

Semi-Annual Environmental Safeguard Monitoring Report

Loan Number : 3521-IND & 8325-IND

Reporting Period : Jan'18 to Jun.'18

Solar Transmission Sector Project

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Implementing Agency : POWERGRID

Executing Agency : POWERGRID

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ABBREVIATIONS

ADB	–	Asian Development Bank
CEA	–	Central Electricity Authority
CPTD	–	Compensation Plan for Temporary Damages
CSS	–	Country Safeguard System
CTU	–	Central Transmission Utility
DFO	–	Divisional Forest Officer
EAMP	–	Environmental Assessment Management Plan
ESPP	–	Environment and Social Policy & Procedures
ESMD	–	Environment & Social Management Department
EMP	–	Environmental Management Plan
GHGs	–	Green House Gases
GRM	–	Grievances Redressal Mechanism
GRC	–	Grievance Redressal Committee
HVDC	–	High Voltage Direct Current
IEAR	–	Initial Environmental Assessment Report
ISTS	–	Inter State Transmission Scheme
Km	–	Kilometers
MoEFCC	–	Ministry of Environment, Forest and Climate Change
PAPs	–	Project Affected Persons
POWERGRID	–	Power Grid Corporation of India Ltd.
PMU	–	Project Management Unit
RAP	–	Resettlement Action Plan
RE	–	Renewable Energy
RoW	–	Right of Way
S/s	–	Substation
SAMP	–	Social Assessment Management Plan
SPS	–	Safeguard Policy Statement, 2009 of ADB
TPDP	–	Tribal People Development Plan
UMSPP	–	Ultra Mega Solar Power Parks
USD	–	United States Dollar

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EXECUTIVE SUMMARY

POWERGRID, the Central Transmission Utility (CTU) of the country has been implementing various Inter State Transmission System (ISTS) in 7 States associated with 9 Ultra Mega Solar Power Parks on compressed time schedule basis. The Solar Transmission Sector Project ("The Project") comprising of different transmission systems associated with Solar Parks at Bhadla (Rajasthan), Banaskantha (Gujarat), Tumkur (Karnataka) and refurbishment work of HVDC Rihand-Dadri Project being implemented with financial assistance of USD 225 million from ADB under loan no. 3521-IND & 8325-IND. The said loan was signed on 5th April, 2017 and became effective from 9th May, 2017 with loan closing date of 31st May, 2022. The objective is to improve import capability of Northern, Southern & Western regions through transmitting harnessed solar power, which is another sustainable alternative, renewable and non-polluting form of energy.

ADB also selected this Project to be implemented and monitored in line with the POWERGRID's Environmental and Social Policy & Procedures (ESPP) and the Action Plan for Safeguards prepared for the use of CSS so as to ensure that ESPP achieve and maintain full equivalence with ADB's SPS, 2009. The Project is classified as Environmental Category 'B' as per ADB's SPS.

The Project components include construction of about 639.61 km of new 765kV/400 kV D/c transmission lines (in 5 segments) and associated substations (1 new 765kV/400/220 kV substations and extension works at 8 substations). The project components are spread across 4 different States i.e. Rajasthan, Gujarat, Karnataka and Uttar Pradesh. The proposed alignment of the transmission lines don't pass through any environmentally sensitive/ protected area (such as National Parks or Wildlife Sanctuaries). However, only 90 meter stretch of strip plantation (protected forest) along road crossings is getting affected by Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400 kV D/c line. As per regulations, POWERGRID has submitted forest diversion proposal for obtaining clearance under Forest (Conservation) Act, 1980 from Ministry of Environment, Forest & Climate Change (MoEFCC). Besides, POWERGRID has been complying all other applicable rules/regulations of the country along with various conditions agreed with ADB under loan covenants and also implementation of action plan for safeguards under CSS. Till date no violation/ penalty in this regard has been reported.

The Project doesn't envisage significant impact on environmental attributes like air, water, soil etc. As anticipated, some impact like loss of vegetation due to clearing of the right-of-way (RoW) for lines and temporary impacts due to small scale construction activities in substation during construction period can never been avoided completely. However, till date no complaints from public in respect of increase noise, traffic, dust etc. or any major inconvenience due to proposed intervention have been reported from any sites. The project specific mitigation measures enlisted in EMP, which is also part of contract documents are being applied appropriately in different stages of project and

regularly monitored for proper implementation. Apart from identified impacts as mentioned in EMP, no other unanticipated impacts were observed/reported during the implementation of projects in the reporting period. As regard Safety, all required measures are in place including due precautions/awareness programs as well as ensuring use of PPEs, which is evident from the fact that no accidents (fatal or non-fatal) including major/minor injuries were reported during the reporting period from any of the construction sites as also demonstrated in **Annexure-II**.

The two-tier grievance redress mechanism has been addressing/resolving the concerns and grievances of the complainant effectively. All concerns/grievances of affected persons/public including minor one are also recorded and regularly tracked for early resolution within stipulated timeframe. However, one compliant i.e. writ petition filed on 01.02.18 by M/s Green World Development & Creations Pvt. Ltd., Mysore regarding route diversion of Mysore-Hiriyur 400kV at location no. 137/0-137/1 is yet to be heard by the Hon'ble High Court. Moreover, regular consultation with the complainant is under progress for possible settlement.

POWERGRID approach of project implementation involving selection of optimum route before design stage, proper implementation of EMP and monitoring mechanism throughout project life cycle supported by strong institutional arrangement has considerably nullified the adverse impacts arising out of project activities. Besides, direct or indirect benefits of the Projects like the employment opportunity, improved & uninterrupted power supply from clean & green source, improvement in infrastructure facilities, improved business opportunity outweigh the negligible impacts of the project.

SECTION 1: INTRODUCTION

Power Grid Corporation of India Ltd. (POWERGRID), the Central Transmission Utility (CTU) of the country, is engaged in power transmission with the mandate for planning, co-ordination, supervision and control over complete Inter-State transmission system. It has been contributing significantly towards development of Indian power sector by undertaking coordinated development of power transmission network along with effective and transparent operation of regional grids and through continuous innovations in technical & managerial fields.

Government of India has taken up the initiative for development of Ultra Mega Solar Power Parks (UMSPP) in various parts of the country. Keeping in view short gestation period of solar generation project and time required for development of evacuation system, it is proposed that the transmission scheme may be implemented in different phases commensurate to the power transfer requirement. MoP vide letter dated 08.01.15 & 04.08.15 intimated POWERGRID for taking up of transmission system for evacuation of power from 9 solar generating parks being set up in 7 States along with pooling stations as ISTS Scheme, including subject Tumkur (Pavagada) UMSPP on compressed time schedule basis.

As part of above initiative, an ultra-mega solar power park of 2000 MW capacity is being developed by M/s Karnataka Solar Power Development Corporation Ltd. (KSPDCL) (JVC of SECI & KREDL) at Pavagada in Tumkur district of Karnataka in two phases with 1000MW in each phase. A Ultra-Mega Solar Power Park is also being developed by M/s Saurya Urja Company of Rajasthan Ltd (JVC of Govt. of Rajasthan and IL&FS) for 1000MW capacity and M/s Adani Renewable Energy Park Rajasthan Ltd. (JVC of Govt. of Rajasthan and AREPL) for 500MW capacity as well as by M/s Essel Saurya Company of Rajasthan Ltd (JVC of Govt. of Rajasthan and Essel Infra Projects Ltd) for 750 MW in/near Bhadla, Jodhpur district, Rajasthan. Further, setting up of ultra-mega solar park of 700 MW capacities has been envisaged by M/s Gujarat Power Corporation Limited (GPCL) at Radhanesda district Banaskantha in Gujarat. Ministry of Power (MoP) has assigned POWERGRID to implement transmission system for various solar parks including Banaskantha UMSPP (700 MW) in Gujarat on compressed time schedule basis.

Besides, Rihand-Dadri HVDC system is an important link of Northern Region and is responsible for evacuation of major power out of 3000MW generated at Rihand Generating station. Reliable operation of Rihand-Dadri HVDC is of most importance for smooth operation of Northern Grid as power interruption in the link results in back down of generators in Rihand/Singrauli generating complex and also affects power supply to Delhi/Punjab. Though the system was running satisfactorily till last 3-4 years, problems started arising in different areas of HVDC resulting in outage of HVDC system as well as interruption of power flow. These failures are due to ageing of the equipment as Rihand-Dadri HVDC system has already completed its useful life of 25 years. The project involves refurbishment of Rihand & Dadri HVDC systems which will enhance its

life and improve reliability as Rihand-Dadri HVDC system has already completed its useful life of 25 years.

The above inter-state transmission scheme for Bhadla, Tumkur (Pavagada) & Banashkantha UMSP were discussed and agreed in the Standing committee meeting on Power system Planning held on 20.01.16, 05.03.2016 & 20.01.16 respectively.

To meet the funding requirement for the proposed project, Asian Development Bank (ADB) has accepted POWERGRID's proposal to finance a loan of USD 225 million for implementation of transmission system for three UMSP at Bhadla, Pavagada and Banashkantha and some package of refurbishment of HVDC Rihand-Dadri Project. Moreover, ADB selected this project to be implemented and monitored in line with the POWERGRID's Environmental and Social Policy & Procedures and the Action Plan for Safeguards prepared for the use of CSS so as to ensure that ESPP achieve and maintain full equivalence with ADB's SPS, 2009. The funding for the remaining part will be met from POWERGRID's own Internal Resources (IR). The loan no. 3521-IND & 8325-IND were signed on 5th April, 2017 and became effective from 9th May, 2017. The loan closing date is 31st May, 2022.

