Semi-Annual Environmental Safeguard Monitoring Report

Loan Number : 3521-IND & 8325-IND

Reporting Period : January to June 2020

Solar Transmission Sector Project

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Implementing Agency : POWERGRID

Executing Agency : POWERGRID

Date : 25.08.2020

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
EMR	–	Environment Monitoring Report
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
NO	-	Nodal Officer
PAL	–	POWERGRID Academy of Leadership
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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Enclosures:

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 5 April 2017 and became effective from 9 May 2017 with loan closing date of 31 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 substation 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 doesn't pass through any environmentally sensitive/ protected area (such as National Parks or Wildlife Sanctuaries). However, only 1.78 km (0.28% of total length) stretch of strip plantation (protected forest) along road/ canal crossings is getting affected. As per applicable regulations, POWERGRID has already obtained forest 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 the reporting period, 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 complaint 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 Environment Management Plan (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 with respect to environment 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 regard COVID-19 pandemic, all protocols of Govt. of India and State Govt in respect of Covid-19 are being mandatorily followed. Besides, POWERGRID has been implementing a Covid specific guidelines (already shared in May'20) in all establishments including construction sites (Appendix-1).

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 ones are also recorded and regularly tracked for early resolution within stipulated timeframe. Moreover, regular consultation with the complainant is under progress for possible settlement. As of June 2020, 8 cases out of total 50 complaints remains open/are being negotiated.

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. Ministry of Power (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 Inter Sate Transmission System (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 High Voltage Direct Current (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.

The above inter-state transmission scheme for Bhadla, Tumkur (Pavagada) & Banaskantha UMSPP were discussed and agreed in the Standing committee meeting on Power system Planning held on 20 January 2016, 05 March 2016 and 20 January 2016 respectively.

To meet the funding requirement for the proposed project, the Asian Development Bank (ADB) has accepted POWERGRID's proposal to finance a loan of USD 225 million for implementation of transmission system for three UMSPP 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 5 April 2017 and became effective from 9 May 2017. The loan closing date is 31 May 2022.

1.1 OVERALL PROJECT DESCRICTION

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 ±500kV, 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 30th June, 2020	Completion Schedule
Transmission System associated with Solar Park at	**Transmission Line:** • Bhadla (POWERGRID)–Bikaner (POWERGRID) 765kV D/c line • Bhadla (POWERGRID)- Bhadla (RVPN) 400kV D/c (Quad)	Already commissioned (September 2019)	Commissioned

Bhadla, Rajasthan	**Substation:** • Establishment of 765/400/220kV Bhadla (POWERGRID) substation • Extension of 765/400kV Bikaner (POWERGRID) Substation • Extension of 400/220kV Bhadla (RVPN) Substation		
Transmission system for Ultra Mega Solar power park (2000 MW) at Tumkur (Pavagada), Karnataka - Phase-II (Part-A & B)	**Transmission Line:** • Hiriyur – Mysore 400kV D/C line; • Tumkur (Pavagada) Pooling station-Devanahally (KPTCL) 400kV D/c (Quad) Line **Substation:** • Extension of 400/220kV Tumkur (Pavagada) Pooling station • Extension of 400/220kV Mysore (POWERGRID) Substation • Extension of 400/220kV Tumkur (Vasantnarsapur) Substation • Extension of 400/220kV Tumkur (Pavagada) Pooling station • Ext. of 400/220kV Devanahally (KPTCL) Substation	Part-A commissioned in April 2020. Overall approx. 98% of tower foundation, 89% of erection & stringing- 82 % completed. (Progress during reporting period of January-June 2020 tower foundation – 14%, erection- 8 % & stringing- 6%) All civil work and equipment erection completed. (Progress during January-June 2020, 0.75% civil work & 1.5 % equipment erection)	Part-A commissioned in April 2020. However, due to limited permission in view of COVID-19 outbreak commissioning of Part-B components are expected by September, 2020
Transmission system for Ultra Mega Solar Power Park(700 MW) at Banaskantha (Radhanesda), Gujarat	**Transmission Line:** • Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400kV D/c. **Substation:** • 400kV Bay Extension at 765/400kV Banaskantha (PG) Substation	All tower foundation & erection work completed but 95% stringing completed. (Progress during January-June 2020 Stringing- 12%) Appx. 97% civil work & 95% equipment erection completed. (Progress during January-June 2020, 7% civil work & 10 % equipment erection)	Revised to August 2020 in view of COVID-19 outbreak

Refurbishment of HVDC Rihand-Dadri Project	• 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).	Contract awarded in August 2019. Design and engineering work is under progress.	March 2021

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	The project involves a total of 1.78 km (11.774 ha.) of forest comprising of only strip plantation along road/ canal crossings in two lines. POWERGRID has already obtained forest clearances from MoEFCC. Details of forest clearances 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/ reprosessors). Annual return (Form -13) for the same is to	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.

Sl. No.	Legal Requirements	Applicable Attributes	POWERGRID's Compliance Status
		be submitted to the concerned State Pollution Control Board.	
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	11.36	Rajast-han	Forests involved only strip plantation along canal crossings. **Stage-II** (final) approval obtained for forest area involving 10.299 ha & 1.06 ha. on 11.09.19 and 05.11.19 respectively
ii)	Bhadla – Bhadla 400kV D/c (Quad)	Nil		No forest area involved.
2.Transmission System for UMSPP at Tumkur (Pavagada), Phase II (Part A & B)				
i)	Hiriyur – Mysore 400 kV D/c	Nil	Karna-taka	No forest area involved
ii)	Tumkur – Devanhally 400 kV D/c (Quad)	Nil		No forest area involved
3.Transmission System for UMSPP at Banaskantha (Radhanesda), Gujarat				
i)	Banaskantha (Radhanesda) Pooling Station – Banaskantha (PG) 400 kV D/c	0.414	Gujarat	Forests involved only strip plantation along road crossings (approx. 90-meter stretch) **Stage-II** (final) approval obtained on 10.12.19.
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. IEARs & CPTDs already prepared and disclosed on website after approval of ADB.
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-1.**
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.

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.	LA, Sch. 5, para. 14	Complied/Being complied. For details refer section-2 & 4.
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.	LA, Sch. 5, para. 18	Complied/Being complied.
The Borrower shall ensure that all bidding documents and contracts for works contain provisions that require contractors to: (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; (b) make available a budget for all such environmental and social measures and monitoring activities; (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; (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;	LA, Sch. 5, para. 19	Point (a) to (d) complied and point (e) is being complied as it is completed with the project implementation at site.

(e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.		
The Borrower shall do the following, consistent with Action Plan for Safeguards: (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.	LA, Sch. 5, para. 20	Complied/ Being complied Monitoring reports are being submitted in due time and also disclosed on website after clearance from ADB. The FEAR (update of IEAR) for Bhadla Solar Park already submitted to ADB for review/ approval. FEAR for other projects shall be submitted after clearance of Bhadla FEAR. Measures undertaken by POWERGRID in response to unanticipated impacts due COVID-19 outbreak have already been shared with ADB in May' 20. Will be complied in case of any breach. But till date no such breach reported. Will be complied if situation warrants

SECTION 4: COMPLIANCE STATUS WITH ENVIRONMENT MANAGEMENT AND MONITORING PLAN STIPULATED IN IEAR AND AS AGREED WITH ADB

The project is being 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 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 also 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-1**. 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 a Govt Land secured from State Govt though 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 11.774 ha protected forest (in Banaskantha-B.kantha and Bhadla-Bikaner lines could not be avoided. However, forest clearance under FC Act, 1980 already obtained from MoEFCC (refer **Table-1**).
			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. However, in compliance of forest clearance condition, bird diveters shall be installed in Bhadla- Bikaner 765kV D/c line. The process of

[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	procurement of Bird diveter has already been started and installation likely to be completed by June 21.
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. Route alignment finalised by taking consideration of minimum impact on forest area after consultation with concerned authorities. However, in spite of best efforts, an area of 11.774[3] ha forest land
			Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers- once			
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities-once			

[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. 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. The CA Schemes for various forest cases have been prepared which is available in MoEFCC website following link:
400 KV Banaskantha-Banaskantha line - http://forestsclearance.nic.in/writereaddata/DivertedLand/GirthFile/0_0_8112812411211781CASCHEEM.pdf
765kV D/c Bhadla - Bikaner line http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_41112121712131661CASCHEMEBIKANER.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_41181201215621CASCHEMEJAISALMER.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_51122123012171751CASCHEMEJODHPUR.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/

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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			(protected forest) could not be avoided.
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 transformers.
11	Interference with drainage patterns/ irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting 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	Environme-ntal 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	Contamina-tion 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. Firefighting equipment 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 owners for disposal and 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. Aprox. 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	Borrow area sitting (area of site in m2 and estimated	Acceptable soil borrow areas that provide a	POWERGRID (Contractor through	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
			mostly reused for 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	volume in m3)	benefit - every 2 weeks	contract 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	No water bodies are created and even no waste water is discharged to any water bodies nearby which may result in likely contamination.
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			

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
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
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

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
32	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Being complied. No complaints received from local peoples/ authorities
			Ensure existing irrigation facilities are maintained in working condition	Status of existing facilities				
			Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in 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					

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Water courses protected from siltation through use of bunds and sediment ponds					
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 (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.

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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	Safety equipment's (PPEs) for construction workers Contract provisions specifying minimum requirements for construction workers camps Contractor to prepare and implement a health and safety plan.	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	Complied with project specific safety plan and general conditions of contract, which covers all applicable regulations. Compliance to safety measures like safety training /awareness along with safety

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Contractor to arrange for health and safety training sessions					checklists is placed as **Annexure-2**. Further, in view of COVID-19 pandemic, all preacautionary measures in respect of health & hygine, sanitation, adequate PPEs and social distancing norms are strictly followed as per Govt. of India guidelines and COVID specific guidelines issued by POWERGRID's Corporate Safety Cell (refer **Appendix-1)**
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. Awareness/Training program are regularly conducted. During reporting period such training programme was conducted at Manesar
			Implementation of effective environmental monitoring and reporting system using checklist of all contractual env. requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site - once			

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Appropriate contact clauses to ensure satisfactory implementation of contractual env. mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract – once			on 12 & 13th March 2020. Training modules and photographs of said training placed as **Annexure-3**. 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	Complied during survey. Route alignment criterion is part of survey contract which was followed througly during construction and no such exposure to safety related risks is anticipated.
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	Complied/Being complied. The line routes don't form part of any such areas. Besides , no incident of injury /mortality of avifauna due to construction of above lines have been reported from any sites so far. However, in

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
								compliance of forest clearance condition, bird diveters shall be installed in Bhadla-Bikaner 765kV D/c line. The process of procurement of Bird diveter has already been started and installation likely to be completed by June 21.
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	Complied/ Being complied. Already part of detailed substation design. However, no flooding/ submergence of substation/ equipment has been reported so far.
43	Oil spillage	Contamination of land/nearby water bodies	Each transformer has a secure & impervious underlying pit with a storage capacity of atleast 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	Substation bunding (Oil sump) ("as-built" diagrams)	Bunding (Oil sump) capacity and permeability - once	POWERGRID	During operations	Complied/ being complied Oil sump of sufficient capacity already provided for each transformer which was also part of detailed substation design (sample photo placed as **Plate-1**. However, no spillage of transformer oil is reported so far.

