FRAMEWORK FINANCING AGREEMENT
(IND: NATIONAL POWER GRID DEVELOPMENT INVESTMENT PROGRAM)

Parties

This Framework Financing Agreement ("FFA") dated 29 February 2008 is between Power Grid Corporation of India Limited ("POWERGRID"), India, ("Guarantor"), and Asian Development Bank ("ADB").

MFF Investment Program

POWERGRID is committed to and will implement the Roadmap and Investment Program, of which the National Power Grid Development Investment Program is an integral part. Both the National Power Grid Development Investment Program and the Roadmap and Investment Program are described in Schedule 1 hereto.

The total cost of the National Power Grid Development Investment Program over the period FY 2008 to FY 2012 is expected to be US$ 2.54 billion equivalent. The total cost of the Roadmap and Investment Program, over the period FY2007/08 to FY2011/12 is expected to be US$ 13.75 billion equivalent.

Multi-Tranche Financing Facility

The Multitranche Financing Facility (the Facility) is intended to finance Projects under the Roadmap and Investment Plan as amended from time to time provided that such Projects comply with the criteria set out in Schedule 4 hereto, and that understandings set out in this FFA are complied with.

The Projects under the Facility include:

Project 1: Upgradation of Transmission Capacity from Uttarakhand

Project 2: ±800kV High Voltage Direct Current (HVDC) Northeastern - Northern/Western Inter-connector

The Projects financed by each tranche may include one or more contract packages, in respect of each Project. All references to "Project" mean both Projects 1 and 2, and any other project financed under the Facility.

This Framework Financing Agreement

This FFA does not constitute a legal obligation on the part of ADB to commit any financing. At its sole discretion, exercised reasonably, ADB has the right to deny any financing request made by POWERGRID, cancel the uncommitted portion of the Facility, and withdraw POWERGRID's right to request any financing tranche under the Facility. Financing tranches may be made available by ADB provided matters continue to be in accordance with the general understandings and expectations on which the Facility is based and which are laid out in this FFA.

This FFA does not constitute a legal obligation on the part of POWERGRID to request any financing. POWERGRID has the right not to request any financing under the Facility. POWERGRID also has the right at any time to cancel any uncommitted portion of the Facility.

POWERGRID, India, and ADB may exercise their respective rights to cancel the Facility or any uncommitted portion thereof, and ADB may exercise its right to refuse a financing request, by giving written notice to such effect to the other parties. The written notice will provide an explanation for the cancellation or refusal and, in the case of cancellation, specify the date on which the cancellation takes effect.

Financing Plan

The financing plan for the Roadmap and Investment Program is summarized below.

Financing Source	Total (million $)	Share (%)
POWERGRID	762.6	5.5
Asian Development Bank (MFF)	600.0	4.4
Other Financial Institutions	1,180.0	8.6
Sub Total (National Power Grid Development Investment Program)	**2,542.6**	**18.5.**
POWERGRID	3,362.4	24.5
Other Financial Institutions/ Bonds	7,845.0	57.0
Total (Roadmap and Investment Program)	**13,750.0**	**100.0**

Financing Terms

ADB will provide loans to finance projects under the Roadmap and Investment Program, as and when these are ready for financing, provided POWERGRID is in compliance with the understandings hereunder, and the Projects therein are in line with those same understandings. Each loan will constitute a tranche.

Each tranche may be financed under terms different from the financing terms of previous or subsequent tranches. The choice of financing terms will depend on the project, capital market conditions, and ADB's financing policies, all prevailing at the time the tranche is documented in a legal agreement.

Tranches may be provided in sequence or simultaneously, and some may overlap in time with each other.

Commitment fees are not payable on the Facility. They are payable only in financing actually committed by ADB as a loan. ADB rules on commitment charges, which are in effect when a tranche is provided, will apply with respect to such tranche as set out in the related loan agreement.

Amount

The maximum financing amount available under the Facility is six hundred million dollars ($600,000,000). It will be provided in individual tranches from ADB's Ordinary Capital Resources.

Availability Period

The Availability Period will lapse on the date that is 12 months from the date of the approval of the Facility by ADB's Board of Directors, unless by such time the first Loan and Guarantee Agreement under the Facility is signed and made effective. The last date on which any Loan Agreement for a tranche may become effective will be 2015 or any other date mutually agreed between POWERGRID and ADB.

Terms and Conditions

POWERGRID will apply the proceeds of each tranche for the financing of expenditures of the Roadmap and Investment Program (as amended from time to time), in accordance with conditions set forth in this FFA and the legal agreements for each tranche. Financing will follow a time-slice approach as more fully set out in Schedule 6.

Execution

The Executing Agency for the Facility under the Roadmap and Investment Program will be POWERGRID. The Executing Agency will implement the Facility in accordance with the principles and assurances set forth in Schedule 1 to this Agreement, as supplemented with more details in the legal agreements for each tranche.

Periodic Financing Requests

POWERGRID may request, and ADB may agree, to provide loans under the Facility to finance the Roadmap and Investment Program upon the submission of a Periodic Financing Request (PFR). Each PFR should be submitted by POWERGRID through India.
Each individual tranche will be for an amount of no less than one hundred million dollars ($ 100,000,000) or its equivalent. ADB will review the PFR[s] and, if found satisfactory, prepare the related legal agreements.

The Projects for which financing is requested under the PFR will be subject to, satisfactory due diligence, and preparation of relevant safeguards and fiduciary frameworks and other documents, and the selection criteria set out in Schedule 4 hereto. ADB and POWERGRID will agree on a Facility Administration Manual and a schedule to initiate these activities, as soon as possible after the date of this Agreement, but prior to the effective date of the legal agreements for the first tranche.

Until notice is otherwise given by POWERGRID and India respectively (i) Executive Director / General Manager (Corporate Planning) will be POWERGRID's authorized representatives for purpose of executing PFRs, and (ii) Deputy Secretary, Department of Economic Affairs, Ministry of Finance, will be India's authorized representatives for purpose of confirming the PFRs,

General Implementation Framework

The Facility will be implemented in accordance with the general framework set out in Schedule 3 hereto.

Procedures

Tranches to be provided under the Facility will be subject to following procedures and undertakings:

(a) POWERGRID will have notified ADB of a forthcoming PFR at least 15 days in advance of the submission of the PFR.

(b) POWERGRID will have submitted a PFR in the format agreed with ADB.

(c) ADB may decline to authorize the negotiation and execution of any legal agreement for a tranche, provided, any decision to so decline is communicated to the Counterparty by ADB within 30 days from receipt of the PFR.

(d) If no such decline is communicated to POWERGRID, the legal agreements will be negotiated and executed no later than 30 days from ADB's receipt of the PFR.

PFR information

The PFR will substantially be in the form attached hereto, and will contain the following details:

(a) Loan amount;
(b) Description of Project to be financed;
(c) Cost estimates and detailed financing plan;
(d) Implementation arrangements specific to the Project;
(e) Confirmation of the continuing validity of and adherence to the understanding in this Agreement;
(f) Confirmation of compliance with the provisions under previous Loan Agreement(s), as appropriate; and
(g) Other information as may be required under the Facility Administration Memorandum, or reasonably requested by ADB.

Social Protection and Safeguards

Attached as Schedule 5 is the Safeguards Framework that will be complied with during the implementation of the Facility.

ADB Safeguard Policies in effect as of the provision of a financing tranche will be applied with respect to the projects financed under such tranche.

Procurement	All goods and services to be financed under the Facility will be procured in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time).
Disbursements	Disbursements will be made in accordance with ADB's Loan Disbursement Handbook, (2007, as amended from time to time).
Monitoring, Evaluation, and Reporting Arrangements	POWERGRID will prepare progress reports for respective Projects and submit these to ADB on a quarterly basis within 45 days from the end of each quarter. Each report will provide a narrative description of progress made during the period, changes in the implementation schedule, problems or difficulties encountered, the performance of the project implementation consultants, and the work to be carried out in the next period. A progress report will also include a summary financial account for the Project loan components consisting of project expenditures for the year to date and total expenditure to date. Performance will be evaluated based on indicators and targets stipulated in the design and monitoring framework (Schedule 2) for the Facility
Representations And Warranties	Government of India and POWERGRID represent and warrant that (i) POWERGRID is a company duly incorporated and validly existing under the (Indian) Companies Act, 1956. (ii) the entry into and performance by POWERGRID of the transactions contemplated herein are in accordance with its memorandum and articles of association and do not conflict with any applicable law or regulation or any agreement or instrument binding upon it or any of its assets.
Guarantee	India will provide sovereign guarantee(s), in form and substance acceptable to ADB for the term of each tranche, as a condition precedent to the effectiveness of each tranche requested by POWERGRID, and provided by ADB pursuant to the terms of the loan agreement.

Power Grid Corporation of India, Limited

By _____
R.P. Singh
Chairman & Managing Director

ASIAN DEVELOPMENT BANK

By _____
T. Kondo
Country Director
India Resident Mission

India

By _____
Kavita Prasad
Deputy Secretary, Department of Economic Affairs
Ministry of Finance

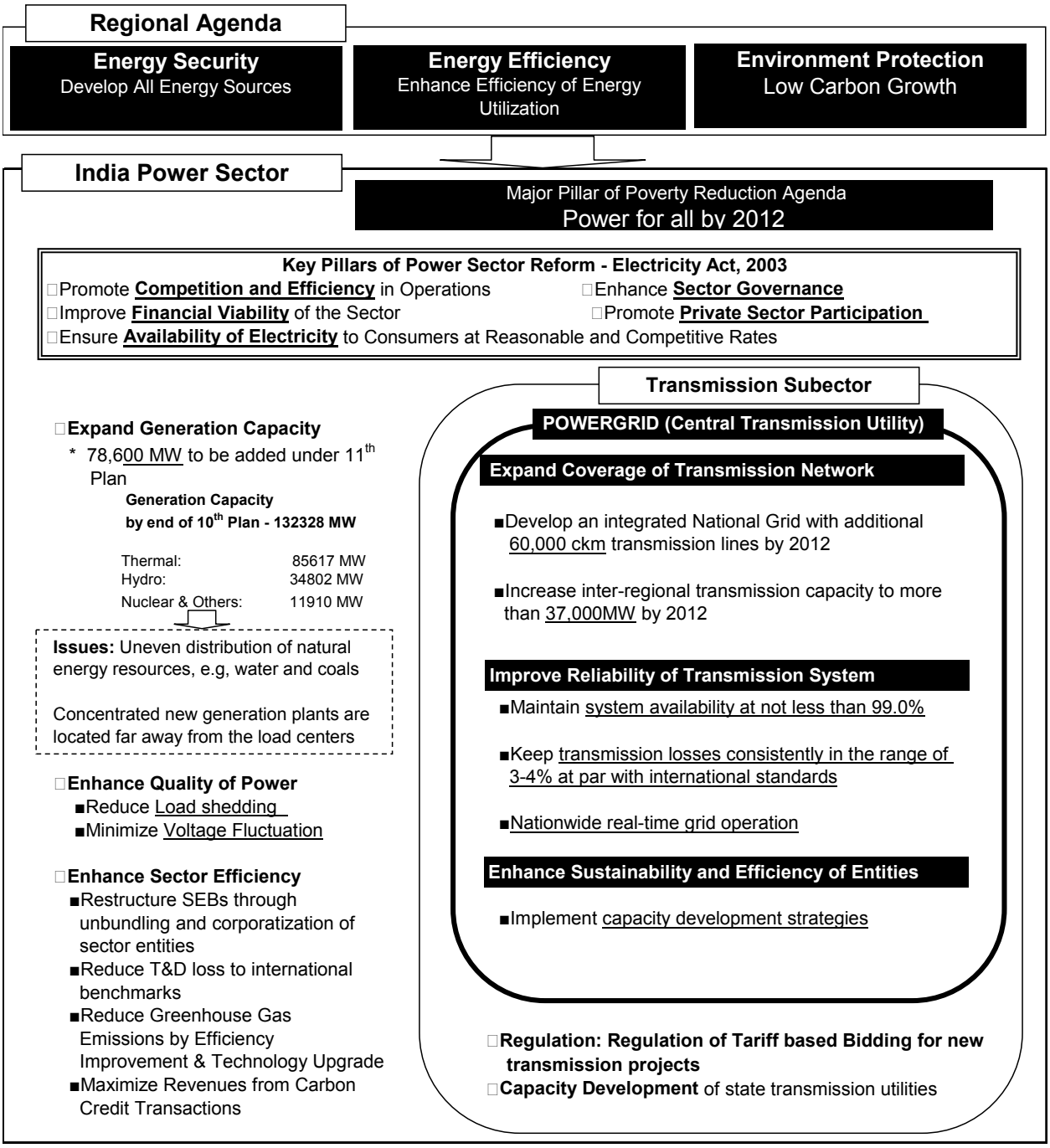
SCHEDULE 1

ROADMAP AND INVESTMENT PROGRAM

A. Transmission Sector Strategy

1. India faces formidable challenges in balanced infrastructure development where adequate energy provision plays a critical role in reducing poverty agenda through sustainable economic growth. The Government has committed "Power for All" initiative to provide universal power supply by 2012 which will require 78,600MW of new generation capacity and matching transmission and distribution facilities during the 11th Plan period (FY2008 – FY2012).

Figure 1: Overview of Transmission Sector Development Strategy

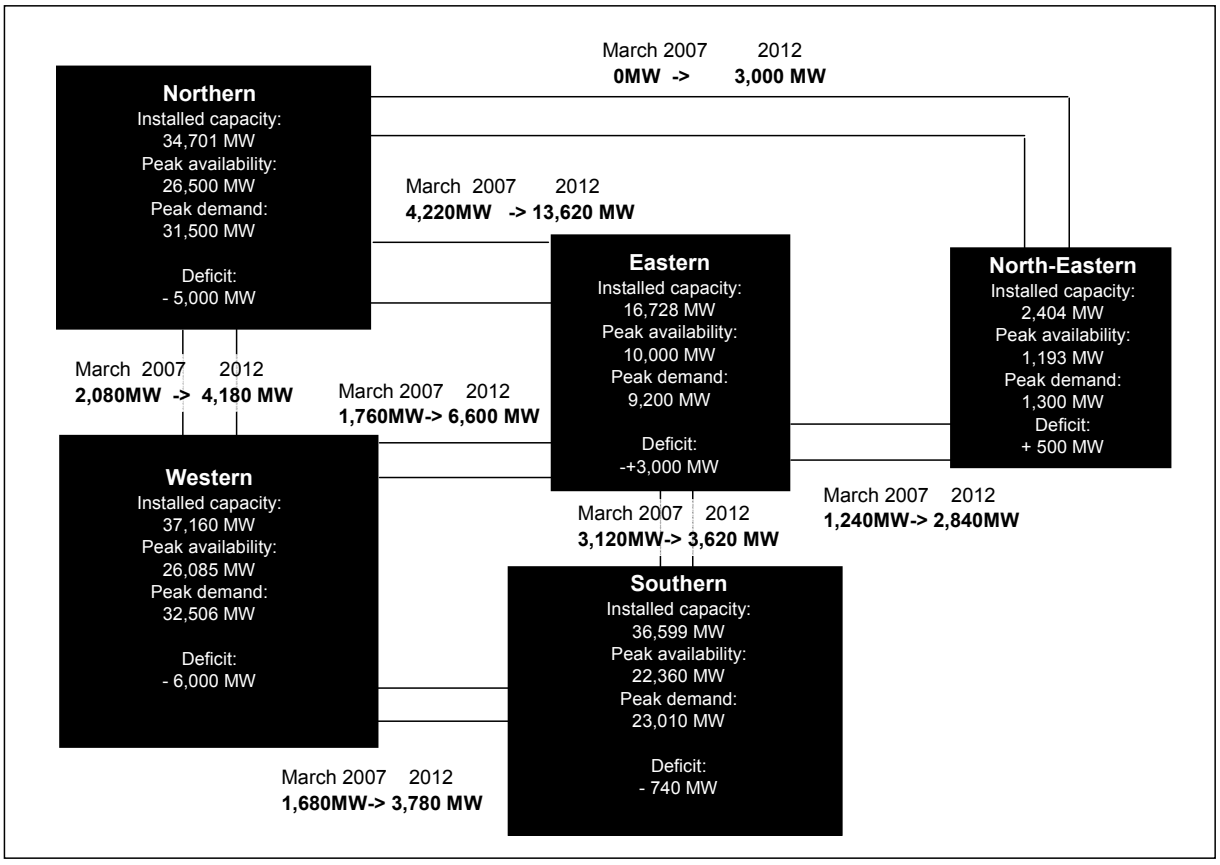


2. Cognizant of the vast impact on the global environment and energy security, the Government set out the Integrated Energy Policy (IEP) in August 2006 with a vision to reliably meet the demand for energy services of all sectors with safe, clean and convenient energy in a technically efficient, economically viable and environmentally sustainable manner. Transmission sector will play a pivotal role for (i) ensuring regional energy security through international grid connection, as the result, enabling the region to avoid overdependence on fossil energy resources, (ii) reducing greenhouse gas emission through connecting to the load centers hydro and renewable energy sourced power plants in India and neighboring countries, and (iii) enhancing energy efficiency through technical loss reduction with the advanced technologies such as HVDC. Under this strategy, coverage of transmission network will be expanded by POWERGRID and private sectors creating a national grid by adding over 60,000 ckm increasing inter-regional power transfer capacity to more than 37,000MW by 2012.

a. National Power Grid

3. Except for the Eastern and North-eastern regions, all the regions are presently facing power shortages in the range of about 300–6,000 MW. Considering the generation addition program by 2012, the surplus power in the Eastern and North-eastern regions will be about 12,000 MW and 3,000 MW, respectively; whereas the Northern, Western, and Southern regions will need to import power to a large extent from the Eastern and North-eastern regions to reduce their deficit situation. According to the least-cost generation expansion program and demand projection for different regions, the North-eastern and Eastern region would be the major power exporter for other regions. Therefore, development of strong interregional links interconnecting the North-eastern/Eastern region to all other regions would be needed.

