given situation. This operation was an investment loan in which, by definition, disbursements were determined by contract implementation and as such, ill-suited to serve as drivers of a contentious and challenging reform program. Reform expectations in this case were unrealistically high given the relatively short period of project implementation and even more so relative to the Bank’s limited contribution to the utility’s overall investment program. (Uttar Pradesh ICR)

Government should provide financial support for the subsidies made necessary by its policies. In particular, the subsidies of favored groups of consumers should be sufficient to avoid creating pressures to increase cross-subsidies from other consumers (Box 14: “Lessons from Orissa” from Besant-Jones op. cit., page 53).

³⁰ “Reforming Power Markets in Developing Countries: What Have We Learned,” by John E. Besant-Jones, Energy and Mining Sector Board Discussion Paper No. 19, September, 2006. The quotation is on page 48.

appraisal team on the status of these projects was in the Supervision Reports which indicated, in all cases, a much more favorable situation than that which was later to prevail at closure³¹.

7.3 The same cannot be said regarding the knowledge available to the RPSRP's supervision team at the time of the MTR held in June, 2004. By then, international trends were clear, three of the four State restructuring projects had closed, and the other was to close within six months. Lessons from their implementation (Box 1) were available. From these lessons, and from experience to date with the RSPRP itself, it was clear that achievement of financial recovery was beyond the reach of the project and even highly unlikely to be achieved over a longer time period (say, by 2012). Indeed, with hindsight, it should not have been included as a PDO in the first place. In Rajasthan, as in the other four States, the preconditions were not present. These include (i) a nationwide resolution of the issue of power subsidies to the agricultural sector; (ii) a willingness by various stakeholders to share the financial burden; (iii) sufficient fiscal strength on the part of the State government to ensure full and timely payment of subsidies; (iv) recognition that financial recovery is a long term process; and (v) consistency between the reform goals and the Bank lending instrument supporting them. Opportunity could have been taken at the MTR to restructure the project and remove the objective. It is true that such a restructuring would have required Board approval, and this might have been difficult to obtain based on the experience of this project alone. Backed, however, with the lessons from the other four projects, a much stronger case could have been made.

Lessons from the Design and Implementation of the RPSRP

- A thorough analysis should be made of the political economy of the reform program to be supported by the project, at both State and national levels. This should be done not only through extensive consultations at both a local and national level, but also through a realistic appraisal of national policies – such as those determining power subsidies to agriculture – which will impact on project outcomes. These should be addressed at the level of country policy dialogue. A careful assessment of international trends in power sector private investment in developing countries should also be part of the exercise.

³¹ The latest Supervision (SPN) Development Objective ratings available at the time of appraisal of the Rajasthan project and the ICR ratings at closure were as follows:

	<u>SPN</u>	<u>ICR</u>
Orissa PSRP	S	U
Haryana PSRP	S	U
Andhra Pradesh PSRP	S	S
Uttar Pradesh PSRP	S	U

- Risks to project outcome should be carefully analyzed and taken into account. In particular, attention should be paid to climatic hazards and to subsidy regimes in other States and their likely impact on the political viability of proposed reforms.
- Covenanted objectives should reflect a more realistic judgment of the leverage accorded by investment projects on complex policy issues, and of factors outside the control of the project. In India, the recent appraisal of a new proposed operation in Haryana indicates that this lesson has been learned.
- More systematic monitoring of experience in other, similar projects (particularly in the same country) would have helped to avoid the repetition of over-ambitious design apparent in the five State power sector restructuring operations in India. Even though convincing evidence may not have been fully available at the preparation stage, the opportunity should have been taken during implementation to restructure and simplify the project when justified.
- Such monitoring would facilitate a clearer and more objective assessment of Development Objectives during supervision missions. It is noteworthy that in the case of all five State power sector restructuring projects in India, ISRs continued to rate DO progress as satisfactory when it must already have been obvious that certain objectives were highly unlikely to be attained. These “satisfactory” assessments were all that was available to the team preparing the Rajasthan project.

