FINANCIAL ANALYSIS: PROJECT 1

A. Methodology and Key Assumptions

1. The financial analysis of the proposed tranche components has been carried out in accordance with Asian Development Bank (ADB) Financial Management and Analysis of Projects.[1] All financial costs and benefits are expressed in constant mid-2013 prices. Benefits from the project include the provision of an evacuation system to transmit renewable energy generated in western Rajasthan to load centers. The financial viability of the project was assessed by comparing the weighted average cost of capital (WACC) in real terms to the financial internal rate of return (FIRR). The sensitivity of the FIRR to adverse movements in the underlying assumptions has also been assessed.

2. Financial viability was assessed by comparing the incremental costs and benefits with the project and without the project. In the scenario without the project, the capacity of Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL) to evacuate the generated renewable power in Western Rajasthan is constrained and will lead to delayed development of electricity from renewable resources. Implementing the project will help increase the availability of renewable energy to the Indian economy and contribute to lowering the carbon intensity of economic growth. A 25-year period was used for the evaluation.

B. Tariff and Regulation

3. The electricity is regulated by the autonomous Rajasthan Electricity Regulatory Commission (RERC) established under the Electricity Act, 2003. It has issued a multiyear tariff order for FY2010–FY2014. The Government of Rajasthan has directed RRVPNL not to seek a return on equity as part of its tariff until the three distribution companies in the state become profitable, tentatively expected around FY2022. As this decision implies that RRVPNL will continue to incur losses till FY2022, it has now been agreed that RRVPNL will be allowed to claim return on equity with effect from FY2022, and the financial analysis is based on this assumption.[2] The incremental tariff that RRVPNL will receive for the project investment has been computed based on prevailing RERC regulations. The RERC mandated that RRVPNL maintain transmission loss levels not exceeding 4.3% which was achieved.

C. Weighted Average Cost of Capital

4. ADB and Clean Technology Fund (CTF) loans will be transferred by the Government of India to the Government of Rajasthan on a back-to-back basis. The state government will pass on to RRVPNL the ADB and CTF loans on the same terms and conditions as received from Government of India, with RRVPNL bearing foreign exchange and interest rate risk, which are passed through in the tariff. The state government has agreed to provide 20% of the project cost as its equity contribution. The remaining funds will be borrowed by RRVPNL from other market sources. Based on these assumptions, the WACC is 1.1%, computed on a post-tax basis in real terms.

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[1] ADB. 2005. *Financial Management and Assessment of Projects*. Manila

[2] Government of Rajasthan has agreed to approve a financial restructuring plan for RRVPNL by 30 September 2014 to permit RRVPNL to reach a debt equity ratio of 4:1 and a debt service coverage ratio of 1.2 no later than 2017. This would enable RRVPNL to raise cheaper capital for future investment projects. Timely implementation of this restructuring plan would improve the real internal rate of return of projects under the Investment Program.

D. Project Benefits

5. The Program is a constituent of the state's investment plan to achieve 8,000 MW of renewable energy installed capacity by 2018 through an addition of 5,700 MW between 2012-2018. As western Rajasthan is sparsely populated and has limited electricity demand, this large amount of electricity would be connected to the state grid and subsequently integrated with the national grid in India. This would facilitate wheeling the renewable energy across India and help Indian electricity distribution companies and consumers meet their mandatory renewable energy purchase obligations.

E. Financial Internal Rate of Return Calculation

6. Incremental cash flows attributable to the proposed investments were estimated using the methodology and assumptions described above. The FIRR for the project is estimated at 2.1%, which compares favorably with the WACC of 1.1%.

F. Risk Assessment and Sensitivity Analyses

7. **External risks.** As the RERC is setting multiyear tariffs autonomously, the risk of adverse tariff revision is considered low. Geopolitical risks exist for all projects in India, but the nature of the investments and widespread support for expanding the power system minimize the risk.