Figure 2: Proposed Interregional Transmission Capacity (MW) by 2012



4. By 2012, the eastern, western, and northern regions would be interconnected by a high capacity 765 kV ring, while the southern region would remain interconnected in asynchronous mode. The North-eastern region is also expected to be connected with Eastern Region with high capacity 400kV AC link and with Northern/Western region with high capacity 800kV HVDC link. This would constitute a stronger National Grid with high capacity transmission highways having total interregional capacity of more than 37,000MW. Above table shows the projected capacity of interregional transmission links in 2012.

b. Strengthening of Regional Grids and Integrated Grid Operation

5. Transmission systems in the five regional grids need to be further expanded and strengthened to provide associated transmission systems for the planned generation capacity addition of about 78,600 MW during the 11th Five-Year Plan period and to realize optimal utilization of available generation and EHV grid. POWERGRID plans to establish National Load Dispatch Center to interlink five Regional Load Dispatch Centers (RLDC) for smooth operation and real time monitoring of the national grid

B. Sector Roadmap

6. The 11th Five-Year Plan aims to further accelerate the reforms and underpin the Government's mission of "Power for All by 2012" through (i) expanding coverage; (ii) improving reliability and; (iii) enhancing sustainability and efficiency of the interstate transmission network. Expected outcomes and major milestones of the Plan are crystallized in the transmission sector roadmap. The sector roadmap includes specific technical targets to be achieved by 2012 in terms of expansion of the national power grid and reliability and efficiency of the grid operations. As POWERGRID is the sole provider of the interstate transmission services, the sector roadmap also includes various measures to further strengthen POWERGRID's institutional capacity to achieve the technical targets, based on its long-term corporate strategy. These measures aim to strengthen corporate governance, improve efficiencies and enhance financial viability of POWERGRID through financial management, safeguard compliance, human resource management, information technology and cost reduction.

a. Private Sector Participation

7. The Government amended Indian Electricity Laws to enable private sector participation in transmission sector. In January 2000, the Government issued detailed guidelines. The guidelines envisage two routes for inviting private sector investment. One route is through joint venture of Central Transmission Utility (CTU) / State Transmission Utility (STU) and private sector. The first joint venture has been established by POWERGRID and Tata Power Company Ltd for 1,200 km of transmission lines associated with the Tala Hydro Electric Power in Bhutan on Build-Own-Operate Transfer basis. The project was successfully commissioned in August 2006. ADB provided a loan[1] for the project through its private sector window. Several joint-venture projects are at an advanced stage of selection of investors. The other option is through what is known as an independent private transmission company, and this envisages 100%

[1] ADB. 2002. *Report and recommendation of the President to the Board of Directors on a Proposed Loan to Tala-Delhi Transmission Limited for the Tala-Delhi Transmission Project in India.* Manila

private-sector investment. Part of a system strengthening project in the western region is being implemented in this way. POWERGRID plans various joint-venture projects[2] between now and 2012.

b. Financial and Corporate Governance Matters

8. **Appointment of Independent Directors**. Because its bonds are publicly listed, POWERGRID is required by the Securities and Exchange Board of India to have at least 50% of its board directors as nonexecutive members. Presently, POWERGRID has nine directors — three executive directors from POWERGRID and six nonexecutive directors. Of the six nonexecutive directors, two are government directors appointed part-time; the other four are independent directors. .

9. **Initial Public Offering and Partial Divestment of Government Shares.** As per the decision of the Cabinet Committee on Economic Affairs in November 2006, the Government has decided to (i) issue shares to the public in three public-sector power companies (POWERGRID, the Rural Electrification Corporation and the Power Finance Corporation) up to 24% of their paid-in capital and (ii) to divest itself of 5% of its shares in the companies. POWERGRID invited bids for its initial public offering up to 10% of its paid-in capital between 10 and 13 September 2007. The divestment of the Government shares was planned simultaneously. These actions have diluted Government ownership in POWERGRID from 100% to about 86.4%. This is a positive step in POWERGRID's corporate governance reform program, as it will encourage further disclosure of financial information to shareholders, investment professionals, and the general public. Public listing creates regular market information on commercial performance and monitoring by a separate class of shareholders other than the Government (because shareholders have a residual rather than priority claim on the firm's assets, the value of minority shareholders' investments in the utility depends more strongly on performance of the utility compared with the lenders). POWERGRID has received enormous response from the bidders in all categories. Massive positive market response to the share issue has reflected POWERGRID's existing corporate governance practices and demonstrated confidence in the company going forward on a commercial basis.

10. **Financial Management.** The expansion plan to meet 2012 goals will require increasing levels of debt over the medium term. Based on the Central Electricity Regulatory Commission (CERC) tariff policy, POWERGRID is seeking to arrange 70% debt financing for its subprojects. Sound financial management will, therefore, be very important to maintaining sustainability and efficiency of POWERGRID. POWERGRID regularly issues domestic bonds and borrows long-term funds from domestic lenders and multilateral financing institutions such as the World Bank and the Asian Development Bank (ADB) with Government guarantees. POWERGRID will explore the possibility of borrowing foreign currency loans from ADB and the syndicated bank market without sovereign guarantee. POWERGRID will develop relationships with the commercial market, which will improve POWERGRID's visibility and credibility as a reputable borrower and enhance its corporate governance. Eventually, it will assist POWERGRID to (i) move from Government-guaranteed lending to commercial borrowing without any credit enhancement, and (ii) become a more commercially viable entity.

11. POWERGRID is exposed to payment risk from state electricity boards (SEBs). While the one-time tripartite agreement settlement in 2004 resolved the past-due receivables and

[2] The following joint-venture projects are planned: with Reliance Energy Ltd for transmission system associated with Parbati-II (800 MW) and Koldam (800 MW), with Torrent Power Ltd for transmission system associated with generation project at Sugen (Gujarat), with Jaiprakash Hydro Power Ltd for transmission system associated with Karcham Wangtoo (1,000 MW) HEP, with Countrywide Power Transmission Ltd for transmission system associated with power projects in Sikkim, and with Essar Power for transmission system associated with power project at Hazira (Gujarat).

provided incentives for the improvement of current dues of the SEBs, residual risk remains as some SEBs are still loss-making. POWERGRID will maintain its accounts receivable at a level not exceeding an amount equivalent to the income proceeds of its transmission services for the preceding 3 months of billable amount, as allowed by CERC. POWERGRID will also obtain irrevocable letters of credit from the state electricity boards and other beneficiaries, in an aggregate amount based on average monthly billings of the previous financial year, as deemed acceptable by POWERGRID and as allowed by CERC.

c. Human Resource Development

12. Since the 1990s, POWERGRID has strengthened its human resource management functions. As a result, POWERGRID succeeded in enhancing its employee productivity (measured by the ratio of manpower to the transmission asset) to international standards. For further strengthening of human resource management, POWERGRID has been implementing fully fledged capacity-development initiatives. This includes (i) optimization of the skill mix, (ii) shifting towards a leaner organization, and (iii) expansion of training programs in specialized areas for executives, managers, and line workers .

d. Information Technology

13. POWERGRID has developed advanced information systems since 1992, when an information system planning study was conducted and a computer-based system was adopted at corporate and regional offices. Most business processes are now computerized through in-house developed applications and web-enabled applications. The key applications currently deployed include finance and payroll, an online grid monitoring system, specialized software tools for engineering and project management, enterprise-wide electronic messaging, an intranet-based management information system and information dissemination, and various other functional reporting systems. To further enhance corporate governance and streamline its business processes, POWERGRID plans to integrate corporate-wide information systems.

e. Fiducially Oversight and Safeguard

14. 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. Under the Right to Information Act, POWERGRID is required to disclose to the public (i) the particulars of its organization, functions, and duties; (ii) the powers and duties of its officers and employees; (iii) the procedure followed in its decision-making process, including channels of supervision and accountability; (iv) the norms set by it for the discharge of its functions; and (v) the rules, regulations, instructions, manuals, and records used by its employees for discharging their functions. POWERGRID achieved the distinction of being the first power utility and second company in the world to get certified with PAS 99:2006 integrating the requirements of ISO 9001:2000 (quality management system), ISO 14001:2004 (environmental management system) and OHSAS 18001:1999 (occupational health and safety management system).[3]

[3] Power Grid Corporation of India Limited. 2007. Available: http://www.powergridindia.com/powergrid/CITIZENCHARTER/02-0011-001.aspx

15. POWERGRID has introduced certain committees of independent eminent persons relating to the following matters: (i) financial management,[4](ii) procurement, (iii) environmental and social safeguards,[5] and (iv) research and development. These committees report directly to the chairman. In order to give more focused attention to certain areas, the board has constituted several other subcommittees to look at functional matters such as the award of contracts, feasibility reports and revised cost estimates, and bonds. Improvements suggested by the committees and subcommittees are progressively incorporated into POWERGRID's procedures.

16. POWERGRID will enhance its accountability through (i) initial public offering of its shares to the stock exchange, and (ii) proposed conferring of Navratna status which enables POWERGRID to make decisions on issues like joint ventures, capital expenditure, and setting up of subsidiary firms.

f. Cost Reduction

17. Although the current regulation allows POWERGRID to earn revenue on a cost-plus basis, continuous cost reduction efforts are critical to prepare for change to the tariff philosophy to price-cap methodologies and to provide transmission services to its customers at affordable tariffs. POWERGRID will optimize the capital cost of transmission projects through (i) the adoption of new technologies at the planning and development stages, (ii) an aggressive procurement strategy to widen supplies and its contract base, (iii) maintaining an appropriate capital structure for project funding, and (iv) ensuring timely implementation of projects.

18. POWERGRID will try to further reduce operation and maintenance costs by (i) managing additions in the transmission system without corresponding increases in human resources, (ii) adopting proper monitoring and control measures, and (iii) following a stringent regime of preventive and regular maintenance and conservation of energy.

C. Power Transmission Sector Investment Plan and Financing Plan

a. Physical Investment

19. The total investments requirement in central transmission sector during the 11th Plan is estimated at $18.75 billion, out of which POWERGRID's investment program is planned to be $13.75 billion, while the balance $5.0 billion is envisaged to be mobilized through private-sector participation. An overview of the investment requirement and funding plan is described in the table below.

[4] This committee reviews matters such as (i) existing financial management policy, (ii) system and procedures for enhancing financial performance and operational efficiency, and (iii) the financing of new business. The committee comprises four independent members with administrative, managerial, professional, and academic experience and is headed by a former comptroller and auditor-general of India. The committee has reviewed issues such as the mobilization of resources, cash management system, financial forecasting, and allocation of common expenditure, and made suggestions for further improvement which have been considered by the management.

[5] This committee is headed by the former secretary general of the Worlwide Fund for Nature, and also has the former director general (Forests) from the Ministry of Environment & Forests as environmental specialist, a professor from the Administrative Staff College of India (Hyderabad) as the R&R specialist, and includes E&S specialist members nominated by the World Bank and ADB to review POWERGRID's Environment and Social Policy and Procedures in light of International practices and review POWERGRID's compliance with the Environment and Social Policy and Procedures.

Table A3.1: The 11th Five-Year Plan and Financing Plan (FY2008-FY2012)

Investment Plan

	Amount ($ million)
Generation Linked Projects	12,947
Grid Strengthening Projects	3,637
Inter-Regional/Inter-Country Link	2,022
ULDC and Others	144
Total	18,750

Financing Plan

			Amount ($ million)
POWERGRID	Public Sector Projects	ADB	600
		Foreign Borrowings[1]/Supplier's Credit	3,150
		Bonds / Domestic Loans	5,875
		Internal Resources	4,125
		of which JV Investment from POWERGRID	(107)
	Public-Private Partnership (JV)		
Private Sector Investment	Independent Transmission Companies	Private Sector Financing	5,000
		Total	18,750

ADB Staff Estimate.

[1/] May include additional non-sovereign loans and MFF from ADB and other multilateral and bilateral sources.

20. The list of subprojects to be implemented by POWERGRID under the Eleventh Five-Year Plan is shown below. The total investment cost will be $13.75 billion. $3.75 billion is expected to be sourced from international funding agencies, out of which $0.6 billion is proposed for ADB's sovereign-guaranteed MFF. This ADB financing of $0.6 billion is intended to mainly finance two Projects included in the Eleventh Five-Year Plan, namely, Upgradation of Transmission Capacity from Uttarakhand and ±800kV High Voltage Direct Current (HVDC) Northeastern-Northern/Western Inter-connector from ADB's Ordinary Capital resources through individual time-sliced loans. To fill balance funding gap of $3.15 billion, POWERGRID may request additional ADB funding in the future.

Table A3.2: List of Investment Projects by POWERGRID under the 11th Five-Year Plan (FY2008-FY2012)

SL. No.	NAME OF PROJECTS / SCHEMES	11TH PLAN PROPOSED OUTLAY ($ million)	STATUS
1	2	3	4
A -1 Ongoing Schemes			
1	Transmission System associated with Northern Region Strengthening Scheme-II (NRSS-II)	9.26	Ongoing
2	Enterprise Wide Converged Information Technology & Communication Network in POWERGRID (EWCIT)	5.94	Ongoing
3	System Strengthening in Singrauli-Vindhyachal Corridor	0.69	Ongoing
4	Transmission System associated with Vindhyanchal-III	10.84	Ongoing
5	Northern Region System Strengthening Scheme-I (NRSS-I)	48.93	Ongoing
6	WR System Strengthening-III (WRSS-III)	17.76	Ongoing
7	WR System Strengthening-IV	21.98	Ongoing
8	Transmission System associated with Kahalgaon-II Phase-I	30.37	Ongoing
9	System Strengthening Scheme in Uttaranchal	18.57	Ongoing
10	Transmission System associated with Kahalgaon-II, Phase-II	108.00	Ongoing
11	Transmission System associated with SIPAT-I STPS	125.70	Ongoing
12	Transmission System associated with Sipat-II, STPP	28.13	Ongoing
13	Transmission System associated with Kaiga 3&4	94.52	Ongoing
14	Transmission System associated with RAPP 5&6	57.94	Ongoing