Annex A. Basic Data Sheet

RAJASTHAN POWER SECTOR RESTRUCTURING PROJECT (LOAN 4954-IN)

Key Project Data *(amounts in US\$ million)*

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Total project costs	221.5	221.3	99.9
Loan amount	180.0	166.2	92.3
Cofinancing	2.0	2.0	100.0
Cancellation		13.8	7.7

Project Dates

	<i>Original</i>	<i>Actual</i>
Initiating memorandum	02/26/1997	02/26/1997
Negotiations	04/05/2000	11/27/2000
Board approval	07/04/2000	01/18/2001
Signing	-	02/28/2001
Effectiveness	03/12/2001	03/12/2001
Closing date	06/30/2005	06/30/2006

Staff Inputs (staff weeks)

<i>Staff Time and Cost</i> <i>Stage of Project Cycle</i>	Staff Time and Cost (Bank Budget only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY95		91.46
FY96		120.81
FY97		102.15
FY98		89.01
FY99		60.82
FY00	62	164.45
FY01	35	111.04
FY02		0.00
FY03		0.00
FY04		0.00
FY05		0.00
FY06		0.00
FY07		0.00
Total:	97	739.74
Supervision/ICR		
FY95		0.00
FY96		0.00
FY97		0.00
FY98		0.35
FY99		0.00
FY00		0.35
FY01	16	59.65
FY02	35	109.26
FY03	33	103.50
FY04	34	113.90
FY05	46	195.27
FY06	31	141.66
FY07	10	47.44
Total	205	771.38

Mission Data

<i>Name</i>	<i>Title</i>	<i>Unit</i>	<i>Responsibility/Specialty</i>
Lending			
Syed I. Ahmed	Lead Counsel	LEGMS	
Sameer Akbar	Sr. Environmental Spec.	SASES	
Mohammed Hasan	Senior Social Development Spec	SASES	
Sunil Kumar Khosla	Sr. Energy Spec.	SASEI	
Magdalena V. Manzo	Sr. Operations Off.	TFO	
Lucio Monari	Lead Energy Economist	LCSEG	
Kari J. Nyman	Lead Specialist	ECSSD	
Judith K. Plummer	Sr. Financial Analyst	SASEI	
Natarajan Raman	Consultant	SASEI	
Supriya Sen	Sr. Financial Analyst	SASEI	
Sameer Shukla	Sr. Energy Spec.	ECSSD	
Rajesh Sinha	Sr. Financial Analyst	SASEI	
Anthony E. Sparkes	Consultant	SASEI	
Supervision/ICR			
Sushil Kumar Bah	Sr. Procurement Spec.	SARPS	
Manoj Jain	Sr. Financial Management Specialist	SARFM	
Manvinder Mamak	Sr. Financial Management Specialist	SARFM	
Rohit Mittal	Financial Analyst	SASEI	
Judith K. Plummer	Sr. Financial Analyst	SASEI	
Anthony E. Sparkes	Consultant	SASEI	

Annex B: Government Comments

From: Rastogi Anil <osd_energy@yahoo.com>
 To: mhuppi@worldbank.org
 Cc: pfreeman@worldbank.org
 Date: 05/19/2010 01:30 AM
 Subject: Fw: Rajasthan Power Sector Restructuring Project (Loan 4594-IN) of India

From: DEEPAK DHINGRA <dhingra_deepak@rvpn.co.in>
To: osd_energy@yahoo.com
Sent: Mon, May 17, 2010 11:59:59 AM
Subject: Rajasthan Power Sector Restructuring Project (Loan 4594-IN) of India

Respected Sir,

In reference to your talk on 17.5.2010 with Sh. R.P. Gupta, Executive Engineer (PMU) please find attached herewith soft copy of brief-note/comments on "Draft Project Performance Assessment Report" on the captioned subject. It is pertinent to mention that hard copy of this has already been sent vide letter No.RVPN/CE(NPP&R)/SE(NPP&R)/PMU/F.W.B.PPAR/D.429 dated 16.4.2010 to the Dy. Secretary, Energy Deptt., GoR.

