

# Project Administration Manual

Project Number: P44426  
Loan Number(s): {LXXXX }  
September 2011

## INDIA: National Grid Improvement Project

## CONTENTS

I.	PROJECT DESCRIPTION	1
	A. Impact and Outcome	2
	B. Outputs	2
II.	IMPLEMENTATION PLANS	3
	A. Project Readiness Activities	3
	B. Overall Project Implementation Plan	4
III.	PROJECT MANAGEMENT ARRANGEMENTS	5
	A. Project Implementation Organizations – Roles and Responsibilities	5
	B. Key Persons Involved in Implementation	5
	C. Project Organization Structure	6
IV.	COSTS AND FINANCING	7
	A. Detailed Cost Estimate by Expenditure Category	7
	B. Allocation and Withdrawal of Loan Proceeds	7
	C. Detailed Cost Estimates by Financier	8
	D. Detailed Cost Estimates by Year	8
	E. Contract and Disbursement S-curve	8
	F. Fund Flow Diagram	9
V.	FINANCIAL MANAGEMENT	10
	A. Financial Management Assessment	10
	B. Disbursement	10
	C. Accounting	11
	D. Auditing	11
VI.	PROCUREMENT	12
	A. Advance Contracting and Retroactive Financing	12
	B. Procurement of Goods and Works	12
	C. Procurement Plan	13
	<b>BASIC DATA</b>	13
VII.	SAFEGUARDS	14
VIII.	GENDER AND SOCIAL DIMENSIONS	15
IX.	PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION	15
	A. Project Design and Monitoring Framework	15
	B. Monitoring	17
	C. Evaluation	18
	D. Reporting	18
	E. Stakeholder Communication Strategy	18
X.	ANTICORRUPTION POLICY	19
XI.	ACCOUNTABILITY MECHANISM	19
XII.	RECORD OF PAM CHANGES	19

### **Project Administration Manual Purpose and Process**

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The executing and implementing agencies are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

## Abbreviations

ADB	=	Asian Development Bank
CAG	=	Comptroller and Auditor General of India
CEA	=	Central Electricity Authority
CERC	=	Central Electricity Regulatory Commission
D/C	=	double circuit
DMF	=	design and monitoring framework
DSCR	=	debt service coverage ratio
EA	=	executing agency
EMP	=	environmental management plan
HIV	=	human immunodeficiency virus
HVDC	=	high voltage direct current
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IPP	=	independent power producer
kV	=	kilovolt
LILO	=	Loop-in loop-out
MOF	=	Ministry of Finance, Government of India
MVA	=	megavolt-ampere
MW	=	megawatt
NSO	=	non sovereign operation
NR	=	northern grid region
PAM	=	project administration manual
PCR	=	project completion report
PMU	=	project management unit
POWERGRID	=	Power Grid Corporation of India
ROW	=	right of way
RP	=	resettlement plan
RRP	=	Report and Recommendation of the President to the Board
SOV	=	sovereign guaranteed
SPS	=	Safeguard Policy Statement
WR	=	western grid region

## I. PROJECT DESCRIPTION

1. The Indian power sector has historically been characterized by energy shortage against growing electricity demand.<sup>1</sup> During 2009–10, peak power deficit was estimated to be 12.7% and average energy deficit was 10.1%. The country is in chronic need of additional power supply and the power sector continues to be affected by the shortfall both on generation and transmission capacity. It is evident that the deficit in power availability is a significant impediment to the sustainable development of the country's economy. The capacity of the overall power supply system will need to be urgently increased commensurate with overall system efficiency improvements.

2. The current installed generation capacity in India is 173,626 MW, of which the existing interregional transmission capacity is limited to 13.7% of this total (i.e., around 23,800 MW). With focus on increasing generation capacity over the next few years, expansion of transmission capacity is urgently needed to ensure enhanced, reliable power supply. Traditionally, the Government of India (the government) has accelerated investment in power generation to alleviate the acute power shortage. Generation capacity from the private sector has increased markedly over the last 4 years.<sup>2</sup> Investment in transmission and generation is now being emphasized to ensure adequate capacity for absorption of the increased supply.

3. To optimize national power supply and promote efficient country-wide power transfer, the government aims to integrate the regional power grid networks, which comprise five regions including northern, north-eastern, eastern, western, and southern. Each electrical region attempts to connect and synchronize the power systems of its constituent states, but interregional power transfer capacity has remained limited. Because natural energy resources in India are unevenly distributed, generation sites are concentrated in certain locations. Without “the transmission super highways” among the regions, regions in surplus power would not be efficiently linked to regions in power deficit; resulting in inefficient energy use nationally. To overcome this constraint, the government seeks to increase interregional transmission capacity from 23,800 MW to 27,950 MW by 2012, growing to 57,000 MW by 2015, and 75,000 MW by 2017 under the 12<sup>th</sup> Five Year Plan (FY2013–FY2017). Interregional transmission network strengthening will create a backbone promoting open access to power supply and increased investment in both generation and distribution. The interregional grids will also help integrate the electricity market, encouraging power trading and competitive electricity prices.

4. As the central transmission utility, Power Grid Corporation of India (POWERGRID) is responsible for planning, developing and operating India's national transmission network, operating more than 95% of interregional and inter-state power transmission.<sup>3</sup> POWERGRID was incorporated as a public limited company wholly owned by the central government. In 2010 the government disinvested its shares and reduced its equity shareholding in the company to 69%. By the end of the 12<sup>th</sup> Five-Year Plan up to FY2017, POWERGRID plans to invest about \$22 billion to more than double the size of its network, critical to supporting new power generation being developed by public and private utilities. To support its ambitious investment plan, it is proposed to diversify its sources of debt capital by tapping the commercial lending market. POWERGRID predominantly relies on two sources of debt: domestic bond issues (67%

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<sup>1</sup> The sector assessment (summary) is in Appendix 2.

<sup>2</sup> The additional generation capacity from the private investment was drastically increased in the 2000's by more than 5 times from 1,931 MW (FY2003-FY2007 under the 10<sup>th</sup> Plan) to 11,040 MW (FY2008-FY2012 under the 11<sup>th</sup> plan) as of 31 January 2011.

