Periodic Financing Request Report

Project Number: 45224-004
MFF Number: 0076
November 2016

India: Rajasthan Renewable Energy Transmission Investment Program (Tranche 2) and Minor Change to the Facility

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 26 October 2016)

Currency unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	$0.01497
$1.00	=	Rs66.81

ABBREVIATIONS

ADB	–	Asian Development Bank
EMP	–	environmental management plan
FFA	–	framework financing agreement
kV	–	kilovolt
MFF	–	multitranche financing facility
MW	–	megawatt
PMU	–	project management unit
RERC	–	Rajasthan Electricity Regulatory Commission
ROE	–	return on equity
RREC	–	Rajasthan Renewable Energy Corporation
RRVPN	–	Rajasthan Rajya Vidyut Prasaran Nigam

NOTES

(i) The fiscal year (FY) of the Government of India and its agencies ends on 31 March. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2016 ends on 31 March 2016.

(ii) In this report, "$" refers to US dollars unless otherwise stated.

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Project Classification Information Status: Complete

TRANCHE AT A GLANCE

1. Basic Data — **Project Number:** 45224-004

Project Name	Rajasthan Renewable Energy Transmission Investment Program - Tranche 2	**Department /Division**	SARD/SAEN
Country	India	**Executing Agency**	Rajasthan Rajya Vidyut Prasaran Nigam Limited
Borrower	India		

2. Sector	**Subsector(s)**	**ADB Financing ($ million)**
✓ Energy	Electricity transmission and distribution	238.00
	Total	**238.00**

3. Strategic Agenda	**Subcomponents**	**Climate Change Information**	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Adaptation ($ million)	2.00
		Mitigation ($ million)	236.00
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	CO_2 reduction (tons per annum)	8,578,704[a]
		Climate Change impact on the Project	Medium

4. Drivers of Change	**Components**	**Gender Equity and Mainstreaming**	
Partnerships (PAR)	International finance institutions (IFI) Official cofinancing	No gender elements (NGE)	✓
Private sector development (PSD)	Public sector goods and services essential for private sector development		

5. Poverty and SDG Targeting		**Location Impact**	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG7, SDG13		

6. Risk Categorization: Complex

7. Safeguard Categorization **Environment:** B **Involuntary Resettlement:** B **Indigenous Peoples:** C

8. Financing

Modality and Sources	Amount ($ million)
ADB	**238.00**
Sovereign MFF-Tranche (Loan): Ordinary capital resources	238.00
Cofinancing	**110.00**
Clean Technology Fund - Loan	110.00
Counterpart	**152.70**
Government	152.70
Total	**500.70**

9. Effective Development Cooperation

Use of country procurement systems	No
Use of country public financial management systems	Yes

[a] 8,578,704 tons of CO_2 reduction are indirect benefit of this project, which will be achieved by transmitting renewable energy through the infrastructure to be constructed by Project 2.

TRANCHE AT A GLANCE

Date of Receipt by ADB of PFR: 25 October 2016 Tranche Number: 2

10. Country Operations Business Plan

CPS https://www.adb.org/documents/india-country-partnership-strategy-2013-2017

COBP https://www.adb.org/sites/default/files/institutional-document/175399/cobp-ind-2016-2018.pdf

11. Tranche Summary

Tranche 2 will finance investments in (i) construction of 210 km of 765kV transmission line, 264 km of 400kV transmission line, 240 km of 220kV double circuit transmission line, 132 km of 132kV transmission line, and Optical Ground Wires (OPGW) to connect existing substations; and (ii) construction of eight substations, augmentation of transformers at two substations, and bay extensions at five substations. CO_2 reduction of 8,578,704 tons per annum is an indirect benefit of this project, which will be achieved by transmitting renewable energy to be generated from Western Rajasthan.

Impact: Development of renewable energy sources in Rajasthan and India accelerated.
Outcome: Cleaner energy mix with more efficient and effective generation and transmission system in Rajasthan.