Rajasthan Power Sector Restructuring Project (Loan 4594-IN) of India Draft Project Performance Assessment Report - Brief note/comments.

India- Rajasthan Power Sector Restructuring Project (RPSRP, Loan 4594-IN) was intended to support the restructuring and reform of the power sector and the Rajasthan Project was last in five states power sector restructuring. To support the reform programme initiated by the Govt. of Rajasthan, Rajasthan Power Sector Restructuring Project was formulated for which World Bank sanctioned IBRD loan of USD 180 million on 18th January, 2001 and loan agreement was signed on 27th February, 2001. The loan closed on 30th June, 2006 and the total loan utilized was USD 166.2 million. The loan was mainly utilized for procurement of goods.

During RPSRP implementation period following progress was achieved which is very much in excess of the targets envisaged in the World Bank loan. Implementation progress of transmission and distribution network in Rajasthan during World Bank loan period from April 2001 up to June 06 from all sources is as follows:

S.N.	Name of item	Unit	W.B. Target	Total upto June '06
1	2	3	4	7
1	220 KV Line	Ckm.	49	1790
2	220 KV GSS	Nos.	1	12
		MVA	100	1450
3	132 KV Line	Ckm.	272	1585
4	132 KV GSS	Nos.	11	77
		MVA	275	1825
5	220 KV augmentation	MVA	700	1100
6	132 KV augmentation	MVA	575	1408
7	33 KV Capacitor	MVA	175	603
8	NEW 33/11KV S/S's	Nos.	N.A.	803
		MVA	426.4	2724
9	33/11KV S/S augmentation	MVA	388	1045
10	33KV line	Kms.	580	6690
11	11/0.4KV S/S	Nos.	13800	129978
12	11KV line	Kms.	5950	43087
13	L.T. Line	Kms.	2950	25679
14	Meters			
	(i) Single phase	Nos.	359600	3958298
	(ii) Three Phase	Nos.	151500	646832
15	ABC Cable	Kms.	10000	14398.43

The total progress during the World Bank loan period has been considered by the World Bank in lieu of the World Bank project/scheme targets. The progress of the Discoms has been acknowledged with satisfaction by the World Bank and, in the Aide memoire of the World Bank mission visit from May 3-6, 2005, it has been commented that "Rajasthan is well advanced in the program to expand the State's transmission and distribution networks, and targets have long since been met and exceeded.

Feeder Renovation Programme (FRP)

The Rajasthan Power Sector Restructuring project basically consisted of two fold objectives, namely, to improve the power supply condition in the state and secondly to improve efficiency and financial recovery. To achieve aforesaid objectives reduction in losses, strengthening of transmission and distribution system, improvement in metering etc. among other initiatives/ actions a program called Feeder Renovation Programme (FRP) has been undertaken to provide reliable and quality power.

The Feeder Renovation Programme is an initiative to reduce interruption, accidents, duration of shut-downs, unbilled energy, technical and commercial losses and burning of distribution transformers on high loss feeders

The activities carried out include:

- ❖ Theft prevention measures like use of ABC cables, removal of service lines from disconnected consumers premises, correcting the metering installations
- ❖ Reduction of technical loss through installations of capacitor banks
- ❖ Augmentation / up gradation of system, wherever required
- ❖ Monitoring of consumer metering installations through sample surprise checks

- ❖ Preventive maintenance of feeders, distribution transformers, LT lines and the protection equipments

About 7000 feeders out of 8850 feeders have been renovated benefiting almost 36500 villages. The renovation of these feeders has a great impact in bringing down the distribution losses in the state.