<sup>3</sup> Unlike the interregional and inter-state transmission, intra-state transmission is owned by state utilities.

of total debt outstanding) and sovereign guaranteed loans of multilateral banks (27%).<sup>4</sup> To help strengthen and diversify POWERGRID's ability to raise large funding for future investment, the 2010 country program includes a unique financing structure combining nonsovereign loan and sovereign guaranteed loan in a single financing package. The government requested the Asian Development Bank (ADB) in the 2010 country program to demonstrate such a novel financing package as a transitional arrangement for large publicly-owned entities including central public sector undertakings (CPSUs), which will require the emerging capability to raise market based funds on their own account. This will permit CPSUs to independently meet their sizable investment requirements while gradually reducing dependence on Government guarantee support.

### **A. Impact and Outcome**

5. The project impact is to accelerate the development of the interregional grid system to deliver increased power supply to sustain the country's economic growth. As the project outcome, strengthened transmission capacity and operations will increase reliable power supply from private IPPs and public utilities through the interconnected grid network. The project will facilitate integration of electricity markets, and create power trading opportunities through open access and competition among private and public utilities by expanding potential power sellers and buyers beyond regions. Thus the project will allow them to access wider geographical markets and help promote private investment in generation and distribution.

### **B. Outputs**

6. The Project shall involve establishment of HVDC interregional transmission system between the northern (Haryana) and western (Chhattisgarh) regions, and shall comprise:

- (a) Construction of a 800kV HVDC transmission line (approximately 1,365 km) between Champa (in Chhattisgarh) and Kurukshetra (in Haryana); and
- (b) Establishment of 800kV HVDC terminals at Champa and Kurukshetra.

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<sup>4</sup> The balance 5% of debt is mostly from legacy domestic bank facilities, suppliers' credit transactions, and sovereign guaranteed facilities from bilateral agencies dating from the 1990s to the early 2000s.

## II. IMPLEMENTATION PLANS

### A. Project Readiness Activities

Indicative Activities	Months (2011)					Who responsible
	1 May	2 Jun	3 Jul	4 Aug	5 Sep	
Advance contracting actions			X			POWERGRID and ADB
Establish project implementation arrangements	X					POWERGRID
Loan negotiations				X		ADB and POWERGRID
ADB Board approval					X	ADB
Government budget inclusion (for guarantee)				X		MOF and POWERGRID

## B. Overall Project Implementation Plan

Description	2011				2012				2013				2014				2015				2016				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Project Formulation</b>																												
Finalization of Scheme	■																											
Preparation of Feasibility Report	■	■																										
<b>Implementation</b>																												
<b>HVDC Bipole Transmission Line</b>																												
Tendering Award				■	■	■	■																					
Preparatory works and mobilization								■	■																			
Civil works, supply and erection of equipment										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Testing and Commissioning																							■	■	■	■	■	■
<b>HVDC Bipole Terminals</b>																												
Tendering and Award					■	■	■	■	■																			
Preparatory works and mobilization								■	■																			
Civil works, supply and erection of equipment										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Testing and Commissioning																								■				
<b>Conductor and Insulator for HVDC Line<sup>a</sup></b>																												
Tendering and Award					■	■	■	■																				
Supply										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>400 kV D/C between Kurukshetra and Jalandhar<sup>a</sup></b>																												
Tendering and Award								■	■	■	■																	
Preparatory works and mobilization										■	■																	
Civil works, supply and erection of equipment											■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Testing and Commissioning																								■				
<b>LILO of Abdullapur to Sonapat 400kV D/C<sup>a</sup></b>																												
Tendering and Award								■	■	■	■																	
Preparatory works and mobilization										■	■																	
Civil works, supply and erection of equipment											■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Testing and Commissioning																								■				
<b>Conductor and Insulator for 400kV D/C<sup>a</sup></b>																												
Tendering and Award										■	■	■	■															
Supply											■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Reviews</b>											■		■		■		■		■		■		■		■		■	
<b>Project Completion Report</b>																												■

<sup>a</sup> To be implemented under POWERGRID's overall investment program (not the project output) .



### III. PROJECT MANAGEMENT ARRANGEMENTS

#### A. Project Implementation Organizations – Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
POWERGRID	<ul style="list-style-type: none"> <li>Overall responsibility for implementation of the Project</li> </ul>
Co-ordination Committee Meeting	<ul style="list-style-type: none"> <li>To schedule progress of the project, along with the progress of the generation projects of IPPs, in consultation with Central Electricity Authority (CEA).</li> </ul>
Project Management Unit (PMU)	<ul style="list-style-type: none"> <li>Responsible for coordination, implementation, and administration of the project.</li> <li>Headed by Executive Director (Corporate Planning) at its head quarters.</li> </ul>
ADB	<ul style="list-style-type: none"> <li>Will undertake regular project review and facilitate in project implementation</li> </ul>