1.1 OVERALL PROJECT DESCRIPTION

The Solar Transmission Sector Project covered under Loan No. 3521-IND and 8325-IND involves following projects:

- (i) Transmission System associated with Solar Park at Bhadla, Rajasthan
 - Bhadla (POWERGRID) – Bikaner (POWERGRID) 765kV D/c line;
 - Bhadla (POWERGRID)- Bhadla (RVPN) 400kV D/c (Quad);
 - Establishment of 765/400/220kV Bhadla (POWERGRID) substation;
 - Extension of 765/400kV Bikaner (POWERGRID) substation;
 - Extension of 400/220kV Bhadla (RVPN) substation.
- (ii) Transmission system for Ultra Mega Solar power park (2000 MW) at Tumkur (Pavagada), Karnataka - Phase-II (Part- A & B)
 - a) Transmission system for Ultra Mega Solar power park (2000 MW) at Tumkur (Pavagada), Karnataka - Phase-II (Part-A)
 - Hiriyur – Mysore 400kV D/C line;
 - Extension of 400/220kV Tumkur (Pavagada) Pooling station;
 - Extension of 400/220kV Mysore (POWERGRID) substation;
 - Extension of 400/220kV Tumkur (Vasantnarsapur) substation;
 - b) Transmission system for Ultra Mega Solar power park (2000 MW) at Tumkur (Pavagada), Karnataka - Phase-II (Part-B);
 - Tumkur (Pavagada) PS -Devanahally(KPTCL) 400kV D/c (Quad) Line;
 - Extension of 400/220kV Tumkur (Pavagada) Pooling Station;
 - Extension of 400/220kV Devanahally (KPTCL) substation

(iii) Transmission system for Ultra Mega Solar Power Park (700 MW) at Banaskantha (Radhanesda), Gujarat

- Banaskantha(Radhanesda) Pooling Station–Banaskantha(PG)400kV D/c Line;
- 400kV Bay Extension at 765/400kV Banaskantha (PG) substation.

(iv) Refurbishment of HVDC Rihand-Dadri Project

- Replacement of HVDC Control, Protection, SCADA and Valve Cooling System for ± 500 kV, 1500 MW HVDC Rihand-Dadri Bi-Pole Terminals under Add-Cap for Rihand- Dadri HVDC System
- Supply & Erection of Bushings for Converter Transformers & Smoothing Reactors at Rihand and Dadri HVDC terminals
- Upgradation of SVC Control & Protection & Automation, Surge Arresters, Wall Bushings, Thyristor Valves and Valve cooling System for SVC at Kanpur; including one spare coupling transformer

1.2 PROJECT OBJECTIVES

The objective is to improve import capability of Northern, Southern & Western regions through transmitting harnessed solar power, which is another sustainable alternative, renewable and non-polluting form of energy and does not emit any Green House Gases (GHGs) or harmful wastes.

1.3 ENVIRONMENTAL CATEGORY

As per the Asian Development Bank's (ADB) classification of project on the basis of potential environmental impacts, the Solar Transmission Sector Project is classified as Environmental Category 'B'.

1.4 ENVIRONMENTAL PERFORMANCE INDICATORS:

The following parameters which are considered as key indicators for this project need to be monitored to evaluate the environmental performance.

1. Selection of optimum route which has least impact on environment and also avoids protected area/ecological sensitive area/ historical or cultural monuments;
2. Compliance with all applicable statutory requirements;
3. Compliance to CSS Action Plan for Safeguards & Loan Covenants;
4. Compliance with Environment Management Plan.

1.5 OVERALL PROJECT PROGRESS, AGREED MILESTONES & COMPLETION SCHEDULES

Name of project	Project Details	Progress as on June, 2018	Completion Schedule
Transmission System associated with Solar Park at	Transmission Line: <ul style="list-style-type: none"> • Bhadla (POWERGRID)–Bikaner (POWERGRID) 765kV D/c line • Bhadla (POWERGRID)- Bhadla (RVPN) 400kV D/c (Quad) 	Tower foundation – 83%, Erection- 43 % & Stringing- 6% completed	January 2019

Bhadla, Rajasthan	<p>Substation:</p> <ul style="list-style-type: none"> • Establishment of 765/400/220kV Bhadla (POWERGRID) substation • Extension of 765/400kV Bikaner (POWERGRID) Substation • Extension of 400/220kV Bhadla (RVPN) Substation 	Approx. 85% civil work and 35 % equipment erection completed	
Transmission system for Ultra Mega Solar power park (2000 MW) at Tumkur (Pavagada), Karnataka - Phase-II (Part-A & B)	<p>Transmission Line:</p> <ul style="list-style-type: none"> • Hiriya – Mysore 400kV D/C line; • Tumkur (Pavagada) Pooling station-Devanahally (KPTCL) 400kV D/c (Quad) Line <p>Substation:</p> <ul style="list-style-type: none"> • Extension of 400/220kV Tumkur (Pavagada) Pooling station • Extension of 400/220kV Mysore (POWERGRID) Substation • Extension of 400/220kV Tumkur (Vasanthnarsapur) Substation • Extension of 400/220kV Tumkur (Pavagada) Pooling station • Extension of 400/220kV Devanahally (KPTCL) Substation 	<p>Approx. 59% of Tower foundation, 45% of Erection & Stringing- 15 % completed</p> <p>Approx. 28% civil work completed</p>	February 2019
Transmission system for Ultra Mega Solar Power Park (700 MW) at Banaskantha (Radhanesda), Gujarat	<p>Transmission Line:</p> <ul style="list-style-type: none"> • Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400kV D/c. <p>Substation:</p> <ul style="list-style-type: none"> • 400kV Bay Extension at 765/400kV Banaskantha (PG) Substation 	<p>Approx. 65% of Tower foundation, 35% of Erection completed.</p> <p>Approx. 30% civil work completed</p>	September 2018
Refurbishment of HVDC Rihand-Dadri Project	<ul style="list-style-type: none"> • Control & Protection Upgradation (Replacement of existing Control & Protection including SCADA System with latest new Control & Protection including SCADA System); • Valve Cooling Upgradation (Replacement of existing wet type Valve Cooling System with new Valve Cooling System). 	<p>Yet to be awarded.</p> <p>Updated Procurement Plan is under ADB approval</p>	---

SECTION 2 : COMPLIANCE STATUS WITH APPLICABLE STATUTORY REQUIREMENTS

The applicable statutory requirements vis-s-vis POWERGRID's compliance status is presented below.

Sl. No.	Legal Requirements	Applicable Attributes	POWERGRID's Compliance Status
1.	Forest (Conservation) Act, 1980	This Act is applicable whenever a transmission line traverses forest area. Prior approval from Ministry of Environment Forests and Climate Change (MoEFCC), Govt. of India has to be obtained before construction of line in forest areas	Only 0.414 ha. of social forest (approx. 90 meter strip plantation along State Highway crossings) is involved in one line i.e. Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400 kV D/c Line. POWERGRID has already submitted forest diversion proposal for obtaining clearance from MoEFCC. Details of clearance status are presented in Table-1 .
2.	Batteries (Management and Handling) Rules, 2001	To avoid/minimize lead pollution, Bulk consumers shall have the responsibility to dispose all used batteries to dealers, manufacturer, registered recycler, reconditioners or at the designated collection centres only. Half-yearly return (Form-8) for the same is to be submitted to the concerned State Pollution Control Board.	Since the instant project is under implementation phase, no used batteries have been replaced so far.
3.	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	As per the notification, used mineral oil is categorized as hazardous waste and requires proper handling, storage and disposed only to authorised disposal facility (registered recyclers/reprocessors). Annual return (Form -13) for the same is to be submitted to the concerned State Pollution Control Board.	Transformer oil (Used mineral oil) is changed only after 10-15 years of operation Since the instant project is under implementation phase, oil change/ replacement is not envisaged at present.
4.	Ozone Depleting Substances (Regulation and Control) Rules, 2000	Controls and regulations specified on manufacturing, import, export, and use of CFC compounds.	Necessary provisions have been made in contract document for restricting the use/supply of CFC compounds.