15	System Strengthening-III of Southern Region Grid (SRSS-III)	6.06	Ongoing
16	Bina Nagda Transmission Line	31.53	Ongoing
17	Northern Region System Strengthening-III (NRSS-III)	31.12	Ongoing
18	Western Region System Strengthening Scheme-I (WRSS-I)	22.82	Ongoing
19	System Strengthening -VI in Southern Regional Grid (SRSS-VI)	11.73	Ongoing
20	System Strengthening-V in Southern Regional Grid (SRSS-V)	16.81	Ongoing
21	Augmentation of Transformation Capacity at MOGA & Amritsar in Northern Region	8.97	Ongoing
22	Transmission System associated with Kudankulam Atomic Power Project	341.62	Ongoing
23	Transmission System Associated with NLC-II Expansion Project	150.07	Ongoing
24	Transmission System associated with Koteshwar HEP	63.51	Ongoing
25	Transmission System associated with Teesta-V(HEP)	35.32	Ongoing
26	Transmission System associated with SEWA-II HEP	13.06	Ongoing
27	System Strengthening-VII of Southern Regional Grid (SRSS-VII)	76.95	Ongoing
28	Supplementary Transmission System associated with Sipat Stage-II project	192.82	Ongoing
29	Strengthening of North West Transmission Corridor	112.94	Ongoing
30	Upgradation of Talcher-Kolar HDVC Bipole	18.74	Ongoing
31	System Strengthening In Roorkee Area	24.71	Ongoing
32	NER System Strengthening Scheme-I	14.75	Ongoing
33	National Load Despatch Centre(NLDC)	6.07	Ongoing
34	Transmission System associated with Barh Project	836.78	Ongoing
35	Strengthening of East West Transmission Corridor	200.92	Ongoing
36	Transmission System for Koldam H.E.P. (POWERGRID)	39.07	Ongoing
37	System Strengthening in NR-VII (NRSS-VII)	15.25	Ongoing
38	WR Strengthening Scheme - II (WRSS-II)	890.13	Ongoing
39	System Strengthening-V in NR (NRSS-V)	171.41	Ongoing
40	System Strengthening in NR-VIII (NRSS-VIII)	55.17	Ongoing
41	Transmission System for Parbati-III	139.20	Ongoing
42	Transmission System for Gandhar Stage-II	150.00	Ongoing
43	ERTS-II Headquarter	11.18	Ongoing
44	System Strengthening in South Western of Northern Grid - Part A (earlier RAPP 5&6 Supplementary)	94.19	Ongoing
45	System Strengthening in South Western of Northern Grid - Part B (earlier RAPP 5&6 Supplementary)	37.16	Ongoing
46	Capacity Enhancement in East-West Corridor in NR	25.95	Ongoing
47	Transmission System associated with URI-II	59.48	Ongoing
48	2nd Spare Converter Transformer for Talcher Kolar	16.31	Ongoing
49	SR-I&II Complex	10.48	Ongoing
50	System Strengthening-VI in NR (NRSS-VI)	46.74	Ongoing
51	ER Strengthening Scheme (ERSS-I)	243.99	Ongoing
52	400/220 kV GIS Pooling Station Near Chamera-II	71.59	Ongoing
53	2nd Spare Converter Transformer for Vizag	6.40	Ongoing
54	Rihand - Dadri convertor transformer	18.08	Ongoing
55	WR Strengthening Scheme - V	117.29	Ongoing
56	NR System Strengthening X (NRSS-X)	99.94	Ongoing
57	NR System Strengthening XI (NRSS-XI)	101.12	Ongoing
58	Transmission System For Evacuation of Chamera-III HEP	74.70	Ongoing
59	WR Strengthening Scheme – VI	77.85	Ongoing
60	NR System Strengthening XII (NRSS-XII)	61.81	Ongoing
61	System Strengthening.-VIII In SR	26.56	Ongoing

62	WR Strengthening Scheme – VII	9.24	Ongoing
63	System Strengthening-II in ER (ERSS-II)	57.13	Ongoing
64	Parbati-II & Koldam (POWERGRID Equity)	8.94	Ongoing. Joint Venture (JV) Project
	SUB TOTAL (A-1)	**5,532.29**	
A -2 New Schemes			
1	**North East - NR/ WR Interconnector-I**	1,083.82	Under Investment Approval
2	**Transmission System associated with Tehri-II PSP**	337.79	Under Investment Approval
3	NR System Strengthening IX	132.35	Under Investment Approval
4	Transmission System associated with Sasan (UMPP)	563.13	Under Investment Approval
5	Transmission System associated with Mundra (UMPP)	535.63	Under Investment Approval
6	Transmission System for Sasan & Mundra in Northern Region	327.50	Under Investment Approval
7	Transmission System for Karcham Wangtoo + System Beyond Abdullapur	77.82	Under Investment Approval
8	Transmission System for Export of Power from Different Projects from Sikkim To NR/WR	654.13	Under Investment Approval
9	Transmission System for DVC Project and Maithon Right Bank	1,298.53	Under Investment Approval
10	Northern Region Strengthening - 765 kV System for NCR and Around (DVC & Maithon in NR)	400.57	Under Investment Approval
11	Supplementary Transmission System for DVC & Maithon	472.69	Under Investment Approval
12	Korba -III(500MW)	84.21	Under Investment Approval
13	WR Strengthening Scheme - XI	313.78	Under Investment Approval
14	Tutucorin (POWERGRID Portion)	111.11	Under Investment Approval
15	Transmission System for Ennore JV with TNEB (North Chennai)	18.75	Under Investment Approval
16	Transmission System associated with Krishnapatnam UMPP	443.12	Under Investment Approval
17	Transmission System for South West Inter-Connection	238.81	Under Investment Approval
18	System Strengthening.-IX In SR	42.50	System under finalization
19	WR Strengthening Scheme – IX	55.00	System under finalization
20	WR Strengthening Scheme – X	90.13	System under finalization
21	WR Strengthening Scheme – XII	47.53	System under finalization
22	Kalpakkam PFBR	22.50	System under finalization
23	Transmission System associated with Rampur	36.52	System under finalization
24	Transmission System associated with Kawas Stage –II	42.50	System under finalization
25	Transmission System associated with Dadri –II	52.51	System under finalization
26	Transmission System associated with Bongaigon Gas Based Project	100.03	System under finalization
27	Transmission System associated with RAPP 7&8	90.00	System under finalization

28	Transmission System associated with Kishen Ganga	32.77	System under finalization
29	Transmission System associated with Kayamkulam -II (RGCCP - II)	77.53	System under finalization
30	System Strengthening -IV in NR (NRSS –IV)	4.00	System under finalization
31	Transmission system associated with Nabhi Nagar- & Barh -II	37.53	System under finalization
32	Transmission System associated with Farrakka Stage-III	37.28	System under finalization
33	Darli-Palli Transmission System	40.03	System under finalization
34	Other New Schemes	67.24	System under finalization
35	Transmission System associated with Simhadri-II	32.89	System under finalization
36	Transmission statement associated with Jhajjar	62.50	System under finalization
37	LILO of Meramundali-Jeypore at Bolangir	62.50	System under finalization
38	Transmission System associated with Agartala GBPP	3.75	System under finalization
39	Torrent Transmission Project (POWERGRID Equity)	7.81	System under finalization. JV Project
40	Karcham Wangtoo Transmission Project (POWERGRID Equity)	9.99	System under finalization. JV Project
41	Countrywide Transmission System (Teesta-III) (POWERGRID Equity)	7.00	System under finalization. JV Project
42	Essar Power Ltd. (1500 MW) (POWERGRID Equity)	12.50	System under finalization. JV Project
43	TS for Tripura Gas (740MW) (Power Grid Equity)	19.50	System under finalization. JV Project
	SUB TOTAL (A-2)	**8,187.74**	
A -3 COMPLETED SCHEMES			
1	Trans. System for TALA (POWERGRID Equity)	1.75	Completed
2	Transmission System associated with Tehri Project	0.03	Completed
3	Tala -Siliguri transmission System	1.17	Completed
4	System Strengthening-IV Southern Region Grid (SRSS-IV)	2.05	Completed
5	Installation of II nd ICT at Indravati OHPC	0.63	Completed
6	Dulhasti Combined	3.38	Completed
7	System strenthening scheme in NR-ER (Formerly part of Tala Supplementary scheme)	10.27	Completed
8	Vindhayanchal-Korba Transmission Line	1.98	Completed
9	Trans. System for TALA (POWERGRID Portion)	24.33	Completed
10	Bhadravati Chandrapur Transmission System	0.18	Completed
11	Unchahar-III Transmission System	7.81	Completed
12	LILO of Bongaigon at Siliguri	0.20	Completed
13	Ranganadi-Zero	0.01	Completed
14	ULDC Eastern Region	0.39	Completed
15	Narendra S/S	0.01	Completed
16	Dhauliganga	0.04	Completed
17	ULDC Western Region	0.27	Completed
18	Gurgaon Complex	0.13	Completed
19	LILO of Kolaghat Rengali at Baripada	0.09	Completed
20	Gazuwaka HDVC Augmentation	0.18	Completed
21	LILO of Rangit- Siliguri at Gangtok	0.46	Completed

22	Transmission System associated with Tarapur 3&4	0.00	Completed
23	LILO of Siliguri- Gangtok at Melli	0.01	Completed
24	Rihand-II Transmission System	1.39	Completed
25	Raipur Chandrapur	0.03	Completed
26	Neelamangala Mysore Transmission System	1.50	Completed
	SUB TOTAL (A-3)	**58.28**	
A -4 TELECOM SECTOR			
1	Telecom Base Network	8.41	Telecom project
	SUB TOTAL (A-4)	**8.41**	
TOTAL A (A-1 + A-2 + A-3 + A-4)		**13,786.72**	

* Project-wise outlay has been worked out considering the present status of projects, RE (2007-08), BE (2008-09) etc.

Table A3.3: POWERGRID'S Annual Investment Plan

($ Billion)

Fiscal Year	Investment	ADB Funding
2008	1.63	0.20
2009	2.01	0.40
2010	3.07	0.25
2011	3.47	0.15
2012	3.57	0.00
Total	**13.75**	**1.00**

Source: Power Grid Corporation of India Limited.

b. Non-physical Investment for Capacity Development

21. In tandem with the rapid physical infrastructure investment, non-physical investment for internal capacity development will be undertaken in the area of human resource development, operation and management system, fiduciary oversight and safeguard, and operational enhancement strategy. Non-physical investments will be conducted using internal financial resources.

D. Assurances

22. POWERGRID will ensure that:

Project/Subproject Selection Criteria

(i) selection of Projects follows the eligibility criteria and procedures set out in the FFA;

Financial Governance

(ii) it will maintain its accounts receivable at a level not exceeding an amount equivalent to the income proceeds of its transmission services for the preceding three months of billable amount as allowed by Central Electricity Regulatory Commission;

(iii) it will obtain irrevocable letters of credit from the state electricity boards and other beneficiaries, in an aggregate amount based on average monthly billings of the previous financial year, as deemed acceptable by POWERGRID and as allowed by CERC;

(iv) it will maintain a debt-equity ratio of 80:20 and a self-financing ratio of at least 20% from 2007 onward;

(v) it will exercise its rights promptly including the right to effect the reduction/stoppage of supply under the commercial contracts with state electricity

boards or other beneficiaries as well as under the tripartite agreements with government of India, state governments and Reserve Bank of India;

Environmental Matters

(vi) all Projects and project facilities are assessed, designed, implemented, constructed, operated, maintained, and monitored in accordance with all applicable environmental laws, rules, and regulations of the Government, relevant States, ADB's *Environment Policy (*2002*),* POWERGRID's *Environmental and Social Policy & Procedures 2005* (ESPP), IEE, EIA (if necessary) and EARF;

(vii) (a) the EMP and the mitigation measures included therein, as specified in the IEE, EIAs, and EARF, as applicable, are properly and promptly implemented; (b) the EMP and mitigation measures included therein are updated at the engineering design stage and incorporated into the bidding documents and civil works / supply contracts; (c) any adverse impact on the environment that may arise from project implementation activities is promptly mitigated or minimized in accordance with the EMP; (d) any major accidents, including any safety breaches, violation of environmental standards, and corrective measures taken thereto, are reported forthwith to ADB; (e) at least semiannual reports on the implementation of the EMP are submitted to ADB, and ADB is allowed to conduct annual environmental reviews; (e) reports and information are provided to ADB on request to enable it to verify that the goods and services financed out of the proceeds of the loan have been produced in a responsible manner with a view to resource efficiency, waste minimization, and other environmental considerations; and (f) for any category A or B sensitive projects, an IEE or EIA, as applicable, for subsequent tranches will be prepared and made available to the general public 120 days before a PFR is submitted to ADB;

Land Availability and Resettlement

(viii) land acquisition and resettlement is undertaken in accordance with applicable laws, regulations, and policy of the Government, relevant States, and ADB's *Involuntary Resettlement Policy (1995)*, POWERGRID's ESPP 2005, Compensation Plan for Temporary Damages (CPTD), as well as in accordance with the resettlement framework and resettlement plans for each Project;

(ix) it (a) prepares and implements Resettlement Plans for the Projects entailing permanent losses, and CPTDs for Projects entailing only temporary losses, including any revisions thereto due to detailed designs, in accordance with ADB's *Involuntary Resettlement Policy*, POWERGRID's ESPP 2005 and the Resettlement Framework, and (b) discloses the Resettlement Plans and CPTDs to affected persons in a form and language easily comprehended by affected persons prior to submission to ADB for review. POWERGRID will submit to ADB provisional[6] CPTDs for approval prior to award of the related civil work contracts. POWERGRID will also submit to ADB for approval the revised CPTDs progressively during the implementation of the related civil work. ADB will review the CPTDs and, if found unacceptable, will advise POWERGRID to revise/modify them according to ADB's requirements. In any case, all compensations shall be awarded prior to displacements and damage of assets;

[6] Provisional only in terms of information which can be obtained by line alignment study carried out by contractors.

(x) in accordance with the Rettlement Plans, full compensation is paid to affected persons; and resettlement assistance,[7] grievance redress mechanisms, and monitoring systems are fully implemented prior to commencement of related civil works. Additional activities, such as income generating programs, will be implemented within 12–18 months after the commencement of civil works;

(xi) prior to commencement of civil works under any contract, affected persons are fairly compensated in a timely manner on replacement costs in accordance with the related Resettlement Plan, such that their living standards are not adversely affected. POWERGRID will submit progress and completion reports on land acquisition and resettlement under the quarterly progress reports for each Project;

(xii) prior to any land acquisition and resettlement under each Project, the Resettlement Plans and CPTDs, including their updates, based on consultation with affected persons are submitted to ADB for its approval and uploading on ADB's website;

(xiii) it makes available timely financing for land acquisition, resettlement and other activities outlined in the related Resettlement Plan and will meet any unforeseen obligations in excess of the Resettlement Plan budget estimate in order to satisfy the Resettlement Plan requirements;

(xiv) within 3 months of the effective date of the related loan agreement, it engages an independent external expert/agency acceptable to ADB for monitoring and verification of the Resettlement Plan implementation under each Project and will be responsible for providing ADB quarterly monitoring and evaluation reports on resettlement implementation in accordance with the Resettlement Plans;

(xv) within 3 months of the effective date of the related loan agreement, it establishes a grievance redress committee, for the implementation of the Resettlement Plans;

Indigenous Peoples

(xiv) in case of any significant or related impacts on indigenous peoples under any Project, POWERGRID will follow the requirements as set out in the Indigenous Peoples Development Framework (IPDF). As also set forth in the IPDF, for any impact on land involving traditional and tenurial rights of the indigenous households, the legal provisions laid down by the Government of India pertaining to transfer of land will be duly followed;

(xv) in case of any nonsignificant impact on indigenous peoples under any project, POWERGRID will comply with the requirements as set out in the Resettlement Plan or CPTD;

Execution of Civil Works Contracts

(xvii) it does not award any Works contract financed under a loan in respect of any project under the Facility unless the related RP, provisional CPTD, IEE/EIA (with EMP), IPDP, as applicable, are submitted to ADB;

(xviii) subsequent to award of civil works contract in respect of each project under the Facility, no civil works are started by the contractor unless the applicable provisions of the RF, RP, CPTD, EARF and EMP, as approved by ADB, have been complied with;

(xix) the contractors undertake a detailed survey of the affected persons during transmission line alignment finalization under the Project. POWERGRID shall

[7] In case of physical displacement of affected persons or complete loss of livelihood.

prepare provisional CPTDs which meet ADB's requirements, based upon the detailed design information during the survey carried out by civil work contractors. POWERGRID shall submit to ADB for approval the revised CPTDs progressively during the implementation of the related civil work;

(xx) any changes to the location, land alignment, or environment impacts on account of detailed designs of the related project under the Facility shall be subject to prior approval by ADB in accordance with the project selection criteria and procedures included in Schedule 4 of the FFA, before further activities are undertaken in the related civil works contract for substations and commencement of civil works for transmission lines under the Project.; and

Labor Standards

(xxi) for procurement of goods and services, contractors, subcontractors and consultants will comply with the applicable labor legislations of the Government, and the relevant States,(e.g. safe working conditions, etc.), as well as with the Core Labor Standards: (i) elimination of forced or compulsory labor; (ii) abolition of child labor; (iii) elimination of discrimination in respect of employment; and (iv) freedom of association.

23. The Government of India will ensure that:

(i) POWERGRID will continue to function as the central transmission utility under the Electricity Act 2003, as amended from time to time, provide transmission services and facilitate private sector participation in power transmission as per the Government directives from time to time;

(ii) it shall maintain the Board of Directors of the Borrower in accordance with statutory requirements regarding corporate governance;

(iii) it remains committed to power sector reforms, and continues to emphasize and support the autonomy of POWERGRID, with respect to its commercial, administrative and operational activities.