#### B. Key Persons Involved in Implementation

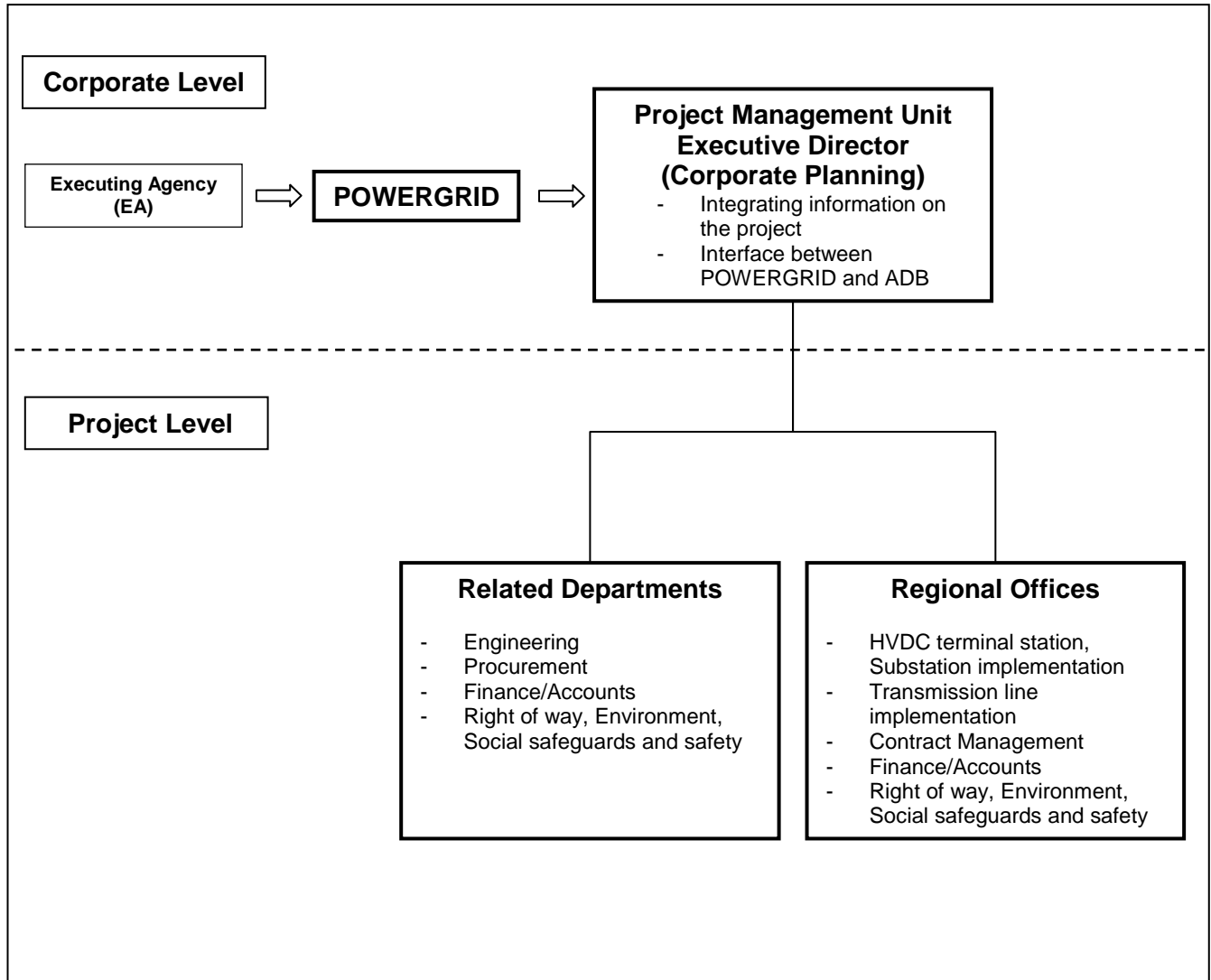
##### Executing Agency

POWERGRID Head Office	Officer's Name	B. Mishra
	Position	Executive Director (Corporate Planning)
	Telephone	+91 124-2571960
	Email address	<a href="mailto:bmishra@powergridindia.com">bmishra@powergridindia.com</a>
	Office Address	'SAUDAMINI', Plot No.-2, Sector-29, Gurgaon-122 001, Haryana, India

##### ADB

South Asia Energy Division	Staff Name	Yongping Zhai
	Position	Director, SAEN
	Telephone No.	+ 63 2 6325976
	Email address	<a href="mailto:yzhai@adb.org">yzhai@adb.org</a>
Mission Leader	Staff Name	Kaoru Ogino
	Position	Senior Energy Specialist
	Telephone No.	+ 63 2 6325479
	Email address	<a href="mailto:kogino@adb.org">kogino@adb.org</a>

### C. Project Organization Structure



#### IV. COSTS AND FINANCING

7. The overall investment cost is estimated at \$2,250 million, including contingencies and financing charges. ADB will finance \$750 million comprising \$500 million sovereign loan and \$250 million nonsovereign loan.

##### A. Detailed Cost Estimate by Expenditure Category

Item	Rs Million			\$ Million			% of base cost
	Foreign exchange	Local currency	Total	Foreign exchange	Local currency	Total	
<b>A Investment Costs<sup>a</sup></b>							
1 Civil works		13,250.5	13,250.5		297.2	297.2	17.4
2 Equipment	31,514.1	22,077.9	53,592.0	706.8	495.1	1,201.9	70.6
3 Land acquisition and development, environment and social mitigation costs		1,590.4	1,590.4		35.7	35.7	2.1
4 Inland freight and insurance		1,155.6	1,155.6		25.9	25.9	1.5
5 Project management		3,628.8	3,628.8		81.4	81.4	4.8
6 Taxes and duties		2,743.6	2,743.6		61.5	61.5	3.6
<b>Total Base Cost (A)</b>	<b>31,514.1</b>	<b>44,446.8</b>	<b>75,960.9</b>	<b>706.8</b>	<b>996.8</b>	<b>1,703.6</b>	<b>100.0</b>
<b>B Contingencies</b>							
1 Physical <sup>b</sup>	945.4	1,333.4	2,278.8	21.2	29.9	51.1	3.0
2 Price <sup>c</sup>	172.2	7,687.6	7,859.8	3.9	172.4	176.3	10.3
3 Exchange rate variation	3,188.4		3,188.4	71.5	-	71.5	4.2
<b>Subtotal (B)</b>	<b>4,306.0</b>	<b>9,021.0</b>	<b>13,327.0</b>	<b>96.6</b>	<b>202.3</b>	<b>298.9</b>	<b>17.5</b>
<b>C Financing Charges During Implementation</b>	<b>3,183.8</b>	<b>7,857.3</b>	<b>11,041.1</b>	<b>71.4</b>	<b>176.2</b>	<b>247.6</b>	<b>14.5</b>
<b>Total Project Cost (A+B+C)</b>	<b>39,003.9</b>	<b>61,325.1</b>	<b>100,329.0</b>	<b>874.8</b>	<b>1,375.3</b>	<b>2,250.1</b>	<b>132.0</b>

<sup>a</sup> ADB estimates for costs are based on a detailed project report submitted by POWERGRID and discussions with POWERGRID in 2011, and are expressed in 2011 prices.

<sup>b</sup> Physical contingencies are computed at 3% of base cost.

<sup>c</sup> Price contingencies for foreign and local currency expenditure are computed as per ADB Financial Management and Analysis of Projects, 2005.

Source: Asian Development Bank and POWERGRID.

##### B. Allocation and Withdrawal of Loan Proceeds

Item	Sovereign loan (\$ million)	% of ADB financing	Nonsovereign loan (\$ million)	% of ADB financing
<b>A Equipment</b>	<b>471.8</b>		<b>235.0</b>	
1. Substations <sup>a</sup>	399.0	63 of CIF <sup>b</sup>	198.8	37 of CIF <sup>b</sup>
2. Transmission Line	72.8	63 of CIF <sup>b</sup>	36.2	37 of CIF <sup>b</sup>
<b>B Contingencies</b>	<b>28.2</b>		<b>15.0</b>	
<b>Total</b>	<b>500.0</b>		<b>250.0</b>	

<sup>a</sup> Includes HVDC terminals.