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			of a leakage.					
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	Complied/ being complied. Regular monitoring and controlled inventory is ensured to avoid any leakage of SF6.
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 techno-logies in crisis – once each year	POWERGRID	Design and operation	Complied/ being complied. All safety related preacautions/ systems/ plans are in place. Proper safety training for workers are conducted on regular interval including mock drills on fire and other occupational hazards.
			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			

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
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 techno-logies in crisis- once a month	POWERGRID	Design and Operation	Complied/ being complied. Used of technology like tripping line/substation in milliseconds in case of any hazards. Boundary and Security fences arew maintained at substation.Sufficient barriers with warning sinages are maintained at appropriate places of line/substation (sample photo placed as **Plate-1**). Further, regular awareness/ mock drill on electrical safety and other occupational hazards are being undertaken.
			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 environment-tal losses of various types	Adequate training in O&M to all relevant staff of substations & line maintenance crews.	Training/awareness programs and mock drills for all relevant staff	Number of programs and per cent of staff covered – once each year	POWERGRID	Operation	Being complied. Regular trainings are being imparted to O & M staffs based on their skill at regular interval.
			Preparation & training in the use of O&M manuals and standard operating practices					
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	POWERGRID	Operation	Complied/being complied. During reporting period total 52 mandays

Cl. No.	Project activity / stage	Potential Impact	Proposed mitigation measures	Parameter to be Monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
					each year			training impacted on e & s aspects (Refer Annexure-3).
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	Complied. Only CFCs free equipments are installed.
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	Complied. Designed as per guidelines of ICNIRP and ACGIH and checked by CPRI &M/s PTI, USA.
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	Being complied.
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	Complied/ being complied. The average noise level reported at the boundary of Bhadla substation is 52 dB which is well within permissible limit.

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 Dept., 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 & transmission lines RoW. Inspections will include monitoring implementation status of mitigation measures specified in EMP.	POWERGRID	As per POWERGRID inspection schedules & 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 the forest involvement was restricted to 1.78 km in all proposed lines which is only 0.002% of total line length of 639.61 km lines where a small stretch of 11.774 ha. of strip plantation (declared as protected forest) along road/ canal 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 equipment 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

The ongoing COVID-19 which is a totally unforeseen/unexpected pandemic has not only created unprecedented situation all over world but also impacted every aspects/ activities including project implementation. Since such events are difficult to envisage impacts associated with such pandemic situations have not been specifically mentioned in existing EMPs which were prepared long back. However, the existing safety plan and other contract conditions particularly related to labours do have provisions to deal with such extraordinary situations

Moreover, with the enforcement of The Disaster Management Act, 2005 and Epidemic Diseases Act, 1897, w.e.f March,2020 in whole of India which empower the GoI & State governments to take special measures and prescribe regulations in an epidemic to control the spread of the virus. Provisions of these acts which are also enforceable on all provide that all the protocols of Govt of India and State Govt in respect of COVID-19 are to be mandatorily followed. Individual protocols also required necessary permission from Govt. Therefore POWERGRID and all its contractors are duty bound to follow the instructions of government including closing of all construction activities during lockdown and the

guidelines issued after detailed assessment regarding unlock which allows work to start with certain conditions. Accordingly, POWERGRID Corporate Safety Cell has prepared a detailed guidelines/plan to be followed at all its establishments, Construction sites and O&M during resumption of work in COVID-19 situation (details already shared with ADB in May' 20) and site officials/contractors directed for ensuring strict implementation of the said guidelines. It is may be noted that construction activity resumed only in case of Tumkur (Pavagada) PS –Devanahally 400kV D/c (Quad) Line and no symptomatic/ positive COVID case has been reported from any contruction sites during reporting period. Some photographs related proper health & hygine, sanitization, availability of PPEs and adherance to social distancing norms including daily awareness on COVID during Tool Box Talk etc. are placed as **Appendix-1**

As regard workplace 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. As of June 2020, only 8 cases out of total 50 complaints are remain open/ in negotiations. Details of written & verbal complaints including court cases are presented below in **Table-3.**

Table 3: Details of Court Cases and Complaints as of Jube 2020

S. N.	Name of the line	Loca-tion 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.
2.		21/1	Mr. Honnamma	06.08.18	Withhold of	Matter pending in district

		& 21/3			payment due ownership dispute	court. Ownership issue yet to be resolved. Payment on hold.
3.		137/ 11	Mr. Gopale Gowda	13.08.18		
4.		6/2	Mr. P Thimmaiah	29.11.18		
5.		127/1 - 128/0	MrRamachandra, Mr. Shankare Gowda & Ms.Savitramma, Mysore end	12.03.19	Route diversion	Resolved. Payment made to land owner.
6.		65/3	Mr. Gangadhara	01.08.19	Withhold of payment due ownership dispute	Matter pending in district court. Ownership issue yet to be resolved. Payment on hold.
7.		65/1-65/2	Mr. Gurusidde Gowda	13.12.19		
8.		21/9-22/0	Mr. T. Shivamurthy	09.08.19		
9.		15/2-16/0	Mr. R. Rajappa	11.12.19		
10.		25/3-25/4	Mr. Guddegowda Bin Chandriah Ms.Gangamma kom Rangappa	29.11.19	Enhancem-ent of Land and Tree Compensat-ion	All compensation are made as per the rate fixed by Forest/ Horticulture/ Revenue authority. The case regarding enhancement of compensation is pending with the court.
11.		25/2-25/3	Mr. G Gururaja Mr. Honnappa Ms. Lakshamamma Lokesh, Prabhakar	29.11.19		
12.		25/3-25/4	Mr. Devaraju D R Bin Rangappa Pandu D R Bin Rangappa	29.11.19		
13.		27/1-27/2-27/3	Ms. Bhimmamma	29.11.19		
14.	Banaskantha - Banaskantha 400kV D/C	50/1	Mr. V.B. Mafatsinh	06.10.18	Higher compensation	Matter resolved. Case withdrawn by the complainant on 26.07.19.
15.		52/1	Mr. B.J. Thakor	02.11.18		Cases withdrawn by the complainant on 08.02.20
16.		53/0-53/1	Mr. R.R. Kanbi			
17.		61/0	Mr.R.R. Valabhai			
19.		56/0	Mr. R.B. Ramsangbhai			Cases disposed on 02.12.19 by dismiss for default.
20.		64/0	Mr. I.J Rabari			
21		64/1	Mr.P.N. Prahlad bhai			
B. Written Complaint						
22.	Tumkur-Devanh-ally 400 kV	23/0-23/1	Mr. U. Ramakristappa	01.08.18	Route diversion & enhancement of compensation	Matter resolved amicably in consultation with revenue authority.
23.			Mr. Chakal Kollappa			
24.			Smt. Chakal Thippamma			

25.	Mysore -Hiriyur 400kV	132/3 - 132/4	Mr. Jayamma	02.07.18	Withhold of payment due ownership dispute	Matter resolved amicably in consultation with revenue authority.
26.		124/9-124/10	Mr. Siddanayaka	09.07.18		The matter being pursued in consultation with Revenue Authority for settlement of ownership dispute. Payment on hold.
27.		34/1-35/0	Mr. K H Janappa	06.08.18	Demanding payment of compensation of Rs. 20000/- per coconut sapling.	Matter resolved. Conveyed to land owner that payment shall be made as per the horticulture dept. rates.
28.		132/5 - 132/6	Smt. Nagamma	13.08.18	Withhold of payment due ownership dispute	Matter resolved amicably in consultation with revenue authority.
29.		124/2 - 124/3	Mr. Mallinj G Thimme Gowda	03.10.18	Land survey no. 22/1 was not correct.	
30.		23/0	Mr.Gowramma	04.10.18	Withhold of payment due ownership dispute	The matter being pursued in consultation with Revenue Authority for settlement of ownership dispute. Payment on hold.
31.		28/8	Mr. Shivalingappa	10.11.18		Matter resolved.
32.		27/7-8	Mr. M. N. Omkarappa	16.11.18		Matter resolved amicably in consultation with revenue authority.
33.		121/0-121/1	Mr. D. S. Subbegowda	16.11.18		
34.		108/2-108/3	Mr. Raj	26.11.18		
35.		119/3-119/4	Mr. Basave Gowda	30.11.18		
36.		119/7-119/8	Mr. Nagaratna	22.12.18		
37.		100/2-100/3	Chaluve Sheety	02.12.19		The matter being pursued in consultation with Revenue Authority for settlement of ownership dispute. Payment on hold.
38.		134/2& 134/3	Mr. K. Gowda	18.12.19		
39	Banas-kantha (– Banaska-ntha 400 kV D/C	10/0 - 10/1	Sh. Ishwarbhai Nagabhai Rathod	24.06.20	Enhancement of compensation	POWERGRID sent reply to land owner on. 29.07.20
C. Verbal Complaint						
40.	Bhadla -	14/10	Mr. Saitan Singh	02.07.17	Crop compensation	Issue resolved through discussion with affected

	Bikaner					persons (APs).
41.	765 kV D/C	3/4	Mr. Momraj	01.09.17		Matter resolved through discussion.
42.		32/1	Mr. Ram Singh	09.09.17		Issue resolved through meeting/discussion.
43.		34/4	Mr. Mitha Ram	09.10.17		Matter resolved through discussion. Compensation framework explained to complainant.
44.		12/4	Mr. Madan Lal	15.10.17	Safety	All aspect related safety explained to complainant to his satisfaction
45.		27/1	Mr. Bhomo Ram	06.11.17	Crop Compensation	Matter resolved through discussion.
46.		35/4	Mr. Hada Ram	11.11.17		Matter resolved through discussion in consultation with Revenue Authorities.
47.		23/0	Mr. Laxman Singh	25.01.18		Issue resolved through discussion with APs.
48.		39/3	Mr. Ramdin Panchariya	15.02.18		Matter resolved through discussion.
49	Bhadla-Bhadla		Mr. Sahabuddin	11.07.17		Matter resolved through discussion.
50	765kV D/C		Mr. Kayagddin	01.10.17		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 11.774 ha. strip plantaion along road and canal crossing. 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.