Table-1: Details of Forest Clearance Status

Sl. No.	Name of the Line	Forest Area (Ha.)	State	Present Status
1. Transmission System associated with Solar Park at Bhadla, Rajasthan				
i)	Bhadla - Bikaner 765kV D/c	Nil	Rajasthan	No forest area involved
ii)	Bhadla – Bhadla 400kV D/c (Quad)	Nil		No forest area involved.
2. Transmission System for UMSP at Tumkur (Pavagada), Phase II (Part A & B)				
i)	Hiriyur – Mysore 400 kV D/c	Nil	Karnataka	No forest area involved
ii)	Tumkur – Devanhally 400 kV D/c (Quad)	Nil		No forest area involvement as per preliminary assessment. Detailed survey yet to be completed.
3. Transmission System for UMSP at Banaskantha (Radhanesda), Gujarat				
i)	Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400 kV D/c	0.414	Gujarat	Forest area involved only strip plantation along road crossings (approx. 90 meter stretch) Forest proposal submitted on 12.12.2017. Divisional Forest Officer (DFO) raised queries on 16.02.18 which have been replied on 14.03.18. Presently proposal under formulation at DFO.
4. Refurbishment of HVDC Rihand-Dadri Project (No new line/substation construction involved. The scope includes only replacement/ upgradation work)				

SECTION 3 : COMPLIANCE STATUS WITH MAJOR LOAN COVENANTS

POWERGRID has complied with various environmental safeguards as agreed in the loan covenants. The point wise compliance status is presented in the table below;

Project Specific Covenants	Reference	Status of Compliance
The Borrower shall ensure, to ADB's satisfaction, prior to any disbursement of Loan proceeds for the relevant Subproject, the following requirements, as outlined in the PAM: (a) each Subproject meets the Subprojects selection criteria for ADB appraisal; (b) project relevant information of each of the Subprojects is disclosed to affected persons during consultation and prior to ADB appraisal; (c) draft and final IEAR, EAMP and SAMP (CPTD, RAP and/or TPDP, as applicable) are submitted to ADB for its review; (d) satisfactory draft, final, and any updated IEAR, EAMP, and SAMP (CPTD, RAP and/or TPDP, as applicable) are disclosed on the Borrower's website; and (e) submit the same to ADB for disclosure on ADB website.	Loan Agreement (LA), Sch. 5, para. 10	Complied. IEAR & CPTD for Bhadla & Banaskantha Solar Project approved/disclosed on 8 th Dec'16. For Tumkur Solar Project, IEAR & CPTD approved/disclosed on 18 th Jul'17 & 25 th Jul'17. Similarly IEAR for refurbishment of HVDC Rihand-Dadri Project approved/disclosed on 27 th Dec.'17. IEAR with revised scope submitted on 17 th Aug.'18.
The Borrower shall use agency-level CSS to assess, categorize and address any environmental or social impacts under the Project in accordance with the ESPP, the agreed Action Plan for Safeguards, and the provisions set out in paragraphs 12 through 17 of this Schedule.	LA, Sch. 5, para. 11	Complied/Being complied. The detailed compliance status of agreed action plan under CSS is placed as Annexure-I .
The Borrower shall adopt and implement the Action Plan for Safeguards in a timely manner so as to ensure that its ESPP achieve and maintain full equivalence with the objectives, policy scope, principles and triggers of SPS throughout Project implementation.	LA, Sch. 5, para. 12	
The Borrower shall promptly notify ADB of any proposed changes to its ESPP or its safeguards implementation practices pursuant thereto. If, in the reasonable opinion of ADB, the change(s) could have the effect that environmental or social impacts under the Project are no longer assessed, categorized or addressed in a manner consistent with the objectives, policy scope, principles and triggers of SPS, ADB may (i) require such additional changes to the Action Plan for Safeguards or other remedial actions as it considers necessary to maintain such consistency or (ii) withdraw its approval for the use of CSS and financing of related Subprojects.	LA, Sch. 5, para. 13	Will be notified in case of any changes in ESPP.

<p>The Borrower shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities, including their associated facilities, comply with (a) all applicable laws and regulations of the Guarantor and the relevant States relating to environment, health and safety; (b) the ESPP; (c) the Action Plan for Safeguards; and (d) all measures and requirements set forth in the respective IEAR, EAMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	LA, Sch. 5, para. 14	Complied/Being complied.
<p>The Borrower shall make available necessary budgetary and human resources to fully implement the ESPP; the Action Plan for Safeguards; and each EAMP and SAMP (CPTD, RAP and/or TPDP, as applicable); and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	LA, Sch. 5, para. 18	Complied/Being complied.
<p>The Borrower shall ensure that all bidding documents and contracts for works contain provisions that require contractors to:</p> <p>(a) comply with the measures relevant to the contractor set forth in the relevant IEAR, EAMP, and SAMP (CPTD, RAP and/or TPDP as applicable), (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set forth in the Action Plan for Safeguards and Safeguards Monitoring Report;</p> <p>(b) make available a budget for all such environmental and social measures and monitoring activities;</p>	LA, Sch. 5, para. 19	Complied/Being complied.
<p>(c) provide the Borrower with a written notice of (i) any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the relevant IEAR, EAMP, and SAMP (CPTD, RAP and/or TPDP, as applicable), and (ii) any corrective or preventative actions set forth in the Action Plan for Safeguards and Safeguards Monitoring Report;</p> <p>(d) The Borrower shall ensure that all bidding documents (adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction;</p> <p>(e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>		

<p>The Borrower shall do the following, consistent with Action Plan for Safeguards:</p> <ul style="list-style-type: none"> (a) disclose Safeguards Monitoring Reports on the Borrowers website, and submit the same for disclosure on ADB website, on a semiannual basis; (b) disclose satisfactory revisions and updates of IEAR, EAMP, and SAMP (CPTD, RAP and/or TPDP, as applicable), prepared during Subproject implementation, if any, on the Borrower's website, and submit these to ADB for disclosure on ADB website, and provide relevant information to affected people and other stakeholders in a timely manner and in a form and language understandable to them; (c) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the relevant IEAR, EAMP, and SAMP (CPTD, RAP and/or TPDP as applicable), promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; (d) report any actual or potential breach of compliance with the measures and requirements set forth in the relevant EAMP, and SAMP (CPTD, RAP and/or TPDP, as applicable) promptly after becoming aware of the breach; and (e) in the event unexpected significant safeguard impacts are identified, promptly engage qualified and experienced external expert or agency under terms of reference intimated to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts. 	<p>LA, Sch. 5, para. 20</p>	<p>Last such monitoring reports for period May- Dec.'17 already disclosed on website.</p> <p>To be complied when became due.</p> <p>Will be complied if situation warrants.</p> <p>Will be complied in case of any breach. But till date no such breach reported.</p> <p>Will be complied if situation warrants</p>
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SECTION: 4 COMPLIANCE STATUS WITH ENVIRONMENT MANAGEMENT AND MONITORING PLAN STIPULATED IN IEAR AND AS AGREED WITH ADB

The instant project is being implemented and monitored in line with the POWERGRID's Environmental and Social Policy & Procedures and the Action Plan for Safeguards prepared for the use of CSS so as to ensure that ESPP achieve and maintain full compliance with ADB's SPS, 2009. Accordingly, POWERGRID has prepared Initial Environmental Assessment Reports (IEARs) including Environmental Management Plan (EMP) to ensure that all the anticipated environment impacts due to the project activities are minimized wherever possible. The EMP describes detailed site-specific mitigation measures and monitoring plans for impacts anticipated during different stages of the proposed project i.e. pre-construction, construction, and operation & maintenance phase. A summary of monitoring requirements has also been included which identifies when and where the parameter will be monitored, how often and against what aspect. For proper implementation of EMP and other mitigation measures budget provision has been included in the project cost.

Monitoring the implementation of environmental mitigation measures is required to ensure that these are undertaken in accordance with the EMP, and to enable mitigation to be adapted and refined as required. Further, in order to achieve full compliance with ADB's SPS, 2009 under CSS, agreed action plan for safeguards are being implemented by POWERGRID. The detailed compliance status of the same is place as **Annexure-I**.

A summary of the environmental mitigation measures and monitoring requirements vis-a-vis to compliance status by POWRGRID's is given in **Table 2**.

TABLE – 2 : ENVIRONMENT MANAGEMENT PLAN

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Pre-construction								
1	Location of line towers and line alignment and design	Exposure to safety related risks	Setback of dwellings to line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites	Tower location and alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	POWERGRID	Part of tower siting survey and detailed alignment survey & design	Complied during survey. Route alignment criterion is part of survey contract.
		Impact on water bodies	Avoidance of such water bodies to the extent possible. Avoidance of placement of tower inside water bodies to the extent of possible	Tower location and line alignment selection (distance to water bodies)	Consultation with local authorities–once			
		Social inequities	Careful route selection to avoid existing settlements and sensitive locations	Tower location and line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities and land owners – once			
			Minimise impact on agricultural land	Tower location and line alignment selection (distance to agricultural land)	Consultation with local authorities and land owners – once			
			Careful selection of site and route alignment to avoid encroachment of socially, culturally & archaeological sensitive areas (i. g. sacred groves, graveyard, religious worship place, monuments etc.)	Tower location and line alignment selection (distance to sensitive area)	Consultation with local authorities - once			