SCHEDULE 2

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Increased transmission capacity and affordable and reliable power supply for sustained economic growth	• 78,600 MW of generation capacity addition during the 11th Plan period (FY2008-FY2012) to reach the total national generation capacity of 210,929 MW. • Access to electricity by rural households from 43.5% in 2006 to 100.0% in 2012.	• Government economic statistics and reports • National statistics on power supply • Program and project completion reports	**Assumptions** • Government's continued support and commitment to power sector reforms and development of the national electricity market. • Timely and transparent implementation of the Electricity Act, 2003. • Stable economic growth in India.
Outcome National Power Grid strengthening and augmentation/expansion with transmission bottlenecks removed and losses reduced.	• Development of an integrated national power grid with additional 60,000 ckm transmission lines by 2012. • Increased inter-regional transmission capacity from 14,100 MW in March 2007 to more than 37,000 MW by 2012. • Maintain transmission system availability at not less than 99.0%. • Maintain transmission losses in the range of 3-4% at par with international standards	• Annual report of POWERGRID • Regulation statistics of NLDC • Quarterly project progress reports. • ADB's project review missions. • Program completion reports	**Assumptions** • Timely development of envisaged generation projects by other utilities. • Load growth and system expansion as forecast. **Risks** • Mismatch between generation and transmission network upgrades. • Delays in project implementation
Outputs Upgrading transmission corridor from Uttaranchal ±800kV HVDC North-eastern – Northern / Western Inter-connector	• Addition of 14 km of 400kV S/C transmission line and 103 km of 400kV D/C transmission line by 2011. • Establishment of 800 kV switchyards at Tehri-II Pooling Station (GIS) and Meerut Sus-station by 2011. • Additional transmission capacity of 765/400kV, 5,000MVA by 2011. • About 1,800 km of ±800 kV, 6,000 MW HVDC bipole line by 2012. • About 860 km of 400kV D/C transmission line by 2012. • About 22 km of 132kV S/C transmission line by 2012. • Addition of 400/220/33 kV, 315 MVA transmission capacity by 2012 • HVDC rectifier module of 3,000 MW at Biswanath Chaiyali and inverter module of 3,000 MW at Agra by 2012	• Annual report of POWERGRID • Regulation statistics of NLDC • Quarterly project progress reports. • ADB's project review missions. • Field visits • Program completion report	**Assumptions** • Government's timely approval of the required investment programs. • Counterpart funds mobilized on time • POWERGRID's full ownership of the transmission sector development program **Risks** • Unexpected increase in prices of commodities and raw materials, and construction delays

Activities with Milestones	Inputs
1. Advance procurement on Tranche 1 Projects initiated by June 2007. 2. PFR for Tranche 1 submitted by March 2008. 3. PFR for Tranche 2 submitted and approved by June 2009. 4. Field surveys for Project-1 completed by December 2007. 5. Bidding for civil works and procurement of goods for Project 1 completed by December 2008. 6. Construction of Project 1 commenced by February 2009. 7. Construction completion of Project 1 by December 2011. 8. Field survey for Project-2 completed by August 2008. 9. Bidding for civil works and procurement of goods for Project-2 completed By December 2008. 10. Construction of Project-2 commenced by November 2008. 11. Construction of Project-2 completed by December 2012.	• ADB -MFF: $600 million • POWERGRID: $762.6 million • Other Financial Institutions: $1,180.0 million

B. Sector Road Map

Power Transmission Sector Roadmap

Goal: Power for All by 2012

Impact	Outcome	Performance Target	Measurement
1. Constituent member consumers have access to power from the national grid	Expand coverage of transmission network	• Develop an integrated National Grid with additional 60,000 ckm transmission lines by 2012 • Increase inter-regional transmission capacity to more than 37,000MW by 2012	Reports by MOP Reports by MOP Reports by MOP
2. Constituent member consumers provided with stable quality of electric power supply	Improve reliability of transmission network	• Maintain system availability at not less than 99.0% with initiatives, e.g., Hot Line Maintenance and Emergency restoration System. • Maintain transmission losses in the range of 3-4%at par with international standards • Nation-wide real-time grid operation	Annual Report of POWERGRID Annual Report of POWERGRID Annual Report of POWERGRID

Impact	Outcome	Performance Target	Measurement
3.Constituent member consumers provided with electricity at affordable cost	Enhance sustainability and efficiency of the transmission sector	• Enhance financial viability by implementing financial management and corporate governance strategy	Financial Ratio/Indicators in Annual Report Obtain foreign long-term currency credit rating by international rating agencies
		• Enhance institutional capacity through implementation of human resource development strategy and introduction of full-fledged ERP	Ckt. Km. per Employee
		• Implement cost reduction strategies	Benchmarking unit cost analysis by POWERGRID
		• Application of Tariff Based Bidding for new transmission projects	Reports by MOP
		• Strengthening capacity of state transmission utilities with technical and managerial assistances by POWERGRID	Reports by MOP

NLDC = National Load Dispatching Center

SCHEDULE 3

IMPLEMENTATION FRAMEWORK

1. Unless otherwise stated in any of Loan or Guarantee Agreements under the Facility, the Investment Program shall be implemented as follows:

Implementation Arrangements

2. POWERGRID will be the executing agency (EA) for the Investment Program, and has set up a program management unit (PMU) headed by an executive director / general manager at its headquarters. The unit, through the related functional departments of POWERGRID, will be responsible for processing appraising, and implementing the Investment Program and Projects under the Facility, covering the development and completion of technical reports, feasibility studies, preliminary design reports, environmental assessment reports, resettlement and indigenous people's development plans, and detailed design reports to ensure their compliance with government and ADB requirements.

3. POWERGRID will provide adequate counterpart funding and arrange necessary funding for the timely implementation of the Projects. POWERGRID will also provide, as necessary, respective counterpart staff, land facilities in accordance with the financing plan, the cost of making land available, and assistance, and implementation and monitoring under the EARF, RF and IPDF (including cost of mitigating unforeseen environmental impacts, beyond the estimates), utility relocation, general management expenses, in a timely manner.

Performance Monitoring and Progress Reports

4. POWERGRID shall prepare progress reports for respective Projects under the Facility and submit these to ADB on a quarterly basis within 30 days from the end of each quarter. Each report shall provide a narrative description of progress made during the period in respect the Project, changes in the implementation schedule, problems or difficulties encountered, and the work to be carried out in the next period. The progress report will also include a summary financial account for the Project loan components, consisting of Project expenditures for the year to date and total expenditure to date. POWERGRID shall undertake periodic Project performance review under each individual tranche of the loan, and also for the Facility to evaluate the scope, implementation arrangements, progress and achievements of objectives of the related Project and the overall Facility. Performance shall be evaluated based on indicators and targets stipulated in the design and monitoring framework for the Facility.

Review

5. ADB shall field an inception mission within 3 months of the approval of the Facility. ADB shall review the implementation and operation of the Facility based on the quarterly progress reports and meet with POWERGRID and the Government semi-annually to discuss the progress of the individual tranche and any changes to implementation arrangements or remedial measures required to be undertaken towards achieving the objectives of the Project, and the Facility under the Investment Program.

6. A midterm review shall be carried out 2 years after the loan effectiveness for each tranche and also for the Facility focusing on the engineering, resettlement, and environmental

aspects, and reviewing the financial status of POWERGRID. Representatives of ADB and POWERGRID will take part in the review. The review will allow for any necessary midcourse corrections to ensure successful Project implementation and achievement of objectives of the overall Facility and the Investment Program.

7. POWERGRID shall furnish to ADB a Project completion report within 6 months of physical completion of the related Project, and Facility completion report within 6 months of physical completion of the Investment Program. These reports shall cover a detailed evaluation of Projects and the Facility respectively, covering the design, costs, contractors' and consultants' performance, social, environmental and economic impact, economic rate of return, and other details for each Project and the Facility as may be requested by ADB.

Audit and Accounting

8. POWERGRID shall (i) have its accounts and financial statements (balance sheet, statement of income and expenses, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB; (ii) furnish to ADB, as soon as available but in any event not later than 6 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the loan proceeds and compliance with the financial covenants of related loan agreement, all in the English language; and (iii) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request.

SCHEDULE 4

SELECTION CRITERIA AND APPROVAL PROCESS FOR PROJECTS

A. Eligibility Criteria

1. Eligibility criteria of each Project, under the Facility are as follows:

   (i) The Project will be part of the 11th Five-year Plan, as updated from time to time.

   (ii) The Project will be supported by load flow diagrams, and strengthen and expand the national transmission grid.

   (iii) The Project will be technically feasible and part of the least-cost development plan, and its feasibility study and preliminary design will have been prepared.

   (iv) The Project will be economically viable in accordance with ADB's Guidelines for Economic Analysis, as amended from time to time. The economic analysis of the Project will be conducted in accordance with ADB's *Guidelines for Economic Analysis of Projects*, as amended from time to time. The Project will also be financially viable with its estimated financial internal rate of return greater than the weighted average cost of capital.

   (v) An environmental screening will have been conducted for the Project. An initial environmental examination (IEE) or environmental impact assessment (EIA), including an environmental management plan (EMP) with budget, for the Project will have been prepared in accordance with ADB's *Environment Policy, 2002*; the applicable Government laws, the POWERGRID *Environmental and Social Policy & Procedures 2005* (ESPP), and the Environmental Assessment and Review Framework (EARF, Schedule 5, Annex C). Each Project will be environmentally acceptable with no significant residual impacts after mitigation.

   (vi) The Project will be socially sound and include measures to mitigate any adverse social impacts, if any, that it may cause. The initial poverty and social assessment (IPSA) for the Project will have been conducted in accordance with ADB's Guidelines on Initial Poverty and Social Assessment, as amended from time to time.

   (vii) The resettlement plan (RP) or the Compensation Plan for Temporary Damages (CPTD) for the Project will have been prepared in accordance with the RF, applicable Government laws and ADB's policy on Involuntary Resettlement (1995, as amended from time to time) and POWERGRID'S ESPP.

   (viii) If any indigenous peoples are likely to be affected significantly by a Project, an Indigenous Peoples Development Plan (IPDP) will have been prepared in accordance with applicable Government laws, the indigenous people's development framework (IPDF) and ADB's *Policy on Indigenous Peoples, (1998),* as amended from time to time.

(ix) Sufficient counterpart funding will be allocated to implement the Project as scheduled.

(x) All necessary central and state government approvals will be obtained for the Project in a timely manner in accordance with the Project appraisal report.

(xi) The state electricity board or the region that is the beneficiary of the Project has a satisfactory payment record with POWERGRID, i.e. has an accounts receivable at level not exceeding an amount equivalent to the services for the preceding three months of billable amount as allowed by CERC.

B. Procedures

2. For the Projects already prepared for first tranche, the approval process stands completed at the date of this Agreement.

3. For the subsequent Projects, intended for financing under the Facility, the approval procedures will be as follows:

(i) POWERGRID will prepare the detailed Project feasibility assessments that will follow the format and content of the feasibility assessments prepared for the first tranche;

(ii) Upon completion of the feasibility of a Project, POWERGRID will fill out the checklists for IPSA, involuntary resettlement, indigenous peoples, and environmental screening. These documents should be sent to ADB for review, and POWERGRID will carry out revisions as may be required by ADB on these;

(iii) Projects will be designed to avoid and minimize land acquisition, resettlement and adverse impacts on Indigenous Peoples and other vulnerable people. Upon completion of preliminary design, RPs and CPTDs, IEE or EIA (including EMP with budget), and IPDP (if required). Based on this, POWERGRID will prepare and submit to ADB for its review, a summary appraisal report for each Project together with required attachments to demonstrate compliance with requirements listed in para 1 of this Schedule;

(iv) POWERGRID will disclose each Project RP and CPTD to the affected peoples before submitting it to ADB, and will revise it if required, based on comments from the affected peoples and ADB;

(v) POWERGRID will disclose the summary IEE (or summary EIA) for each Project to the public before submitting the summary appraisal report to ADB. If the Project is classified as category A or B sensitive in accordance with ADB's *Environment Policy 2002*, including as amended from time to time, such disclosure will be made 120 days before a PFR is submitted to ADB;

(vi) ADB will review the summary appraisal reports, together with required attachments. If ADB finds that a proposed Project does not satisfy the eligibility criteria and procedures, ADB may advise POWERGRID on modification and

remedial measures to be taken for the proposed Project for compliance with ADB's policies and procedures;

(vii) In case of any revisions required to the RP and CPTD, IEE or EIA (including the EMP with budget), IPDP (if required) on account of detailed Project design, these will also be subject to prior ADB approval and requirements of clauses (iii) and (iv) above; and

(viii) POWERGRID will compile a review report on compliance with loan covenants for the previous tranche. ADB will approve the Project proposal, subject to satisfactory compliance with all safeguard policies and related loan covenants.

4. The procurement of goods and works for all Projects will be in accordance with ADB's *Procurement Guidelines (2007*, as amended from time to time).

5. Based on ADB's approval and subject to modification and remedial measures, if any, as required by ADB, POWERGRID will implement the Project. POWERGRID will ensure that ADB has access to all documents on which POWERGRID's Project screening and processing are based. These documents should be kept for at least five years for ADB review, if required.

C. Organization Arrangements

6. POWERGRID will be the executing agency for the Investment Program, and has set up a program management unit (PMU) headed by an executive director (corporate planning) at its headquarters. The unit, through the related functional departments of POWERGRID, will be responsible for processing and implementing the Facility under the Investment Program. POWERGRID has eight regional offices headed by an executive director/ general manager to implement the Projects under their respective jurisdiction. The additional general manager/ deputy general managers in the region responsible for construction and commissioning of 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 to ADB, the PMU will maintain regular consultations with other funding agencies for implementation of the Projects.

SCHEDULE 5

SAFEGUARDS REQUIREMENTS AND SOCIAL PROTECTION MEASURES

1. POWERGRID will ensure that all the requirements prescribed in this Schedule, which have been prepared with respect to the Facility and of which ADB has been provided full copies, are complied with during the processing and implementation of the Projects under the Facility.

2. Prior to the preparation of each PFR, the applicability and relevance of each safeguard framework for environmental assessment, involuntary resettlement, and indigenous people (Safeguard Frameworks) will be reviewed and updated to ensure relevance and consistency with applicable country legal frameworks and ADB's safeguard policies, as amended from time to time.

3. In all cases, for each new PFR preparation, POWERGRID will review on-going Projects to check on the status of compliance with the safeguards plans and frameworks, and submit the review reports to ADB, together with other required safeguard documents relevant to the Projects included in the tranche being processes. In any case if major noncompliance is discovered in the course of the review of on-going Projects, a corrective action plan will be prepared and submitted to ADB.

4. In addition, all ADB safeguards policies in effect as of the date the financing of a Project is prepared or provided under the Facility will apply to such Projects.

5. Finally, to strengthen the effectiveness of stakeholder consultation and participation in the implementation of the Project, a full consultation and participation (C and P) process be designed accordingly to include (i) stakeholder analysis, (ii) provision and disclosure of documents to the stakeholder, (iii) announcement of the date for consultation on specific issues; and (iv) adequate monitoring of the C and P process.

A. Environment

6. ADB will only finance investments that meet the eligibility requirements set out in Schedule 4 to this FFA, and which adhere to relevant requirements of Government of India, and the State energy policies, attached Environmental Assessment and Review Framework (EARF, Annex A), and other applicable guidelines for Project implementation. POWERGRID will monitor the implementation of Projects through to their completion of each Project.

7. POWERGRID will ensure that environmental assessment of the Projects are conducted according to the ADB's *Environment Policy, 2002*; INDIA and the State's environmental laws, regulations, and standards; and POWERGRID's ESPP, and RF/EARF.

8. POWERGRID will ensure that the recommendations of the environmental assessments and environmental management plans (EMP) approved by ADB and relevant government agencies are adhered to during design, construction and operation phases of the Projects.

9. POWERGRID will ensure that (a) the Projects are not located within national parks and wildlife sanctuaries, unless prior environmental clearance is obtained from relevant government agencies; (b) monuments of cultural or historical importance are avoided; and (c) EMP with adequate budget is developed and implemented for each Project. ADB environment Category A and B-sensitive Projects will be subject to the 120-day public disclosure policy of ADB.

B. Land Availability and Resettlement

10. POWERGRID will, subject to compliance with the relevant provisions of the attached Resettlement Framework (RF) (Annex B) as agreed with ADB and in accordance with all applicable laws and regulations of the Government and relevant State, acquire or make available the land and rights to land free from any encumbrances, and cleared the utilities, trees and any other obstruction from such land by providing adequate compensation and assistance, required for commencement of construction activities in accordance with the schedule agreed under the related civil works contract.

11. POWERGRID shall ensure that land acquisition and resettlement proceed in accordance with applicable laws and regulations of the Government, and ADB's policy *on Involuntary Resettlement (1995)*, POWERGRID's ESPP 2005 as well as in accordance with the resettlement framework (RF) and resettlement plans (RP) for Projects.

12. POWERGRID shall (i) prepare and implement RPs for Projects entailing permanent losses, and CPTDS for Projects entailing only temporary losses (including any revisions thereto due to detailed designs), in accordance with ADB's policy on *Involuntary Resettlement* (1995), POWERGRID's ESPP 2005 and the RF and (ii) disclose the RP and CPTDs to Affected Persons (APs) in a form and language easily comprehensive to APs prior to submission to ADB for review. POWERGRID shall submit to ADB provisional[8] CPTDs for approval prior to award of the related civil work contracts. POWERGRID shall also submit to ADB for approval the revised CPTDs progressively during the implementation of the related civil work. ADB shall review the CPTDs and, if found unacceptable, will advise POWERGRID to revise/modify them according to ADB's requirements.