Dr. S.S. Singh
Chief 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
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
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 have also been incorporated in the regular E & S training module to facilitate wider reach and acceptability.
a) 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.

Action Plan	Status
b) 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. A total of 9 numbers of formal consultations and 10 informal group meetings have been conducted en-route of the proposed transmission lines. The issues/concerns raised by stakeholders during these formal/informal meetings were answered/ addressed instantaneously to the satisfaction of the participants. However, any major concerns during project implementation are being addressed through GRM as already explained at Section-8.
c) Disclose monitoring reports, in a timely manner and in Hindi and English to the affected people.	All approved semi-annual monitoring reports have already been disclosed on website. Further, as agreed executive summary of semi-annual monitoring report have also been disclosed in local languages (i.e. Hindi. Kannada & Telugu etc.) 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. Another such programme was also conducted from 11-13th December 2018 at PAL, Manesar.

- ***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-2: Health & Safety Compliances and Safe Work Practice

Usage of Safety Nets during tower Erection work (*Pavagada- Devanahalli line*)

HIV/ AIDS awareness program for the construction workers in Pavagada-Devanahalli line & at SS

Strict Adherence of Safety Checklists

पावरग्रिड

POWER GRID CORPORATION OF INDIA LTD.

Safety Check List During Foundation Work

Region: SRTS - II T/L Construction Office: GAURIBIDANUR Date of Inspection: 3/3/202

Name of the TL: 400KV (Q) PAVAGADA – DEVANAHALLI TRANSMISSION LINE.

Loc. No: 126/0 Classification of Foundation & Type of Tower: DATO, WFR

Main Contractor: M/s. KEC International LTd., Mumbai. Sub Contractor: .....

Sl. No	Description	Observations	Remarks
1	Check weather supervisor / Gang leader had issued instructions to workers before start of work on that day.	Yes	
2	a) All workers are using PPEs at site i.e Safety Helmets, Rubber Gum boots, Hand Gloves etc., b) POWERGRID officials are using PPEs at site.	Safety Helmets: No. in use / Total Workers= 23/23 Rubber Gum boots: 05/05 No. in use / Total Workers= Hand Gloves No. in use / Total Workers= 23/23 Yes / No	
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.R	
6	Installation of shoring & shuttering, if required:	N.R	
7	Adequate warning & Barricading 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.	Yes –	
9	Strong ladder provided in the pit.	Yes	
10	Jacks for supporting the template is placed at safe distance.	Prop Setting	
11	Distance of construction material / Concrete Mixer / Compressor placed from edge of the pit.	Yes - 2mts	
12	Debris / Removal of Excess soil / Housekeeping at site.	Yes	
13	Whether arrangements for electrical loose joints and barricading of electrical panels have been made.	NR	
14	Whether all safety aspects taken care of (		
15	First Aid Box with required items are available at site and (Name & No.) of first ait trained persons	Yes	
16	Action taken for violation of safety norms if any	Nil	
17	Any other points specific to loc:	Nil	

Construction Agency Representative			POWERGRID		
Name	Designation	Signature	Name	Designation	Signature
P G Sunil Kumar	Asst. Engineer	P G Sunil	Pradeep M.H	JG	

Copy to:

1. Project Manager, M/s. KEC International ltd.,
2. GM / M/s. KEC International ltd.,
3. Site In-Charge / POWERGRID
4. ED / CGM Proj./ Sr. GM POWERGRID.

Annexure -3 : E & S Training Programme

TRAINING PROGRAM ON MANAGING RIGHT OF WAY (ROW) AND OBTAINING CLEARANCES FROM DIFFERENT AUTHORITIES INCLUDING FOREST, RAILWAYS, AIRPORT AUTHORITY ETC., FOR PROJECTS AT PAL, MANESAR ON 12th-13th MARCH 2020

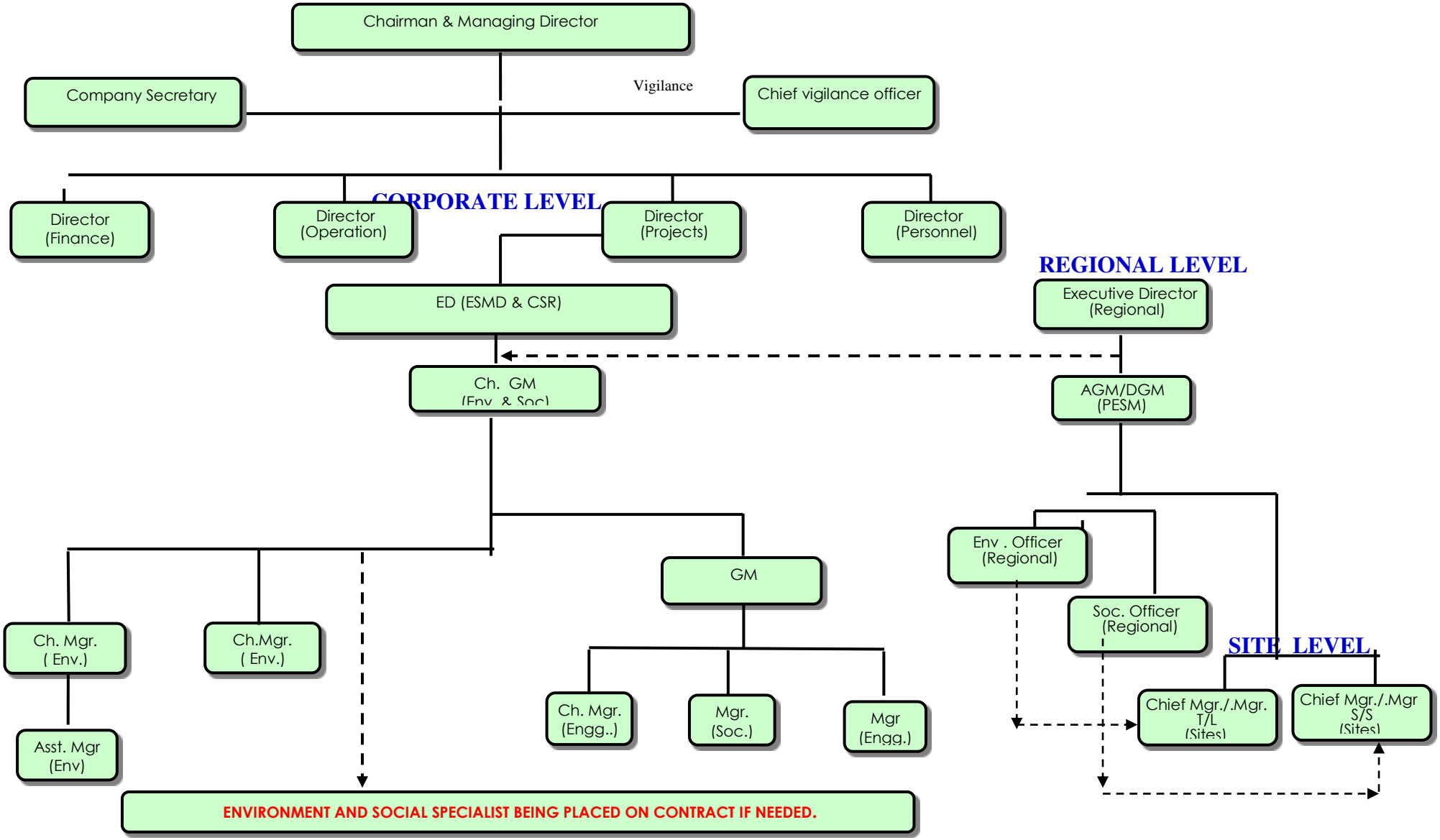
Date	9.30- 11.00	11.00 - 11.15	11.15 -13.00	13.00- 14.00	14.00 - 15.30	15.30 – 15.45	15.45 – 17.00	
Day-1	Inauguration & Key Note Address *(Sh. H S Sohal, IFS, CVO (BSNL))*	Tea	The Right to Fair compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 & Direct Purchase *(Dr R K Srivastava, Consultant (ESMD))*	Lunch	RoW Compensation vis-à-vis new development in the ambit of existing laws & RoW Guidelines *(Dr S S Singh, Sr. GM (ESMD))*	Tea	Latest Survey Techniques in relation with T/L Projects/ PTCC, Railway and Aviation Clearance *(Sh S C Taneja, Sr. GM (Engg.))*	
Day-2	09.30 – 11.15	11.15 - 11.30	11.30 -13.15	13.15- 14.00	14.00 - 15.30	15.30 – 15.45	15.45 – 16.30	16.30-17.00
	Environmental laws of India viz-a-viz Forest & Wildlife Clearance *(Ms. Vasvi Tyagi, IFS, CF, Gurgaon)*	Tea	Requirement of funding Agencies (IEAR/ FEAR/ CPTD etc.) & Public Consultation & Environment Management Plan (EMP) Implementation/Requirements of World Bank/ADB *(Dr S S Singh, Sr. GM (ESMD))*	Lunch	Forest & Wildlife Clearance *(Dr S S Singh, Sr. GM (ESMD))*	Tea	Panel discussion	*Valedictory and Feedback*

Plate-1: Sample Photograph of Transformer Sump & Security fencing/Sinages

Transformer Sump Substation

Security fence at Pavagada Substation

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



Appendix-1 : Photographs related Covid- 19 Specific Measures Implemented at Site

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

TBT on COVID-19

LOC. No. 81/1 for Moktarul Islam Gang (Erection work)

LOC. No. 86/0 for Sv Gang (Foundation work)

LOC. No. 86/0 for SSV Gang (Foundation work)

LOC. No. 75/0 for Moktarul Islam Gang (Erection work)

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Issuing of Nose Masks, Sanitizers & Soaps and Thermal Scanning to all workers at site & camps

LOC. No. 86/0 for SSV Gang (Foundation work)

LOC. No. 75/0 for Moktarul Islam(Tower Erection work)

LOC. No. 73/0 for K.Kumar gang (Stringing work)

Loc No 124 Moktarul Islam Gang for Stringing work

Dhani Gang at their campfor Stringing work

Sanitizer issued to staff

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Monitoring of Temperature before start of work

SV Construction Gang at Loc.88/0

Srestha Const. at the camp.