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
2	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	Complied. As per technical specification PCB is not used or it not detectable (i.e. less than 2mg/kg) as per IEC 61619 or ASTM D4059
			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 Govt.	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once	POWERGRID	Part of tender specifications for the equipment	Complied
					Phase out schedule to be prepared in case still in use – once		Part of equipment and process design	Not Applicable.
3	Transmission line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards – once	POWERGRID	Part of design parameters	Complied. Designed as per guidelines of ICNIRP and ACGIH and checked by CPRI & M/s PTI, USA
4	Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations.	Expected noise emissions based on substation design	Compliance with regulations - once	POWERGRID	Part of detailed siting survey and design	Complied
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally & archaeological sensitive areas (i.e. sacred groves, graveyard, religious worship place, monuments etc.)	Selection of substation location (distance to sensitive area).	Consultation with local authorities - once	POWERGRID	Part of detailed siting survey and design	Complied during survey. Route alignment criterion is part of survey contract.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
5	Securing lands for substations.	Loss of land/ income change in social status etc.	In the case of Involuntary Acquisitions, Compensation and R&R measures are extended as per provision of RFCTLARRA, 2013 ¹	Compensation and monetary R&R amounts/ facilities extended before possession of land.	As per provisions laid out in the act	POWERGRID	Prior to award/start of substation construction.	Fresh land required only for Bhadla S/s which was Govt Land secured from State Govt through transfer. For details refer Social Monitoring Report
6	Line through protected area/ precious ecological area	Loss of precious ecological values/ damage to precious species	Avoid siting of lines through such areas by careful site and alignment selection (National Parks, Wildlife Sanctuary, Biosphere Reserves/ Biodiversity Hotspots)	Tower location and line alignment selection (distance to nearest designated ecological protected/ sensitive areas)	Consultation with local forest authorities - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design	In spite of best efforts, a small stretch of 0.414 ha protected forest (approx. 90 meter strip plantation) along road crossings in B.kantha-Banaskantha line could not be avoided. However, clearance under FC Act, 1980 being obtained from MoEFCC.
			Minimize the need by using RoW wherever possible	Tower location and line alignment selection	Consultation with local authorities and design engineers- once	POWERGRID	Part of tower siting survey & detailed alignment survey & design	Complied
7	Line through identified Elephant corridor / Migratory bird	Damage to the Wildlife/ Birds and also to line	Study of earmarked elephant corridors to avoid such corridors, Adequate ground clearance, Fault clearing by Circuit Breaker, Barbed wire wrapping on towers, reduced spans etc., if applicable	Tower location and line alignment selection. Minimum /maximum ground clearance	Consultation with local forest authorities – once. Monitoring – quarterly basis	POWERGRID	Part of tower sitting and detailed alignment survey & design and Operation	Complied. The routes of proposed lines don't form part of any such areas.

¹ No Involuntary acquisition of land (permanent) involved; hence this clause is not applicable.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, bird guard, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc, ² if applicable	Tower location and line alignment selection	Consultation with local forest authorities - once	POWERGRID	Part of tower siting survey and detailed alignment survey and design	
8	Line through forestland	Deforestation and loss of biodiversity edge effect	Avoid locating lines in forest land 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 tower siting survey and detailed alignment survey and design	Complied/Being complied.
			Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers- once			Route alignment finalised by taking consideration of minimum impact on forest area after consultation with concerned authorities.
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities-once			However, in spite of best efforts, an area of 0.414 ³ ha forest land could not be avoided.

² As per International/National best practices and in consultation with concerned forest/wildlife authority

³ As per provision of Forest (Conservation) Act, 1980, Compensatory Afforestation (CA) on degraded forest land double the extent of diverted forest area to be undertaken. However, if the diverted forest area is ≤ 1 ha., then plantation of 10 times the number of trees likely to be felled will have to be carried out. It may be noted that the role of User Agency (POWERGRID) is limited to depositing the cost of afforestation activities as demanded by forest authorities who in turn undertake the actual afforestation work. Since in the instant case forest proposal is being formulated at this moment such afforestation scheme has not yet prepared.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each subproject			
9	Lines through farmland	Loss of agricultural production/ change in cropping pattern	Use existing tower or footings wherever possible.	Tower location and line alignment selection.	Consultation with local authorities and design engineers -once	POWERGRID	Part of detailed alignment survey and design	Complied during survey which is part of survey contract.
			Avoid sitting new towers on farmland wherever feasible	Tower location and line alignment selection	Consultation with local authorities and design engineers- once		Part of detailed sitting & alignment survey /design	
10	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	Complied. Maximum noise limit of 80 (dB)A stated in the technical specification for transformer
11	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- once	POWERGRID	Part of detailed alignment survey and design	Complied/Being complied. Appropriate siting of towers ensured during alignment survey and Tower spotting to avoid channel interference.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
12	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 clean-up equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications – once	POWERGRID	Part of detailed equipment design /drawings	Complied. Underlying pit with a storage capacity of at least 20% of the total oil of the transformer & a common Secondary Containment of capacity of 220% of largest transformer oil volume is part of detailed design
			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	Complied. Provision of soak pit is part of design where sewage line is not present.
13	Equipments submerged under flood	Contamination of receptors	Substations constructed above the high flood level(HFL) by raising the foundation pad	Substation design to account for HFL (elevation with respect to HFL elevation)	Base height as per flood design- once	POWERGRID	Part of detailed substation layout and design/ drawings	Complied. Substations are designed above HFL.
14	Explosions /Fire	Hazards to life	Design of substations to include modern fire fighting equipment	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	Complied. Fire fighting equipments are integral part of Substation design
			Provision of fire fighting equipment to be located close to transformers					
Construction								
15	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	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied. Low noise producing machineries/ equipments

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
					disturbance- once at the start of each construction phase			are being used.
16	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	Complied/ Being complied. Construction on farm land undertaken mostly during post-harvest period.
17	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints to be received by local authorities – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being complied. No complaints received so far
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment – estimated noise emissions and operating schedules	Complaints to be received by local authorities – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	
18	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	Most sites are easily accessible and existing road are used for construction activity.
		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 carriage – way width within RoW – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
19	Construction activities	Safety of local villagers	Coordination with local communities for construction schedules, Barricading the construction area and spreading awareness among locals	Periodic and regular reporting /supervision of safety arrangement	No. of incidents- once every week	POWERGRID (Contractor through contract provisions)	Construction period	All required safety precautions have been taken. Most of the tower locations are in farm/barren land. Hence, the cases of traffic obstruction are not envisaged. No accidents reported during the reporting period.
		Local traffic obstruction	Coordination with local authority/requisite permission for smooth flow of traffic	Traffic flow (Interruption of traffic)	Frequency (time span)- on daily basis	POWERGRID (Contractor through contract provisions)	Construction period	
20	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	Temporary fill placement (m3)	Absence of fill in sensitive drainage areas – every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
21	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 m2)	Clearance strictly limited to target vegetation – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
			No use of herbicides and pesticides					
22	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 max. 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	Regulated felling of tree in RoW is carried out with permission of owner & revenue authority keeping required electrical clearance as per design.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		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	Complied/ Being Complied
			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 m2)	Use or intended use of vegetation as approved by the statutory authorities – once per site	POWERGRID (Contractor through contract provisions)	Construction period	All felled trees are handed over to owner for disposal. POWERGRID has no role in storage and disposal of felled tree/wood.
23	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 m2, number of incidents reported)	Complaints by local people or other evidence of illegal harvesting – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied No complaints received on illegal harvesting.
24	Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings/ substation foundation disposed by placement along roadsides, or at nearby house blocks if requested by landowners	Soil disposal locations and volume (m3)	Acceptable soil disposal sites – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/Being complied. 90-95% of the excavated soil is used for refilling/ resurfacing and rest is being disposed along with other debris at selected location
25	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil will be mostly reused for	Borrow area sitting (area of site in m2 and estimated volume in m3)	Acceptable soil borrow areas that provide a benefit - every	POWERGRID (Contractor through contract	Construction period	Complied/ Being Complied

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			leveling and re-filling. However, in case of requirement of excess soil the same will be met from existing quarry or through deep excavation of existing pond or other nearby barren land with agreement of local communities		2 weeks	provisions)		
		Water pollution	Construction activities involving significant ground disturbance (i.e. substation land forming) not undertaken during the monsoon season	Seasonal start and finish of major earthworks(PH, BOD /COD, Suspended solids, others)	Timing of major disturbance activities –prior to start of construction activities	POWERGRID (Contractor through contract provisions))	Construction period	Complied/ Being Complied
26	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, m2)	Amount of ground disturbance – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Regulated felling of tree in RoW is carried out with permission of owner & revenue authority keeping required electrical clearance as per design.
				Statutory approvals	Statutory approvals for tree clearances – once for each site			
27	Tower erection Substation foundation-disposal of surplus earthwork/fill	Waste disposal	Excess fill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local community or landowner.	Location and amount (m3)of fill disposal	Appropriate fill disposal locations – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
28	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 m3) 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	Stored at designated place only.
29	Construction schedules	Noise nuisance to neighbouring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(A)])	Daytime construction only – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Construction activity restricted to day time only
30	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	No complaints received
31	Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate asks	Avoidance/ reduction of conflict through enhancement/ augmentation of resource requirements	Observation & supervision–on weekly basis	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied. Local workforce being used based on skill and no incidents of conflict reported so far
32	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible Ensure existing irrigation facilities are maintained in working condition	Usage of existing utilities Status of existing facilities	Complaints received by local people /authorities - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Being complied. No complaints received from local peoples/authorities

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m3)				
			Repair /reinstate damaged bunds etc. after construction completed	Status of facilities (earthwork in m3)				
		Loss of income.	Land owners/ farmers compensated for any temporary loss of productive land as per existing regulation.	Process of Crop/tree compensation in consultation with forest dept. (for timber yielding tree) and Horticulture dept. (for fruit bearing tree)	Consultation with affected land owner prior to implementation and during execution.	POWERGRID	During construction	Tried to minimise the loss. Details of tree, crop compensation paid is provided separately in Social Monitoring Report
33	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads.	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m2; amount of bunds constructed [length in meter, area in m2, or volume in m3])	Incorporating good design and construction management practices – once for each site	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
		Limit site clearing to work areas						
		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					