<sup>b</sup> Exclusive of all taxes, duties, inland freight and insurance.

ADB = Asian Development Bank. CIF = cost, insurance, and freight.

Source: Asian Development Bank and POWERGRID (ADB estimates for costs are based on a detailed project report submitted by POWERGRID and discussions with POWERGRID in 2011 and expressed in mid-2011 prices.)

### C. Detailed Cost Estimates by Financier

Item	ADB		ADB		POWERGRID	% of cost category	Total
	Sovereign loan	% of cost category	Nonsovereign loan	% of cost category			
(\$ million)							
<b>A Investment Costs</b>							
1 Civil works		0.0		0.0	297.2	100.0	297.2
2 Equipment				0.0		0.0	
a. Foreign currency portion <sup>a</sup>	471.8	66.8	235.0	33.2	-	0.0	706.8
b. Local currency portion		0.0		0.0	495.1	100.0	495.1
3 Land acquisition and development, environment and social mitigation costs		0.0		0.0	35.7	100.0	35.7
4 Inland freight and insurance		0.0		0.0	25.9	100.0	25.9
5 Project management		0.0		0.0	81.4	100.0	81.4
6 Taxes and duties		0.0		0.0	61.5	100.0	61.5
<b>Total Base Cost (A)</b>	<b>471.8</b>	<b>27.7</b>	<b>235.0</b>	<b>13.8</b>	<b>996.8</b>	<b>58.5</b>	<b>1,703.6</b>
<b>B Contingencies</b>	<b>28.2</b>	<b>9.5</b>	<b>15.0</b>	<b>5.0</b>	<b>255.7</b>	<b>85.5</b>	<b>298.9</b>
<b>C Financing Charges During Implementation</b>		<b>0.0</b>		<b>0.0</b>	<b>247.6</b>	<b>100.0</b>	<b>247.6</b>
<b>Total Project Cost (A+B+C)</b>	<b>500.0</b>	<b>22.2</b>	<b>250.0</b>	<b>11.1</b>	<b>1,500.1</b>	<b>66.7</b>	<b>2,250.1</b>

<sup>a</sup> After the availability period of the nonsovereign loan, 100% will be funded by the sovereign loan.

ADB = Asian Development Bank, POWERGRID = Power Grid Corporation of India.

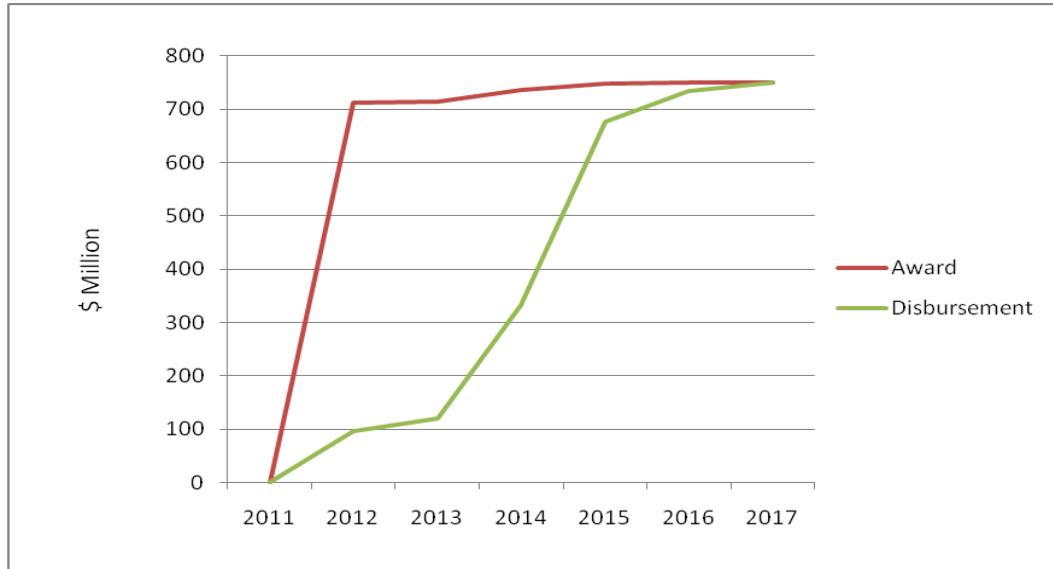
Source: Asian Development Bank and POWERGRID (ADB estimates for costs are based on a detailed project report submitted by POWERGRID and discussions with POWERGRID in 2011 and expressed in mid-2011 prices.)