Moktarul Islam gang at loc no. 81/1

SSV Gang at camp

Moktarul Gang at Loc. 75/0 (Tower Erection

Rintu Sekh Gang at Loc. 144/0 (Stringing)

SSV Gang at 86/0 (Foundation)

Dhani Gang at Loc. 113/0 (Stringing)

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Sanitization of Site Utilities

Sanitization of TSE machine at K. Kumar Camp

Sanitization of Mixing machine at Srestha Const. Camp

Sanitization of Tractor at Moktarul Islam Camp

Sanitization of Water Tanker at K. Kumar Camp

Sanitization of TSE machine at K. Kumar Camp

Sanitization of Water Tanker at SV Const Camp

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Sanitization of Vehicles at Store & Sites

Sanitization of PM vehicle
KA-04-MG-8844

Sanitization of site vehicle KA-40-7710

Sanitization of site vehicle KA-40-7710

Sanitization of site tractor
AP-04-AU7332

Sanitization of site vehicle
KA-51-M-1988

Sanitization of site vehicle
KA-52-M-2567

Sanitization of site truck KA-40-3155

Sanitization of site vehicle
KA-40-7710

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Sanitization of T&P at store, camps & site

At Doddaballapur Store

At K. Kumar gang (Stringing)

At Doddaballapur Store

At Doddaballapur Store

At Dhani Gang (Stringing)

At loc no. 88/0 for SV const. (Foundation)

At SV const. (Foundation)

At K. Kumar gang (Stringing)

Construction Material and T&P at SSV Gang Camp

Pavagada - Devenahallli 400 KV D/C Line (By M/s. KEC)

Sanitization inside the Doddaballapur Store Premises

At Store Truck KA-40-3155

Sanitization of New Generation Hydra

Sanitization of Mechanical Shed

Sanitization of Tower Parts Yard

Sanitization of TSE machine

Attachment 1: Comments-Responses Matrix

India: Solar Transmission Sector Project
Environmental Safeguard Monitoring Report (January-June 2020)

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
1	In respect of works in Rajasthan under both these projects ADB has serious concerns about the impact of the works on the Great Indian Bustard population that is on the brink of extinction. The species was present in the area when the IEE and IEAR were undertaken and the project approved in 2017 but it may not have been picked up as critical habitat because it is not in a legally protected area of GOI and the priority and potential areas as identified by WII were only set out in 2019 subsequent to project approval. Further detail of our concerns will be shared in responding to Bhadla FEAR. Under SPS 2009 projects funded by ADB need to comply with the critical habitat requirements and ensure no reduction in the population of Great Indian Bustard as a critically endangered species. For the solar transmission sector project, under the ESSP and Action Plan for Safeguards equivalence to SPS 2009 should be achieved. For both projects, this situation is considered by ADB to be an unanticipated impact/unexpected significant safeguard impact per Sch 5 Para 20 of the loan agreement. Please update both EMR to reflect that the project components in Rajasthan are now located in ecologically sensitive area, contrary to the IEE and IEAR. The provision of bird divertors was included in the IEE and IEAR, but no specifics were given on implementation. Since the transmission lines have already been installed within critical habitat in an effort to minimize collision risk on the population of Great Indian Bustard ADB request bird divertors to be retrospectively installed along the full length of the following transmission lines: SOLAR TRANSMISSION SECTOR PROJECT (in potential area) • Bhadla (POWERGRID) – Bikaner (POWERGRID) 765kV D/c line – this line starts within 20km of the priority area, but also passes close to small population at Diyatra where Important Bird Area designated	As regard GIB habitats & their conservation in Rajasthan the Wildlife Institute of India (WII) after comprehensive study has submitted a detailed mitigation plan for high-tension power lines in Great Indian Bustard habitat of Thar Desert, Jaisalmer (**Annexure-1**) with following two major recommendations; 1. Undergrounding 104 km of 33 kV lines in areas that are most intensively used by GIB. 2. Installing diverters on remaining 1238 km of overhead cables. It may be noted that out of these total 1342 km of power lines identified by WII, no powerline belongs to POWERGRID. Further, none of our line is passing through critical/priority area of GIB. We have updated details of GIB area vis-à-vis subprojects locations with photographic evidence in revised FEAR. Similarly, status of installation of bird diverters shall be updated in EMR. As regard potential area delineated by WII, it is pertinent to mention that these areas have no legal sanctity unless it is ratified/ notified as Protected areas or Eco-sensitive zone by MoEFCC and WII is not the appropriate authority to declare it as protected area. Further, the concept of “potential area” as propounded by WII has not been accepted by the Stakeholders including the Union of India and the same was also considered by National Green Tribunal (NGT) & judgment was passed with such restrictions (**Annexure-2).** Besides NGT, the GIB conservation matter has also been taken up by Hon’ble Supreme Court (SC) in Writ Petition no. 838/ 2019 where POWERGRID is a respondent. Accordingly, POWERGRID has already filed affidavits in SC (copies attached as **Annexure-3**). It may be appreciated that NGT in its recent order dated 23.12.20 (**Annexure-2)** has directed to put bird diverters on existing lines and restricting new lines up to 33 kV & below to be made underground in GIB area subject to Hon’ble Supreme Court Order. As regard Bird diverter, installation of Bird diverter work on line has already started in under

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
	• Bhadla (POWERGRID) - Bhadla (RVPN) 400kV D/c (Quad) – this line is within 20km of the priority area In addition to installing bird divertors, ADB request POWERGRID to provide following further expert study to determine the extent of offset required: • offset for habitat lost, focused on improvement of habitat quality for Great Indian Bustard within the priority area • offset for the remaining low – but real – risk of Great Indian Bustard mortality on these transmission lines during non-breeding season Further risk assessment of the following lines to determine if bird divertors is required, since Bikaner located in 100km of the small population at Diyatra: GECGS PROJECT • Ajmer (New) - Bikaner (New) 765 kV D/c line – 263 km • Bikaner (New) - Moga (POWERGRID) 765 kV D/c line – 293 km • LILO of 400 kV Bhadla (RVPN) - Bikaner (RVPN) D/c line at Bikaner	construction line LILO Fatehgarh II- Bhadla- II which is in the close vicinity of GIB priority area through emergency procurement (copy of LOA attached as **Annexure-4** for ready reference). Subsequently, Bird diverter on all lines covered under Solar and GEC projects shall be taken up in forest or as suggested by Wildlife authority of Govt. of Rajasthan. It may also be appreciated that POWERGRID is the first organization in India who has finalized the Bird Diverter Technical Specification (already shared with ADB) and same has also been reviewed by Central Electricity Authority (CEA), a technical body of MoP. CEA is also in the process of standardization of Bird Diverter Technical Specification From the content of affidavits, it is very clear that EHV line is not a threat to GIB and no way responsible for reduction of GIB. As regard offsetting of remaining impacts, if any, POWERGRID is in constant touch with Govt. of Rajasthan, MoEFCC, WII and have even offered to collaborate in financially assisting the flagship bustard recovery programme "***Habitat Improvement and Conservation Breeding of Great Indian Bustard***" under its CSR.
2	Table 2, no. 7 – please update the table to cover the status of compliance with providing the bird divertors which is required by forest clearances; including confirmation km of line on which bird divertor have been installed. Please also update to reflect transmission lines in critical habitat for Great Indian Bustard during non-breeding season, thus additional bird divertors are required (see above)	As already explained at point no.1 no POWERGRID line is in critical or priority GIB area. The procurement of bird diverters has already started and status of installation of these diverters along with details of location, quantity etc. shall be updated in EMR.
3	Table 2, no. 8 – please add footnote for link to the Rajasthan compensatory afforestation scheme as only link for Gujarat provided. Please also update the table to include details of the physical status of the afforestation/reforestation activities by the State Forest Departments as funded by POWERGRID as compensatory afforestation scheme only indicates what is agreed, it does not confirm the trees have been planted. If there is no means for POWERGRID to track that trees have been planted and thus "no net loss of biodiversity" achieved, then please indicate it in the table.	Line wise compensatory afforestation links have been incorporated. As regard physical status/monitoring of afforestation, it is to pertinent to mention that POWERGRID role is very limited as all such related activities are undertaken by forest authorities only as per compensatory afforestation scheme approved during forest clearance process. Off late Ministry of Environment, Forest and Climate Change has come up with an e-Governance Portal http://egreenwatch.nic.in/ for automation, streamlining & effective management of processes related to plantation & other Forestry works, with the supervision of Compensatory Afforestation Fund Management and Planning Authority (CAMPA) including monitoring of project wise afforestation status. Since the instant projects are

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
		recent one no status in respect of compensatory afforestation activity available on the website.
4	Table 2, no. 30 – on sanitation and welfare facilities provision please update the table to comment on whether adequate toilet and hand washing facilities being provided for workers that are based in the field whilst working on transmission lines, and provide photographic evidence, as it is extremely important to ensure adequate facilities available related to minimizing the spread of COVID-19 virus as workers will have challenge to maintain the required level of hygiene if they are in field with no such facilities available.	Noted. Status on COVID-19 infection along with photographic evidence specifically in respect to workers health and hygiene facilities at field level shall be included in next EMR due for period July-December, 2020.
5	Table 2, no. 41 – please update to reflect transmission lines are in critical habitat for Great Indian Bustard during non-breeding season with the bird divertors being required (see above)	Already explained point no. 1 & 3.
6	In Table 2, for works that are now commissioned please add photographic evidence to confirm that the detailed design was implemented as mentioned, particularly in respect of no. 43 transformer bunds and no. 46 security fences and warning signs	Incorporated. Sample photos placed as **Plate-1**.
7	Table 2, no 52 it is mentioned noise levels at Bhadla SS are 52dBA but no documentary evidence of noise monitoring being undertaken is attached. For works that are now commissioned please undertake quantified noise monitoring at substation boundary to confirm operational noise levels during the next reporting period and include copies of monitoring report as annex	Noted.
	In relation to COVID-19 noted that at end of June 2020 there were no cases but given the situation in India we request POWERGRID to please inform ADB immediately if any positive cases are recorded at project sites and the action taken	Already explained point no. 4.
8	Please provide evidence if GRM contacts were being displayed at construction sites during this reporting period. Please clarify the number of new grievances received during the reporting period, it appears to be 2no. based on comparison to July-Dec 2019 EMR but only grievance no. 39 appears to have been received in the period, so which is the other? For the 2no. grievances raised in the period please provide further details of those with environment component; if they are all related to social safeguards then please confirm that all details of complaint and action taken are provided in the SMR.	GRM contacts have been displayed at every construction sites and sample photographic evidences have already shared in earlier report. As regard 2 news court cases, it is to confirm that both the cases are related to compensation issues and their status have already been provided in Table-4.