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
34	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	Complied/ Being Complied
			As much as possible existing access ways will be used	Design basis and layout	Incorporating good design engineering practices– once for each site			
			Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m2)	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	Compensation provided as per POWERGRID's procedure for tree/crop compensation (for details refer Social Monitoring Report)
35	Flooding hazards due to construction impediments of natural drainage	Flooding & loss of soils, contamination of receptors (land, water)	Avoid natural drainage pattern/ facilities being disturbed/blocked/ diverted by on-going construction activities	Contract clauses (e.g. suspended solids and BOD/COD in receiving water)	Incorporating good construction management practices-once for each site	POWERGRID (Contractor through contract provisions)	Construction period	Complied/Being complied. Good construction management practices are employed at sites to avoid blockage of natural drainage and resultant flooding.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
36	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	Store room level to be above HFL (elevation difference in meters)	Store room level as per flood design-once	POWERGRID	Construction period	All equipment foundations are designed above HFL.
37	Inadequate siting of borrow areas (quarry 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	Extra aggregates not required till date. However, If needed it will be sourced through approved/registered borrow/quarry area.
38	Health and safety	Injury and sickness of workers and members of the public	<p>Safety equipment's (PPEs) for construction workers</p> <p>Contract provisions specifying minimum requirements for construction workers camps</p> <p>Contractor to prepare and implement a health and safety plan.</p> <p>Contractor to arrange for health and safety training sessions</p>	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	<p>Complied with project specific safety plan and general conditions of contract, which covers all applicable regulations.</p> <p>Compliance to safety measures like safety training /awareness along with safety checklists is placed as Annexure-II</p>
39	Inadequate construction stage monitoring	Likely to maximise damages	Training of environmental monitoring personnel	Training schedules	No. of programs attended by each person – once a year	POWERGRID	Routinely throughout construction period	Provides proper training and have very good env. monitoring process. During reporting period

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			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			such training program were conducted at Udaipur and Lucknow in Jan./Feb.'18. Photographs enclosed as Plate-1)
			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			Appropriate clause incorporated in contact provision for EMP implementation. Site managers review the implementation on daily basis.
Operation and Maintenance								
40	Location of line towers and line alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency & the regulation of supervision at sites.	Compliance with setback distances ("as-built" diagrams)	Setback distances to nearest houses – once in quarter	POWERGRID	During operations	Will be complied during O & M stage

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
41	Line through identified bird flyways, migratory path	Injury/ mortality to birds, bats etc. due to collision and electrocution	Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	Regular monitoring for any incident of injury/mortality	No. of incidents- once every month	POWERGRID	Part of detailed siting and alignment survey /design and Operation	-do-
42	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	-do-
43	Oil spillage	Contamination of land/nearby water bodies	Each transformer has a secure & impervious underlying pit with a storage capacity of at least 20% of the total oil volume and the individual pits are connected to a main collection sump of capacity of 220% of largest transformer oil volume, which acts as a Secondary Containment, in case of a leakage.	Substation bunding (Oil sump) ("as-built" diagrams)	Bunding (Oil sump) capacity and permeability - once	POWERGRID	During operations	-do-

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
44	SF6 management	Emission of most potent GHG causing climate change	Reduction of SF6 emission through awareness, replacement of old seals, proper handling & storage by controlled inventory and use, enhance recovery and applying new technologies to reduce leakage	Leakage and gas density/level	Continuous monitoring	POWERGRID	During Operations	-do-
45	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	-do-
			Safety awareness raising for staff.	Training/awareness programs and mock drills	Number of programs and per cent 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			
46	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (no. of injury incidents, lost work days)	Preparedness level for using these technology in crisis- once a month	POWERGRID	Design and Operation	-do-

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks			
			Barriers to prevent climbing on/ dismantling of towers	Maintenance of barriers				
			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 per cent of total persons covered –once each year			
47	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 & line maintenance crews. Preparation and training in the use of O&M manuals and standard operating practices	Training/awareness programs and mock drills for all relevant staff	Number of programs and per cent of staff covered – once each year	POWERGRID	Operation	-do-
48	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Staff to receive training in environmental monitoring of project O & M activities	Training/awareness programs and mock drills for all relevant staff	Number of programs and per cent of staff covered – once each year	POWERGRID	Operation	-do-

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
49	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using chlorofluorocarbons (CFCs) including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	POWERGRID	Operation	-do-
50	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	Operation	-do-
51	Uncontrolled growth of vegetation	Fire hazard due to growth of tree/shrub/bamboo along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance No use of herbicides/pesticides	Requisite clearance (meters)	Assessment in consultation with forest authorities- once a year (pre/post monsoon)	POWERGRID	Operation	-do-
52	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 & consultation with affected parties if any - once	POWERGRID	Operation	-do-

SECTION: 5 APPROACH AND METHODOLOGY ENGAGED FOR ENVIRONMENT MONITORING OF THE PROJECT

Environmental monitoring is a continuous process throughout the Project life cycle starting from site selection to construction and maintenance state. POWERGRID has instituted a three tier support structure at corporate, regional and site level with specific functions for effective implementation of environment and social safeguard measures. Flow chart showing institutional arrangement for ESPP implementation & monitoring is placed as **Plate-2**.

A Project Management Unit (PMU) has been set up headed by Executive Director (Corporate Planning) at headquarters to coordinate and implement all environment and social issues with the assistance of functional department like Environment & Social Management Deptt., Engineering etc. Apart from site managers review the progress on daily basis and regular project review meetings held at least on monthly basis, chaired by the Executive Director of the region wherein the environmental aspects of the projects are discussed and remedial measures taken wherever required. The exceptions of these meetings will be submitted to the Directors and Chairman & Managing Director (CMD).

POWERGRID has a separate monitoring department which carry out real time monitoring of all parameters of project implementation including the environment and social issues. Such issues are discussed in detail during every quarter in the Project Review Meeting (PRM) Chaired by Director (Project). CMD also takes periodic review of project implementation

A summarized environmental monitoring plan with implementation schedule at different stage of subprojects implementation is presented in the table below

Environmental Monitoring Tasks	Implementation Responsibility	Implementation Schedule
Pre-Construction Phase		
Monitor contractor’s detailed alignment survey to ensure relevant environmental mitigation measures in EMP have been included.	POWERGRID with assistance of project implementation unit	Prior to POWERGRID approval of contractor’s detailed alignment survey.
Construction Phase		
Regular monitoring and reporting of contractor’s compliance with contractual environmental mitigation measures.	POWERGRID with assistance of project implementation unit	Continuous as per IEER and EMP throughout construction period.
Operation and Maintenance Phase		
Observations during routine maintenance inspections of substations and transmission lines RoWs. Inspections will include monitoring implementation status of mitigation measures specified in EMP.	POWERGRID	As per POWERGRID inspection schedules and EMP provisions.

SECTION: 6 MONITORING OF ENVIRONMENTAL RECEPTORS/ ATTRIBUTES

It is evident that environmental impacts associated with power transmission project are not far reaching as these developmental activities are non-polluting in nature and do not involve any disposal of solid waste, effluents and hazardous substances on land, air and water. Although, there are some localized impacts on natural resources like forest whenever transmission line passes through forest area, however, it can be avoided or minimized through careful route selection by using modern technique like GPS, GIS, remote sensing etc. In this case also, forest involvement in all proposed lines have been completely avoided except for line route of 400KV Banaskantha-Radhanesda where a small stretch of 0.414 ha. of strip plantation along State Highway crossings couldn't be avoided .

The proposed projects don't have much anticipated impact on environmental attributes like air, water, soil etc. and are mostly concentrated to construction stage. Air quality impact is restricted to the construction phase only as no emissions to air takes place during ordinary operations of transmission lines. Impacts on air quality due to airborne dust in the vicinity of the work sites (at points along the route of the transmission line where towers are located) mainly result from excavation and construction activities and tail gases from construction equipments and vehicles. Since all the proposed alignments are accessible, no construction of access roads is envisaged thereby avoiding any airborne dust pollution in the vicinity. The construction activities are small scale and of a temporary nature. Moreover, the activities are not concentrated to one place (localized) rather it is widely dispersed that provide adequate buffering to air environment. Therefore, impacts on air quality from construction activities are considered insignificant. Further, no liquid effluent is generated due to project activity. However, small quantities of domestic sewage from staff quarters and construction camp is generated which is discharged in local soak pits. Construction of transmission tower foundation, stringing and other activities are mostly manual in nature and use heavy equipment or blasting is not envisaged. The main noise sources during the construction phase are from equipments and transportation vehicles. However, no significant noise level variation from construction related activities is anticipated.

SECTION: 7 ANY OTHER MONITORING OF ENVIRONMENTAL ASPECTS, IMPACTS OBSERVED DURING IMPLEMENTATION

Except the predicted impacts as mentioned in EMP, no other unanticipated impacts were observed during the implementation of projects. As regard Safety, all required measures are in place including due precautions/awareness programs as well as ensuring use of PPEs, which is evident from the fact that no accidents (fatal or non-fatal) including major/minor injuries were reported during the reporting period from any of the construction sites.

