

Cover Page for CTF Project/Program Approval Request ¹			
1. Country/Region	India	2. CIF Project ID#	XCTFIN209A
3. Project/Program Title	Rajasthan Renewable Energy Transmission Investment Program (Multi-tranche Financing Facility / MFF)		
4. Terms and Amount Requested in million USD equivalent	Public sector Loan/guarantee Harder terms: Softer terms: \$198 million (loan) Grant: \$2 million (including fee on grant of \$95,000) Total: \$200 million		
5. Implementing MDB(s)	Asian Development Bank (ADB)		
6. National Implementing Agency	Government of Rajasthan Energy Department and Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RRVPL – state transmission company)		
7. Contact Information of MDB Focal Point and Project/Program Task Team Leader (TTL)	Headquarters Focal Point: Mr. Jiwan ACHARYA (jacharya@adb.org)	TTL: Mr. Len GEORGE (lgeorge@adb.org)	
8. Brief Description of Project/Program (including objectives and expected outcomes)²			
<p>The State of Rajasthan plans to incrementally add 5,700 megawatts (MW) of new solar and wind capacity between 2012 and 2018. The proposed Rajasthan Renewable Energy Transmission Investment Program (RRETIP) (the Program) will finance the construction of state transmission infrastructure to evacuate renewable energy from private sector projects in Rajasthan with a target of at-least 4,300 MW (7,761 GWh annually) of renewable energy installations over this period. The outcome will be a cleaner energy mix and more efficient and effective generation and transmission system in Rajasthan over time.</p> <p>Non-physical outcomes include planning for subsequent phases of the Bhadla solar park, community development, improving institutional capacity and effectiveness in state agencies including for planning, project management, financial management, and improved monitoring and reporting. The Program will also support in the development of a state policy for community support in the area near to renewable energy parks including skills training interventions, drinking water supply, etc.</p> <p><i>Details are included in draft Report and Recommendation of the President (RRP), paragraphs 2 - 11, as well as the Design and Monitoring Framework in Appendix 1 to the draft RRP.</i></p>			

¹This cover page is to be completed and submitted together with the MDB project/program document when requesting CTF funding approval by the Trust Fund Committee.

²Please provide the information in the cover page or indicate page/section numbers in the accompanying project/program document where such information can be found.

9. Consistency with CTF Investment Criteria³

(1) Potential GHG Emissions Savings

The proposed Program investments will facilitate the creation of transmission capacity to support the evacuation of up to 5,700 MW of solar and wind capacity in Rajasthan resulting in solar and wind capacity to be evacuated out of the entire state of Rajasthan reaching 8,000 MW by 2018 (compared to a baseline of 2,300 MW in 2012). A target of at least 4,300 MW of renewable energy capacity is expected (which will generate 7,761 GWh of renewable energy per year) to be added by year 2018 with support from the proposed Program. Assuming a grid emissions factor of 0.7 tons CO_{2e} / MW-h, GHG emission avoided will be about 5.4 Million tons / year CO_{2e} from this new RE capacity. Over an operating period of 25 years, emission avoided will be about 135 million tons CO_{2e}.

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, and paragraphs 27-30.

(2) Cost-effectiveness

The investments contemplated in this Program will help leverage private power generation projects in the solar parks. ADB and CTF support for the improvements to the state grid helps mitigate the risks perceived by private sector investors, and helps leverages the investment.

Direct reductions: CTF \$200 million / 5.4 million ton CO_{2e} / year = \$37 / ton CO_{2e} / year

Over a 25 year operating period, cost effectiveness is CTF\$1.5 per ton CO_{2e}.

With replication and scale up of only 2.5:1: CTF\$0.6 / ton CO_{2e}

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, and paragraphs 31-32.

(3) Demonstration Potential at Scale

Further replication and scale up potential is at least 2.5 times in the state of Rajasthan alone (Rajasthan expects to reach 28,000 MW of installed RE capacity 2030), with corresponding reductions of about 13.5 million tons / year CO_{2e}, and total reductions of 339 million tons CO_{2e} over 25 years.

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, paragraph 33, and Figure AX.5.

(4) Development Impact

Development impact accrues mainly from displacement of future coal-fired power capacity and offset or displacement of diesel and gasoline (petrol) fired generator sets with substantial ecological and public health co-benefits.

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, and paragraphs 34-35.