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
9	Please continue to pay attention to continual improvements in EHS during further implementation.	Noted.

Appendix I

Action and budget proposal

Mitigation plan for high-tension power lines in Great Indian Bustard habitat of Thar Desert, Jaisalmer

Background: Power lines, especially high-voltage transmission lines with multiple overhead wires, is the most important current threat to the critically endangered Great Indian Bustard (GIB). Research shows that the poor frontal vision and heavy flight of bustards make them highly vulnerable to fatal collision with power-lines (Martin and Shaw 2010). Research on GIB carried out by Wildlife Institute of India (WII) shows that power-lines across their habitats in Thar are contributing to an unsustainably high mortality rate (mortality of ~15% of population and 5 deaths detected in 2017-18). Besides bustard, power-lines are causing mortality of ~1 lakh birds of over 49 species annually in ~4000 sqkm in/around Desert National Park (WII 2018). There is an urgent need of mitigating this threat by undergrounding high-risk power-lines and marking medium-risk power-lines with diverters. Without this immediate intervention, the GIB is likely to go extinct in the near future (WII 2018). Rajasthan Forest Department (RFD) and WII carried out joint sensitization meetings with power agencies (2016–18) to implement these mitigation measures, wherein prototype diverters procured by WII were pilot installed by power agencies for testing. A meeting held on 20th December 2018 under the chairmanship of Principal Secretary Energy, Govt. of Rajasthan that was attended by RFD and WII representatives decided that the mitigation measures should be urgently implemented, and directed the power agencies to place proposals with cost-estimation for this action.

Mapping activity: To mitigate this threat, WII had mapped power-lines across ~20,000 sqkm Thar landscape through digitisation of very high resolution Google Earth imagery in the first phase. Power-lines within the priority GIB habitat (GIB Arc or Ecozone), as identified by long-term collaborative surveys of WII and RFD (Dutta et al 2016) were then ground validated (2016–17). Since the chance of missing power-lines is high because of the vastness of GIB landscape, it was decided in the meeting that the available information on power lines should be verified by power line companies for preparing the project proposal on mitigation, and the same should be submitted by Superintendent Engineer (SE) Rajasthan Vidyut Prasaran Nigam Limited (RVPNL) within a month's time. A follow up meeting was called by SE RVPNL Jaisalmer on 31st December 2018 in Jaisalmer that was attended by representatives from WII and power line companies including RVPNL, SUZLON, Innercon, Jodhpur Discom, Today Green Energy Private Ltd, Siemens Gamesa and Greenko. The SE RVPNL Jaisalmer asked all power line authorities to submit details of power lines (name, length, GPS coordinates of powerlines) inside the GIB Ecozone to the Project staff of WII. WII team followed up with every power line company operating in this area and obtained available data by 15th January 2019. Whenever this data was non-existent, WII team digitised the risky power lines on ground and cross verified this information with the SE RVPNL Jaisalmer on 19th January 2019.

Cost calculation: Based on this information, cost of undergrounding power lines and installing bird diverters were separately calculated to aide in deciding the optimal mitigation strategy. Cost of undergrounding cables was computed based on information shared by the SE RVPNL Jaisalmer for medium voltage (33–66 kV) lines. However, the cost or technology of undergrouding high voltage lines ($\geq$132 kV) were not available locally and could not be calculated. The cost of diverters were calculated at 10,000 INR/piece (inclusive of production and shipping costs), which is a liberal estimate, based on procurement of small numbers of high-quality devices by WII. Cost of installing diverters and undergrounding of cables is provided below.

Diverter installation	Undergrounding
Diverter cost calculated at 10000 INR/pc and number of diverters calculated as one at every 15 m on the earthwire and on conductors in a staggered design, i.e., 67 diverters/km wire, such that there is at least one diverter every 5 m on the powerline as whole. No. of diverters is calculated for 70% of the total length of power lines to leave pylons and their vicinity. The installation cost is 20% of diverter cost. **However, diverter cost can be reduced to 40% of existing cost with the development of more economic local diverters**	Undergrounding cable available for 33kV power lines cost ~ 21 lakh/km with the 40% installation cost of total power line cost

In total, 1342 km of power lines have been prioritised for mitigation by undergrounding 104 km of 33 kV lines in areas that are most intensively used by GIB and installing diverters on remaining 1238 km of overhead cables. The total cost of this implementation has been estimated at 287.16 Cr INR. However, this cost could be reduced to approx. 150 Cr INR by opting for economic but quality diverters.

The details of power lines with cost calculation and total costs of diverters and undergrounding are provided below (Annexure I), along with the priority map of mitigation (Annexure II), and image of a prototype diverter / reflector (Annexure III).

References:

Martin, G.R. and Shaw, J.M., 2010. Bird collisions with power lines: failing to see the way ahead?. Biological Conservation, 143(11), pp.2695-2702.

WII, 2018. Power-line mitigation to conserve bustards. Wildlife Institute of India, pp 8.

Dutta, S., Bipin C.M., Bhardwaj, G.S., Anoop, K.R., Jhala, Y.V. 2016. Status of Great Indian Bustard and Associated Wildlife in Thar. Wildlife Institute of India, Dehradun and Rajasthan Forest Department, Jaipur.

Annexure I

List of power-lines prioritised for bird diverter installation and undergrounding in Thar, Jaisalmer.

Phase	Power-line Company	Power in KV	Name of Line	No. of Wires	Length (km)	No. of Diverters	Cost of Diverter/ Undergrounding	Cost of Installation	Total Cost
Undergrounding									
I	**Wind World/ Innercon**	33	Kanoi – Salkha	13(7)	21	6895	20,41,400/km (4 Cables) **17,14,77,600 (Undergrounding)**	40% of cost of wire **6,85,91,040 (Undergrounding)**	**24,00,68,640 (Undergrounding)**
							10000/Diverter 6,89,50,000 (Diverter)	20% of Diverter Cost 1,37,90,000	8,27,40,000 (Diverter)
	Jodhpur Discom	33	Sam – Dhanana	4(3)	45	6332	20,41,400/km (1 Cables) **9,18,63,000 (Undergrounding)**	40% of cost of wire **3,67,45,200 (Undergrounding)**	**12,86,08,200 (Undergrounding)**
							6,33,20,000 (Diverter)	1,26,64,000	7,59,84,000 (Diverter)
	Suzlon	33	Tejuva-Kuchri	7(4)	17	3190	20,41,400/km (2 Cables) **6,94,07,600 (Undergrounding)**	40% of cost of wire **2,77,63,040 (Undergrounding)**	**9,71,70,640 (Undergrounding)**
							3,19,00,000 (Diverter)	63,80,000	3,82,80,000 (Diverter)
		33	Khuchri horizontal - parallel	6(3)	21	2955	20,41,400/km (2 Cables) **8,57,38,800 (Undergrounding)**	40% of cost of wire **3,42,95,520 (Undergrounding)**	**12,00,34,320 (Undergrounding)**
							2,95,50,000 (Diverter)	59,10,000	3,54,60,000 (Diverter)
Total (undergrounding)					**104**	**19,372**	41,84,87,000 (Undergrounding)	16,73,94,800	**58,58,81,800 (Undergrounding)**
							19,37,20,000 (Diverter)	3,87,44,000	23,24,64,000 (Diverter) ++
Diverter installation									
I	**Rajasthan Vidyut Prasaran Nigam Limited (RVPNL)**	132	132kv Jaisalmer – Ramgarh – 1	4(3)	40	5628	10,000/Diverter **5,62,80,000**	20% of Diverter Cost **1,12,56,000**	**6,75,36,000**
I		132	132kv Jaisalmer – Ramgarh – 2	4(3)	40	5628	10,000/Diverter **5,62,80,000**	20% of Diverter Cost **1,12,56,000**	**6,75,36,000**
I		132	132kv Askandra (Pokran to Askandra)	4(3)	30	4421	10,000/Diverter **4,42,10,000**	20% of Diverter Cost **88,42,000**	**5,30,52,000**
II		132	132kv Askandra (Pokran to Askandra)	4(3)	20	2814	10,000/Diverter **2,81,40,000**	20% of Diverter Cost **56,28,000**	**3,37,68,000**
I		220	220kv Amarsagar – Ramgarh	4(3)	40	5628	10,000/Diverter **5,62,80,000**	20% of Diverter Cost **1,12,56,000**	**6,75,36,000**
I		220	220kv Amarsagar – Lilo	7(4)	8	1501	10,000/Diverter **1,50,10,000**	20% of Diverter Cost **30,02,000**	**1,80,12,000**
I		220	220kv Amarsagar – Phalodi	4(3)	54	7598	10,000/Diverter **7,59,80,000**	20% of Diverter Cost **1,51,96,000**	**9,11,76,000**