13. POWERGRID will ensure that all land and rights-of way required by the Projects are made available in a timely manner and that the provisions of the resettlement plans (RPs) and the compensation plans for temporary damages (CPTDs), including compensation and entitlements for affected persons, are implemented in conformity with (i) all applicable the Government and relevant State laws and regulations, (ii) ADB's policy *on Involuntary Resettlement (*1995), POWERGRID's ESPP 2005 and the RF. POWERGRID will ensure that, per the RPs: (i) full compensation is paid to APs; (ii) resettlement assistance[9], (iii) grievance redress mechanisms, and (iv) monitoring systems will be fully implemented prior to commencement of related civil works. Additional activities, such as income generating programs, will be implemented within 12 and 18 months after the commencement of civil works.

14. POWERGRID will ensure that prior to commencement of construction activities under any contract; people affected by each Project are fairly compensated in a timely manner on replacement costs in accordance with the related RP, such that their living standards are not adversely affected. POWERGRID will submit progress and completion reports on land acquisition and resettlement under the quarterly progress reports for each Project.

15. POWERGRID will ensure that under each Project, prior to any land acquisition and resettlement the related RPs and CPTDs including their updates based on consultation of affected peoples, submitted to ADB for its approval, and uploading on ADB's web site.

[8] Provisional only in terms of information which can be obtained by line alignment study carried out by contractors.
[9] In case of physical displacement of APs or complete loss of livelihood.

16. POWERGRID will ensure that essential public infrastructure that may be affected under land acquisition and resettlement is replaced, as appropriate, in an expeditious manner in accordance with the related RP.

17. POWERGRID will ensure that construction contracts contain binding requirements for construction contractors to fully reinstate pathways, other local infrastructures, and agricultural land to at least their pre-Project condition upon construction completion; and provision is made for adequate recording of the condition of roads, agricultural land and other infrastructure prior to transport of material and construction commencement.

18. POWERGRID will ensure that in the event irrigation supplies are disrupted and adjacent farmers experience losses, provision will be made for independent valuation of losses and timely compensation.

19. For each Project, POWERGRID will ensure timely provision of budget for land acquisition; resettlement and other activities outlined in the related RP and will meet any unforeseen obligations in excess of the RP budget estimate in order to satisfy the RP requirements.

20. POWERGRID will engage, within 3 months of the effective date of the related loan agreement, an independent external expert/agency acceptable to ADB for monitoring and verification of the RP implementation under each Project that will be responsible for providing ADB through POWERGRID quarterly monitoring and evaluation reports on resettlement implementation in accordance with the RPs.

21. POWERGRID will ensure that within 3 months of the effective date of the related loan agreement, POWERGRID will also establish a grievance redress committee, for the implementation of the RPs, having representation from all stakeholders for the related Project for addressing any grievances from affected peoples concerning resettlement, environment and other social issues in a timely manner. For the implementation of CPTDs, which is applicable to transmission lines, the grievance redress mechanism is already built into the process of compensations, as described in the RF.

C. Indigenous Peoples

22. In case of any significant or related impacts on indigenous peoples (as identified in the IPDF) under any Project, these will follow the requirements as set out in the attached Indigenous People's Development Framework (IPDF) as agreed with ADB (Annex C) including special provisions for all indigenous households to ensure that their living standards are not adversely affected as a result of land acquisition or in the event of any loss of non-land asset and impacts on their livelihoods. As also set forth in the IPDF, for any impact on land involving traditional and tenurial rights of the indigenous households, the legal provisions laid down by the Government and POWERGRID pertaining to transfer of land will be duly followed.

23. POWERGRID will ensure effective community participation in selecting and implementing Projects in accordance with ADB's safeguard policies, as supplemented by the RF and EARF.

24. Applicability of the RF, the IPDF and EARF/EMP to Projects under the Facility may be reviewed and necessary modifications, acceptable to ADB and POWERGRID, will be made prior to finalizing the corresponding legal agreements.

D. Execution of Civil Works Contracts

25. POWERGRID will ensure that it does not award any Works contract financed under a loan in respect of any project under the Facility unless the related RP, provisional CPTD, IEE/EIA (with EMP), IPDP, as applicable, are submitted to ADB. POWERGRID will ensure that subsequent to award of civil works contract in respect of each project under the Facility, no civil works are started by the contractor unless the applicable provisions of the RF, RP, CPTD, EARF and EMP, as approved by ADB, have been complied with.

26. POWERGRID will cause the contractors to undergo detailed survey of the affected persons during transmission line alignment finalization under the Project. POWERGRID shall prepare provisional CPTDs which meet ADB's requirements, based upon the detailed design information during the survey carried out by civil work contractors. POWERGRID will submit to ADB for approval the revised CPTDs progressively during the implementation of the related civil work.

27. Any changes to the location, land alignment, or environment impacts on account of detailed designs of the related project under the Facility shall be subject to prior approval by ADB in accordance with the project selection criteria and procedures included in Schedule 4 of the FFA, before further activities are undertaken in the related civil works contract for substations and commencement of civil works for transmission lines under the Project.

E. Labor Standards

28. POWERGRID will ensure that for procurement of goods and services, contractors, subcontractors and consultants will comply with the applicable labor legislations of the Government, and the relevant States,(e.g. safe working conditions, etc), as well as with the Core Labor Standards ((i) elimination of force or compulsory labor; (ii) abolition of child labor; (iii) elimination of discrimination in respect of employment; and (iv) freedom of association).

SCHEDULE 5 ANNEX A

ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK

A. INTRODUCTION

1. Power Grid Corporation of India Ltd. (POWERGRID) through Government of India (Government) has requested the Asian Development Bank (ADB) to provide a multi-tranche financing facility (MFF) to partly fund the National Power Grid Development Program (the investment program) for interstate transmission system expansion program in India. The investment program will cover physical investments in extra/ultra high voltage transmission lines, substations, and auxiliary equipment and materials. The MFF will be implemented for specific Projects on a time-slice basis.

2. The investments to be supported by ADB will (i) improve quality and reliability of power; (ii) remove transmission bottlenecks; (iii) facilitate interregional power transfers; and (iv) facilitate a reduction in nationwide transmission system losses. The investment program will sustain the transmission system expansion established with earlier ADB support.

3. This Environmental Assessment and Review Framework (EARF) is applicable to all investments funded by the MFF, and particularly to projects included in any subsequent tranches which have not yet been fully defined. The EARF outlines the policy, procedures, and institutional requirements for preparing subsequent projects. POWERGRID as the Executing Agency (EA) is responsible for preparing the required environmental assessments and obtaining ADB concurrence prior to implementation. These approvals must be in place prior to finalization of contracts and commencement of work.

B. Environmental Regulatory and Policy Framework for Project Selection

4. GOVERNMENT and ADB environment policies and procedures apply to all Projects funded by the MFF. The environmental regulations of the Ministry of Environment and Forests (MOEF) categorize development projects according to their anticipated potential environmental impact. As per the Notification in the Gazette of India, Extra-ordinary part II, and Section 3, sub-section (II), Ministry of Environment and Forest dated September 14, 2006, transmission projects are exempt from Environmental clearance requirements. POWERGRID is obligated to comply with (i) section 68 of the Electricity Act 2003, (ii) forest clearances under the Forest (Conservation) Act 1980, and (iii) specific environmental clearances are required for two designated areas in the Aravalli Range (Alwar in Rajasthan and Gurgaon in Haryana).

5. Power transmission projects normally are classified by ADB as Category B. Category B-sensitive or Category A may apply to projects located in environmentally sensitive areas.[1] For each investment project an initial environmental examination (IEE) will be prepared following ADB's Environment Policy, 2002 and Environmental Assessment Guidelines, 2003 and national environmental assessment regulations and guidelines (as noted above), and POWERGRID *Environmental and Social Policy & Procedures 2005* (ESPP). The IEEs (or EIAs) will include an environmental management plan (EMP) with implementation budget.

[1] National Parks, Wildlife Sanctuaries, Bio-reserve zones, nature reserves, or wetlands as designated by MoEF and areas declared as heritage sites.

C. Environmental criteria for additional Project selection

6. Specific environmental criteria for project selection are:

i. Projects will not be located within national parks, wildlife sanctuaries and nature reserves, or wetlands, unless unavoidable for technical reasons.

ii. Monuments of cultural or historical importance will be avoided.

iii. An environmental management plan (EMP) with adequate budget will be developed for each Project.

iv. Environment Category A and B-sensitive Projects must comply with ADB's 120-day disclosure policy.

v. Potential environmental impacts will be minimized by routing of transmission lines and siting of substations to avoid sensitive areas. Re-alignment or selection of alternative sites may be required.

vi. Clearing of any existing forest resources will be avoided if possible, and where unavoidable will be minimized and compensated as per Government regulatory criteria.

vii. New equipment / facilities specifications shall follow international standards and best practices to avoid use of chemicals causing greenhouse gas (GHG) emissions, and all equipment procured shall be CFC & Polychlorinated Biphenyl (PCBs) free (as per international standard wherever applicable as specified in Technical Specification) as per ESPP of POWERGRID.

D. Environmental assessment and review procedures of additional Projects

1. Application of selection criteria

7. Proposed Projects will be screened for compliance with selection criteria listed above prior to additional analysis. Environmental categories will be assigned using the rapid environmental assessment (REA) checklist (as described in ADB Environmental Assessment Guidelines 2003). Design changes may be suggested or required by ADB and GOVERNMENT for proposed projects that initially do not meet the selection criteria, and environment categories will be changed as necessary.

2. Preparation of Environmental Assessments

8. After categorization,[2] an IEE or EIA including an EMP with implementation budget will be prepared for each component. Public consultation will be conducted with local community and potentially affected people as early as possible for each Project. For Category A Projects, public consultations will be conducted at least twice: (i) once during early stage of EIA field work, and (ii) once with the draft EIA report is available, and before submission of the relevant PFR. IEE

[2] Categorization using the ADB REA checklist will be done at the earliest possible time. Category B is expected for most projects (about 90% of all POWERGRID projects are classified as Category B).

results will be communicated to the local community during public consultation process and before commencement of construction. IEE or EIAs will be reviewed and approved by ADB and GOVERNMENT. Summary IEEs (SIEE) or summary EIAs (SEIA) will be prepared and disclosed in accordance with ADB's *Public Communication Policy 2005* for Category B-sensitive and A projects and the SIEE or SEIA shall be made available to general public at least 120 days before the corresponding Periodic Financing Request is submitted to ADB.

3. Responsibilities /Authorities of various agencies

9. POWERGRID as the EA will be solely responsible for the implementation of the entire environmental assessment and review procedures. This include, among others, ensuring that the selection criteria are adhered to strictly, the preparation of IEE, SIEEs, EIAs, and SEIAs be done in a timely and adequate manner, environmental monitoring and institutional requirements be fully met while public consultations be carried out satisfactorily. POWERGRID will submit the REA checklist, IEE, SIEE, and monitoring reports to ADB for review. POWERGRID will also be responsible for obtaining regulatory approval of any relevant regional environmental protection agency[3] as per the regulatory requirements of the GOVERNMENT.

10. ADB will be responsible for regular review and timely approval of checklists, IEE/SIEEs and EIA/SEIAs. Technical guidance will be provided by ADB to EAs as needed. ADB will also be responsible for reviewing regular monitoring reports and officially disclosing the SIEEs (for Category B-sensitive Projects) and SEIAs (for Category A Projects) on its website.

4. Preparation of detailed design and construction contracts

11. Detailed design work for all Projects will follow the recommendations of the IEE or EIA. POWERGRID will review detailed designs before contracts are finalized and modifications are incorporated if considered necessary. Construction contracts will include general and specific conditions for environmental protection with details derived from IEEs and EMP, as per normal POWEGRID practice.

5. Monitoring

12. Monitoring during construction and operations will be POWERGRID's responsibility. Monitoring will be sufficient to comply with contract provisions, determine the state and health of affected environmental resources, and determine the effectiveness of mitigation measures. Reporting will be to ADB and the relevant environmental agencies as per GOVERNMENT requirements and ESPP on a regular basis. For Category A and B-sensitive projects, POWERGRID will submit semi-annual reports on EMP implementation to ADB. The EMP outlines monitoring requirements for design, construction, and operations.

E. Environmental Management Plan

13. Attachment 1 presents the generic environmental management plan in matrix form that applies to all Projects. The matrix is developed on the anticipated impacts of typical

[3] Example given, right-of-way must be be recommended by state level forest department and approved by the MOEF.

power transmission projects. Mitigation measures for specific Projects will be developed in the spirit of the principles agreed upon in this EMP framework.

14. Environmental monitoring will consist of routine systematic checking to demonstrate that EMP requirements have been implemented effectively during each stage of the Project. Table 1 (below) presents the summary monitoring plan for Projects to be funded by the MFF.

F. Institutional Arrangements

15. For each Project an Environmental and Social Management Unit (ESMU) will be established at the POWERGRID project level, headed by the concerned head of POWERGRID Region, which will be accountable and responsible for implementation of the EMPs. The ESMU will have an Environment Officer to coordinate implementation of the EMP. The EA will hire local environmental consultants if required. The local consultants will work in close coordination with ESMU in facilitating EMP implementation. POWERGRID will further ensure the environmental management and monitoring budgets are available and utilized as necessary for timely EMP implementation.

16. The ESMUs will also be responsible for internal monitoring, quality control, supervising activities of local consultants, and progress reports on EMP implementation. The implementation of EMP shall be a time bound activity.

Table 1: Summary Environmental Monitoring Plan

Environmental Monitoring Tasks[4]	Implementation Responsibility	Implementation Schedule
Pre Construction Phase		
Bidding documents to include general and specific contract conditions based on IEE and EMP. (EMPs will be provided to contractor at time of contract award).	POWERGRID – ESMU	At time bidding documents are issued.
Monitor contractor's detailed alignment survey to ensure relevant environmental mitigation measures in EMP have been included.	POWERGRID – ESMU	Prior to POWERGRID approval of contractor's detailed alignment survey.
Audit detailed designs of Facilities to ensure standard environmental safeguards/mitigation measures (as identified in EMP) have been included.	POWERGRID – ESMU	Prior to POWERGRID approval of contractor's detailed designs.
Construction Phase		
Regular monitoring and reporting of contractor's compliance with contractual environmental mitigation measures.	POWERGRID – ESMU	Continuous throughout construction period.
Operation and Maintenance Phase		
Observations during routine maintenance inspections of facilities and transmission lines RoWs. Inspections will include monitoring implementation status of mitigation measures specified in EMP.	POWERGRID – ESMU	As per POWERGRID inspection schedules

[4] Monitoring of issues related to compensation of landowners for land acquisition and loss of production, etc. are addressed in the Resettlement Action Plan.

F. Consultation, Disclosure, and Grievances

17. SIEEs or SEIAs prepared for all sub projects will be available on website and hard copy as well as translated version into local language(s) shall be made available to project affected people (APs) and the public through site office in accordance with POWERGRID and ADB policies, as noted in para. 8.

18. There is a need for an efficient grievance redress mechanism, which will assist the project affected peoples (APs) in resolving queries and complaints. For the implementation of SIEEs/EMP, the GRC process is in built in the process of compensation because after the notice the revenue officials assess the damages based on actual site condition and the version of land owner. After the preliminary assessment owner is given a chance to substantiate the claim if he is not satisfied with the assessment. If the owner is not satisfied he/she is allowed to access the higher authority for any grievance towards compensation that is generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector also provides forum for raising the grievance towards any irregularity/complain. Apart from this POWERGRID officials also listen to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful and, if required POWERGRID takes necessary action to mitigate simultaneously.

19. Apart from this, general public and affected peoples shall have easy access to project authorities through the POWERGRID project office (site) which will be located in the project area and can easily monitor the EMP implementation and any shortcoming can be reported to project authorities for remedy.

H. Monitoring and Evaluation

20. The EMP will have both internal and external monitoring and evaluation (M&E). The POWERGRID ESMUs will be responsible for internal monitoring of the EMP implementation, and will forward regular progress reports to Corporate ESMD with details of activities and progress made in EMP implementation. POWERGRID will submit semi-annual monitoring reports to ADB as part of periodic project reporting.

