



## India: National Green Energy Corridor Investment Project

Project Name	National Green Energy Corridor Investment Project
Project Number	44426-017
Country	India
Project Status	Closed
Project Type / Modality of Assistance	Technical Assistance
Source of Funding / Amount	<b>TA 8545-IND: National Green Energy Corridor Investment Project</b> Technical Assistance Special Fund US\$ 225,000.00
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth
Drivers of Change	Knowledge solutions Partnerships
Sector / Subsector	<b>Energy</b> - Electricity transmission and distribution
Gender Equity and Mainstreaming	No gender elements
Description	<p>In order to facilitate transfer of renewable energy from the renewable energy rich states to other states, as well as absorption and smoothing out of the intermittency from such power sources, Powergrid has identified requisite transmission investments. These include strengthening of grid connectivity to enlarge the power balancing area, reactive compensation, establishment of Renewable Energy Management Centers equipped with advanced forecasting tools along with reliable communications, and technology in the form of phasor measurement units and wide area measuring systems throughout the transmission system linked to the control centers through fiber optic communications for real time information, monitoring and control. Secondly, Powergrid has identified investments to improve interregional transmission connectivity.</p> <p>Investment requirements, excluding various intra-state requirements, total about \$4.2 billion. The investments to be funded with the proposed ADB loan have a total project cost of about \$1 billion, for which it is proposed that ADB provide a \$500 million loan. The ADB loan envisages green energy corridor components, including two 765 kV direct current lines , a 3000 MVA 765/400 kV substation at Bikaner, Rajasthan, plus upgradation of an existing high voltage direct current corridor, and separately, increased interconnectivity between the western and southern regions. The proposed ADB loan will thus improve interstate power flows and system reliability in the northern region, so that the overall system is more accommodating to the growing intermittent renewable energy sources under development and the possibility of the future development of renewable energy sources by both public and private sector will be enhanced in India. It will also enhance interregional connectivity between the western and southern regions.</p>

Project Rationale and Linkage to Country/Regional Strategy	<p>The Indian power sector has a history of steadily increasing demand for, and chronic shortages of, electricity. An adequate power supply contributes to poverty alleviation, yet over 30% of India's population lack access to electricity. Continued shortages significantly constrain commercial and industrial activity and reduce growth. Businesses and manufacturers must utilize more expensive back-up power supplies, often diesel fuel-based, which increase their costs, undercut competitiveness and contributes to unwanted GHG emissions. Insufficient domestic fuel resources and rising international coal and oil prices threaten India's already fragile energy security, such that maximizing renewable energy sources is a government priority.</p> <p>Presently the total installed electricity generation capacity in India is about 228.7 giga-watt (GW) as of 30 September 2013. Out of this, about 13% (29 GW) is from renewable energy sources. During India's 12th Five Year Plan (2013-2017), the Ministry of New and Renewable Energy (MNRE) targets an additional 32 GW of renewable energy generation capacity from wind, solar, small hydropower and biomass sources, more than doubling the existing capacity. However, the intermittent nature of these renewable energy sources threatens transmission grid stability, such that considerable new transmission system investment is required to effectively evacuate renewable power from its source locations to the grid, and to perform system balancing functions.</p> <p>MNRE and the Forum of Regulators commissioned Power Grid Corporation of India Ltd. (Powergrid) to conduct a study to identify requisite nationwide transmission investments required to accommodate the anticipated additional renewable energy generation capacity. Powergrid is the public sector corporation that is mainly responsible for construction, expansion, operations and maintenance of India's inter-state and inter-regional power transmission network.</p>
Impact	<p>(for ensuing project)</p> <p>Enhanced transmission system capacity to absorb large renewable energy capacity additions.</p>

## Project Outcome

Description of Outcome	<p>(for the PPTA)</p> <p>A well-prepared investment project supporting India's green energy corridor investment initiative.</p>
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Progress Toward Outcome

### Implementation Progress

Description of Project Outputs	<p>(for PPTA)</p> <p>Due diligence on environment, social and poverty, financial management, financial and economic analysis, and technical analysis completed.</p>
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Status of Implementation Progress (Outputs, Activities, and Issues)

Geographical Location

## Summary of Environmental and Social Aspects

Environmental Aspects

Involuntary Resettlement

Indigenous Peoples

### Stakeholder Communication, Participation, and Consultation

During Project Design	Stakeholders will be consulted as per ADB's communications policies and Safeguards Policy Statement 2009.
During Project Implementation	Stakeholders will be consulted as per ADB's communications policies and Safeguards Policy Statement 2009.

## Business Opportunities

Consulting Services	<p>Powergrid will be the executing agency for the TA. The consultants will be housed in Powergrid's office. The S-PPTA will be implemented from January 2014 to October 2014.</p> <p>Three international consultants for 7.5 person-months, and two national consultants for 2.5 person-months will be recruited. ADB will engage the consultants on an individual basis in accordance with its Guidelines on the Use of Consultants by ADB and its Borrowers (2013, as amended from time to time), and other arrangements satisfactory to ADB for engaging individual consultants. Disbursements under the S-PPTA will be made in accordance with ADB's Technical Assistance Disbursement Handbook (2010, as amended from time to time). Outline terms of reference are given in Attachment 1. The consultants will prepare inception, draft final and final reports.</p>
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## Responsible Staff

Responsible ADB Officer	ADB Disclosure
Responsible ADB Department	South Asia Department
Responsible ADB Division	Energy Division, SARD
Executing Agencies	<i>Power Grid Corporation of India Limited SAUDAMANI Plot No. 2, Sector - 29 Gurgaon - 122 001 Haryana, India</i>

## Timetable

Concept Clearance	-
Fact Finding	-
MRM	-
Approval	10 Dec 2013
Last Review Mission	-
Last PDS Update	10 Mar 2016

## TA 8545-IND

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
10 Dec 2013	-	10 Dec 2013	31 Oct 2014	30 Apr 2016	-

Financing Plan/TA Utilization						Cumulative Disbursements		
ADB	Cofinancing	Counterpart				Total	Date	Amount
		Gov	Beneficiaries	Project Sponsor	Others			
225,000.00	0.00	60,000.00	0.00	0.00	0.00	285,000.00	10 Dec 2013	135,444.16

Project Page	<a href="https://www.adb.org/projects/44426-017/main">https://www.adb.org/projects/44426-017/main</a>
Request for Information	<a href="http://www.adb.org/forms/request-information-form?subject=44426-017">http://www.adb.org/forms/request-information-form?subject=44426-017</a>
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