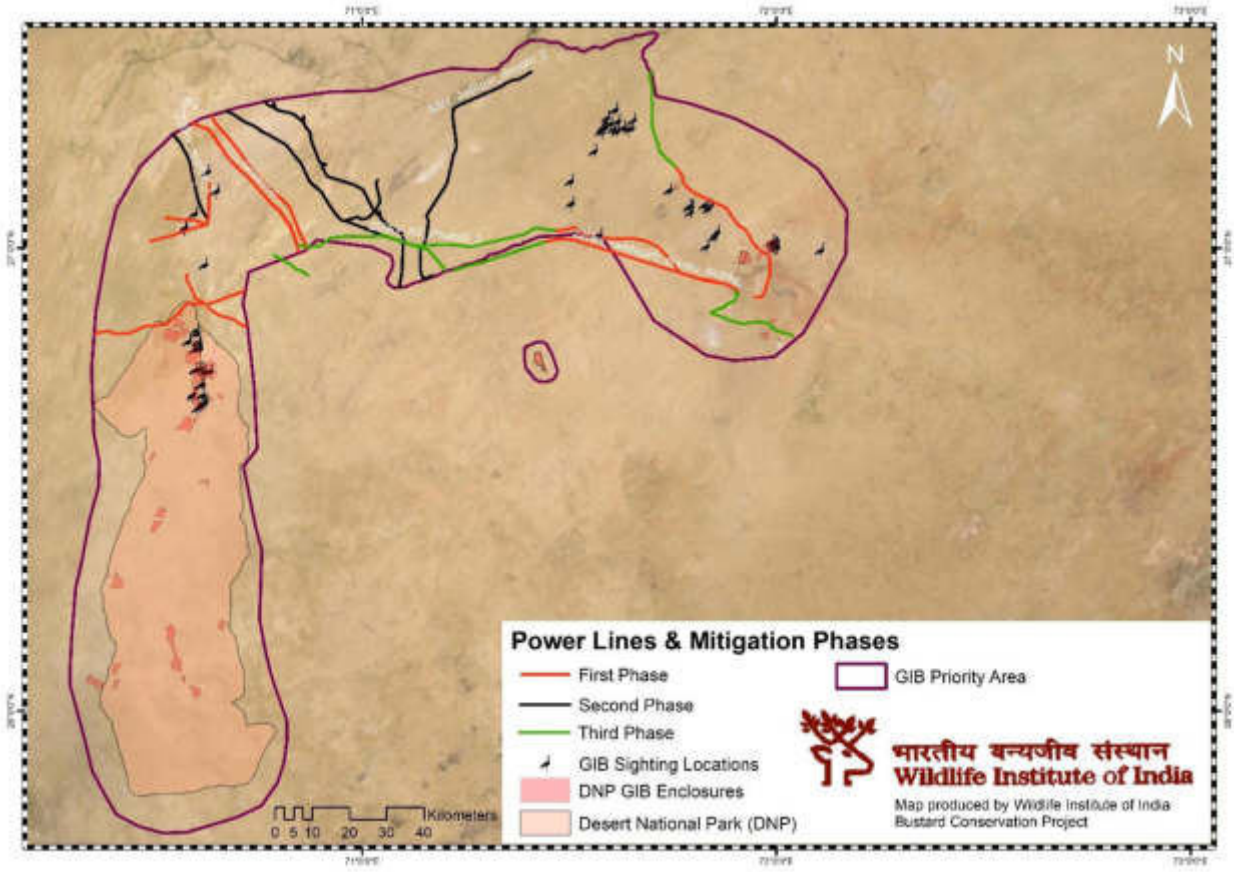
III		220	220kv Amarsagar – Phalodi	4(3)	71	9990	10,000/Diverter **9,99,00,000**	20% of Diverter Cost **1,99,80,000**	**11,98,80,000**
I		220	220kv Ramgarh Dechu	7(4)	49	9193	10,000/Diverter **9,19,30,000**	20% of Diverter Cost **1,83,86,000**	**11,03,16,000**
III		220	220kv Ramgarh Dechu	7(4)	43	8067	10,000/Diverter **8,06,70,000**	20% of Diverter Cost **1,61,34,000**	**9,68,04,000**
II		220	220kv Ramgarh Dechu	7(4)	50	9380	10,000/Diverter **9,38,00,000**	20% of Diverter Cost **1,87,60,000**	**11,25,60,000**
II		400	400kv Akai – Ramgarh	8(4)	55	10,318	10,000/Diverter **10,31,80,000**	20% of Diverter Cost **2,06,36,000**	**12,38,16,000**
Sub-total		**500**				**80,166**	**80,16,60,000**	**16,03,32,000**	**96,19,92,000**
III		33	Tejuva – Kuchadi	7(4)	138	25889	10,000/Diverter **25,88,90,000**	20% of Diverter Cost **5,17,78,000**	**31,06,68,000**
II		33	Kaladongar	4(3)	70	9849	10,000/Diverter **9,84,90,000**	20% of Diverter Cost **1,96,98,000**	**11,81,88,000**
III		33	Mokla – Habur – Sanu	4(3)	301	42,350	10,000/Diverter **42,35,00,000**	20% of Diverter Cost **8,47,00,000**	**50,82,00,000**
III	**Suzlon**	132	Tejuva – Kuchadi	4(3)	25	3518	10,000/Diverter **3,51,80,000**	20% of Diverter Cost **70,36,000**	**4,22,16,000**
II		132/220	Kaladongar	4(3)	47	6613	10,000/Diverter **6,61,30,000**	20% of Diverter Cost **1,32,26,000**	**7,93,56,000**
I		132/220	Mokla – Habur – Sanu	4(3)	43	6051	10,000/Diverter **6,05,10,000**	20% of Diverter Cost **1,21,02,000**	**7,26,12,000**
Sub-total		**624**				**94,270**	**94,27,00,000**	**18,85,40,000**	**113,12,40,000**
II	Jodhpur Discom	33	Chandan Via Bhagu ka Gaon to Mohangarh	4(3)	70	9849	10,000/Diverter **9,84,90,000**	20% of Diverter Cost **1,96,98,000**	**11,81,88,000**
Sub-total		**70**				**9849**	**9,84,90,000**	**1,96,98,000**	**11,81,88,000**
I	**Greenko**	220	Amarsagar – Ramgarh	4(3)	40	5628	10,000/Diverter **5,62,80,000**	20% of Diverter Cost **1,12,56,000**	**6,75,36,000**
Sub-total		**40**				**5628**	**5,62,80,000**	**1,12,56,000**	**6,75,36,000**
III	**Gamesa**	33	Amarsagar – Ludarva	4(3)	4	563	10,000/Diverter **56,30,000**	20% of Diverter Cost **11,26,000**	**67,56,000**
Sub-total		**4**				**563**	**56,30,000**	**11,26,000**	**67,56,000**
Total		**1238 KMs of Power line for Diverters**				**1,90,476**			**228,57,12,000** **228.57 Cr**
		104 KMs of 33 kV lines (for Diverters)				19,372			23,24,64,000 23.25 Cr ++
		104 KMs for Undergrounding							**58,58,81,800** **58.58 Cr**
Grand-total									**287,15,93,800** **(287.16 Cr)**

* Diverter cost can be reduced to 40% of existing cost i.e. 91.43Cr with the development of more economic local diverters authenticated by Wildlife Institute of India and Rajasthan Forest Department. Expected time for producing these diverters is 6 months.

++ For 33 kV lines prioritized for undergrounding, cost of diverters have also been indicated.

Annexure II

Map showing high tension (≥ 33 kV) power-lines divided into three phases for undergrounding and bird diverter installation.



Annexure III

Photograph of a model Bird Diverter / Reflector with rotating, reflecting and night blinking properties that has been pilot installed and field tested by Wildlife Institute of India with the assistance of power agencies in Jaisalmer.

Item No. 02 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 385/2019
(IA No. 333/2020)

(With report dated 22.12.2020)

Centre for Wildlife and Environment Litigation Applicant

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 23.12.2020

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER
HON'BLE DR. SATYAWAN SINGH GARBYAL, EXPERT MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant: Mr. Gaurav Kumar Bansal, Advocate

Respondent: Mr. Attin Shankar Rastogi, Advocate for MoEF&CC
Mr. Amar Dave, Advocate for National Solar Energy Federation of India (NSEFI), in IA 333/2020 for impleadment and directions

ORDER

1. The issue for consideration is the mitigation measures for protection of Great Indian Bustard (GIB) – rare bird and one of the critically endangered species, as per Schedule-I to the Wildlife Protection Act, 1972. Though the Ministry of Environment, Forest and Climate Change (MoEF&CC) has taken up a project called "Habitat Improvement of Great Indian Bustard-An Integrated Approach", wind projects are potential danger to the safety of the bird. Vide order dated 04.04.2019, this Tribunal sought a factual report from the MoEF&CC with regard to the allegation that steps taken are not adequate and there continues to be high mortality of the birds.

2. According to the applicant, population of GIB has steadily declined by 75% in last thirty years. Main reason for such decline is fatal accidents with the power lines. This requires habitat improvement and conservation breeding. In the course of reviewing the project "Habitat Improvement of Great Indian Bustard-An Integrated Approach" of the MoEF, in a review meeting on 19.07.2018 it was noted that the wind projects did not require any EIA studies. There was also no substitute mechanism to ensure safeguards for protection of such birds on 'Precautionary' principle of Environment. Forest Advisory Committee, Government of India considered the matter in its meeting on 10.11.2016 and recommended study of impact of such proposed project on wildlife as the GIBs face threat from high tension transmission lines. The preventive measures identified are:

> *"i.* ***Route planning***
> ***ii.*** ***Underground cabling***
> ***iii.*** ***Removal of ground/earth wires***
> ***iv.*** ***Line modifications***
> ***v.*** ***Mandatory installing of bird flight diverters on all transmission and high voltage lines with large constructions with tall pylons (35m or higher for 150kv or more) on regular intervals on conductors in order to in the course of make them more visible.***
> ***vi.*** ***Vane tips of the wind turbine shall be painted with orange colour to avoid bird hits."***

3. The 'Great Indian Bustard and Lesser Florican' Conservation and Breeding Programme recommendations are as follows:

> "i. *As directed by the Forest Department, compensatory afforestation should be carried out by using local species which will help to enhance/improve biodiversity.*
>
> *ii. Immediate surrounding area (around 50 meter) of each WTG should be maintained vegetation free area to avoid faunal movement.*
>
> *iii. Fruit tree species should be avoided near WTGs; otherwise this may attract bird and bats which may result in mortality of bats and birds.*

iv. *Dead animal and carcasses (if any) should be removed immediately from WTG site to prevent attraction of carnivore birds/raptors towards sites.*
v. *No water bodies/pond formation allowed within site/near turbines this may attract water birds and lead to collision.*
vi. *Project personnel may be given basic information about biodiversity conservation and awareness programmes may be conducted for sensitizing about bio-diversity conservation.*
vii. *If bridges are proposed, culverts should be provided for smooth movement of other faunal species.*
viii. *Awareness camps on green energy projects can be conducted within nearest school and other educational institutions.*
ix. *The Vane tips of the Wind Turbine shall be painted with Orange colour to avoid bird hits."*

4. According to the applicant, mortality of birds is around one lakh annually. On consideration of the matter, the Tribunal sought a response from the MoEF. In its response vide report dated 11.07.2019, the MoEF&CC acknowledged the problem. It was submitted that adult mortality of GIBs is still very high due to collisions with power-lines that crisscross their fly paths. The Wildlife Institute of India has made following recommendations:

"4. ***RECOMMENDATIONS:***

4.1. Keeping the above scientifically established threats in mind, the following evidenced based actions are recommended by WII that are required to be taken up in time bound manner to achieve the species recovery.