21. POWERGRID ESMD will undertake internal monitoring and evaluation (M&E) of safeguards compliance. Within three months of loan effectiveness an independent Committee, if required on case to case basis depending upon the sensitivity, with previous experience in environmental & social safeguards activities and familiarity with the related environmental & social policies, will be constituted, and ADB will be informed accordingly. The Committee will audit EMP implementation to determine whether environmental goals and objectives have been achieved, and provide recommendations for improvement, if necessary. The audit committee will undertake half-yearly evaluation on a sample basis and on project completion. This will ensure that affected peoples (AP) views on any outstanding environmental issues are recorded. The Committee will also evaluate the performance of the EA. The committee will report its findings to the EA and to ADB through EA twice a year. Provisions have been made in the EMP budget for engaging an external monitor and auditing

Schedule 5 – Annex A (Attachment 1 – Environmental Management Plan)

Environmental Assessment and Review Framework (EARF) Attachment 1: Environment Management Plan

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Pre-construction						
Location of facilities: substations, transmission towers, and transmission line alignment and design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Tower location and line alignment selection with respect to nearest dwellings	Setback distances to nearest houses - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in substation transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification - once	POWERGRID	Part of tender specifications for the equipment
		Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Government	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once	POWERGRID	Part of tender specifications for the equipment
				Phase out schedule to be prepared in case still in use – once		Part of equipment and process design

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Transmission line design	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards - once	POWERGRID	Part of detailed alignment survey and design
Substation location and design	Exposure to noise	Design of plant enclosures to comply with applicable noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	POWERGRID	Part of detailed siting survey and design
Location of transmission towers and transmission line alignment and design	Impact on water bodies and land	Consideration of tower location to avoid water bodies or agricultural land.	Tower location and line alignment selection (distance to water and/or agricultural land)	Consultation with local authorities and land owners - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design
	Social inequities	Careful route selection to avoid existing settlements	Tower location and line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities and land owners - once	POWERGRID	Part of detailed tower siting and alignment survey and design
		Minimise need to acquire agricultural land	Tower location and line alignment selection (distance to agricultural land)	Consultation with local authorities and land owners - once	POWERGRID	Part of detailed tower siting and alignment survey and design

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Involuntary resettlement or land acquisition	Social inequities	Compensation paid for temporary/ permanent loss of productive land as per Land Acquisition Act (LAA) & its process	Resettlement Plan (RP) implementation	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction phase
Encroachment into precious ecological areas	Loss of precious ecological values/ damage to precious species	Avoid encroachment by careful site and alignment selection	Tower location and line alignment selection (distance to nearest designated ecological protection area)	Consultation with local forest authorities - once	POWERGRID	Part of detailed siting and alignment survey /design
Transmission line through forestland	Deforestation and loss of biodiversity	Avoid encroachment by careful site and alignment selection	Tower location and line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities - once	POWERGRID	Part of detailed siting and alignment survey/design
		Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers - once		
		Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each Project		
Encroachment into farmland	Loss of agricultural productivity	Use existing tower footings/towers wherever possible	Tower location and line alignment selection	Consultation with local authorities and design engineers - once	POWERGRID	Part of detailed alignment survey and design

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		Avoid siting new towers on farmland wherever feasible	Tower location and line alignment selection	Consultation with local authorities and design engineers - once		Part of detailed siting and alignment survey /design
		Farmers compensated for any permanent loss of productive land	Design of Implementation of Crop Compensation (based on affected area)	Consultation with affected parties – once in a quarter		Prior to construction phase
		Farmers/landowners compensated for significant trees that need to be trimmed/ removed along RoW.	Design of Implementation of Tree compensation (estimated area to be trimmed/removed)	Consultation with affected parties – once in a quarter		Prior to construction phase
			Statutory approvals for tree trimming /removal	Compliance with regulations – once for each Project		Part of detailed siting and alignment survey /design
Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	Noise levels	Noise levels to be specified in tender documents - once	POWERGRID	Part of detailed equipment design
Interference with drainage patterns/Irrigation channels	Flooding hazards/loss of agricultural production	Appropriate siting of towers to avoid channel interference	Tower location and line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers -	POWERGRID	Part of detailed alignment survey and design

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
				once		
Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill cleanup equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications - once	POWERGRID	Part of detailed equipment design /drawings
		Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications - once	POWERGRID	Part of detailed substation layout and design /drawings
Explosions/Fire	Hazards to life	Design of substations to include modern fire control systems/firewalls.	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications - once	POWERGRID	Part of detailed substation layout and design /drawings
		Provision of fire fighting equipment to be located close to transformers.				
Construction						
Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance - once at the start of each construction phase	POWERGRID (Contractor through contract provisions)	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Physical construction	Disturbed farming activity	Construction activities on cropping land timed to avoid disturbance of field crops (within one month of harvest wherever possible).	Timing of start of construction	Crop disturbance – Post harvest as soon as possible but before next crop - once per site	POWERGRID (Contractor through contract provisions)	Construction period
Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
	Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment – estimated noise emissions and operating schedules	Complaints received by local authorities - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Construction of roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the line wherever possible.	Access roads, routes (length and width of new access roads to be constructed)	Use of established roads wherever possible - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
	Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriageway width within RoW - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Temporary blockage of utilities	Overflows, reduced discharge	Temporary placement of fill in drains/canals not permitted.	Temporary fill placement (m^3)	Absence of fill in sensitive drainage areas - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m^2)	Clearance strictly limited to target vegetation - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Trimming/cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Species-specific tree retention as approved by statutory authorities (average and maximum tree height at maturity, in meters)	Presence of target species in RoW following vegetation clearance – once per site	POWERGRID (Contractor through contract provisions)	Construction period
	Loss of vegetation and deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	Species-specific tree retention as approved by statutory authorities	Presence of target species in RoW following vegetation clearance – once per site	POWERGRID (Contractor through contract provisions)	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies.	Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m^2)	Use or intended use of vegetation as approved by the statutory authorities – once per site	POWERGRID (Contractor through contract provisions)	Construction period
Wood/vegetation harvesting	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities).	Illegal wood /vegetation harvesting (area in m^2, number of incidents reported)	Complaints by local people or other evidence of illegal harvesting - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings disposed of by placement along roadsides, or at nearby house blocks if requested by landowners.	Soil disposal locations and volume (m^3)	Acceptable soil disposal sites - every 2 weeks	POWER GRID (Contractor through contract provisions)	Construction period
Substation construction	Loss of soil	Fill for the substation foundations obtained by creating or improving local water supply ponds or drains, with the agreement of local communities.	Borrow area siting (area of site in m^2 and estimated volume in m^3)	Acceptable borrow areas that provide a benefit - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Substation construction	Water pollution	Construction activities involving significant ground disturbance (i.e.	Seasonal start and finish of major earthworks	Timing of major disturbance	POWERGRID (Contractor through	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		substation land forming) not undertaken during the monsoon season.		activities - prior to start of construction activities	contract provisions)	
Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed.	Ground disturbance during vegetation clearance (area, m^2)	Amount of ground disturbance - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period
			Statutory approvals	Statutory approvals for tree clearances – once for each site	POWERGRID (Contractor through contract provisions)	Construction period
Tower construction – disposal of surplus earthwork/fill	Waste disposal	Excess fill from tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	Location and amount (m^3)of fill disposal	Appropriate fill disposal locations - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Location of hazardous material storage; spill reports (type of material spilled, amount (kg or m^3) and action taken to control and clean up spill)	Fuel storage in appropriate locations and receptacles - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period
Construction schedules	Noise nuisance to neighbouring	Construction activities only undertaken during	Timing of construction (noise	Daytime construction	POWERGRID (Contractor	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
	properties	the day and local communities informed of the construction schedule.	emissions, [dB(a)])	only - every 2 weeks	through contract provisions)	
Provision of facilities for construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste disposal facilities - once each new facility	POWERGRID (Contractor through contract provisions)	Construction period
Encroachment into farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period
		Ensure existing irrigation facilities are maintained in working condition	Status of existing facilities			
		Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m^3)			
		Repair /reinstate damaged bunds etc after construction completed	Status of facilities (earthwork in m^3)			
	Social inequities	Compensation for temporary loss in agricultural production	Implementation of Crop compensation (amount paid, dates, etc.)	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction
Uncontrolled erosion/silt runoff	Soil loss, downstream siltation;	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures	Incorporating good design and	POWERGRID (Contractor through	Construction period

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		Limit site clearing to work areas	(suspended solids in receiving waters; area re-vegetated in m^2; amount of bunds constructed [length in meter, area in m^2, or volume in m^3])	construction management practices – once for each site	contract provisions)	
		Regeneration of vegetation to stabilise works areas on completion (where applicable)				
		Avoidance of excavation in wet season				
		Water courses protected from siltation through use of bunds and sediment ponds				
Nuisance to nearby properties	Losses to neighbouring land uses/ values	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction management practices – once for each site	POWERGRID (Contractor through contract provisions)	Construction period
		As much as possible existing access ways will be used.	Design basis and layout	Incorporating good design engineering practices – once for each site		

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m^2)	Consultation with affected parties – twice – immediately after completion of construction and after the first harvest		
	Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction
Inadequate siting of borrow areas	Loss of land values	Existing borrow sites will be used to source aggregates, therefore, no need to develop new sources of aggregates	Contract clauses	Incorporating good construction management practices – once for each site	POWERGRID (Contractor through contract provisions)	Construction period
Health and safety	Injury and sickness of workers and members of the public	Contract provisions specifying minimum requirements for construction camps	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	POWERGRID (Contractor through contract provisions)	Construction period
		Contractor to prepare and implement a health and safety plan.				
		Contractor to arrange for health and safety training sessions				

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
Inadequate construction stage monitoring	Likely to maximise damages	Training of POWERGRID environmental monitoring personnel	Training schedules	Number of programs attended by each person – once a year	POWERGRID	Routinely throughout construction period
		Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site - once		
		Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract - once		
Operation and Maintenance						
Location of transmission towers and transmission line alignment and design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Compliance with setback distances (“as-built” diagrams)	Setback distances to nearest houses – once in quarter	POWERGRID	During operations
Equipment submerged under flood	Contamination of receptors (land, water)	Equipment installed above the high flood level (HFL) by raising the foundation pad.	Substation design to account for HFL (“as-built” diagrams)	Base height as per flood design - once	POWERGRID	During operations
Oil spillage	Contamination of land/nearby	Substation transformers located within secure	Substatio bunding (Oil sump)	Bunding (Oil sump) capacity	POWERGRID	During operations

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
	water bodies	and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks.	("as-built" diagrams)	and permeability - once		
Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (lost work days due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	POWERGRID	Design and operation
		Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff /workers covered – once each year		
		Preparation of fire emergency action plan and training given to staff on implementing emergency action plan				
		Provide adequate sanitation and water supply facilities	Provision of facilities	Complaints received from staff /workers every 2 weeks		
Electric Shock Hazards	Injury/mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (number of injury incidents, lost work days)	Preparedness level for using these technologies in crisis – once a month	POWERGRID	Design and Operation
		Security fences around substations	Maintenance of fences	Report on maintenance –		

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		Barriers to prevent climbing on/dismantling of transmission towers	Maintenance of barriers	every 2 weeks		
		Appropriate warning signs on facilities	Maintenance of warning signs			
		Electricity safety awareness raising in project areas	Training /awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year		
Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations and transmission line maintenance crews.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	POWERGRID	Operation
		Preparation and training in the use of O&M manuals and standard operating practices.				
Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Power Grid staff to receive training in environmental monitoring of project operations and maintenance activities.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	POWERGRID	Operation
Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using cholofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	POWERGRID	Operations

Project activity /stage	Potential impact	Proposed mitigation measure	Parameter to be monitored	Measurement and frequency	Institutional responsibility	Implementation schedule
		a manner consistent with the requirements of the Government.				
Transmission line maintenance	Exposure to electromagnetic interference	Transmission line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (meters)	Ground clearance - once	POWERGRID	Operations
Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance.	Noise levels (dB(a))	Noise levels at boundary nearest to properties and consultation with affected parties if any - once	POWERGRID	Operations

SCHEDULE 5 - ANNEX B

RESETTLEMENT FRAMEWORK

A. Introduction

1. The proposed Project will be provided under a multi-tranche financing facility lending approach.

2. The Resettlement Framework (RF) has been formulated to guide the preparation of Resettlement Plans (RPs) (for subproject which require permanent loss of land or other assets), and of Compensation Plans for Temporary Damages (CPTDs) (for subprojects which only require temporary land acquisition/use)[1], for subprojects under the future tranches. The RF identifies the broad scope of the Project and outlines the policy, procedures and institutional requirements for preparing RPs and CPTDs for subprojects under the MFF loan. The Executing Agency (EA) for the entire facility will be Power Grid Corporation of India Ltd (POWERGRID). The EA will be responsible for conducting the social analysis and formulating RPs and CPTDs for subprojects, as outlined in the RF. ADB approval will be accorded prior to commencement of civil works. In any case, no AP shall lose any asset before full compensation is awarded.

B. Resettlement Policy and Framework applicable to the Project

3. The RF is based on ADB's Involuntary Resettlement Policy (1995) as well as on the Borrower's domestic policy instruments, laws, particularly, Land Acquisition Act, 1884 (LAA), *National Policy on Resettlement and Rehabilitation for Project Affected Persons (NPRR)* (2003), and POWERGRID's Environment and Social Policy & Procedures (ESPP) (2005)[2]. The RF that it will be revised if any major changes in the relevant policies and laws are introduced during the life of the program.

4. A comparison between NPRR, ESPP and ADB's Resettlement Policy is provided in Table 1.

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[1] Both the RPs and the CPTDs will be prepared according to ADB's guidelines for the preparation of short or full RPs, and POWERGRID's Environment and Social Policy & Procedures (ESPP).

[2] Additionally, the Indian Telegraph Act and Indian Electricity Supply Act are relevant for construction of transmission lines. The Indian telegraph Act, 1885 is usually followed which does not include any sort of land acquisition for construction of transmission pillars and lines. The telegraph authority may, from time to time place and maintain a telegraphic line under, over, along or across, and post in or upon, any immovable property provided that telegraph authority shall not exercise the powers conferred by this section except for the purpose of a telegraph established or maintained by the Central Government, or to be so established or maintained. The Central Government shall not acquire any right other than that of user only in the property under, over, along, across, in or upon which the telegraph authority places any telegraph line or posts. The telegraph authority shall do as little damage as possible, and, when it has exercised those powers in respect of any property other than that referred to, shall pay full compensation to all persons interested for any damage sustained by them by reason of the exercise of those powers. Incase of property and dispute other than that of a local authority where the power is to be exercised, the District Magistrate may, in his discretion, order that the telegraph authority shall be permitted to exercise them.

Table 1: Comparison of NPRR, RR Policy of M.P. and ADB Resettlement Policy

Policy Principle	NPRR	ESPP	ADB	Remarks
1. Resettlement must be avoided wherever possible; and if unavoidable it should be minimized	√	√	√	
2. Affected persons must be compensated to replace their lost assets and to restore/improve their living standards	√	√	√	However, replacement cost is not clearly identified.
3. Affected persons should be fully involved and consulted in the planning and implementation of resettlement	√	√	√	
4. Compensation for lost assets must be on the basis of replacement cost	Not defined	√	√	Replacement cost/value will be used during the implementation of the Project.
5. Transaction and transition costs	√	√	√	
6. Wherever feasible land should be an option for compensating loss of land	√	√	√	
7. An RP should be prepared in every instance where involuntary resettlement occurs	Only required where over 500 families are affected in plain areas and 250 or more families are affected in hilly areas	Only for permanent acquisition for s/s. For Transmission lines land remains with APs. Crop and tree compensation or compensation for other damages will be awarded.	√	500 families is about 2,500 persons in the Indian context and this is over 10 times the ADB requirement which is 200 persons or more. A full RP will be prepared for significant and permanent damages/impacts and a CPTD for temporary damages.
8. The RP must be disclosed to the affected people before finalization	√	√	√	
9. Application of policy	The Indian NPRR only applies to projects displacing 500 families or more in plain areas and 250 families or more in hilly areas	All cases where land acquisition is required.	In all cases where involuntary resettlement occurs	ADB has three categories of impact: A (Significant); B (Not Significant) and C where no involuntary resettlement impacts are foreseen. Compensations as provided in the EM will be applied to all categories of losses and APs.

Policy Principle	NPRR	ESPP	ADB	Remarks
10. Entitlements under the policy	Chapter VI of the NPRR defines flat entitlements without considering the specific impact on a case by case basis. For example, For acquisition of strips of land for railway lines, highways, transmission lines and pipelines, only an ex-gratia payment of Rs 10,000/= per family is to be paid.	- Specific entitlements have been made in this policy for different categories of losses. Land will be compensated as per replacement cost and amount for rehabilitation assistance is provided in this policy. .	Each impact must be defined and appropriate entitlements assigned on the basis of the basic principles of replacing lost assets and restoring livelihoods	
11. Recognition of untitled persons such as squatters and encroachers	X	√	√	NPRR states that the landless, forest dwellers, tenants and artisans are more severely affected but no mention is made of specific entitlements for them. POWERGRID recognizes untitled APs. All APs will be compensated according to the EM.
12. Surveys and census required	√	√	√	NPRR & ESPP require survey findings to be disclosed to the affected persons with a view to inviting objections and suggestions
13. Social networks and cultural links should be preserved	√	√	√	
14. Recognition of vulnerable groups including indigenous people.	√	Additional rehabilitation grant for vulnerable groups	√	NPRR and POWERGRID gives preference to STs in land allotment. Additional financial assistance is also defined for them. Their traditional rights to natural resources in the area will be recognized.
15. Grievance Redress Procedure	√	√	√	NPRR requires a Grievance Redress Cell to be set up under a Commissioner for R & R.