8. **Project-specific risks.** Risks include higher capital costs, implementation delay, and failure to obtain access to counterpart funds. These risks are considered low, as the capital cost is based on most recent purchases and market information, RRVPNL has adequate implementation capacity, and the Government of Rajasthan has committed itself to providing counterpart funds for the project in a timely manner.

9. **Sensitivity analysis.** The sensitivity of tranche 1 of the project was assessed against adverse changes in key variables such as higher capital costs, lower revenues, higher cost of supply, higher operating and maintenance costs, and delayed commissioning. Table 1 shows that the FIRR remains above the WACC of 1.1% in all cases, showing the investment to be financially viable.

Table 1: Sensitivity Analysis

Sensitivity Parameter	**Variation**	**FIRR** (%)
Base case		2.1
Increase in capital costs	+10%	2.4
Return on equity reduced by 1%	–1%	1.9
Delay in commissioning	1 Year	2.1
Combined		2.3

FIRR = financial internal rate of return.
Source: Asian Development Bank estimates.

G. Historical Financial Performance

10. The Rajasthan State Electricity Board, which operated as a vertically integrated utility, was unbundled in 2000 into five successor companies: Rajasthan Rajya Vidyut Utpadan Nigam Limited for power generation; RRVPNL for power transmission; and three distribution companies: Jaipur Vidyut Vitaran Nigam Limited, Jodhpur Vidyut Vitaran Nigam Limited, and

Ajmer Vidyut Vitaran Nigam Limited. Besides operating the transmission business, RRVPNL is entrusted by the Government of Rajasthan with its share of some joint venture generating assets in neighboring states. RRVPNL derives some revenue from these shareholdings.

11. The audited accounts contain certain important qualifications relating to accounting for fixed assets, including capital works in progress, inventory accounting, internal controls, reconciliation of balances of accounts receivable, and terms and conditions of loans. RRVPNL has agreed to address the auditors' observations progressively such that major audit observations are fully addressed in audited accounts for FY2016.

12. Highlights of the historical performance of RRVPNL from FY2007 to FY2012 are in Table 2. Transmission losses decreased from 4.6% in FY2008 to 4.3% in FY2011. Although transmission revenue increased from Rs5.70 billion in FY2007 to Rs17.77 billion in FY2012, accumulated losses increased from nil in FY2007 to Rs16.70 billion in FY2012. Other income, mainly from power trading and unscheduled interchange revenue, showed a rising trend from Rs0.43 billion in FY2007 to Rs2.97 billion in FY2009, falling sharply to Rs0.89 billion in 2010 and recovering to Rs1.38 billion in FY2012. However, other income is netted off by the RERC while determining RRVPNL's annual revenue requirement.

Table 2: Historical Financial Performance

Item	Unit	2007	2008	2009	2010	2011	2012
Income Statement							
Transmission revenue	Rs billion	5.70	7.23	8.41	11.07	13.87	17.77
Sale of power	Rs billion	1.46	1.53	1.80	2.30	2.49	1.98
Other income	Rs billion	0.43	0.35	2.97	0.89	1.06	1.38
Total	Rs billion	**7.59**	**9.11**	**13.18**	**14.26**	**17.42**	**21.14**
Expenses							
Staff	Rs billion	2.99	3.74	15.40	14.41	10.08	10.78
Power purchase	Rs billion	0.00	0.00	0.00	0.00	0.00	0.00
Other expenses	Rs billion	1.64	2.10	1.93	2.86	0.41	2.96
Depreciation	Rs billion	1.09	1.20	1.34	1.66	2.22	2.59
Interest	Rs billion	1.87	2.07	3.11	3.49	4.28	5.17
Profit after Tax	Rs billion	**0.00**	**0.00**	**(8.61)**	**(8.16)**	**0.42**	**(0.36)**
Balance Sheet							
Net fixed assets	Rs billion	23.29	28.05	35.41	44.72	61.35	70.62
Capital works in progress	Rs billion	5.36	6.56	13.15	15.52	13.15	20.01
Investments	Rs billion	0.01	0.01	0.00	0.00	0.00	0.00
Net working capital	Rs billion	14.78	10.95	1.54	(9.38)	(10.97)	(15.23)
Miscellaneous assets	Rs billion	0.27	0.18	0.11	0.06	0.04	0.03
Total Assets	Rs billion	**43.71**	**45.74**	**50.21**	**50.93**	**63.57**	**75.43**
Equity & reserves	Rs billion	9.41	10.72	4.51	(1.35)	3.20	6.93
Long-term loans	Rs billion	34.30	35.03	45.70	52.29	60.38	68.50
Total Equity + Liabilities	Rs billion	**43.71**	**45.74**	**50.21**	**50.93**	**63.57**	**75.43**
Return on net fixed assets	%	0.00	0.00	Negative	Negative	1.00	Negative