Outputs: Bulk power transmission system in Rajasthan expanded.

Implementation Arrangements: Rajasthan Rajya Vidyut Prasaran Nigam Limited will be the executing agency.

Project Readiness: The proposed sub-projects have been discussed with and concurred by the Central Electricity Authority. The state government of Rajasthan has approved the detailed project report on the project scope and design, as well as technical, financial and economic viability. No other government approvals are required. Project procurement plan includes 10 procurement packages. The main five packages have been advertised for bidding, and will be awarded by the first quarter of 2017. Tenders for the remaining five packages will be advertised in 2017. The PMU has been established and is fully functional. The resettlement plans (RP) and initial environmental examination (IEE) were disclosed on 31 October 2016. No private land acquisition is required because new substations will be built on government-owned land. No land is required for other project components.

12. Significant Developments in the MFF and Previous Tranches

Tranche 1 (Loan 3052 and Loan 8275 [administrated by ADB]), approved in October 2013 for a total of $150 million, financed the (i) construction of two grid substations (400/220 kV) at Bhadla and Ramgarh; (ii) augmentation of one substation (400/200kV) at Akal; and (iii) construction of 400kV of double circuit transmission lines in Western Rajasthan. The 400kV Bhadla transmission line and several others are expected to be completed by March 2017, while Ramgarh substation and associated facilities will be completed by August 2017. Technical capacity development, community development, and training for women is ongoing under TA 8486-IND: Rajasthan Renewable Energy Capacity Development and Implementation Support. As of 30 September 2016, cumulative disbursement of tranche 1 amounted to $53.4 million (35.6%). Of the 25 undertakings, 10 have been complied with, and 15 are being complied with. Of the 26 loan covenants, 7 have been complied with, 17 are being complied with, and 2 are not yet due.

13. Milestones

Estimated Approval	Estimated Completion[b]
5 December 2016	31 December 2021

14. Linked Documents

	Required Document	Disclosure Date
(i) Environment	IEE - Initial Environment Examination	
Weblink:	https://www.adb.org/projects/documents/ind-rajasthan-renewable-energy-transmission-prog-t2-iee	31-OCT-2016
(ii) Involuntary resettlement	RP - Resettlement Plan	
Weblink:	https://www.adb.org/projects/documents/ind-rajasthan-renewable-energy-transmission-prog-t2-rp	31-OCT-2016

[b] For Tranches, this refers to the financial closing date.

I. BACKGROUND

1. On 26 September 2013, the Asian Development Bank (ADB) approved a multitranche financing facility (MFF) of up to $500 million ($300 million from ADB's ordinary capital resources and $200 million from the Clean Technology Fund [CTF][1] administered by ADB) to the Government of India for the Rajasthan Renewable Energy Transmission Investment Program.[2] A framework financing agreement (FFA) for the Rajasthan Renewable Energy Transmission Investment Program was signed between ADB and the Government of India on 23 August 2013. The investment program supports the development of renewable energy projects in Rajasthan, including its planned solar parks, as well as the setup of transmission and associated substation infrastructure to manage integration of renewable energy.

2. The investment program is also aligned with ADB's Strategy 2020, which emphasizes renewable energy. In May 2010, ADB announced the Asia Solar Energy Initiative to catalyze 3,000 megawatts (MW) in solar energy projects through innovative public–private partnerships. ADB's operations departments have been active through public and private sector support in renewable energy. ADB's private sector operations have financed stand-alone solar power projects across India, including projects in Rajasthan. ADB support for public sector activities has been provided mainly through financing for transmission facilities to evacuate power generated from renewable energy to the grid. This included support for the transmission infrastructure for solar parks in the state of Gujarat in 2010. The pipeline of renewable energy projects in India is strong and growing.