Policy Principle	NPRR	ESPP	ADB	Remarks
16. Organization and Management of Resettlement	√	√	√	NPRR will set up a National Monitoring Committee chaired by the Secretary Department of Land Resources, under the Ministry of Rural Development and comprising seven other Secretaries.
17. Common property resources should be replaced	√	√	√	
18. All costs relating to resettlement and rehabilitation must be borne by the requiring agency and included in project costs	√	√	√	

5. All APs will be provided with compensation for their property acquired or damaged by the Project. ADB's Policy and ESPP will be applicable for the compulsory acquisition of land. They will also receive 'rehabilitation assistance' if their land is permanently acquired, their income source is adversely affected, their homes are fully or partially affected, or other properties such as commercial structures or agricultural structures, crops, trees, and other facilities or access to properties are damaged or reduced because of the Project. Lack of legal documents of their customary rights of occupancy or land titles shall not affect their eligibility for compensation. In case of land acquisition, RF stipulates the payment of compensation based on assessed replacement cost of land and structures and at current market rates for crops and trees.

6. An Entitlement Matrixes for the future tranches subprojects, is given in Table 2 and 3.

Table 2: Entitlement Matrix for RPs

SN	TYPE OF ISSUE/IMPACT	BENEFICIARY	ENTITLEMENT OPTIONS
1.	**Loss of land**		
a)	***Homestead land*** with valid title, or customary or usufruct rights	Titleholders	(i) Replacement Cost[3] **+** Equivalent area of land for alternate home not exceeding 150 sq.m. in rural areas and 75 sq.m. in urban areas free of cost preferably in same village/ panchayat/ area + Registration Charges
b)	***Agricultural Land***		
(i)	With valid title, or customary or usufruct rights	Titleholders	Alternative land of equivalent production potential but not more than 1 hectare of irrigated land or 2 hectare of un-irrigated land subject to ▪ agriculture based PAPs (rendered landless) ▪ availability (State Govt./ Voluntary sellers at existing rate) within same panchayat/ block ▪ Registration Charges **+**

[3] Replacement cost will include compensation as fixed by competent authorities under LA act including solatium and interest + Rehabilitation Assistance.

SN	TYPE OF ISSUE/IMPACT	BENEFICIARY	ENTITLEMENT OPTIONS
			Cash compensation for the extent of land against which replacement land is not provided or Cash compensation at replacement cost [4] (Compensation as fixed by authorities under LA act + Rehabilitation Assistance[5] as follows: a) 750 days of minimum agricultural wages for families losing entire land/rendered landless. OR option for opting IGS of equivalent amount for regular income; b) 500 days of minimum agricultural wages for families losing part land and becoming marginal farmer; c) 375 days of minimum agricultural wages for families losing part land and after loss of land may be categorised as small farmers. d) Minimum agricultural wages ranging between 100-200 days (depending upon the impact) for families (big farmers) losing part/negligible land and left with sufficient land to sustain them.
(ii)	tenants, sharecroppers, leaseholder	Individual	Reimbursement for unexpired lease + Rehabilitation Assistance equivalent to 200 days of minimum agricultural wages
iii	Nontitled (Encroacher)	Individual	Rehabilitation Assistance equivalent to 375 days of minimum agricultural wages if cultivating the acquired land at least for 3 years prior to the notification of section-4 or similar milestone.
2.	**Loss of structure**		
a)	***House***		
(i)	with valid title, or customary or usufruct rights	Titleholders	Cash compensation at replacement cost (without deduction for salvaged material) plus Rs. 25,000/- assistance (based on prevailing GOI norms for weaker section housing) for construction of house plus transition benefits as per category-6
(ii)	Tenant, leaseholder	Individual	Lump sum payment equivalent to 6 month rent (on production of proof) or Rs. 5000/- which ever is higher to re-establish residence
(iii)	Squatters	Household / Family	Cash compensation for structure at replacement value **+** Lump sum payment ranging between Rs. 5000 to Rs. 25000/- (depending on type of structure and family size) as one time payment towards disturbance **+** Transition benefits as per category-6.
(iv)	Cattle shed	Owner/ Family	Cash compensation as fixed by authorities plus Rs. 3000/- for re-construction of cattle shed.
b)	***Shop/ Institutions***		
(i)	with valid title, or customary or usufruct rights	Individual	Cash compensation plus Rs. 10000/- for construction of working shed/shop plus rehabilitation assistance equivalent to 1 year income plus transition benefits as per category-6
(ii)	tenants, leaseholder	Individual	Transition allowance equivalent to 1 year income +

[4] Replacement cost will include compensation as fixed by competent authorities under LA act including solatium and interest + Rehabilitation Assistance

[5] Rehabilitation assistance amount shall not exceed the value of compensation.

SN	TYPE OF ISSUE/IMPACT	BENEFICIARY	ENTITLEMENT OPTIONS
			transition benefits as per category-6
(iii)	squatters	Individual	Cash compensation for structure plus transition allowance equivalent to 1 year income plus transition benefits as per category-6
3.	**Loss of livelihood/ Wage / Occupation** Agriculture/ commercial	Individual	Rehabilitation Assistance equivalent to 625 days of minimum agricultural wages preferably in shape of Income Generating Scheme (IGS) or in shape of Units in joint name of spouse under Monthly Income Scheme for sustainable/ regular income + Provision for need based short training on development of entrepreneurship skills/ facilities on selected IGS
4.	**Loss of access to Common Property Resources (CPR) and facilities**		
a)	Rural common property resources	Community	Replacement/ augmentation of CPRs/ amenities or provisions of functional equivalence
b)	Urban Civic amenities	Community	Replacement/ access to equivalent amenities/ services
5.	**Loss of standing crops/ trees**		
a)	With valid title	Family	For either category, only the cultivator will get compensation at market rate for crops and 8 years income for fruit bearing trees Timber will be retained by the owner.
b)	Tenant/ lessee		
6.	**Losses during transition** of displaced persons/ establishments/ Shifting / Transport	Family/unit	Provision of transport or equivalent cash for shifting of material/ cattle from existing place to alternate place
7.	**Losses to Host Communities/ Amenities/ Services**	Community	Augmentation of resources of host community to sustain pressure of APs
8.	**Additional benefits for Tribals**	Tribals	Land for land option shall be preferred Additional relocation allowance of 500 days minimum agricultural wages if land for land option is not feasible Resettlement if involved, close to their natural habitat

Note: Vulnerable group like women headed/SC/physically handicap/ disabled families under categories 1-3 shall be considered for additional need based benefits.

Table 3: Entitlement Matrix for CPTD

SN	TYPE OF ISSUE/IMPACT	BENEFICIARY	ENTITLEMENT OPTIONS
1.	**Loss of crops and trees**	Owner	Compensation at market rate for crops and 8 years income for fruit bearing trees. APs will be given advance notice to harvest their crops. Timber will be retained by the owner.
2.	**Tenant loss of access by share croppers/leaseholders to crops and /or trees**	Tenant/ sharecropper/ leaseholder	Only the cultivator will get compensation at market rate for crops and 8 years income for fruit bearing trees. APs will be given advance notice to harvest their crops.
3.	**Other damages (if applicable)**	All APs	Replacement as assessed by the concerned authority.
4.	**Additional assistance for vulnerable groups**	IPs, women headed	In addition to compensation of losses as per above, vulnerable groups will receive additional

SN	TYPE OF ISSUE/IMPACT	BENEFICIARY	ENTITLEMENT OPTIONS
		households, widows, disabled, elderly, etc.	compensation based upon individual needs as assessed..

D. Procedure for RP and Compensation Plan Preparation

7. The EA will undertake social impact assessment for each identified subproject, based on the preliminary technical design. According to ADB's procedures and the EA's corporate policy, RPs and CPTDs will be prepared according to the provisions in this RF and in full consultations with all APs and stakeholders, in the following manner:

(i) if impacts are found to be significant[6], full RPs will be prepared for each subproject. A full resettlement plan includes a statement of involuntary resettlement objectives and strategy, with (i) organizational responsibilities; (ii) community participation and disclosure arrangements; (iii) findings of the socioeconomic survey and social and gender analysis of least 10% of affected people and 20% of seriously affected people, together with local-level impact (iv) legal framework, including eligibility criteria and an entitlement matrix; (v) mechanisms for resolution of conflicts and appeals procedures; (vi) identification of alternative sites and selection; (vii) inventory, valuation of, and compensation for, lost assets; (viii) landownership, tenure, acquisition, and transfer; (ix) access to training, and other income generation schemes; (x) infrastructure, and social services; (xi) environmental protection and management; (xii) monitoring and evaluation; (xiii) a detailed cost estimate with budget provisions; and (xiv) an implementation schedule, showing how activities will be scheduled with time-bound actions in coordination with the civil works.

(i) if impacts are not significant, short RPs will be required for project preparation. A short resettlement plan covers the same issues as that of a full resettlement plan, as relevant, but in less detail. However, the short resettlement plan must ensure that adequate compensation, rehabilitation, and relocation arrangements are planned and budgeted.

(ii) RPs and CPTDs will include measures to ensure that socio-economic conditions, needs, and priorities of women are identified and that the process of land acquisition and resettlement does not disadvantage women.

8. The detailed process and steps of resettlement planning and preparation of the plans is as follows:

(i) Conduct consultations with all stakeholders to obtain inputs regarding how to avoid or at least minimize involuntary resettlement impacts, and to identify their needs and preferences. A socioeconomic survey of a sample population will also be undertaken to identify different categories of APs, based on the degree and scale of impacts of the subproject on them.

[6] Resettlement is significant when 200 or more people experience major impacts. Major impacts are defined as involving affected people being physically displaced from housing and/or having 10% or more of their productive, income generating assets lost.

(ii) Outline policy and legal framework applicable. If the policy and legal framework discussed in the approved RF is adequate, only a summary of the policy and legal framework is required. A reference to RF is needed.
(iii) Undertake a census and complete an asset inventory of all affected persons/households. All APs will be notified of resettlement information in their own language.
(iv) Develop an entitlements matrix to outline entitlements of all affected persons including non-titled persons, e.g., squatters, encroachers, using the guidance from the approved RF. If new categories of APs and types of losses are identified during project implementation, appropriate entitlements will be added to the resettlement plan and forward to ADB for review and approval. All APs should be informed of such changes.
(v) Discuss relocation plan, rehabilitation strategy including income restoration and improvement of APs.
(vi) Describe the institutional framework for resettlement.
(vii) Itemize budget for all resettlement activities in the resettlement budget and financial plan.
(viii) Outline, if applicable, environmental impacts of relocation.
(ix) Formulate a time-bound schedule for RP implementation.
(x) Outline procedures contain in the grievance redress mechanism
(xi) Describe both internal and external monitoring program and the final evaluation
(xii) Once the draft RP is ready, it will be disclosed to all APs in their own languages and should be kept at public offices. The EA will endorse it before submitting to ADB for review and approval.
(xiii) Once ADB approves it, it will be disclosed again to all APs if revised based on ADB's advice, and will be posted on ADB's Involuntary Resettlement Website.
(xiv) At least the payment of compensation, and relocation, if required, will be completed before award of any construction contracts of the subproject.

9. The EA for project preparation and implementation will include social development cum resettlement specialists familiar with ADB policy and procedures for the preparation of subproject RPs or CPDTs. RPs will comply with national resettlement policies and the principles outlined in this agreed RF, ADB's policy on *Involuntary Resettlement* (1995), the Operations Manual, Section F2/OP (2006) and POWERGRID's ESPP (2005). The draft RPs or CPTDs will be submitted to ADB for review and approval right after the survey. ADB approval will be accorded prior to commencement of civil works. In any case, no AP shall lose any asset before full compensation is awarded. EA will set the cut-off date on the day of notice (LAA Section 4). The EA will also ensure that this RF is closely followed when a RP or a CPTD is formulated for a future subproject. The EA will further ensure that adequate resettlement budgets, an experienced social institution/civil society organization/grassroot organization/NGO/consultant (Soc.Org.) for timely implementation of the plans, if needed.

E. Institutional Arrangements

10. The EA will implement the Program with the inclusion of a Social Development cum Resettlement Specialist where necessary. For subproject RPs or CPTDs, the EA will do the overall coordination, planning, implementation, and financing. The EA will maintain all databases, work closely with APs and other stakeholders. The database will be managed by the EA through its resettlement specialist by collecting input from both the field staff and from the external monitoring agency.

11. The EA will ensure that key institutions including local governments are involved in the plans implementation. Moreover, to facilitate all resettlement and compensation related activities, an experienced social institution/civil society organization/grassroot organization/NGO/consultant (Soc.Org.) might be hired for the plans implementation.

12. Based on regularly updated EA data, a central database will also be maintained by EA. Roles and responsibilities of various agencies are in **Table 4.**

Table 4: Agencies Responsible for RP/CPTD Implementation

Activity	Agency Responsible
Hiring of implementing Soc.Org and Resettlement Specialists	EA
Updating the RP/CPTD	Resettlement Specialist
Review and Approval of RP/CPTD	Resettlement Specialist
Verification survey for identification of APs	EA (and implementing Soc.Org.)
Land survey for identification of plots	EA (and Soc.Org.)/Competent Authority
Consultation and disclosure of RP/CPTD to APs	EA (and Soc.Org.)
Compensation award and payment of compensation	Revenue Dept / Competent Authority and EA
Fixing of Replace cost and assistance	EA/Competent Authority
Payment of replacement cost compensation	EA
Takeover the possession of acquired land/houses	EA and Revenue Department
Hand over acquired land to contractors for construction	EA
Notify construction starting date to APs	EA (and Implementing)
Income restoration activities, particularly for vulnerable groups	EA (and Implementing Soc.Org.)
Restoration of temporarily acquired land to its original state including restoration of private or common property resources	Contractors subject to monitoring by Implementing Soc.Org. and EA
Development, maintenance and updating of resettlement database	EA
Development, maintenance and updating of central database	EA
Internal monitoring	EA (and Implementing Soc.Org.)
External monitoring	Independent Monitoring Consultant/Agency

Note: As applicable activity for RPs or CPDTs.

F. Consultation, Disclosure, and Grievances

13. Project information will be disseminated by EA through public consultation and provision of project information. Each subproject RP will be prepared and implemented in close consultation with the stakeholders, particularly APs, through focus group discussions, socio-economic surveys, and stakeholder consultation meetings. Each draft RP will be discussed during focus group discussions and stakeholder meetings at the village/community level to ensure inputs from stakeholders particularly at the village/community level. Female-headed households will be consulted. A resettlement information leaflet containing information on compensation and resettlement options will be made available in local language(s) and distributed to APs. The EA will conduct consultations in affected villages to explain the resettlement plan in coordination with village/community leaders. Each AP will be provided information regarding specific entitlements.

14. There is a need for an efficient grievance redress mechanism, which will assist the APs in resolving queries and complaints. A Grievance Redress Committee (GRC) will be formed to ensure APs grievances are addressed and facilitate timely project implementation. The GRC will have representatives from APs, EA resettlement specialist, field level staff, district authority, and implementing Soc.Org. and local community. The GRC will meet within 15 days of receiving the complain. The main responsibilities of the GRC are to: (i) provide support to APs on problems

arising from land/property acquisition; (ii) record AP grievances, categorize, and prioritize grievances and resolve them within 4 weeks; (iii) immediately inform the EA of serious cases; and (iv) report to APs on developments regarding their grievances and decisions of the GRC. Other than disputes relating to ownership rights under the court of law, GRC will review grievances involving all resettlement benefits, relocation, and other assistance. The GRCs will continue to function during the life of the Project including the defects liability period. The GRC will be formed with the help of higher authority having authority to designate the representatives to the GRC.

15. For the implementation of CPTD, which is applicable to transmission lines, the GRC process is in built in the process of compensation because after the notice the revenue officials assess the damages based on actual site condition and the version of land owner. After the preliminary assessment owner is given a chance to substantiate the claim if he is not satisfied with the assessment. If the owner is not satisfied he/she is allowed to access the higher authority for any grievance towards compensation that is generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector also provides forum for raising the grievance towards any irregularity/complain. Apart from this POWERGRID officials also listen to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful.

G. Monitoring and Evaluation

16. Internal monitoring will be the responsibility of the EA and engaged Soc.Org. The EA internal monitoring will include: (i) administrative monitoring: daily planning, implementation, feed back and trouble shooting, individual AP file maintenance, and progress reports; (ii) socio-economic monitoring: evacuation, demolition, salvaging materials, community relationships, dates for consultations, and number of appeals placed; and (iii) post-implementation impact evaluation monitoring: income standards restored/improved, and socioeconomic conditions of the APs.

17. Monitoring and evaluation reports documenting progress on resettlement implementation and RP/CPTD completion reports will be provided by the EA to ADB for review.