(5) Implementation Potential

The proposed gigawatt scale solar parks are among the first-of-a-kind in terms of scale and design, which present first-mover risks. Private sector interest in generation is demonstrably high, indicating strong chance of success and replication. However, private sector investors are

³Same as footnote 2.

concerned about the transmission constraints of the state utility. Rajasthan plans to develop 4 solar parks. Bidding is on-going in 2013 for solar projects to be set up at Phase 1 of Bhadla that have resulted in tariffs as low as 6.45 Rs/kWh (0.12 US cents per kwh).

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, and paragraphs 36-37.

(6) Additional Costs and Risk Premium

RE resources are “as is, where is” in nature and are not located in convenient proximity to consumers, compared to fossil fuels which can be readily transported to power plants constructed in relative proximity to load centers. Thus, all of the transmission investments to be supported by CTF are “additional” to a business-as-usual scenario. The additional costs of solar energy systems, transmission utilization, cost of high levels of renewable energy penetration and first-mover risks indicate clear need for concessional support. The cost of the transmission and other infrastructure investments is \$1.7 Billion.

Additional details are presented in draft RRP Supplementary Appendix X, Table AX.4, and paragraphs 38-47.

10. Stakeholder Engagement⁴

The Program has been formulated under the aegis of the National Action Plan for Climate Change (NAPCC, 2008), the Jawaharlal Nehru National Solar Mission (JNNSM, 2010), the Rajasthan Solar Policy (2011) and Wind Policy (2012), which all have been developed with broad stakeholder input and support. The Program development and stakeholder engagement has been led by the Government of Rajasthan Energy Department, RREC and RRPVNL. Project-level consultations have been carried out with stakeholders and local communities in accordance with ADB safeguard policies.

Additional details on poverty reduction and social strategy, gender, environment, and indigenous peoples can be found in draft RRP Appendices 10 through 16.

11. Gender Considerations⁵

The Program is classified as “effective gender mainstreaming.” A gender action plan has been developed and is presented in *draft RRP Appendix 11*. The gender action plan includes the following interventions under Project 1:

- (a) State level framework to guide development of future solar and wind energy parks including targets for interventions (with gender specific elements) for communities in areas adjacent to such parks.
- (b) Linked to the above, support in development and rolling out a community development fund with gender targets and financial support through RREC.
- (c) Needs based alternative livelihood training and vocational programs with RREC support.
- (d) Pilot implementation for clean drinking water for households in nearby communities addressing the health concerns related to high concentration of fluorides

Also see draft RRP, Supplementary Appendix X, paragraph 26.

⁴Same as footnote 2.

⁵Same as footnote 2.

Indicators and Targets (consistent with results framework)	
See draft RRP Supplementary Appendix X, Table AX.5	
Core Indicators	Targets
(a) tCO ₂ e reduced or avoided annually	5.4 million
(b) Leverage factor	1:4
(c) Installed capacity (MW)	4,300
(d) Design Output (GWh/y)	7,761
Development Indicator(s):	
Reduced cost of low carbon technologies and practices	<p>India's solar program supports the global momentum in learning rates for solar technology, and may in fact accelerate the learning rate as new PV manufacturing capacity is expanded in India. The cost of private sector PV projects in India has fallen from a high of 17.91 rupees/kwh in 2010 to less than 7 rupees/kwh in 2013 due to falling capital costs, project development at scale and reverse bidding carried out by the Government of India. The global learning rate for CSP has been much slower than PV, but is expected to improve as new manufacturing capacity is built; it is difficult to predict the impact of the Program on global learning rates at present. See discussion in draft RRP, Supplementary Appendix X, paragraph 20.</p>
Energy security	<p>Assuming 400 tons of coal per GWh of electricity produced, the Program will facilitate avoided coal consumption of about 3.1 million tons per year. See discussion in draft RRP, Supplementary Appendix X, paragraph 21.</p>
Improved enabling policy and regulatory environment for low carbon technologies and practices	<p>As outlined in the CIP, India has an ambitious national program and policy framework for low carbon development, including a voluntary commitment to reduce GHG intensity 20-25% by year 2020 from the year 2005 baseline. The Program is fully consistent with the policy framework to meet the GHG objectives. The Program will create synergy through accelerated development of GW-scale RE capacity. See discussion in draft RRP, Supplementary Appendix X, paragraph 22.</p>
Access to energy co-benefits	<p>Assuming the GOI target of providing 1,000 kWh per person per year, the additional electricity output will be sufficient to supply more than 9 million people, and well over 1 million households. Energy security will be improved via diversification of supply and an improved transmission network. The additional electricity output will also improve reliability of supply to industries and businesses. Avoided fuel imports will have a complementary effect, as freight transport capacity will be freed up for other goods. See discussion in draft RRP,</p>