### D. Detailed Cost Estimates by Year

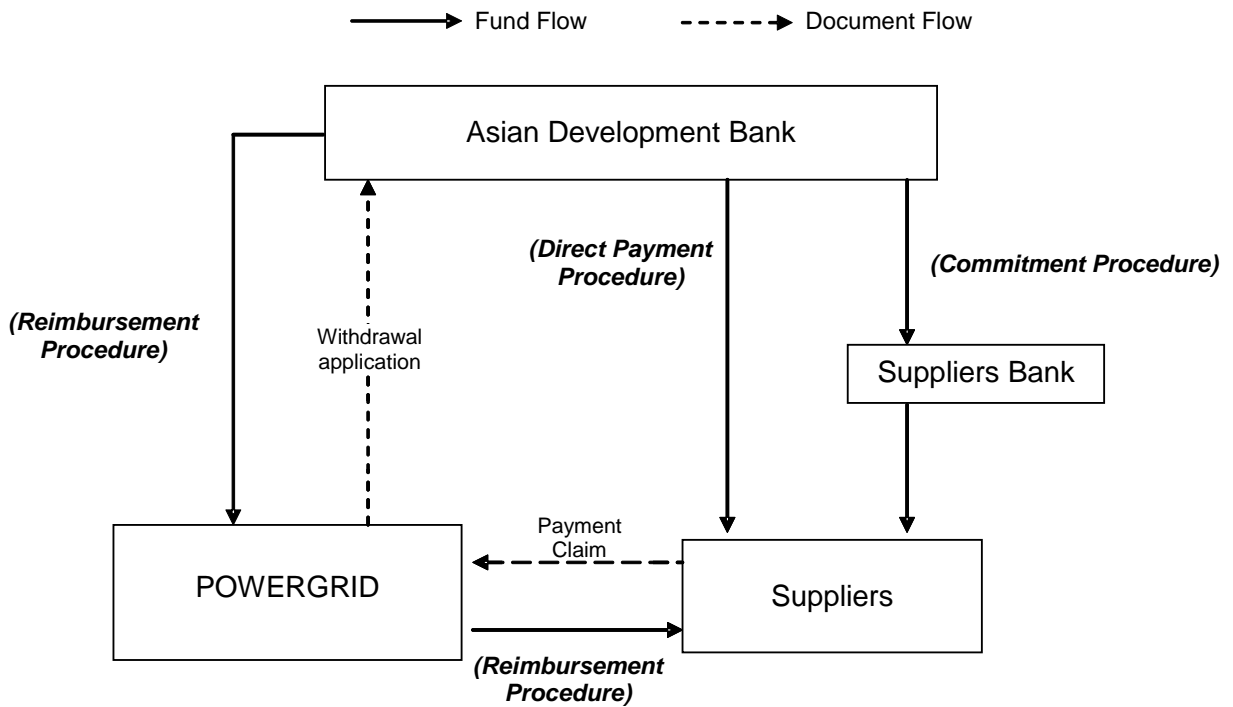
Item	(\$ million)						
	Total	2012	2013	2014	2015	2016	2017
<b>A Investment Costs</b>							
1 Civil works	297.1	18.5	39.3	106.7	103.0	22.2	7.4
2 Equipment	1,202.0	89.7	136.0	391.5	464.6	90.2	30.0
3 Land acquisition and development, environment and social mitigation costs	35.7	21.4	14.3	-	-	-	-
4 Inland freight and insurance	26.1	2.6	5.2	9.1	6.5	2.0	0.7
5 Overheads	81.2	8.1	16.3	16.3	20.3	15.2	5.0
6 Taxes and duties	61.6	6.2	12.3	21.5	15.4	4.7	1.5
<b>Total Base Cost (A)</b>	<b>1,703.7</b>	<b>146.5</b>	<b>223.4</b>	<b>545.1</b>	<b>609.8</b>	<b>134.3</b>	<b>44.6</b>
<b>B Contingencies</b>	<b>298.9</b>	<b>10.8</b>	<b>29.4</b>	<b>91.0</b>	<b>120.8</b>	<b>35.2</b>	<b>11.7</b>
<b>C Financing Charges During Implementation</b>	<b>247.5</b>	<b>7.6</b>	<b>17.0</b>	<b>43.1</b>	<b>78.1</b>	<b>76.3</b>	<b>25.4</b>
<b>Total Project Cost (A+B+C)</b>	<b>2,250.1</b>	<b>164.9</b>	<b>269.8</b>	<b>679.2</b>	<b>808.7</b>	<b>245.8</b>	<b>81.7</b>

Source: Asian Development Bank and POWERGRID (ADB estimates for costs are based on a detailed project report submitted by POWERGRID and discussions with POWERGRID in 2011 and expressed in mid-2011 prices.)

**E. Contract and Disbursement S-curve**



**F. Fund Flow Diagram**



## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

8. While the financial management structure of POWERGRID was assessed and found to be adequate during the processing of the past ADB loans, the financial management assessment was updated to ensure the current ability of POWERGRID to fulfill ADB's fiduciary requirements under the proposed project. A financial management assessment questionnaire was completed to facilitate a review of its financial systems and processes, and to identify any issues or constraints.

9. The financial accounting system of POWERGRID is fairly advanced, utilizing computerization with confidentiality and integrity at various levels. Existence of well-defined charts of accounts enables proper recording of financial transactions. Accounting policies, based on the accounting standards issued by the Institute of Chartered Accountants of India, have been framed for accounting and preparation of the financial statements. Accounting and financial reporting responsibilities are carried out as per the delegation of powers defined and approved by POWERGRID's board of directors. POWERGRID's Finance Department has developed procedures and guidelines for this reporting. Being a publicly listed company, POWERGRID is subject to several strong governance measures imposed by the Securities and Exchange Board of India which enhance accountability, transparency, and predictability of its financial governance through disclosure of information to shareholders, investment professionals, and the general public.

10. POWERGRID is managed by a board of directors that comprises 5 full-time directors, 2 part-time directors from the Ministry of Power, and 7 independent directors. POWERGRID is audited by the Comptroller and Auditor General of India (CAG), in addition to the audit by one or more independent chartered accountant firms appointed by the CAG. Further, the internal audit department and vigilance departments provide continuing in-house monitoring and oversight of operations. In addition, the board has an audit subcommittee comprising independent and part-time directors, which meets at least four times a year, and oversees the company's financial management in its entirety.

### B. Disbursement

11. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time),<sup>5</sup> and detailed arrangements agreed upon between POWERGRID and ADB. Reimbursement procedures will be applicable under retroactive financing in case payments are released prior to loan effectiveness.

12. Pursuant to ADB's *Safeguard Policy Statement* (2009) (SPS),<sup>6</sup> ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list to the projects financed by ADB.

13. Each contract package under the project is expected to be financed and disbursed from

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<sup>5</sup> Available at: [http://www.adb.org/Documents/Handbooks/Loan\\_Disbursement/loan-disbursement-final.pdf](http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf)

<sup>6</sup> Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

the two loans of sovereign and nonsovereign on a pro rata basis.<sup>7</sup> Disbursements from the sovereign loan shall be made only if disbursements are also made from the nonsovereign loan, or solely from the sovereign loan only if nonsovereign loan has been completely drawn down. Based on discussions with POWERGRID, it is expected that the nonsovereign loan will be fully disbursed against the costs of the project during its availability period.<sup>8</sup> Each disbursement request under the loans (combined) will not be less than \$2,000,000, or will be equal to the remaining amount of the Loans if the undisbursed balance is less than \$2,000,000.

14. Before the submission of the first withdrawal application, POWERGRID should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of POWERGRID, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is US\$2,000,000, unless otherwise approved by ADB. POWERGRID is to consolidate claims to meet this limit for reimbursement claims. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

### **C. Accounting**

15. POWERGRID will maintain (i) its corporate accounts; and (ii) separate project accounts and records by funding source for all expenditures incurred on the project. Accounts will be maintained following accounting principles and practices prescribed by the Government's accounting laws and regulations prevailing in India.