3. Around 300 million people have no access to electricity in India.[3] The country is dependent on fossil fuel imports of coal and natural gas to generate electricity. At the same time, India is also promoting increased use of clean energy to meet fast-rising electricity demand by supplementing conventional power generation sources with renewable energy. In 2015, the government announced at the United Nations Climate Change Conference that it aims to increase the share of installed electric power capacity from non-fossil fuel-based energy resources to 40% by 2030.[4] Some of the more tropical regions in India benefit from solar irradiation ranging from 4–7 kilowatt-hours per square meter of area. The solar irradiation in the western region, particularly in the desert areas of Rajasthan, is at the higher end of this spectrum. India also has significant wind potential in its western region. These advantages have led to India's decision to invest in renewable energy, particularly in the state of Rajasthan.

4. Tranche 1 was approved on 22 October 2013. The tranche 1 loan and project agreements were signed on 12 September 2014 and became effective on 6 November 2014. Tranche 1, amounting to $62 million from ADB's ordinary capital resources and $90 million from the CTF administered by ADB,[5] has physical and non-physical outputs. Rajasthan Rajya Vidyut Prasaran Nigam (RRVPN) is responsible for physical outputs, which consist of (i) the construction of two grid substations (400/220 kilovolts [kV]) at Bhadla and Ramgarh, (ii) the augmentation of one substation (400/200 kV) at Akal, and (iii) the construction of 400 kV of

[1] The CTF is a funding window of the Climate Investment Funds, providing middle-income and developing countries with resources to scale up demonstration, deployment, and transfer of low-carbon technologies

[2] ADB. 2013. *Report and Recommendation of the President to the Board of Directors*: *Proposed Multitranche Financing Facility and Administration of Loans and Technical Assistance Grant to India for the Rajasthan Renewable Energy Transmission Investment Program.* Manila.

[3] World Bank. 2015. *Power for All: Electricity Access Challenge in India.* Washington, DC.

[4] India has an installed power generation capacity of around 275 GW as of 2015, with renewable energy contributing around 13% (36 GW).

[5] This includes $2 million of a technical assistance grant (Footnote 2).

double-circuit transmission lines in Western Rajasthan. Nonphysical outputs consist of technical capacity development, community development, and training for women.

5. On 25 October 2016, ADB received the government's periodic financing request for tranche 2, totaling $348 million ($238 million from ADB's ordinary capital resources and $110 million from the CTF administered by ADB), to integrate 5 gigawatts of solar generation and wind generation in Rajasthan from FY2021 to FY2022. Originally, it was expected that there would be two additional tranches: tranche 2 of about $220 million and tranche 3 of about $128 million. However, RRVPN realized in 2016 that a 765 kV transmission line and a substation are necessary to evacuate renewable energy to be connected by FY2022. To cover the cost of the 765 kV power systems and related facilities, the remaining facility amount, totaling $348 million, is requested for tranche 2. For further processing and implementation of tranche 2, ADB received the government's request for extension of the MFF availability period from 31 December 2018 to 31 December 2021.

II. ASSESSMENT OF IMPLEMENTATION

6. **Physical and nonphysical progress.** Tranche 1 has seven contracts, of which four turnkey contracts were signed by the end of February 2015. The remaining three contracts were signed in January 2016. As of September 2016, cumulative disbursement was $53.4 million out of $150.0 million. Six contracts out of seven are expected to be completed by March 2017, while one contract will be completed by August 2017. RRVPN has applied for a loan extension until December 2017 for completion of work for tranche 1.

7. Tranche 1 was categorized as "effective gender mainstreaming." Social development and gender and development-related activities are being implemented by the Rajasthan Renewable Energy Corporation (RREC) through a nongovernment organization and a team of national consultants responsible for social development, and gender and development-, livelihood-, and communication-related activities. The gender action plan and community action plan have been implemented since August 2016 by the nongovernment organization in collaboration with RREC. RREC is reporting progress on the social development and gender and development activities periodically to ADB through the gender action plan implementation updates attached to the quarterly progress reports.