The implementation of Project component 4, Technical Assistance, is also satisfactory in view of the impact of the technical assistance that was procured under the loan. The Technical assistance in respect to following were taken by the successor companies

- Institutional Development of Transmission Company and Discoms
- Distribution Privatization
- Socio-Economic Impact Assessment (SEIA) study
- Sub-transmission study on environment and safety

The development objectives of the project were (i) to support the ongoing power sector reform process in Rajasthan leading to higher sector efficiency and financial recovery; and (ii) to improve power supply by removing the critical bottlenecks in the power transmission and distribution system. The key performance indicators associated with these development objectives were (in summary): (a) the establishment of a fully functioning electricity regulatory commission, (b) the satisfactory implementation of the Financial Restructuring Plan and (c) the private participation in distribution. (d) investments in the transmission and distribution system for improved voltage levels, reduced outages and technical losses, and increased energy availability.

The establishment of fully functioning electricity regulatory commission; investment in the transmission and distribution system- improved voltage levels, reduced outages and technical losses and increased energy availability were achieved satisfactorily except covenant for Distribution privatization which was considered unrealistic under prevailing conditions hence deleted by World Bank. Subsequently distribution companies have been outsourcing some activities such as out sourcing of Consumer Billing, Meter reading, collection, and implementation of construction work of line and substations at some of the places.

Attainment of the objective to remove critical distribution and transmission bottlenecks has been acknowledged in the report. However there is also mention of continuing distribution losses at the level of 27% which is much above international level. Despite the conditions of the state including its geographical size (biggest state) scattered (sparse) population, social structure, load growth & weather conditions are very different in comparison of other states / countries, the loss level of 27% in Rajasthan being far lower than the average level of T&D loss in India . It shows the efforts made were in the right direction and effective work has been done by introducing HVDS especially in rural areas. Distribution losses have been reduced by 13% which is significant reduction from a level of 40% after unbundling and is still in the downward trend towards a target of below 20% in next 2-3 years.

Due to almost continuous/ prolonged drought conditions, the ability of farmers to pay the higher agriculture tariff is affected comparing to the neighboring states. Further, there was difficult political / economic situation in the State as well as in country as one of the neighboring state was providing free power to agriculture. As such, cross subsidization could not be reduced to a large extent.

Govt. is keen to develop a strong infrastructure in the State especially in the Rural areas for which a scheme named “Gram Panchayat Vidyyut Vitran Yojana” has been launched to erect 800 Nos 33/11 kV sub station for providing supply through separate 11 kV feeder to each Panchayat on good voltages and encourage public participation in distribution at Panchayat level.

Govt. has also taken a unique decision to extend R-APDRP for rural areas to provide IT enabled services in Panchayat upto 33/11 kV Sub station to facilitate rural consumers with IT enabled monitoring system in respect to all functions.

GoR has also appointed an independent agency M/s. RDI for conducting survey for assessment and impact study of loss reduction programme specially FRP. M/s. RDI has found a drastic improvement in voltage regulation and reduction in losses, drastic reduction in burning rate of DTs and increase in consumer satisfaction level.

As a part of the Power Sector Reforms Program a Financial Restructuring Plan for the sector was prepared containing one time restructuring adjustments which was revised in 2003 for finalizing the transfer scheme to incorporate the changes in various business drivers to incorporate the change in industry structure due to separation of trading and bulk supply business from RVPN and change in the economic and regulatory scenario brought about by the notification of the Electricity Act 2003. Further, to incorporate certain changes in the key business drivers like number of agriculture connections released, assured hours of supply, non-revision of tariff necessitated a revision of the FRP. A revised business plan was prepared and approved by GoR in November 2005.