Item	Unit	2007	2008	2009	2010	2011	2012
Debt service coverage ratio	times	0.70	0.42	0.52	0.79	0.98	1.12
Return on equity	%	0.00	0.00	Negative	Negative	13.20	Negative
Debt–equity ratio		3.64	3.61	18.79	Negative	55.09	14.47

Source: Audited accounts of Rajasthan Rajya Vidyut Prasaran Nigam Limited.

H. Financial Projections

13. Financial projections have been developed for FY2013–FY2026. Exchange rate variations attributable to borrowings from ADB and the CTF have been adjusted as passed through in the tariff that RRVPNL would receive, in accordance with RERC tariff regulations.

14. Table 3 presents the projected financial performance of RRVPNL.

Table 3: Projections of Financial Performance

Item	Unit	2013	2015	2018	2021	2023	2025
Income statement							
Transmission revenue	Rs billion	17.73	16.15	29.82	43.27	69.03	83.87
Sale of power	Rs billion	2.55	2.71	2.96	3.23	3.42	3.63
Other income	Rs billion	1.38	1.38	1.38	1.38	1.38	1.38
Total	Rs billion	21.67	20.23	34.16	47.88	73.84	88.88
Expenses							
Staff	Rs billion	6.20	7.63	10.93	14.93	18.38	22.63
Power purchases	Rs billion	-	-	-	-	-	-
Other expenses	Rs billion	3.65	3.29	4.87	6.32	10.00	11.71
Depreciation	Rs billion	3.82	5.16	9.96	13.46	15.42	19.96
Interest	Rs billion	6.27	6.23	10.92	16.38	20.60	23.95
Profit after Tax	Rs billion	1.72	(2.07)	(2.52)	(3.21)	9.43	10.62
Balance Sheet							
Net fixed assets	Rs billion	78.62	108.05	200.08	249.61	281.41	305.93
Capital works in progress	Rs billion	17.33	24.47	18.70	21.58	21.66	21.70
Other assets	Rs billion	0.03	0.03	0.03	0.03	0.03	0.03
Net working capital	Rs billion	(17.32)	(19.74)	(20.16)	(11.53)	21.77	46.06
Total Assets	**Rs billion**	**78.66**	**112.81**	**198.65**	**259.69**	**324.88**	**373.72**
Equity & reserves	Rs billion	10.71	20.35	35.76	45.26	76.17	101.58
Long-term loans	Rs billion	67.95	92.46	162.88	214.42	248.71	272.14
Total Equity + Liabilities	**Rs billion**	**78.66**	**112.81**	**198.65**	**259.69**	**324.88**	**373.72**
Return on net fixed assets	%	2.2	Negative	Negative	Negative	3.4	3.5
Debt service coverage ratio	times	1.04	1.47	1.04	1.29	1.69	1.30
Return on equity	%	7.3	Negative	Negative	Negative	10.9	10.7
Debt–equity ratio	times	7.44	4.95	4.81	4.98	3.36	2.74

Source: Asian Development Bank estimates.