SECTION: 8 DETAILS OF GRIEVENCE REDRESS COMMITTEE, COMPLAINT RECEIVED AND ACTION TAKEN

Grievance Redress Mechanism (GRM) is an integral and important mechanism for addressing/resolving the concerns and grievances in a transparent and swift manner. Many minor concerns of peoples are addressed during public consultation process initiated at the beginning of the project. For handling grievance, Grievance Redress Committee (GRC) has been established both at the project/scheme level and at Corporate/HQ level. The site/project level GRCs constituted also include members from POWERGRID, Local Administration, Panchayat Members, Affected Persons

representative and reputed persons from the society on nomination basis under the chairmanship of project head. The corporate level GRC functions under the chairmanship of Director (Projects) and includes one representative from corporate ESMD who is conversant with the environment & social issues.

Many concerns/grievances from affected persons/public both of verbal and written nature have been recorded by Site Offices which are also regularly tracked for early resolution. However, It has been observed that most of them were minor in nature and were resolved instantly and amicably by Site Officials after discussion & deliberation with affected person/ in consultation of revenue/district officials. Details of written & verbal complaints including court cases are presented below in **Table-3**.

Table 3: Details of Court Cases and Complaints:

S. N.	Name of the line	Location No.	Name of complainants	Date of complaints/Court case	Main Issue of complaints	Status of complaint
A. Court Case						
1.	Mysore-Hiriyur 400kV	137/0 - 137/1	M/s Green World Development & Creations Pvt. Ltd., Mysore	11.11.17/ 01.02.18	Route diversion	The matter is yet to be heard by the Hon'ble High Court. However, Consultation with the complainant is under progress for possible settlement.
B. Written Complaint						
1.	Tumkur-Devanhally 400 kV	23/0-23/1	Mr. U. Ramakristappa	01.08.18	Route diversion & enhancement of compensation	The matter was taken up with local revenue officials, who advised to proceed with the work as per the approved original route and the compensation will be paid as per rate fixed by DC Ananthapuram vide its order dated 09.05.2017.
2.			Mr. Chakal Kollappa			
3.			Smt. Chakal Thippamma			
C. Verbal Complaint						
1	Bhadla - Bikaner 765 kV D/C	14/10	Mr. Saitan Singh	02.07.17	Crop compensation	Issue resolved through discussion with affected persons (APs).
2		3/4	Mr. Momraj	01.09.17	-do-	Matter resolved through discussion.
3		32/1	Mr. Ram Singh	09.09.17		Issue resolved through meeting/discussion.
4		34/4	Mr. Mitha Ram	09.10.17	-do-	Matter resolved through discussion. Compensation framework explained to complainant.
5		12/4	Mr. Madan Lal	15.10.17	Safety	All aspect related safety explained to complainant to his satisfaction
6		27/1	Mr. Bhomo Ram	06.11.17	Crop Compensation	Matter resolved through discussion.
7		35/4	Mr. Hada Ram	11.11.17	- do -	Matter resolved through discussion in consultation with Revenue Authorities.

8.		23/0	Mr. Laxman Singh	25.01.18	- do-	Issue resolved through discussion with APs.
9.		39/3	Mr. Ramdin Panchariya	15.02.18	- do-	Matter resolved through discussion.
1.	Bhadla-Bhadla		Mr. Sahabuddin	11.07.17	- do-	Matter resolved through discussion.
2.	765kV D/C		Mr. Kayagddin	01.10.17	-do-	Matter resolved through discussion

SECTION: 9 CONCLUSION

It may be noted from above discussion that the subprojects activities are non-polluting in nature and don't have significant adverse impacts on environment except the involvement of 0.414 ha. protected forest. However, with the condition of raising the compensatory afforestation on double the area will mitigate the likely loss of vegetation. Moreover, some environmental impacts are anticipated, mostly during construction period which have been mitigated successfully by implementing the EMP. POWERGRID approach of project implementation involving selection of optimum route before design stage, proper implementation of EMP and monitoring mechanism throughout project life cycle supported by strong institutional arrangement has considerably nullified the adverse impacts arising out of project activities. Besides this, direct or indirect benefits of the subprojects like the employment opportunity, improved & uninterrupted power supply, improvement in infrastructure facilities, improved business opportunity will outweigh the negative impacts of the project. Since the instant project is planned to evacuate clean and green solar energy, which is another sustainable alternative, renewable and non-polluting form of energy, the benefits associated with such projects like reduction in emission of Green House Gases (GHGs) and resultant warming & climate change shall offset possible adverse impact, if any.



R.K.SRIVASTAVA
General Manager (ESMD)

Annexure- 1 : Status of Action Plan for Safeguards under CSS

In order to achieve full compliance with ADB's SPS, 2009 under CSS, following agreed action plan is implemented by POWERGRID. The detailed compliance status of the same is as follows;

(i) Environment

Action Plan	Status
a) Assign environmental specialist(s) (staff or consultants) to each project for project implementation and monitoring during construction.	Dedicated environmental specialists have been assigned with the responsibility to coordinate, supervise & monitor the safeguard measures on project basis. To strengthen the manpower, two more environment specialists were recruited in 2017 (one posted at WR-II Regional Head Quarters for Green Energy Corridor projects and other at Corporate Center).
b) Undertake stakeholder consultations with representation of women.	Completed as such information was already made part of IEARs/CPTDs.
c) Document disclosure and availability of project information in a timely manner and in a form and languages understandable to affected people.	All safeguard documents (IEAR/CPTD) including its update, if any are regularly uploaded on POWERGRID's website. The Executive Summary of such reports are also translated in the local languages and disclosed at Panchayat Office/Site office as well as on website.
d) Document where EAMP requirements were not met and status of associated corrective actions in site visit reports by environmental specialists.	Regular inspection visit by assigned environmental specialists carried out and till date no major deviations worth reporting observed. Minor issues were rectified during visit itself in consultation with site in-charge.

(ii) Involuntary Resettlement

Action Plan	Status
a) Develop procedures on monitoring livelihood impacts of land acquisition.	As agreed no land has been secured involuntarily and all lands are secured on willing buyer willing seller basis on negotiated and agreed rate. The process of such negotiation included confirmation by seller that he is fully satisfied with the agreed rate and the process As per agreed action, POWERGRID organized training for trainer programme on Livelihood Restoration in association with domain expert from ADB and World Bank in Jan.'18 wherein senior officials associated with safeguard implementation at various sites participated. Such topics shall be incorporated in the regular E & S training module to facilitate wider reach and acceptability.

Action Plan	Status
b) Use recording and tracking systems in the Grievance Redress Mechanism.	Being complied. Two tiers GRC constituted and notified. Moreover, a centralized online portal for complaint has become operational which also include proper tracking and time bound action procedure.
c) Conduct meaningful consultation with affected people.	Being complied. Public consultation is an integral part of project cycle. However, more emphasis on dissemination of information through various modes have also been practiced.
d) Disclose monitoring reports, in a timely manner and in Hindi and English to the affected people.	Semi-annual monitoring report for period May-Dec. 2017 already disclosed on website. Moreover, as agreed executive summary of semi-annual monitoring report for period Jan-June, 2018 shall be disclosed. It is to inform that EAMP translated in Hindi is already available on website.

(iii) Indigenous Peoples

Action Plan	Status
Provisions for acceptability actions with respect to safeguards of Indigenous Peoples are not applicable at this stage. While ESPP requires that a project affecting Indigenous Peoples prepare and implement a TPDP, there are currently no POWERGRID projects triggering Indigenous Peoples safeguards under implementation that are mature enough to assess.	No impacts on IPs and hence actions with regard to IPs are not applicable in the instant case. However, to prepare POWERGRID for such issues two days training programme on Indigenous People for senior officials was organized in association with domain expert from ADB and World Bank in Jan.'18. We intend to organise 1 or 2 more such programme in different part of country for greater awareness.

✚ ***In addition to above, as suggested by ADB during discussion website of POWERGRID has also been redesigned/ reoriented to ensure better accessibility/visibility of safeguard issues and can be accessed at following link:***

<http://www.powergridindia.com/disclosure>

✚ ***As regard revision of ESPP it is to inform that as discussed during appraisal process "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Amendment) Bill, 2015" is still with Select Committee of Parliament of India and once cleared and notified the revision of ESPP shall be planned/undertaken.***

Annexure-II: Health & Safety Compliances



Safety Training at Work sites Hiriyr - Mysore Line, Location- AP 97/0 (Jan.'18)



Safety Training at Work sites Bhadla-Bikaner Line, Location- AP 12/0 (Feb.'18)



Usage of Safety Nets during Tower Erection works Pavagada Devanahalli Line, Location- AP 23/0 (March'18)



Usage Ground Rollers during Stringing works, Pavagada Devanahalli Line, Location- AP 23/0 (March'18)

POWERGRID CORPORATION OF INDIA LTD.

CORPORATE OPERATION SERVICES

Safety Check list during Foundation Work

Region: RTS-II

TL Const. Office: Pavagada

Date Of Inspection: 07/12/17.

Name of The TL:

400kV DC(Quad) from Tumkur Pool(Pavagada) to Devanahalli Transmission Line Project

Loc No: 22/2

Classification of Foundation and Type Of Tower: DER / DRY (PITTY)

Executing Agency: M/s KEC International Ltd.