18. The EA will engage the services of an independent agency not associated with project implementation to undertake external M&E. The external agency, with previous experience in resettlement activities and familiarity with the related resettlement policies, will be engaged with ADB concurrence within three months of the loan effectiveness. They will monitor RP implementation to determine whether goals have been achieved, livelihood and living standards have been restored, and provide recommendations for improvement. The external monitoring will undertake monthly monitoring and impact evaluation on a sample basis during mid-term and project completion. Monitoring will also ensure recording AP views on resettlement issues; AP understanding of entitlement policies, options, and alternatives; site conditions; compensation disbursement; grievance redress procedures; and staff competencies. The external monitor will also evaluate the performance of the EA, and Soc.Orgs. The external agency will report its findings simultaneously to the EA and to ADB twice a year. Provisions have been made in the resettlement budget component for engaging an external monitor. The internal monitoring report will be submitted quarterly to the INRM for review where as the external monitoring report will be submitted yearly to the INRM for review.

H. Implementation schedule

19. Draft plans will be disclosed to APs prior to ADB review. Where necessary, an update will be completed upon finalization of project design, and after undertaking a 100% census of the affected population. All activities related to the acquisition, temporary and/or permanent, of land must be planned to ensure that compensations are paid prior to displacement and commencement of civil works.

I. Resettlement Budget

20. Detailed budget estimates for involuntary resettlement will be prepared for each plan by the EA and will be included in the overall subproject cost estimate. The budget will include i) detailed costs of land acquisition, relocation, and livelihood and income restoration and improvement, ii) arrangements for approval, and the flow of funds and contingency arrangements. All funds will be provided by the EA. All land acquisition, compensation, relocation and rehabilitation of income and livelihood will be considered as an integral component of project costs. The EA will deposit the money to the concerned department for the disbursement of compensation to the affected people for land acquisition and resettlement. The EA will keep provision of funds in estimates out of its annual plan for the resettlement cost and this provisional amount will be planned at the early stage of their annual plan so that the resettlement process won't get delayed.

SCHEDULE 5 ANNEX C

INDIGENOUS PEOPLES DEVELOPMENT FRAMEWORK

A. Background

1. The proposed Project will be provided under a multi-tranche financing facility (MFF) lending approach. The EA for the entire facility will be Power Grid Corporation of India Ltd (POWERGRID). The EA will be responsible for conducting the social analyses and formulating Indigenous Peoples Development Plans (IPDPs), in case of significant impacts during the implementation of Projects, as outlined in this IPDF. Draft IPDPs will be submitted to ADB's approval and shall be finalized prior to the commencement of civil works. The first tranche will have no social impacts and therefore there was no need for the preparation of an (IPDP).

2. No IPDP is needed to be prepared for the Projects under the first tranche as no impacts are expected. In addition, impacts and disruption of traditional way of life for indigenous people in affected areas will be avoided whenever possible , according to ADB's *Indigenous Peoples Policy* (1998), and POWERGRID's Environment and Social Policy & Procedures (ESPP) (2005).

B. Indigenous Groups

3. Indigenous peoples (IP) are defined as those having a distinct social, cultural, economic, and political traditions and institutions compared with the mainstream or dominant society.[1]

4. During project preparation, under the future tranches, extensive consultations will be undertaken and analysis with reference to IPs to assess the significance of the impacts and design, when necessary, the mitigation measures that may need to be undertaken.

[1] ADB uses the following characteristics to define indigenous people: (i) descent from population groups present in a given area before territories were defined; (ii) maintenance of cultural and social identities separate from dominant societies and cultures; (iii) self identification and identification by others are being part of a distinct cultural group; (iv) linguistic identity different from that of dominant society; (v) social, cultural, economic and political traditions and institutions distinct from dominant culture; (vi) economic systems oriented more toward traditional production systems rather than mainstream; and (vii) unique ties and attachments to traditional habitats and ancestral territories.

C. The Indigenous Peoples Development Framework

5. This Indigenous Peoples Development Framework is intended to guide selection and preparation of Projects under the Project to ensure better distribution of project benefits and promote development of IPs in the project area. There are no IPs found in the project areas who will be directly affected, in the first tranche. However, keeping in view the long term project duration and since there will be future site identification, therefore, it is necessary to have a guideline to address the issues. In cases where significant impacts on IPs are identified, this framework will be applied if necessary during Project preparation, in accordance with requirements for future tranches and ADB's *Indigenous Peoples Policy* (1998).

6. An Indigenous Peoples Development Plan (IPDP) is required if: a) an indigenous peoples community is the direct and main **beneficiary** of a development project; b) a project component **significantly** benefits the community and; c) the project or project components may have significant adverse impact on IP[2].

7. Alternatively. if impacts are insignificant, specific actions in favor of IPs can be incorporated within the Resettlement Plan (RP) for the Project, as provided in the agreed Resettlement Framework. This would ensure appropriate mitigation and benefits for indigenous people.

8. The EA will undertake required social assessments (including IP issues) for Projects. The EA will be responsible for preparing IPDPs for Projects, and will provide to ADB's India Resident Mission (INRM) for review and approval prior to implementation.

9. The IPDP policy framework is based on the overall local and national development strategies, ADB's *Policy on Indigenous Peoples* (1998) and POWERGRID's Environment and Social Policy & Procedures (ESPP), 2005. The principal objectives are to:

(i) ensure IPs affected by any Project will benefit from the Project, whenever applicable.

(ii) ensure IPs inclusion in the entire process of preparation, implementation, and monitoring of Project activities;

(iii) ensure benefits of the Projects are available to IPs more than or at least equal to other affected groups; this may require giving preference to IPs as vulnerable groups over others on certain benefits under the Project; and

(iv) provide a base for IPs in the area to receive adequate development attention.

D. Procedures for IPDP Preparation

10. This framework seeks to ensure that IPs are informed, consulted, and mobilized to participate in the Projects. Their participation can either provide them benefits with more certainty, or protect them from any potential adverse impacts of the Project. The main features of the IPDP will be a preliminary screening process, a social impact assessment to determine

[2] Given the nature of this project, no IP, or other vulnerable group, is expected to be directly benefiting form the project itself. Benefits to IPs and the poor will be mainly long-term and indirect. Likewise, no significant adverse impact is expected.

the degree and nature of impact of each Project, and an action plan developed if warranted. Consultations with and participation of IP communities, their leaders, and local government representatives will be an integral part of the overall IPDP.[3]

1. Preliminary Screening

11. The EA will visit all IP communities and villages near Project sites/substations or areas being affected and influenced by Project sites/substations. The EA will arrange public meetings in selected communities to provide information on the Project and the Project. During the visits, community leaders and other participants will present their views with regard to the Project and Project.

12. At this visit, the EA will undertake a screening for IP populations with the help of IP community leaders and local leaders. The screening will check for the following:

(i) Name(s) of IP community group(s) in the area;

(ii) Total number of IP community groups in the area;

(iii) Percentage of IP community population to that of area population; and

(iv) Number and percentage of IP households to be affected by the Project site.

13. The EA will also accomplish an IP assessment checklist. The results of the preliminary screening will be part of the pre-feasibility assessment of the Project. If the results show that there are IP households in the zone of influence of the proposed Project, a social impact assessment (SIA) will be planned for those areas.

2. Social Impact Assessment

14. The EA will undertake an SIA as part of the detailed IPDP. The SIA will gather relevant information on demographic data; social, cultural, and economic situation; and both positive and negative social, cultural and economic impacts.

15. Information will be gathered through separate group meetings within the IP community, including IP leaders; group of IP men and women, especially those who live in the zone of influence of the proposed work under the Project. Discussions will focus on positive and negative impacts of the Project as well as recommendations on the design of the Project and Project. The EA will be responsible for analyzing the SIA and for leading the development of an action plan with the IP community leaders. If the SIA indicates that the potential impact of the proposed Project will be significantly adverse—threatening the cultural practices and IP sources of livelihood, or that the IP community rejects the Project works—the EA will consider other design options to minimize such adverse impacts. It IP communities support the Project, implementation of an IPDP will be developed.

[3] The IPDPs components are: preliminary screening, social impact assessment, mitigation measures, development assistance, and project monitoring.

3. Indigenous Peoples Development Plan

16. The IPDP is time-bound, with an adequate budget for its implementation. An acceptable IPDP addresses the (i) aspirations, needs, and preferred options of the affected indigenous peoples; (ii) local social organization, cultural beliefs, ancestral territory, and resource use patterns among the affected indigenous peoples; (iii) potential positive and negative impacts on indigenous peoples; (iv) measures to avoid, mitigate, or compensate for the adverse project effects; (v) measures to ensure project benefits will accrue to indigenous peoples; (vi) measures to strengthen social, legal, and technical capabilities of government institutions to address indigenous peoples issues; (vii) the possibility of involving local organizations and non-governmental organizations with expertise in indigenous peoples issues; (viii) budget allocation; and (ix) monitoring. Where there is land acquisition in IP communities, the Project will ensure their rights will not be violated and that they be compensated for the use of any part of their land in a manner that is culturally acceptable to the affected IPs.[4] The IPDP will include:

(i) Baseline data: Base line data will be collected both from the primary and secondary sources. In India, most of the tribal people are mainstreamed with the help of Government's effort to bring them in to the mainstream. The survey will be designed to collect the baseline data on their socio-economic and cultural aspect which will help in identifying the intensity of impact on indigenous people.

(ii) Land tenure information; Land holding among the tribal people is very less compared to other section of mainstreamed people. Tribal people use the public land and forest land for their various uses. Therefore, details on the land tenure and usage pattern will be collected in order to measure the dependency of tribal people on the land.

(iii) Local participation: The plan will be developed in a participatory approach with due consultation with the local IP communities. The views of the IP will be recorded and will be incorporated in the plan.

(iv) Technical identification of development enhancement or mitigation activities: The survey and the engineering design should clearly reflect the impact (both posiive and negative) of sub projects on the IPs. The sub project engineering plan, thus, be developed or modified based on these inputs so that negative impacts are mitigated or better benefits are distributed to the IPs.

(v) Institutional arrangement: The detailed institutional arrangements will be prepared as per defined task for each stakeholders. In particular, NGOs, local institutions, representatives of civil society and/or local associations shall be involved in addressing IPs issues, whenever their expertise may improve the design and the implementation of the project and the IPDP.

(vi) Implementation schedule: The implementation schedule has to be aligned with the over all project implementation schedule and all the compensation and mitigations will be done prior to the commencement of civil work.

(vii) Monitoring and evaluation: The IPDP will be monitored both internally and externally. Details are given in the following sections.

[4] The compensation will follow the Resettlement Policy Framework of the Project.

(viii) Cost estimate and financing plan: Based on the impacts, a budget will be prepared for the implementation of IPDP. The EA will provide sufficient resources to formulate and implement IPDPs in Project which will have impacts on IPs.

17. Where warranted, the IPDP will be developed by the EA after detailed SIA The EA will then provide the IPDP to ADB for review and approval. The IPDP policy and measures must comply with ADB's *Policy on Indigenous Peoples* (1998) and POWERGRID's ESPP,2005.

E. Consultation and Information Disclosure

18. The IPDP will be prepared in consultation with the affected IP groups. The mitigation measures and strategies will be presented to them by the EA in community level workshops. Inputs from the community level workshops will be considered in Project design and the final IPDP. The IPDP will be translated into local IP language(s) prior to implementation.

19. Nongovernmental organizations will be involved in implementing the IPDP if required and resolution of any dispute arising out of the implementation process. The EA will further ensure that adequate budget will be available to implement the IPDP.

F. Institutional Framework

20. In the preparation of Project IPDPs, the EA will have overall coordination and financing responsibilities. The EA will prepare, implement, and monitor the IPDP. Since IP issues are sensitive, the EA will ensure that a consultant with knowledge and experience of working among IP groups is available for assisting in the planning and implementation of IPDPs for the Project. The EA will ensure that the consultant hired to assist the PIU in planning and implementation of IPDPs for Projects is familiar with ADB policy and requirements for IPDPs.

G. IPDP Budget

21. The EA will provide sufficient resources to formulate IPDPs in Projects which will have impacts on IPs. It will implement the IPDP through PIUs. A detailed budget will be prepared taking into account all activities associated with the formulation and implementation of IPDPs. Each IPDP will have its own budget. Such budgets will be an integral part of the project cost, and will be made available during project implementation.

H. Monitoring and Evaluation

22. Implementation of the IPDP will be monitored regularly. The EA will establish a quarterly monitoring system involving the EA staff, representative of affected IP groups, and nongovernmental and community-based organizations to ensure participatory monitoring arrangements. A set of monitoring indicators will be determined during IPDP implementation. The EA will also prepare appropriate monitoring formats for effective internal and external monitoring and reporting requirements. Independent monitoring will be undertaken through nongovernmental or community-based organizations engaged by the EA with ADB concurrence to carry our external monitoring of the IPDP operations for the whole Project. Monitoring will be carried out twice a year during project implementation. These reports will be submitted to the EA and ADB for review. The EA through will be responsible for determining if any follow-up actions are necessary and ensuring any necessary actions are taken regarding the implementation of IPDPs.

SCHEDULE 6

TIME-SLICE FINANCING

1. Each Project will comprise of one or more components. POWERGRID will ensure that the entire Project meets the project selection criteria as well as ADB's safeguard policy requirements when any component under the Project is proposed for funding under the Facility. A component may include one or more contract packages. In case a component or a contract package is financed by multiple loans under the Facility, POWERGRID will ensure that the entire component or contract package is in compliance with ADB's safeguard policy requirements when any loan is requested.

2. In case a contract package is financed by more than one loans, disbursement under each loan will cover payment under the contract for a certain period,. POWERGRID has submitted to ADB, along with the first PFR, a component-wise financing plan under the Facility and a contract-wise financing plan under the first tranche. The second and subsequent PFRs may include a revised component-wise financing plan and a contract-wise financing plan for subsequent tranches. Indicative component-wise financing plan is provided in Annex A.

SCHEDULE 6 – ANNEX A

INDICATIVE FINANCING PLAN FOR PROJECT I AND II					
Financing			**MFF**		
			Tranche 1	**Tranche 2**	**Sub-Total**
Loan Approval			Mar '08	Mar '09	
Effectiveness			May '08	May '09	
PROJECT I : **Upgrading of Transmission Capacity from Uttarakhand**					
Component 1		S/S at Tehri Pooling Station and Meerut	1 $ = Rs. 39.5		
	Package 1.1	Construction of new 800kV gas-insulated substation (GIS) switchyard and extension of existing 400kV GIS switchyard at Tehri Pooling station	131.96		
	Package 1.2	Construction of new 800kV switchyard, extension of existing 400kV switchyard and modification of existing 400kV FSC to operate at 765kV, at Meerut Substation	24.68		
	Package 1.3	765kV Auto Transformers (Package - A) Supply, erection, testing and commissioning of: (i) 10 nos, 765/400/33kV, 500 MVA Auto Transformers (1-phase) at Tehri Pooling Station (ii) 10 nos, 765/400/33kV, 500 MVA Auto Transformers (1-phase) at Meerut Substation	66.20		
	Package 1.4	765kV Shunt Reactors (Package - B) Supply, erection, testing and commissioning of: (i) 4 nos, 765kV, 80MVAR Bus Reactors (1-phase) at Tehri Pooling Station (ii) 6 nos, 765kV, 80MVAR Shunt Reactors (1-phase) along with SA and NGR at Meerut Sub-station (iii) 4 nos, 765kV, 80MVAR Bus Reactors (1-phase) at Meerut Substation	13.92		
	Sub-total		**236.76**	**0.00**	**236.76**
PROJECT II: **±800kV HVDC NER -NR/WR Inter-connector**					
Component 2		ACSR Conductor			
	Package 2.1	ACSR LAPWING and ZEBRA Conductor Package (3680 Km) + (406 Km) (Package-C1)	34.52		
	Package 2.2	ACSR LAPWING Conductor Package (3680 Km) (Package-C2)		32.22	
	Package 2.3	ACSR LAPWING and PANTHER Conductor Package (3680 Km) + (134 KM) (Package-C3)		32.22	
	Package 2.4	ACSR LAPWING Conductor Package (3680 Km) (Package-C4)		32.22	
	Sub-total		**34.52**	**96.66**	**131.18**
Component 3		HVDC Insulator			
	Package 3.1	210/300/400 KN HVDC Insulator Package (Package-I1)	41.47		
	Package 3.2	210/300/400 KN HVDC Insulator Package (Package-I2)		41.47	
	Package 3.3	210/300/400 KN HVDC Insulator Package (Package-I3)		41.47	
	Sub-total		**41.47**	**82.94**	**124.41**
Component 4		Hardware Fittings/Spacer Damper etc			
	Package 4.1	Hardware fittings & accessories except Spacer Damper & Rigid Spacer (Package-H1)	10.24		
	Package 4.2	Spacer Damper & Rigid Spacer (Package-S2)	4.24		
	Sub-total		**14.48**	**0.00**	**14.48**
Total			**327.23**	**179.60**	**506.83**
Contingency			**72.77**	**20.40**	**93.17**
Grand Total			**400.00**	**200.00**	**600.00**