The financial restructuring plan being business plan was dynamic in nature and was followed / revised to adjust to the changing business drivers. The attainment of objectives of verbatim implementation of financial restructuring plan was hindered mainly due to following reasons:

1. Rapid growth in the State causing imbalance in demand supply. Because of FRP, the supply to rural domestic consumers is getting at par with nearby urban areas i.e almost 20 hrs./day which has encouraged use of electric appliances by farmers/ rural population specially women in rural areas and extremely high release of domestic and agriculture connections in rural areas. Special efforts have been made to expedite release of industrial connection which has resulted in rapid growth in demand which is on an average 15%.
2. The notification of EA-2003 during the period RPSRP has required structural and market reforms and this also affected the power sector companies and this inter-alia resulted in getting consumer mix adverse and Increase in cost of short term power purchase in the open market.

3. Delay in implementation of state generation projects was mainly due to delay in supply of main plant equipment by the suppliers, which was beyond control of the utilities/State. This necessitated purchase of costly power from other states/agencies.
4. Non-revision of tariff adequately as revision of tariff would have adversely affected all the population of the state at large and specially agriculture consumers as the state has seen continuous severe droughts in recent past. It is pertinent to mention that in initial years of reform the tariffs for all categories of consumers were raised to move in the direction of attainment of financial recovery.

The utilities have taken steps to improve the financial management functions. These include, among others, (a) cleansing the balance sheets by carrying out adjustment to the extent possible in respect of old balances pertaining to the erstwhile RSEB period (b) enhancing the scope of use of computers for preparation and maintenance of accounts (c) attending to the audit observation to minimize repetitions and (d) implementing the plan for de-centralizing the funds management within specified time frame.

The business plan is now being reviewed on account of the adverse change in energy sales and mix, increased power Purchase Cost, Revenue Deficit, and other factors like increase in Employee Cost and contribution for pension scheme after 6th Pay Commission revision, increase in inflation and consequent increase in cost of borrowing and O & M expenses, increase in revenue deficit due to additional short term borrowings.

The Independent Evaluation Group has stated that the Regulatory function was weak and subject to political interference. In fact, the Regulatory function of Rajasthan is very strong and totally unaffected by political interference. All necessary regulations have been notified through a transparent process involving all stakeholders. Filing of ARR's and issue of tariff orders are being done timely. RERC has recently issued order in the matter of determination of MYR for FY 10-14 and Transmission Tariff FY 09-10 as per petition filed by RVPN. This order is also important as RVPN filed separate petition for:

- Transmission
- SLDC
- Generation from Partnership projects.

All five companies are filing ARR's regularly.

Apart from GoR's initiatives / efforts as described above towards improvement / support to the Power Sector, the GoR provided cash subsidy of Rs. 400 Crores p.a. to power sector. The E.D. retention has also been allowed to power companies year after year. Further the State Govt. has been reimbursing differential interest rate on World Bank Loan. Besides the above, when the tariff was increased in Jan.,2005, the Govt. has rolled back the tariff for agriculture consumers and this amount was reimbursed to the power companies as "Relief Package". The State Govt. provided this amount as subsidy to the Power Sector Companies which ranged between Rs. 250- 300 crores per annum (approx).

Furthermore, the Govt. also contributed to the cash flow of the power sector by infusing 20% of the total capital investment in the form of equity. Still further GoR has set up dedicated police stations to prevent electricity misuse and theft. In toto the GoR has honored its commitment towards power sector.

It is clear from above that the performance indicators (a) the establishment of a fully functioning electricity regulatory commission (b) investments in the transmission and distribution system resulting in improved voltage levels, reduced outages and technical losses, and increased energy availability in the service areas affected by the investments were achieved. The distribution privatization covenant was considered unrealistic and was deleted by the bank on its behest. The attainment of objectives of verbatim implementation of financial restructuring plan was hindered for the reasons described above. The GoR is very supportive to the power sector utilities and has provided the utilities with financial support by absorbing losses of the companies, providing subsidy, retention of E.D., helping in getting adequate loans, providing equity in capitals investments etc.

In view of the above the project outcome rating may be considered as Moderately Satisfactory as was in ICR instead of Moderately Unsatisfactory as has now been done in PPAR.