Subcontractor: Balakrishna

Sl.No	Description	Observations	Remarks
1.	Check Whether Supervisor / Gang leader has been issued instructions to workers before starting the work of that day	Yes	
2.	a) All workers are using PPEs at site i.e. safety Helmets, Rubber Gum Boots, Hand Gloves b) POWERGRID / POWER GRID Officials are using PPEs at site	Yes	
3.	Distance of Dumped excavated Soil of all four sides from the edge of the pit.	Yes	
4.	Slope of cutting edge of all four sides	Yes	
5.	a) De watering arrangement, if required b) If yes, Distance of disposal of water	N/A	
6.	Installation of Shoring & Shuttering, if required	N/A	
7.	Adequate warning & Barricade of the pit for protection have been made	Yes	
8.	The Blaster is valid license holder. Yes / No. Adequate arrangement made to inform public by caution marking (Red flag) / Public Notice and signal man posted	N/A	
9.	Storage ladder provided in the pit	Yes	
10.	Jacks for supporting the template is placed at safe distance	Yes	
11.	Distance of construction materials, Concrete Mixer / Compressor placed safe distance from edge of pit	Yes	
12.	Whether arrangements for electrical loose joints and Barricade of electrical panels have been made	N/A	
13.	Whether all Safety aspects taken care of for concreting	Yes	
14.	First Aid with required items are available at site and (Name & No) of First Aid trained persons	Yes	
15.	Action taken for violation for safety norms, if any	Yes	
16.	Any other points specific to location	-	

CONSTRUCTION AGENCY OFFICIALS			POWERGRID OFFICIALS		
Name	Designation	Signature	Name	Designation	Signature
Balakrishna D	Jr. Engineer	[Signature]	JAIBEND KUMAR	J-E	[Signature]

Copy 1. PM Construction Agency

2. GM Construction Agency

3. Site In-charge POWERGRID

4. ED(Region)/GM(Projects) POWER GRID

For KEC INTERNATIONAL LTD

[Signature]
Authorized Signatory

POWER GRID CORPORATION OF INDIA LTD
Tower Erection Safety Checklist

Name of T1: ADD RD/JC Hiriyur, Mysore Date of inspection: 28.01-2018
 Contract No: CP 63/2017/SR-2/TN 823/1/07/NOA-10 TOWER ERECTION Date: 25.11-2016
 IOC No: 5015 Classification of Foundation and Type of Tower: DFR (DD-09)
 Contractor: Simplex Infrastructure Ltd.

S. No	Description	Observations	Remarks
1	Check whether Engineer/Supervisor / Comp leader had issued instructions to workers before start of work on that day.	Yes / No	
2	a) All workers are using PPEs at site i.e. Safety Helmets, Canvas Shoes, Hand Gloves. b) Check if workers working at height have locked their full body harness. c) Ensure workers are using reliable Fall Arrestor while ascending/descending from tower. d) Check for distraction for the workers while ascending/descending from tower.	Safety Helmets - No in use/total workers - 30 Full Body Harness - No in use/total workers - 5 Rubber Shoes - No in use/total workers - 19 Hand Gloves - No in use/total workers - 16 Yes/No Yes/No Yes/No	
3	Check the worker stay underneath the tower is locked properly.		
4	a) Check all lifting tools and tackles being used at site have been tested for safe working load and having valid test certificates. b) Visual inspection of all T & P to be used at site have been identified with identification NO. and found to be in healthy condition.	Donor - 04 Pulley/Chain & Clutch - 016 Ropes/Rings/Wire/Ropes - 05 PP Rope - 06 D Shackle and Hooks - 20 Any others	
5	All Nuts and Bolts of Truss are fitted and are reasonably tightened.	Yes/No	
6	All Nuts and Bolts and top bolts are fitted in tower and have been reasonably tightened before undertaking job of upper section of tower.	Yes/No	
7	Ensure proper gating arrangement.	Yes/No	
8	Ensure communication facility is available at site.	Yes/No	
9	Ensure only erection team members are allowed to stand near the tower while erection is in progress.	Yes/No	
10	10) Ensure for safety measured during tower erection near Road/Rail/Water/Adjoining power line.	N/A	
11	Adequate warning to public regarding nearby erected.	Yes/No	
12	First Aid box with required items are available at site and (Name & No.) of first aid trained persons.	Yes/No	
13	Action taken for violation for safety norms, if any.	Yes/No	
14	Any other points specific to location.	Yes/No	

Site Incharge/Engineer			Safety Incharge/Officer		
Name	Designation	Signature	Name	Designation	Signature
Susanta Ghosh	Surveyor	<i>[Signature]</i>	Avijit Paul	Safety Officer	<i>[Signature]</i>

Check: 1) Project Manager
2) Project IEE Head

[Handwritten signature]
(Simplex)

[Handwritten signature]
(Simplex 9.5)

Plate 1 : Training Programme On “Livelihood Restoration & Indigenous Peoples” on 29 & 30 Jan.'18 at Udaipur



**MODULE FOR WORKSHOP ON LIVELIHOOD RESTORATION AND INDIGINOUS PEOPLE
IN ASSOCIATION WITH
ASIAN DEVELOPMENT BANK (ADB)**

Venue: Hotel Golden Tulip, UDAIPUR

Date	9.30-10.00	10.15 – 11.30	11.45 -13.00	13.00-14.00	14.00 - 15.30	16.00 – 17.30
29 th Jan'18	Inauguration	Social and R&R (Livelihood Restoration) Identification and Assessment of Issues. Global Best Practices/Benefit Sharing Mr. S. Satish, Sr. Social Specialist, World Bank	Preparation and Implementation of action plan and special measures for IP (Tribal). Mr. S. Satish, Sr. Social Specialist, World Bank	Lunch	Engaging with Indigenous People (Tribal-Society & Culture) Ms. Arati Nandi, ADB Consultant	Global Best Practices on IP issues & their participation in Development Ms. Arati Nandi, ADB Consultant
30 th Jan'18	10.00 – 11.30		11.45 -13.00	13.15-14.00	14.00 - 15.00	15.00 – 15.30
	Gender Issues- Mitigating adverse impact on Women & Marginalised section of society. Ms. Soma Dutta, ADB Consultant		Monitoring and Evaluation of action plan and Organizational Requirement & Preparedness Ms. Soma Dutta, ADB Consultant	Lunch	Panel Discussion	Valedictory and Feedback

11.30-12.00 AND 15.45-16.00 Tea Break

Workshop on livelihood restoration and indigenous people in association with "Asian Development Bank"



ATTENDANCE

S/N	NAME ONLY IN BLOCK CAPITAL LETTERS										Designation Empno.	Location				SIGNATURE									
	29.01.2018		30.01.2018																						
8	A	B	H	I	N	A	V					60000523	R	H	Q										
	V	E	R	M	A								V	A	D	O	D	A	R	A					
9	M	K	G	A	N	G	R	A	D	E		60020124	H	V	D	C									
													R	A	D	G	A			29/1/18	30/1/18				
10	M	S	T	H	A	K	U	R				60020063	B	A	N	A	S	K	A	N	T	H	A		
													W	R	Z						29/01/18	30/01/18			
11	K	K	G	U	P	T	A					60000543	L	U	C	K	N	O	W						
																					30/1/18				
12	R	V	R	A	M	A	N	A				60030192	H	V	D	C									
													P	U	G	A	L	U	R						
13	A	R	A	D	H	A	K	R	I	S	H	60030832	H	Y	D	E	R	A	B	A	D				
14	M	A	D	H	U	R	E	N	D	U		60001094	R	H	Q										
	S	I	N	G	H								P	A	T	N	A								
													B	I	H	A	R								

Workshop on livelihood restoration and indigenous people in association with "Asian Development Bank"



ATTENDANCE

S/N	NAME ONLY IN BLOCK CAPITAL LETTERS							Designation Emp no.	Location				SIGNATURE											
	29.01.2018		30.01.2018																					
15	S	U	V	E	N	D	U	K	U	M	A	02580	C	C	G	U	R	G	A	O	N	<u>Am</u>	<u>Am</u>	
	R	K	A	R																				
16	K	U	M	M	A	R	A	V	I	N	A	03143	C	C	G	U	R	G	A	O	N	<u>K. Vinay</u>	<u>K. Vinay</u>	
	Y																							
17	M	S	I	D	D	H	A	R	D	H	A	02977	C	C	G	U	R	G	A	O	N	<u>M. Siddharth</u>	<u>M. Siddharth</u>	
18	S	S	T	O	M	A	R					10791	N	R	I	D	E	L	H	I	<u>SS</u>	<u>SS</u>		
19	A	J	X	A	V	I	E	R					00117	S	R	2	B	A	N	G	A	L	<u>AJ</u>	<u>AJ</u>
													O	R	E									
20	J	B	A	R	D	H	A	N					40072	N	E	R	P	S	I	P	<u>JBD</u>	<u>JBD</u>		
													G	U	W	A	H	A	T	I				
21	V	I	K	R	A	M	C	H	A	N	D	16376	N	E	R	P	S	I	P	<u>Vikram</u>	<u>Vikram</u>			
													S	H	I	L	L	O	N	G				

Workshop on livelihood restoration and indigenous people in association with "Asian Development Bank"



ATTENDANCE

S/N	NAME ONLY IN BLOCK CAPITAL LETTERS	Designation Emp No.	Location	SIGNATURE	
				29.01.2018	30.01.2018
22	P R A K A S H	60050073	N E R T S	<i>[Signature]</i>	<i>[Signature]</i>
	J Y O T I		S H I L L O N G		
	S H A R M A				
23	D R . S H R I	11013	C C , E S M D	<i>[Signature]</i>	<i>[Signature]</i>
	S H A N K A R		D E L H I		
	S I N G H				