4.2. ***Mitigate all power transmission lines passing through priority bustard habitats identified by WII (Please refer Annexure 10) by undergrounding cables (where technically/ technologically feasible) or installing bird diverters to make them prominent to birds.*** *The priority areas where this intervention is required has been mapped by the Wildlife Institute of India and a technical-cum-financial proposal has been submitted to RVPNL for necessary approvals from Rajasthan Energy Department for mitigation. This action must be expeditiously implemented in the short-term (1-3 years), as power-line mortality is currently the biggest threat to the species.*

4.3. ***Disallow new wind turbines, solar farms (photovoltaic power stations) from priority GIB habitats and remove***

existing ones that are in the critical areas. *The priority areas where this intervention is required has been mapped by Wildlife Institute of India (Please refer Annexure 10). This action needs to be implemented in the long-term spanning 5-10 years from present.*

4.4. ***Develop predator-proof enclosures of 5-10 sq km area in known breeding sites in and around DNP to improve GIB recruitment, and keep away nest predators by routinely translocating dogs, pigs, foxes, mongoose and other species outside the enclosures using professional trappers.*** *Number of water guzzlers inside the enclosures need to be reduced to curtail availability of surface water that attracts non-native nest/chick predators such as dogs, foxes, pigs and mongooses. Also establish such enclosures in the larger Thar (Jaisalmer) landscape, as identified by joint surveys of WII and RFD. These enclosures need to be developed and will serve as breeding sites and stepping stones for movement across the larger landscape.*

4.5. ***Create an inviolate area of 200 sq km (WII proposal-500 sq km) in northern DNP as a National Park through voluntary and incentivized relocation of local people (if needed) with the mandate of conserving GIB.***

4.6. ***Delineate priority GIB habitats outside DNP as Eco Sensitive Zones where agro-pastoral practices are regulated to low-intensity through Zonal Management Plans and detrimental infrastructure such as wind turbines and overhead transmission lines are curtailed. This action needs to be implemented in the short-term (1–2 years).***

4.7. *Engage with local communities to promote bustard-friendly practices such as stall-feeding of livestock during monsoon – GIB chick-rearing and grass growing season – and cultivating food crops preferred by GIB during monsoon such as gram, ground nut and millets while leaving the fields fallow for the remaining period. These land-uses can be promoted by Rajasthan Forest Department in conjunction with other State Departments, through appropriate financial and other incentive schemes, such as provisioning of fodder for stall feeding or compensatory payments to foregone production cost by opting for low intensity farming. This action needs to be implemented in the longer scale (4–8 years).*

4.8. ***Reduce poaching of GIB and other wildlife in the Thar landscape by improving protection enforcement through training of Forest Department frontline staff in smart patrolling tools with the help of conservation organizations such as WII and WWF, provisioning of better patrolling equipment, enrolling frontline staff from non-wildlife divisions of Forest***

Department and local volunteers in this activity, and ensuring trials of convicts*. Further, it is to bring to the notice that areas controlled by Armed forces in Jaisalmer District harbor about 50% of the GIB population found in Rajasthan. This secure zone under the control of Army where human activities are minimal is a blessing for the bird on the verge of extinction. Thus, continued cooperation of Army, Air Force and Border Security Force to conserve the GIB and control the incidents of poaching could play a vital role as well.*

4.9. ***Implement the conservation breeding programme by creating an offshore insurance population (if needed) by shipping a batch of about 10 GIB eggs to a state-of-the-art international breeding center such as IFHC houbara breeding center at Abu Dhabi that produces up to 30,000 houbara chicks every year (short-term solution 3–5 years), and meanwhile, establish a national breeding center by training staff, developing a state-of the art center at Sarsen (main facility) and Ramdev (satellite facility), where eggs collected from wild can be artificially incubated, hatched, reared and captive bred to create an insurance population that can be reintroduced into the wild.***

4.10. To continue with targeted research on GIB to characterize threats patio-temporally, understand landscape use patterns using satellite telemetry, and objective monitoring of their population status by involving research organizations, understanding of species biology, behavior, reproduction, genetics, ecology and management in wild and captivity of GIB, and collection of biological samples for species identification from carcasses, for disease screening for better understanding of threats, develop disease prevention protocol, and forensic examination of mortalities."

5. The matter was considered on 04.09.2019 in the light of above report. It was observed:

"*3.* ***The above recommendations need to be acted upon which requires preparation of a time bound action plan.***

4. Let a joint Committee comprising Director General, Forest, MoEF&CC, Additional Director General, Forest (Wildlife), MoEF&CC, nominees of Ministry of Power, Ministry of New and Renewable Energy, Central Government and nominees of Energy Departments of Gujarat and Rajasthan prepare a time bound action plan in the matter within two months. The nodal agency for the purpose will bathe Director General, Forest, MoEF&CC and the Additional Director

General, Forest (Wildlife), MoEF&CC will be member secretary of the nodal agency. Compliance report be furnished to this Tribunal before the next date by e-mail at judicial-ngt@gov.in."

6. Accordingly, the MoEF&CC has filed its further report on 22.12.2020 as follows:

"2. That the Hon'ble NGT vide its order dated 04/09/2019 in O.A. No. 385 /2019 in the matter of Centre for Wildlife and Environment Litigation (CWEL) Vs. Union of India &Ors., has been pleased to constitute a committee comprising the following officials, and directed to finalise an Action Plan on recommendations for conservation of Great Indian Bustard: -

i. *Director General of Forest, MoEF&CC-* ***Chairperson***
ii. *Additional Director General of Forest (Wildlife), MoEF&CC-* ***Member Secretary***
iii. *Nominee of Ministry of Power, Govt. of India.*
iv. *Nominee of Ministry of New and Renewable Energy, Govt. of India.*
v. *Nominee of Energy Department of Gujarat*
vi. *Nominee of Energy Department of Rajasthan.*

3. That since its constitution the Committee has been continuously engaging with different stakeholders including the Central Government Ministries of Power and New & Renewable Energy, the Central Electricity Authority, the Forest Departments, Energy Departments, and energy generation/ transmission agencies of the States of Rajasthan, Gujarat, Maharashtra, and has held successive meetings dated 16th October 2019, 11thNov, 2019 , 05th May, 2020, 03rd Nov, 2020 and recently on 17th Dec, 2020 in this regard so that all the relevant issues are considered in their full comprehension and a time-bound actionable plan is prepared in the best interest of conservation and development of GIB. It is also to mention that while deliberations have been going on in the Committee meetings, concomitant and significant field action on the ground has also been pursued so that it becomes a matter of priority for all stakeholders, and these conservation and development measures are scaled-up with time.

4. That during the meetings of the Committee it was impressed upon by the Ministry of New & Renewable Energy (MNRE), Government of India that the main areas of conservation of GIB in western Rajasthan overlaps with one of the main renewable energy hubs of the country. As per inputs provided by the MNRE, the area has been in development as such since 2004 and already major power generation stations based on wind and solar energy totaling around 1500 MW have been commissioned. Although, the area has huge solar and wind power potential, only 2400 MW of additional renewable projects are under execution in that area which will be critical for energy security of the country. This will contribute not only for meeting national target of installing 1,75,000 MW

renewable capacity by 2022 but also for meeting India's Nationally Determined Contribution (NDC) under the Paris Climate Agreement to achieve 40 percent of installed electric power capacity from non-fossil sources by 2030. ***These concerns were appreciated. However, given the needs of GIB conservation, it ought to be given highest priority, and all feasible action need to be taken to protect, conserve and develop the GIB population in this area. Accordingly, the Ministry of Environment, Forests and Climate Change has continually taken up with all the concerned stakeholders in its deliberations so far so that they could appreciate the seriousness and the critical importance of concerted action to protect, conserve and develop GIBs and their habitats within the area of their operation, and start taking concerted action accordingly.*** *A summary of such issues taken up in the Committee meetings are given in the following paragraphs:*

i. *The first meeting of the Committee was convened on 16th October, 2019 under the Chairmanship of DGF&SS, MoEF&CC. During the meeting, it was brought to the notice of the committee that environmental clearances are being obtained for the power projects. It was highlighted that the projects which have already been contracted/initiated in the field, it would be difficult to initiate the mitigation like underground cable or aerial bunched cables or cornered conductors as it would amount to revising the project cost and initiating a fresh process for financial clearance. This might lead to the undue delay in execution of important projects of alternate energy.* ***It was further brought to the notice of the committee that the power-lines passing through GIB arc are of' higher voltage and at present there is no technology which is techno-economically feasible for under grounding such high voltage power cables. The power transmission agencies voiced the major issue relating to availability of financial resources for underground of technically feasible segments of the transmission lines. The committee, however, made clear that there is urgent need to have a time bound action plan for the implementation of all the mitigation measures such as under-grounding of power lines, installation of bird diverters and their regular maintenance and monitoring by the power agencies.*** *The minutes of the Meeting are attached at* ***Annexure-I.***

ii. *A second meeting of the committee was convened on* ***11th November, 2019****. In the meeting, technical feasibility to have a hybrid power transmission line including underground as well as over ground transmission were discussed. However, the difficulties in maintenance of such hybrid systems and ensuring the uninterrupted supply of electricity without any transmission losses were brought before the committee. It was also informed that it might not be possible to introduce such systems in the existing power lines since most of the work has been completed and cost of the underground lines is 3 to 4 times higher and therefore, non-economic to convert the current*

overhead transmission lines into the hybrid transmission lines. The minutes of the Meeting are attached at ***Annexure-II.***

iii. *Thereafter, a meeting was convened on* ***05th May 2020*** *to discuss progress by the relevant agencies for the formulation of the action plans, as well as various steps being taken on the ground by the GIB range states, Wildlife Institute of India, Dehradun, Ministry of New and Renewable Energy, Ministry of Power, State Energy Departments of Rajasthan and Gujarat. The minutes of the Meeting are attached at* ***Annexure-III.***

iv. *The Committee convened another meeting on* ***03rd November, 2020*** *and each of the recommendation listed in the order of the Hon'ble NGT dated 04.09.2019, and the progress made by different agencies, including on providing the requisite inputs to finalise the action plan was reviewed in detail. Specific directions were given by the Chairman of the Committee to each of the concerned stakeholders in this regard so that the plan could be finalised immediately. The minutes of the meeting are attached at* ***Annexure-IV.***

v. A meeting of the Committee was again convened on 17th December, 2020. The Committee discussed action taken by various stakeholders on teach of the recommendations, and also the draft GIB conservation action plan prepared in consultation with various concerned stakeholders was deliberated during the meeting. Given the unique geography and the land tenure of the area, various constraints that were highlighted included:

a. *Technical Specifications of bird diverters are required to be finalized by Ministry of Power and Central Electricity Authority (CEA) in a time bound manner. CEA will also review and recommend if bird diverters are to be installed on the earthing wire alone or on all the wires in the transmission line.*
b. *Technical phrases used in Action Plan such as 'critical area', 'priority area' and 'potential area' must be used unambiguously so that clear delineation could be done on the map and on the ground without any overlap so that renewable energy project developers could plan accordingly.*
c. *As GIB potential area covers a very large geographical space, putting absolute restrictions on Renewable Energy projects would be counter-productive, as the area around Desert National Park (DNP) is very crucial for green energy supply of the country as informed by MNRE.*
d. *Under-grounding of transmission lines be taken up on priority as per technical feasibility, while widespread installation of bird diverters may be pursued strongly.*
e. *Various agencies on renewable energy emphatically requested that any restriction on new renewable energy projects should be made prospectively and not retrospectively. They submitted that all those projects for which clearances have been given already may be continued, otherwise this would create serious financial and technical complexities including revision of tariffs as the projects were given go-ahead after a detailed bidding process. Further, under-grounding of already existing power-lines will entail huge financial resource for which funding support is required either from Government or by way of a*

suitable order on tariff by the electricity regulator which will have serious downstream impacts.