8. **Lessons learned.** Tranche 1 faced delays during the technical bid evaluation process of the first four turnkey contracts due to RRVPN's shortage of experience in international competitive bidding. However, RRVPN has since improved its capacity in technical bid evaluation, and the process was shortened by 2–3 months during the evaluation of the last three turnkey contracts.

9. **Compliance.** The government and executing agency of tranche 1 are in compliance with most of the FFA undertakings and with the loan covenants, including safeguards set forth in the loan agreement for tranche 1. The initial environmental examination for tranche 1 has been disclosed, safeguards monitoring has been undertaken, and the monitoring reports submitted. Certain undertakings and covenants are not yet due, and the work for compliance with some other undertakings and covenants is ongoing. The following four covenants are not yet fully complied with: (i) updates of initial environmental examination, (ii) disbursement of rent and additional assistance, (iii) safeguard-related provisions in work contracts, and (iv) sexually transmitted infection awareness program. A safeguard action plan was agreed between ADB and the executing agency, and is in progress. The current detailed status of compliance with the FFA undertakings and loan covenants is in Annex 5 of Appendix 1.

III. PERIODIC FINANCING REQUEST

A. Impact and Outcome

10. The impact of project 2 will be accelerated development of renewable energy sources in Rajasthan and India, aligned with Jawaharlal Nehru National Solar Mission.[6] The outcome will be a cleaner energy mix with a more efficient and effective generation and transmission system in Rajasthan achieved.

B. Outputs

11. The output of tranche 2 will be an expanded bulk power transmission system in Rajasthan which includes (i) construction of 210 kilometers of a 765 kV transmission line, 264 kilometers of a 400 kV transmission line, 240 kilometers of a 220 kV transmission line, 132 kilometers of a 132 kV transmission line, and optical ground wires to connect existing substations; and (ii) construction of eight substations, augmentation of transformers at two substations, and extension of bays at five substations.

C. Investment and Financing Plans

12. The tranche is estimated to cost $500.7 million (Table 1).

13. Detailed cost estimates by expenditure category and detailed cost estimates by financier are included in the project administration manual for this tranche (Appendix 7).

Table 1: Tranche Investment Plan
($ million)

Item		Amount[a]
A.	**Base Cost**[b]	
	Transmission lines	276.8
	Substations	157.3
	Subtotal (A)	**434.1**
B.	**Contingencies**[c]	**45.8**
C.	**Financing Charges During Implementation**[d]	**20.8**
	Total (A+B+C)	**500.7**

[a] Includes taxes and duties of (i) $1.8 million to be financed by the government, and (ii) $5.4 million to be financed by the Asian Development Bank (ADB) and the Clean Technology Fund (CTF). The amount of taxes and duties to be financed by ADB and the CTF (i) is within the reasonable threshold identified during the Country Partnership Strategy preparation process and (ii) does not represent an excessive share of the investment plan. The financing of the taxes and duties is applied only to ADB-financed turnkey contracts, and considered material and relevant to the success of the project.
[b] In 2016 prices.
[c] Physical contingencies computed at 3% for substations and 10% for transmission lines. Price contingencies computed at 1.5% on foreign exchange costs and 5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount. Interest during construction for the CTF loan has been computed at an interest rate of 0.25% and a management fee of 0.18%.
Sources: Rajasthan Rajya Vidyut Prasaran Nigam and ADB.