### **D. Auditing**

16. POWERGRID will cause the detailed consolidated corporate accounts to be audited in accordance with the audit regulations prevailing in India by an independent auditor whose qualifications, experience and terms of reference are acceptable to ADB. The audited accounts comprising the balance sheet, profit and loss account, cash flow statement, and related schedules, together with the auditors' opinion will be submitted in the English language to ADB as soon as available, but in any event not later than 6 months after the end of the fiscal year. POWERGRID will also obtain an opinion from the auditor on POWERGRID's use of the loan proceeds and compliance with the specific financial covenants in the Loan Agreements. POWERGRID will also provide ADB with such other information regarding the accounts, financial statements and audit thereof as ADB may reasonably request from time to time. POWERGRID will enable ADB to discuss with the independent auditors about POWERGRID's financial affairs from time to time. Unless otherwise agreed, such discussions would be held with the auditors' representatives in the presence of POWERGRID officials. POWERGRID has been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

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<sup>7</sup> Debt funding for the project will be disbursed from the sovereign and nonsovereign loan proceeds simultaneously; funds from the sovereign facility will only be disbursable upon the availability of funds from the nonsovereign facility. Disbursements from the two loans will be maintained, at minimum, on a pro-rata basis of 63%: 37% during the availability period of the nonsovereign loan. However, this percentage may be reviewed after all contracts are awarded, and disbursement pattern is known in accordance with ADB policy.

<sup>8</sup> The use of any loan saving will be considered for change in scope in accordance with the ADB Project Administration Instructions.

## VI. PROCUREMENT

### A. Advance Contracting and Retroactive Financing

17. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* (2010, as amended from time to time) (ADB's *Procurement Guidelines*).<sup>9</sup> The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. POWERGRID have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project.

18. Advance contracting. In order to expedite project implementation, POWERGRID has requested approval for advance contracting for the procurement of the equipment, goods and works. The steps to be concluded in advance include preparation of bidding documents, bidding, and bid evaluation for all the eligible contract packages to be agreed between ADB and POWERGRID.

19. Retroactive financing. Except as otherwise accepted with ADB, the expenditures incurred for equipment and materials will be eligible for retroactive financing, provided these are incurred before the effectiveness of the related loan agreement, but not earlier than 12 months preceding the signing of the related loan agreement and as long as they do not exceed an amount of 20% of the loan.

20. To facilitate procurement process, POWERGRID will initially prepare a model Bid document based on ADB's Standard Bidding Documents for each type of contract package, such as transmission towers, conductors, insulators, hardware fittings, and substations, and will seek approval from ADB for such model bidding documents. Upon ADB's approval of the model bidding documents, POWERGRID will be exempted from ADB's prior approval of its bidding documents provided that (i) such documents are in line with the corresponding model bidding document, and at the time of release of invitation for bid, they are forwarded to ADB for post-facto approval, and (ii) POWERGRID issues amendments to such documents based on comments made by ADB, if any, during the bidding period. Further, POWERGRID may also award contracts of value less than \$10 million in each case without seeking prior approval of ADB, provided that the lowest priced bidder at bid opening is also the recommended bidder for contract award. All cases involving unusual issues shall be submitted to ADB for prior review.

### B. Procurement of Goods and Works

20. All procurement of goods and works will be undertaken in accordance with ADB's *Procurement Guidelines*. International competitive bidding procedures will be followed for all the packages. POWERGRID has sufficient capacity to design and administer transmission system construction.<sup>10</sup> POWERGRID has also demonstrated good performance and track record with procurement of plant, goods and works for transmission systems for the past and ongoing ADB funded projects. Therefore, they have sufficient knowledge on ADB's *Procurement Guidelines* and procedures.

21. An 18-month procurement plan indicating threshold and review procedures, goods and works contract packages is in Section C.

<sup>9</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>

<sup>10</sup> The Independent Evaluation Department (IED) validation report for the second loan concluded POWERGRID's performance rating as highly successful. The procurement capacity assessment report has identified no substantial issues on the project procurement and POWERGRID's capacity to implement it.



## C. Procurement Plan

### Basic Data

<b>Project Name</b>	National Grid Improvement Project
<b>Country</b>	India
<b>Executing Agency</b>	Power Grid Corporation of India Limited
<b>Loan Amount</b>	\$ 750 million
<b>Loan (Grant) Number</b>	TBD
<b>Date of First Procurement Plan</b>	12 May 2011
<b>Date of this Procurement Plan</b>	24 August 2011

### Process Thresholds, Review and 18-Month Procurement Plan

#### 1. Project Procurement Thresholds

22. Except as ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

#### Procurement of Goods and Works

Method	Threshold
International Competitive Bidding (ICB) for Works	\$10,000,000 and more
ICB for Goods	\$1,000,000 and more

#### 2. ADB Prior or Post Review

23. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
<b>Procurement of Goods and Works</b>		
International Competitive Bidding (ICB) for Works and Plants	Prior	
ICB for Goods	Prior <sup>11</sup>	

#### 3. Goods and Works Contracts Estimated to Cost More Than \$1 Million

24. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$million)	Procurement Method	Prequalification of Bidders (y/n)	Advertisement Date (quarter/year)	Comments
±800kV HVDC Terminal Package	718	Supply cum Installation /Turnkey	No	Third Quarter 2011	Financed by ADB and POWERGRID (All supply portion, \$598 million, is Financed by ADB)

<sup>11</sup> See to para. 20.

General Description	Contract Value (\$million)	Procurement Method	Prequalification of Bidders (y/n)	Advertisement Date (quarter/year)	Comments
IS01: Disc Insulator Package (WR-I)	18	Supply	No	First Quarter 2012	Financed by ADB
IS02: Disc Insulator Package (WR-II Part1)	21	Supply	No	First Quarter 2012	Financed by ADB
IS03: Disc Insulator Package (WR-II Part2)	21	Supply	No	First Quarter 2012	Financed by ADB
IS04: Disc Insulator Package (NR-I Part1&2)	26	Supply	No	First Quarter 2012	Financed by ADB
IS05: Disc Insulator Package (NR-I Part2&3)	26	Supply	No	First Quarter 2012	Financed by ADB
CIS01: Composite Longrod Insulator Package	2	Supply	No	First Quarter 2012	Financed by ADB

ADB = Asian Development Bank, POWERGRID = Power Grid Corporation of India, HVDC = high voltage direct current, WR = western grid region, NR = northern grid region

Other packages such as civil works, towers, conductors, hardware Fittings and Accessories etc. are to be financed by other sources.