E & S Training Programme titled “Managing RoW and Obtaining Clearances from Different Authorities” on 1st & 2nd Feb.’18 at Lucknow



Training Module

Date	9.30-10.00	10.00 – 11.30	11.30 - 11.45	11.45 -13.15	13.15- 14.00	14.00 - 15.30	15.30 – 15.45	15.45 – 17.30	
Day-1	Inauguration	Environmental laws of India viz-a-viz Forest & Wildlife Clearance	Tea	Forest/Wildlife Clearance	Lunch	FEA, Requirement of funding Agencies (IEAR/ FEAR/ CPTD etc.) & Public Consultation	Tea	An overview of Environment Management Plan (EMP) Implementation Requirements of World Bank/ADB	
Day-2	09.30 – 11.30		11.30 - 11.45	11.45 -13.15	13.15- 14.00	14.00 – 15.30	15.30 – 15.45	15.45 – 16.30	16.30-17.30
	Latest Survey Techniques in relation with TIL Projects/ FTCC, Railway and Aviation Clearance		Tea	ROW Compensation Via-4-via new development in the ambit of existing laws	Lunch	The Right to Fair compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 & Direct Purchase	Tea	Panel discussion	Workshop and Feedback

Attendance

Duration: 01-02-2018 to 02-02-2018

Print

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Create Note

Venue: Hotel Radisson, Lucknow City Centre, 24, Cantonment Road, Main
Burlington Chauraha Near Odean Cinema Lucknow - 226001

S.No	Emp. No.	Emp. Name	Designation	Region	Department	Location	Level	Mobile no.	01-02-2018	02-02-2018
1	20903	Brijesh V Givali	Dy Mgr	WR-I	Yet To Join	Yet To Join	E4	9869080229		
2	02594	Somit Solanki	Sr Engr	NR-III	S/S-O&M	Sohawal	E3	9869080229 9559754146		
3	51106	Kishan Mishra	Mgr	NR-III	S/S & TL - CONS	Amritsar	E5	8005494460		
4	41481	J.N.Prasad Singh	Dy Mgr	NR-III	SS	Aligarh	E4	7037496423		
5	10400	J.P.Singh	Sr Engr	NR-III	MSH-TL	Mitrapur	E3	9415901095		
6	01949	Anoop Dutta Malua	Dy Mgr	NR-III	MSH-SS	Lucknow	E4	9415901091		
7	01570	Susmita Gupta	Sr Officer (Acc.)	NR-II	F&A	Kartarpur	E3	9501102310		
8	11698	Rohit Kumar Varshney	Engr	NR-I	Vigilance	New Delhi, BHQ	E2A	8800143497		
9	51084	S.C.Bhanot	Engr	NR-I	TL-Maint	Nurmata	E2A	8650508679		
10	11737	Parvez Akhtar	Engr	NR-I	TL-Maint	Meerut	E2A	7895001423		
11	10816	Arvind Rai	Sr Engr	NR-I	TL-Maint	Hissar	E3	9729817744		
12	02578	Rakesh Kumar	Engr	NR-I	TL-Constn	Bhiwani	E2A	9729872384		

13	40164	M.C. Sharma	Dy Mgr	NR-I	S/S-O&M	Ballaughat	E4	9873446033		
14	01695	Pankaj Kumar	Mgr	NR-I	S/S-Maint	Itanagar	E5	9650500765	<i>Pankaj</i>	<i>Pankaj</i>
15	11512	Brahma Shankar	Mgr	NR-I	S/S-Const	Ajmer	E5	9801894229	<i>B.S.</i>	<i>B.S.</i>
16	11105	Shafiq Ghildyal	AE	NR-I	MSH-SS	Roorkee	E1	8650502411	<i>21/7</i>	<i>21/7</i>
17	11082	Naveen Verma	Sr Engr	NR-I	Const	Koteshwar	E3	9758125111	<i>N. Verma</i>	<i>N. Verma</i>
18	51009	Ganesh Das	Mgr	NER	TL-O&M	Shillong	E5	9402103052	<i>G.D.</i>	<i>G.D.</i>
19	51319	Bibek Ranjan Dey	AE	NER	TL-O&M	Hailang	E1	9485333933	<i>B.R. Dey</i>	<i>Bibek</i>
20	30232	N.H. Laskar	Dy Mgr	NER	S/S-O&M	Ziro	E4	9774091799	<i>N.H. Laskar</i>	<i>N.H. Laskar</i>
21	31318	Sobham Roy	AE	NER	S/S-O&M	Rong	E1	9402946012	<i>S.R.</i>	<i>S.R.</i>
22	31011	Kamal Kr. Boro	Sr Engr	NER	N/S	Khlerhat	E3	9435188368	<i>K.K. Boro</i>	<i>K.K. Boro</i>
23	31089	Binita Sarma	Dy Mgr	NER	PESM	Guwahati	E4	9435539234	<i>Binita Sarma</i>	<i>Binita Sarma</i>
24	30262	U. Haque	Sr Engr	NER	NERPSIP	Tezpur	E3	9435379933	<i>U. Haque</i>	<i>U. Haque</i>
25	30256	S.K. Rava	Dy Mgr	NER	NERPSIP	Mongaldoi	E4	9435711178	<i>S.K. Rava</i>	<i>S.K. Rava</i>
26	31337	Abhishek Sengar	AE	NER	NERPSIP	Dimapur	E1	9089539611	<i>A.S.</i>	<i>A.S.</i>
27	02969	Tomy Naorem	Sr Officer (HR)	NER	HR	Guwahati	E3	9431307170		
28	31273	Dipjyoti Baruah	Dy Mgr	NER	Environment	Guwahati	E4	9435569108	<i>D.B.</i>	<i>D.B.</i>
29	31085	R. Pratap	Engr	NER	Comp. Scheme	Ziro	E2A	9402275027	<i>R.P.</i>	<i>R.P.</i>
30	31329	Deepjyoti Debnath	AE	NER	Comp. Scheme	Tawang	E1	9612836030	<i>D.D.</i>	<i>D.D.</i>
31	30958	A.B. Ezhilacasan	Dy Mgr	NER	Comp.	Sejona	E4	7358521033	<i>A.B.</i>	<i>A.B.</i>

32	65175	P. Anshok Kumar	Engr	NER	Comp. Scheme	Ribe	E1A	9437962187	<i>[Signature]</i>	<i>[Signature]</i>
33	50215	H.K.Charia	Sr Engr	NER	Comp. Scheme	Parighat	E3	9435539236	<i>[Signature]</i>	<i>[Signature]</i>
34	50207	D.Roy	Sr Engr	NER	Comp. Scheme	Miao	E3	9435567391	<i>[Signature]</i>	<i>[Signature]</i>
35	41489	Bhaskar Sarkar	Sr Engr	ER-II	TL-G&M	Sundargarh	E3	9437066465		
36	31304	Navendu Bhasani	Sr Engr	ER-3I	Telecom	Kolkata, RHQ	E3	9831312060	<i>[Signature]</i>	<i>[Signature]</i>
37	60010	Mukesh Kumar	Dy Mgr	ER-3I	Telecom	Kolkata, RHQ	E4	9434742029	<i>[Signature]</i>	<i>[Signature]</i>
38	20129	K.K. Sinha	Mgr	ER-3I	TBCH	Garbeta	E3	9434742025	<i>[Signature]</i>	<i>[Signature]</i>
39	02349	Arun Kumar Gupta	Dy Mgr	ER-3I	S/S-Main	Durgapur	E4	7644095790	<i>[Signature]</i>	<i>[Signature]</i>
40	41574	Anil Kumar Das	Sr Engr	ER-II	HVDC TL- Cables	Alipadua	E3	9434713678	<i>[Signature]</i>	<i>[Signature]</i>
41	41512	Vicendra Kumar Chaudhary	AE	ER-3I	S/S	Biharsharif	E1	9430685575	<i>[Signature]</i>	<i>[Signature]</i>
42	41767	Chakrapani Mishra	Engr	ER-3I	HVDC	Passali	E2A	9431820340	<i>[Signature]</i>	<i>[Signature]</i>
43	20397	Sanjay Kumar Mall	Sr Engr	ER-3I	Dep-Bihar JV	Dalhousi	E3	9431820256		
44	02434	Abhishek Kumar	Sr Engr	ER-3I	Consultancy	Saharsa	E3	8979310834		
45	02956	Kodali Yashwant	Sr Engr	CC	Tech.Dev.	Gurgaon	E3	8869791485	<i>[Signature]</i>	<i>[Signature]</i>
46	02575	Rajni Choubey	Dy Mgr	CC	Tech.Dev.	Gurgaon	E4	9560890333	<i>[Signature]</i>	<i>[Signature]</i>

47	01767	Kapil Gupta	Mgr	CC	LD&C	Gurgaon	E5	9873549235	<i>[Signature]</i>	<i>[Signature]</i>
48	01139	Priyanka Gupta	Engr	CC	CMO	Gurgaon	E2A	9599814149	<i>[Signature]</i>	<i>[Signature]</i>

49. 01869 Namd Jee Mgr ERTCC Telecom Kalkate E5 9+35555828 *[Signature]* *[Signature]*

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Plate: 2 - Organizational Support Structure for ESPP Implementation & Monitoring