[6] Ministry of New and Renewable Energy, Government of India. 2009. Jawaharlal Nehru National Solar Mission. Available: http://pib.nic.in/archieve/others/2009/Nov/mission-JNNSM.pdf

14. The Government of India has requested loans of $238 million from ADB's ordinary capital resources and $110 million from the CTF administered by ADB to help finance the project. ADB's OCR will have a 20-year term, including a grace period of 6 years, 5% annuity repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements. Based on this, average loan maturity is 14.05 years and the maturity premium payable to ADB is 0.10% per annum. The CTF loan financing will come with a 40-year term, including a grace period of 10 years, an annual interest rate of 0.25%, a multilateral development bank fee of 0.18% per year, and such other terms and conditions set forth in the draft loan agreements.[7]

15. The financing plan is in Table 2.

Table 2: Financing Plan

Source	Amount ($ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (loan)	238.0	47.5
Cofinancing		
Clean Technology Fund (loan)[a]	110.0	22.0
RRVPN's domestic corporate loan	50.4	10.1
Government of Rajasthan (equity)	102.3	20.4
Total	**500.7**	**100.0**

RRVPNL = Rajasthan Rajya Vidyut Prasaran Nigam.
[a] The Clean Technology Fund loan will be administered by the Asian Development Bank.
Source: Asian Development Bank estimates.

D. Implementation Arrangements

16. RRVPN, the state transmission licensee in Rajasthan, and the Energy Department of Rajasthan will be the executing agencies for the investment program. RRVPN will be the implementing agency. RREC, the state government nodal agency responsible for developing renewable energy, will coordinate with the state government to provide the necessary land for power project developers. RRVPN has the capacity to execute and monitor the implementation of the program. This capacity is underpinned by the existence of a dedicated project management unit (PMU) in RRVPN since 2012, which is responsible for design, supervision, and procurement. Project implementation will be handled by RRVPN's regional office in Jodhpur, Rajasthan. Private sector investment proposals and the related bidding process will be handled by a committee of secretaries from the government, supported by RREC.

17. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual (Appendix 7).

[7] The principal repayment per annum will be based on 2% during the first 10 years, and 4% for the rest of 20 years.

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	January 2017–June 2021		
Estimated completion date	30 June 2021 (loan closing date: 31 December 2021)		
Management			
(i) Oversight body	Government of Rajasthan (Department of Energy)		
(ii) Executing agency	Department of Energy, RRVPN		
(iii) Key implementing agencies	RRVPN		
(iv) Implementation unit	Project management unit established in RRVPN		
Procurement	International competitive bidding	10 contracts	$323 million
Retroactive financing and/or advance contracting	Advance contracting, including preparation of bidding documents, inviting and receiving bids for contracts, and retroactive financing of up to 20% of the loan amount for expenditures incurred 12 months before loan signing		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, RRVPN = Rajasthan Rajya Vidyut Prasaran Nigam.
Source: ADB.

E. Project Readiness

18. The proposed subprojects were discussed and concurred by the Central Electricity Authority. The state government of Rajasthan has approved the detailed project report, which (i) comprises the project scope and design; and (ii) demonstrates the project's technical, financial, and economic viability. The above concurrence has been furnished to the ministries of the Government of India: Ministry of New and Renewable Energy, Ministry of Power, and Department of Economic Affairs, Ministry of Finance, via an official letter. No other approvals are required. ADB has reviewed the detailed project report from a technical point of view and found it to be technically sound and adequate to meet the integration of increased renewable energy into the grid.

19. There are 10 procurement packages in tranche 2. Tenders for five packages (totaling $247 million) have already been floated, one package was opened in October 2016, and the remaining four packages will be opened in November 2016. These packages will be awarded within the first quarter of 2017. Tenders for the remaining five packages will be advertised in 2017. The PMU has been established and is fully functional. The resettlement plans and initial environmental examination were disclosed on 31 October 2016. No private land acquisition is required because new substations will be built on government-owned land.

F. Advance Contracting and Retroactive Financing

20. In line with provisions in the FFA, advance contracting and retroactive financing of up to 20% of the proposed loan for eligible expenditures incurred before loan effectiveness, but not more than 12 months before the loan agreement signing date, is to be applied under tranche 2.