## VII. SAFEGUARDS

25. POWERGRID is responsible for undertaking the project in accordance with the initial environment examination (IEE) and implementing the environmental management plan (EMP) and resettlement plan in accordance with ADB's Safeguard Policy Statement 2009. A project Management Unit (PMU) will be responsible for coordinating and implementing all social and environmental activities. The PMU will coordinate responsible managers in charge at various construction sites for the right of way clearances including environmental, social and safety issues. The construction of transmission lines will not require any permanent land acquisition, however, impact on crop and livelihood sources will be mitigated. During project implementation, POWERGRID will be responsible for reflecting the occurrence of new and significant impacts resulting from project activities and designing and integrating sound mitigation measures into the EMP and the resettlement plan. Environmental and social grievances will be handled in accordance to the project grievance redress mechanism. Open and transparent dialogue will be maintained with project affected persons as and when needed, in compliance with ADB safeguard policy requirements. Where relevant, POWERGRID will ensure that contractor agreements include sufficient safeguard measures to ensure the continuity of the project's compliance with the EMP and the resettlement plan, including occupational health, safety and applicable labor standards. POWERGRID will monitor the project's overall environmental and social performance as per the terms and conditions specified in Section IX (Safeguards) of this manual.

### VIII. GENDER AND SOCIAL DIMENSIONS

26. POWERGRID will be responsible for overseeing the implementation of any gender mainstreaming activities identified in the resettlement plan. Measures have been designed to enhance gender equity and women's empowerment in the project area of influence. The loan agreements include a standard assurance related to the compliance with host country labor standards for contractors, including provisions to ensure equal pay for equal work (where women are concerned), and the provision of awareness training on HIV and sexually transmitted diseases and human trafficking (where relevant). Dialogue and communication (both written and verbal) with stakeholders will be carried out in a culturally sensitive manner and in the local language spoken (Hindi) as required.

### IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

#### A. Project Design and Monitoring Framework

<b>Design Summary</b>	<b>Performance Targets and Indicators with Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Assumptions and Risks</b>
<p><b>Impact</b> Accelerated development of interregional grid system for increased power supply</p>	<p>Completion of the high capacity power transmission corridor program to supply additional 40,000 MW (from 2006) of power from 55 IPPs by 2018</p> <p>Private sector participation in bidding of additional 14 interstate transmission projects by 2018</p> <p>Interregional transmission capacity of 75,000 MW by 2018 from 23,800 MW (2011) to enhance power trading</p> <p>Functional enterprise risk management system of POWERGRID</p>	<p>CERC's reports</p> <p>CERC's reports and power sector statistics from the Ministry of Power</p> <p>Power sector statistics from the Planning Commission</p> <p>POWERGRID's risk management committee's reports</p>	<p><b>Assumptions</b> The government continues to put priority on power sector development.</p> <p>Regulatory framework continues to enable interstate and interregional transmission projects for private sector participation.</p> <p>POWERGRID diversifies its debt sources to include more commercial loans.</p> <p>Government 5-year plans' transmission projects are completed on schedule.</p> <p><b>Risk</b> ROW related costs increase.</p>
<p><b>Outcome</b> Increased reliable power supply from private IPPs and public utilities within the interconnected grid network</p>	<p>Additional reliable power supply and trading (3,000 MW) through interregional transmission from 14 IPPs in Chhattisgarh to the northern region by 2017</p>	<p>CERC's annual reports and POWERGRID's annual reports</p>	<p><b>Assumptions</b> IPP generation projects are developed in the time envisaged.</p> <p>Load growth and system expansion occur</p>

<b>Design Summary</b>	<b>Performance Targets and Indicators with Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Assumptions and Risks</b>
	<p>Maintained transmission system availability at no less than 98% at the 2010 level</p> <p>Reduced interregional transmission loss by 3% of power supplied by 2017<sup>a</sup></p> <p>POWERGRID created a benchmark for its funding source diversification from international capital and/or commercial bank markets.</p> <p>Financial covenants in the loan agreements complied with</p>	<p>POWERGRID's annual reports</p> <p>POWERGRID's and ADB's project completion report</p> <p>POWERGRID's audited financial accounts</p> <p>POWERGRID's progress reports and audited financial accounts</p>	<p>as forecast.</p> <p>The government continues to facilitate external commercial borrowings for infrastructure projects.</p> <p><b>Risk</b> Scheduled tariff adjustment may not be adequate for cost recovery. International capital market may be volatile.</p>
<p><b>Outputs</b></p> <p>1. Procurement, installation, and commissioning of strengthened interregional transmission network between the northern and western regions</p> <p>2. Improvements to POWERGRID's corporate credit, access to nonsovereign borrowing, and risk management</p>	<p>Construction of about 1,365 km of 800 kV HVDC transmission systems including terminals at Kurukshetra and Champa by 2016</p> <p>Safeguards implemented in compliance with ADB Safeguard Policy Statement (2009) and POWERGRID's environmental and social policy and procedures</p> <p>Funding plan and strategy agreed for ADB nonsovereign loan</p> <p>Financial risk management system designed and implemented by 2012</p>	<p>POWERGRID's progress reports and project completion report</p> <p>Safeguard monitoring reports</p> <p>POWERGRID's debt financing strategy and audited financial accounts</p> <p>POWERGRID's enterprise risk management system and risk management committee's reports</p>	<p><b>Assumptions</b> POWERGRID mobilizes counterpart funds on time.</p> <p>POWERGRID has sufficient capacity to conduct procurement per ADB guidelines.</p> <p>Ongoing capacity development TA from ADB is completed.</p> <p><b>Risks</b> Prices of commodities and raw materials increase more than expected.</p> <p>ROW issues cause unexpected construction delays.</p>
<b>Activities with Milestones</b>		<b>Inputs</b>	
<p>1. Interregional transmission network strengthening between the northern and western regions</p> <p>1.1 Disclosure of safeguard documents disclosure by July 2011</p> <p>1.2 Preparation of bid document by August 2011</p>		<p><b>ADB: \$750 million</b></p>	