IV. DUE DILIGENCE

A. Technical

21. RRVPN carried out load flow studies using the latest available power system analysis software. These studies confirmed that the proposed transmission lines, transformers, and reactors have adequate capacity to evacuate the electricity from the sanctioned solar and wind power generation projects and maintain power system voltage within a nominal range. A comprehensive power system expansion plan including the proposed power system and intra-state power system has been examined and cleared by the Central Electricity Authority.

22. In addition, RRVPN will introduce substation automation systems and devices conforming to the latest International Electrotechnical Commission standard, 61850, which has been identified as one of the core standards related to smart grid technology. The systems and devices will be integrated to a central operation center system that is currently being considered by RRVPN.

B. Economic and Financial

23. The economic analysis includes an assessment of renewable energy generation projects in Rajasthan, including wind and solar power (Appendix 9). In 2015, the Government of India announced at the United Nations Climate Change Conference that the government has set a national target of 175,000 MW of wind and solar by 2022 and has increased renewable purchase obligations to 17%, including 8% from solar power. Rajasthan, with an installed capacity of over 1,200 MW of solar (making it the state with the highest solar capacity in India) and wind of over 4,000 MW (making it one of top three states in India with the highest wind capacity), has a significant role in achieving the national targets. Rajasthan follows a competitive tendering process for solar power and a feed-in tariff for wind power. The tariff for wind is calculated and announced by the Rajasthan Electricity Regulatory Commission. About 5,000 MW of additional capacity of wind and solar is expected to be transmitted over the Rajasthan transmission system by 2022. The economic analysis of the project compares benefits and costs under with- and without-investment scenarios and found the project to be economically viable, with an economic internal rate of return of about 18%. The return on investment is robust against sensitivities examined, and the economic internal rate of return is above the benchmark rate of 12% in all scenarios tested.

24. The financial analysis of the proposed ADB loan (Appendix 10) has been carried out in accordance with ADB's *Financial Management and Analysis of Projects*.[8] The tariff income has been computed based on the prevailing tariff regulations of the Rajasthan Electricity Regulatory Commission (RERC). At the time of approval of tranche 1, RRVPN was not claiming any return on equity (ROE) in its tariff, even though the RERC allows for 15.5% ROE. One of the loan covenants was the gradual implementation of ROE in the RRVPN's transmission tariff. This has been implemented by RRVPN since 2014. RRVPN has claimed (and RERC has approved) ROEs of 5% for FY2015, 8% for FY2016, and 12% for FY2017 in the tariff orders. This is also expected to improve the debt service coverage ratio to 1.4 in FY2016 and 1.6 in FY2017. Beginning in FY2018, RRVPN intends to claim the full 15.5% ROE mandated as per the regulations. A 25-year period has been used for the evaluation purpose of the financial internal rate of return. Tranche 2 yields a financial internal rate of return of 4.90% as compared to the weighted average cost of capital of 1.07% in real terms. The return on investment is robust

[8] ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

against sensitivities examined and the financial internal rate of return continues to exceed the weighted average cost of capital in all scenarios tested.

C. Governance

25. ADB conducted an assessment of RRVPN's governance, including its financial management and procurement capacities. The financial management assessment concluded that RRVPN has the ability to fulfill ADB's fiduciary requirements and that the overall financial management risk is low. RRVPN has a procurement unit of more than 40 qualified staff that has the capacity and experience to handle international competitive bidding operations and is familiar with ADB rules and procedures. ADB provided support to RRVPN in the preparation of bidding documents for the first set of investments, and RRVPN staff have participated in ADB procurement seminars. RRVPN has set up a PMU that is adequately staffed to implement the program.

26. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government, RRVPN, and the Energy Department of Rajasthan The specific policy requirements and supplementary measures are described in the project administration manual (Appendix 7).

D. Poverty, Social, and Gender Dimensions

27. The project aims to enhance the transmission capacity and improve the reliability and quality of the electricity supply in Rajasthan. This will promote improved energy access by industrial, commercial, and agricultural customers, and the general public. Using cleaner energy will improve urban and rural air quality, people's health, living conditions, and quality of life. The project is likely to create employment opportunities for local skilled and unskilled labor, including women, with benefits possibly extending to poor and socially disadvantaged within and near the project area, during project construction and throughout the implementation phase. The loan agreements include a standard assurance related to the compliance with national labor standards for contractors. Dialogue and communication (both written and verbal) with stakeholders will be carried out in a culturally appropriate manner.

E. Safeguards

28. Tranche 2 is classified as category B for environment, category B for involuntary resettlement, and category C for indigenous peoples. In accordance with ADB's Safeguard Policy Statement (2009), the Environmental Assessment and Review Framework for the MMF,[9] and Government of India environmental regulations, the project's potential environmental and social impacts and risks have been identified. Measures to avoid, mitigate, and compensate for adverse environmental impacts are incorporated in the initial environmental examination, which includes the environmental management plan (EMP). Potential environmental impacts are mostly temporary, predictable, and reversible, and can be mitigated through adherence to national and international standards, careful route selection for the transmission lines, and implementation of the EMP. There will be no impacts on forests, sanctuaries or protected areas, and historical and cultural monuments. All the proposed substations are on government land, which was confirmed by due diligence to have no (i) encroachers or informal settlers, and (ii) claims and disputes. For the transmission towers and lines, impacts related to loss of crops and trees are mostly temporary, will occur during construction, and will be compensated. Measures

[9] Footnote 3, Appendix 12.

to avoid, mitigate, and compensate for adverse impacts are incorporated in a resettlement plan. RRVPN is committed to managing social and environmental risks, and capacity building is included in the EMP and resettlement plan. Information disclosure to and consultations with affected people have been conducted following Safeguard Policy Statement requirements. PMUs have dedicated staff responsible for monitoring environmental and social issues and implementing the EMP and resettlement plan. Environmental and social monitoring reports will be submitted to ADB semiannually during the construction stage and annually during the operation stage.

29. The land required for the new substations comprises approximately 114.7 hectares of government-owned land that will be transferred to RRVPN. No additional land is required for transformer augmentation and bay extension since the existing substations have enough space for the additional transformers and bays. Due diligence confirmed that all of the sites are identified as vacant, situated in barren and sandy areas, and free from all encumbrances. Thus, activities for the new substations and augmentations have no involuntary resettlement impacts. Construction of transmission lines will have temporary impacts in terms of loss of crops. The restriction of the land use is also limited to the construction period. As per the applicable laws and regulations of the Government of India, transmission lines do not require land acquisition, and the impacts are considered to be temporary and not significant in nature. After the construction period, people are usually allowed to continue their cultivation along the right-of-way. Crop and tree losses are compensated at replacement value. The project's social impacts have been adequately assessed and compensation will be paid to the affected people commensurate to the impacts. A resettlement plan has been prepared based on a preliminary route alignment and in accordance with the applicable laws and guidelines of the Government of India, ADB's Safeguard Policy Statement, and the resettlement framework. The resettlement plan has been disclosed to interested stakeholders on both the ADB and RRVPN websites. Budgetary provisions are in place to compensate affected people for their losses. The resettlement plan will be finalized and updated based on the detailed and final route alignment. The loan agreements will include a standard assurance related to the resettlement impacts and social matters. The implementation of the resettlement plan will be monitored and supervised by RRVPN, and monitoring reports will be submitted to ADB semiannually. No indigenous peoples' impact is expected, as there is no indigenous people group in the project area.