<b>Activities with Milestones</b>	<b>Inputs</b>	
	<b>Item</b>	<b>Amount (\$ million)</b>
1.3 Commencement of land acquisition by August 2011		
1.4 Bid floating by September 2011		
1.5 Technical bid evaluation by March 2012	Sovereign loan:	500.0
1.6 Start of contract award by July 2012		
1.7 Contract award for the project by 2013	Nonsovereign loan:	250.0
1.8 Midterm review by 2014		
1.9 Physical completion of construction by 2016		
2. Corporate credit, access to nonsovereign borrowing, and project management	<b>POWERGRID: \$1,500 million:</b>	
2.1 Design of enterprise risk management system by February 2011	Equity:	675.0
2.2 Preparation of debt financing strategy by May 2011	Domestic bond and/or parallel financing:	825.1
2.3 Nonsovereign loan approval by September 2011		
2.4 Operation of project management unit by October 2011		
2.5 Completion of project construction management by 2017		

ADB = Asian Development Bank, CERC = Central Electricity Regulatory Commission, HDVC = high-voltage direct current, IPP = independent power producer, kV = kilovolt, km = kilometer, MW = megawatt, ROW = right of way.

<sup>a</sup> The loss saving results from the use of the advanced 800 kV HVDC technology rather than the less efficient alternative, a conventional system based on an alternating current transmission line. ADB estimated carbon dioxide emissions reductions of additional 536,000 tons per year based on the loss saving from the project.

Source: Asian Development Bank and POWERGRID.

## **B. Monitoring**

27. Overall monitoring of the Project in terms of progress and performance will be undertaken in a timely manner by POWERGRID. The Project Department of POWERGRID will monitor progress, procurement, quality, contract management, fiduciary management and compliance with safeguards requirements (EMP and the resettlement plan). In addition, the Project Department will undertake regular field visits and provide guidance to the executive director.

28. **Compliance monitoring:** PMU headed by the executive director (corporate planning) has been set up at its headquarters. The unit, through the related functional departments of POWERGRID, will be responsible for monitoring the implementation of the project. POWERGRID has nine regional offices headed by an executive director or general manager to implement the projects under their respective jurisdictions. The additional general manager or deputy general managers in the region responsible for construction and commissioning of the projects will report to their respective regional heads. The regional heads will facilitate submission of the implementation progress reports. The management of POWERGRID will receive monthly progress reports and review each project in quarterly review meetings. In addition, POWERGRID already has a comprehensive internal control mechanism to verify the accounting and financial management system, adequacy of controls, material checks, financial property aspects, and compliance implementation mechanism. POWERGRID is further strengthening its fiduciary oversight and safeguard measures through (i) initiatives related to the Right to Information Act, (ii) strengthening its compliance mechanism with the introduction of enterprise resource planning, and (iii) continuous quality enhancement program through the ISO quality assurance system.

### C. Evaluation

29. ADB will field regular review missions every six months at the minimum to review status of contract awards, disbursements, physical progress and implementation of the environmental management plan. Within 6 months of physical completion of the project, POWERGRID will submit a project completion report (PCR) to ADB.<sup>12</sup> Subsequently, ADB will field a mission to finalize the PCR.

#### Evaluation Methodology

Evaluation Activity	Purpose	Methodology	Who responsible and involved
Review Mission	Review the progress of the project and provide guidance to facilitate implementation	Site visits and meetings with EA officials, contractors, consultants at least twice a year	ADB/ POWERGRID
Mid Term Review	Comprehensive review of the project	2 years after the loan effectiveness, focusing on the engineering, resettlement, and environmental aspects of the Investment Program, and reviewing the financial status of POWERGRID.	ADB/ POWERGRID
Project completion report	Evaluate the overall output of the project and its relevance and suitability	Site visit and meetings with POWERGRID officials, contractors, consultants	ADB/ POWERGRID

ADB = Asian Development Bank, EA = executing agency, POWERGRID = Power Grid Corporation of India.

### D. Reporting

30. POWERGRID will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency audited financial statements, together with the associated auditor's report, should be adequately reviewed.

### E. Stakeholder Communication Strategy

31. The Stakeholder Communications Strategy is described in the following table. POWERGRID will post all relevant information on its website. The website will include at minimum information regarding the bidding process, bidders, contract awards, use of funds disbursed under the Project and physical progress.

#### Stakeholder Communication Strategy

Project information to be communicated	Means of Communication	Responsibility	Audience	Frequency
Report and Recommendation of the President (RRP) with linked documents	ADB website	ADB	ADB, Government of India, Development Partners, Civil Society, Individuals	Once
Project information while planning/	Discussions and stakeholder	POWERGRID	Project beneficiaries	Regular intervals during planning and

<sup>12</sup> PCR format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

Project information to be communicated	Means of Communication	Responsibility	Audience	Frequency
designing	consultations			design
Status of implementation during construction	Boards at site	POWERGRID /Contractors	Project beneficiaries	All the time at construction sites
Project Performance Reports and Project Information Documents	ADB website	ADB	ADB, Government of India, Development Partners, Civil Society, Individuals	Every quarter
Project completion report	ADB website	ADB	ADB, Government of India, Development Partners, Civil Society, Individuals	Once

## X. ANTICORRUPTION POLICY

32. ADB's policy on Anticorruption (1998 as amended to date) was explained and discussed with POWERGRID.<sup>13</sup> All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.<sup>14</sup> To support these efforts, relevant provisions are included in the bidding documents for the Project. POWERGRID shall allow and assist ADB's representatives to carry out random spot checks on the work in progress and utilization of funds for the project.

33. POWERGRID will update its website regularly to include (i) bidding procedures, bidders, and contract awards; (ii) use of the funds disbursed under the project; and (iii) the physical progress of the project.

## XI. ACCOUNTABILITY MECHANISM

32. People who are, or may in the future be, adversely affected by the project may address complaints to ADB, or request the review of ADB's compliance under the Accountability Mechanism.<sup>15</sup>

## XII. RECORD OF PAM CHANGES

33. To be inserted as and when any changes are necessary and agreed by both sides.

<sup>13</sup> Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

<sup>14</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

<sup>15</sup> For further information see: <http://compliance.adb.org/>.