F. Risks and Mitigating Measures

30. Major risks and mitigating measures are summarized in Table 4 and described in detail in the updated risk assessment and risk management plan (Appendix 14). The risks appear to be moderate and may be adequately mitigated. Overall, the integrated benefits and impacts are expected to outweigh the mitigation costs.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Weakened policy support for private solar power projects and/or low investments resulting from changes in market conditions	In 2015, the Government of India announced at the United Nations Climate Change Conference that it aims to increase the share of installed electric power capacity from non-fossil fuel-based energy resources to 40% by 2030. To achieve the target, policy support for renewable energy from the Government of India is expected to continue.
Weak financial position of RRVPN	A financial restructuring plan of RRVPN approved in 2012 allows RRVPN to claim a 15.5% return on equity in its tariff. The return on equity was 5.0% in FY2015 and 6.0% in FY2016, and RRVPN,

Risks	Mitigating Measures
	whose financial position is improving, intends to claim the full 15.5% by FY2018.
Low capacity to manage potential grid instability because of large-scale solar and wind generation	Existing regional technical assistance supports planning studies, the identification of required components, and training. RRVPN is planning to expand its optical fiber network to introduce power system monitoring and remote control system with support from the Government of India. The system will enable operators to take necessary action to address grid instability.
Completion delay of related transmission lines outside the scope of Project 2	Power Grid Corporation of India has already started a grid strengthening project called Green Energy Corridor. Under the project, Power Grid Corporation of India will strengthen the interstate transmission system to ensure that power from RRVPN's power system can be successfully evacuated.

RRVPN = Rajasthan Rajya Vidyut Prasaran Nigam.
Source: Asian Development Bank.

31. **Climate risks and mitigating measures.** The project area is prone to flooding, lightning, cyclones, and high temperatures. The potential climate risks have been identified by the project team in the climate risk assessment and management report (Supplementary Appendix A). Climate risk mitigation measures have been included in the initial environmental examination and will be implemented by RRVPN.

G. Risk Categorization

32. Tranche 2 is categorized as complex because the loan amount is above $200 million. RRVPN has demonstrated its capacity in project administration of tranche 1.

V. ASSURANCES

33. The Government of India, RRVPN, and the Energy Department of Rajasthan have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual and loan documents.

34. The Government of India, RRVPN, and the Energy Department of Rajasthan have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement and project agreement.

VI. MINOR CHANGE OF MULTITRANCHE FINANCING FACILITY – EXTENSION OF THE MULTITRANCHE FINANCING FACILITY AVAILABILITY PERIOD

35. Under the FFA, the current MFF availability period is until 31 December 2018. To enable the full implementation of tranche 2, it is requested that the availability period of the MFF be extended until 31 December 2021.

VII. RECOMMENDATION

36. On the basis of the approval by ADB's Board of Directors for (i) the provision of loans under the multitranche financing facility in an aggregate principal amount not exceeding $300,000,000 to India for the Rajasthan Renewable Energy Transmission Investment Program, from ADB's ordinary capital resources with ADB's London interbank offered rate (LIBOR)-based lending facility, and such other terms and conditions as are substantially in accordance with those set forth in the framework financing agreement presented to the Board, and (ii) the administration by ADB of loans under the multitranche financing facility in an aggregate principal amount not exceeding $198,000,000 to be provided from the Clean Technology Fund to India for the Rajasthan Renewable Energy Transmission Investment Program, and such other terms and conditions as are substantially in accordance with those set forth in the framework financing agreement presented to the Board, it is recommended that the President approve:

(i) the loan of $238,000,000 to India for the proposed tranche, from ADB's ordinary capital resources with interest to be determined in accordance with ADB's London interbank offered rate-based lending facility; for a term of 20 years, including a grace period of 6 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreements; and

(ii) the administration by ADB of the loan not exceeding the equivalent of $110,000,000 to India for the proposed tranche to be provided by the Clean Technology Fund and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreements.

37. It is further recommended that the President approve the minor change of multitranche financing facility as described in para. 35 to extend the availability period of the Rajasthan Renewable Energy Transmission Investment Program from 31 December 2018 to 31 December 2021.