f. *Similarly, very large funds and lands are required for voluntary relocation of villages in the Desert National Park and the process itself is highly time consuming to serve a useful purpose in the immediate time period.*

g. *Significant progress has been made towards construction and maintenance of predator proof fencing and GIB enclosures, however, for the system to have permanent benefits, sustainable funding successively over the years is required.*

h. *A proposal for declaration of ESZ around DNP has already been formulated and is ready to be deliberated by the Committee constituted for this purpose by Government of Rajasthan. The Chief Wild Life Warden (CWLW), Rajasthan informed that by including Priority GIB habitats outside DNP in the proposed Eco Sensitive Zones, the boundaries of the proposed ESZ is stretching to hundreds of kilometers away from the DNP which is not a practical solution for effective management, and, therefore, alternative spatial delineation as per need and practical aspects of GIB conservation needs to be reviewed properly.*

i. *Energy agencies submitted that under-grounding of power lines would also entail land acquisition. Timelines need to be fixed and fund requirement and sources of funds need to be ascertained to complete the process. Given the significance of the task, his should be acted on priority.*

It was decided during the meeting that the views expressed by the concerned stakeholders are required to be suitably incorporated in the draft action plan. Further, discussion is also required on the draft action plan before it is finalized and submitted to Hon'ble Tribunal.

5. Substantial progress has already been made on the recommendations made by the Wild Life Institute of India (WII). A detailed summary of the actions taken by the various stakeholders on the recommendation cited in para-2 of the Hon'ble NGT order dated 04-09-2019 are at ***Annexure-V.***

6. Further, the Ministry has taken up an initiative on conservation breeding of the Great Indian Bustard (GIB) in collaboration with Rajasthan, Gujarat and Maharashtra Forest Departments and technical support from Wildlife Institute of India (WII), Dehradun. The Ministry with financial support from National Authority for Compensatory Afforestation Funds has sanctioned an outlay of Rs. 33.85 crores for the duration of five years (2016-2021) for the programme titled 'Habitat Improvement and Conservation Breeding of Great Indian Bustard-an integrated approach'. Under the project, the details of the major works done are at ***Annexure-VI.***

7. Financial Assistance is also being provided by the Ministry to the Great Indian Bustard range states like Rajasthan, Maharashtra, Karnataka for undertaking works for the conservation and protection of Great Indian Bustard under the Centrally Sponsored Scheme-Development of Wildlife Habitat (CSS-DWH).

8. Gujarat State Forest Department has acquired 5321.09 ha. land from different agencies in the GIB landscape. In addition, 2988.57 ha. land has been acquired under Compensatory Afforestation Scheme. Therefore, collectively 8511.66 ha. of area has been acquired and has been developed as Great Indian Bustard habitat area. Due to the focused efforts of the department, the above said area has been restored as a GIB habitat and is being used by the GIB at present. In last five years 4,898 running meter fencing has been done within Great Indian Bustard habitat. Measures to curb the invasion of Prosopis Juliflora has been particularly mentioned in the Recovery Plan. Accordingly, Prosopis Juliflora and other unwanted plant species are being uprooted and removed by the department and the area is being restored as grassland. Owing to this effort, till 2019-20 a large patch of 855 ha. of habitat has been restored and the GIB have observed to have started using it. To protect the GIB from predation by feral dogs, sterilization and vaccination programme of dogs is being carried out by the forest department in the 21 villages falling within the Eco-sensitive zone on a regular basis.

9. India submitted a proposal for listing of Great Indian Bustard in Appendix I of Convention on Migratory Species (CMS) during 13th meeting of the Conference of Parties (COP) to the CMS held in Gandhinagar Gujarat from 15th - 22nd February, 2020. The proposal was considered and accepted. This will further strengthen the conservation efforts for the Great Indian Bustard as it gets global protection. In addition, the Great Indian Bustard was adopted as the mascot for the CMS COP-13 and named as 'Gibe – the Great'.

10. It is submitted that the Ministry of Environment, Forests and Climate Change is fully committed and taking effective measures in addition to steps already taken to strengthen the conservation of Great Indian Bustard in the country.

11.** It is submitted before the Hon'ble NGT that due to unprecedented situation of COVID-19 in the country and physical restrictions imposed, it has been difficult for various stakeholders, scientists and field staff/ project team to visit the area and carry out field surveys in a time bound manner so that the Action Plan could not be finalized as yet. However, substantial progress has been made and the framework of the Action Plan has already been prepared. The same needs to be now refined and finalised in light of the concerns listed above so that speedy implementation of the Plan could be affected by all the concerned stakeholders.* ***Therefore, it is humbly requested from Hon'ble Tribunal to kindly grant six months' time to enable the Committee to finalize the Action Plan for GIB conservation as directed in the order dated 04/09/2019 and 20/02/2020, and for this it is ever prayed."

7. We have duly considered the report and the deliberations of the six-member expert Committee, in consultation with the stake holders.

The proposed action plan which has already been delayed needs to be finalised at the earliest, preferably within two months. Since the main reason for mortality of GIBs is the collisions with power lines laid by the Wind/Solar Energy projects, crisscrossing their paths and undergrounding of transmission lines is not viable for the projects already completed, installation of the bird diverters to prevent such fatalities needs to be undertaken on priority basis expeditiously, preferably within four months. Undergrounding of transmission lines needs to be ensured for all new projects henceforth, as recommended by the six-member expert Committee, by making it a mandatory condition for grant of consents under the Water/Air Acts by the concerned State PCBs which may be overseen by the CPCB and the MoEF&CC. If consent is not required, even then undergrounding of transmission lines may be ensured. While granting such consents, impact of such projects on biodiversity of the area, specially in the context of GIBs, be undertaken. The MoEF&CC/CPCB/State PCBs may take further action as per action plan suggested by the six-member Committee, appointed by this Tribunal.

8. We may now consider IA 333/2020 filed by the National Solar Energy Federation of India (NSEFI) for being heard in the matter. We have heard learned Counsel for the NSEFI and considered its submissions. It is stated that Writ Petition (Civil) No. 838/2019, *M.K. Ajitsinh v. Union of India* is pending in the Hon'ble Supreme Court on the subject for emergency response plan for protection and recovery of the GIBs. The Hon'ble Supreme Court has constituted a three-member Committee as follows:

> *"1) Director, Bombay Natural History Society, Hornbill House, Mumbai.*

2) Dr. Asad R. Rahmani, former Director of Bombay Natural History Society and Member of the Governing Body of Wetlands International South Asia.
*3) Dr. Dhananjay Mohan, Chief Conservator of Forests, Wildlife, Admn. Protection & Intelligence, Nainital, Uttarakhand.***"**

9. On 18.02.2020, the Hon'ble Supreme Court added following members:

"*(1) Dr. Sunitha Dutta*
Scientist, Wildlife Institute of India Address:
Wildlife Institute of India, Chandramana,
Post Office – 248018, Dehradun, Uttarakhand.
Telephone: +91 8937074550
Email: sutirthadutta@gmail.com.

(2) Dr. Thuli Rao,
Director, Research & Extension, Andhra Pradesh
State Biodiversity Board (APSBB)
Address: Walnut Block, Flat No. 311, Rain Tree Park,
Guntur-522 508, Andhra Pradesh.
Telephone: + 91 8500782528, 6305770234
Email: drkthulsirao@gmail.com

(3) Dr. Samad Kotter, Lecturer, Govt. PU College
Address: #461, "ASHA", Mahadeshwar
Bada vane, Hospet-583 201, Karnataka
Telephone: 9448989263
*Email: samadkottur@gmail.com.***"**

10. It is submitted that since the Hon'ble Supreme Court has taken cognizance of the matter and notices have been issued to the States/Government authorities, the order of this Tribunal will impact projects for generation of solar and wind energy which will be helpful for generating non-fossil energy to advance Paris Agreement. This prayer is opposed by the Counsel for the Applicant and the MoEF by submitting that directions of this Tribunal will only expedite mitigation measures urgently required and there is no conflict in consideration of matter by the Tribunal with the consideration of the matter by the Hon'ble Supreme Court.

11. We do not find any conflict in the order of this Tribunal and consideration by the Hon'ble Supreme Court. There is also no conflict with the projects for generation of non-fossil energy. Protection of critically endangered species like GIBs cannot be ignored on the specious plea put forward by the NSEFI.

12. In view of above, we dispose of this application with a direction that necessary steps be taken for protecting critically endangered GIBs by installing the diverters on all existing powerlines and undergrounding the new powerlines, as suggested by the six-member Committee of the MoEF&CC, as directed in para 7 above. Monitoring of compliance be done, preferably by the Wildlife Institute of India atleast twice in a year. Needless to say, the directions of this Tribunal are subject to further directions of the Hon'ble Supreme Court in the matter pending, noted above.

The application is disposed of.

A copy of this order be forwarded to the MoEF&CC, Wildlife Institute of India, CPCB and Maharashtra, Gujarat and Rajasthan State PCBs for compliance by e-mail.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. S.S. Garbyal, EM

Dr. Nagin Nanda, EM

December 23, 2020
Original Application No. 385/2019
(IA No. 333/2020)
DV

IN THE SUPREME COURT OF INDIA

CIVIL APPELLATE JURISDICTION

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary

Ministry of Environment & Others ....Respondents

COUNTER AFFIDAVIT/REPLY ON BEHALF OF RESPONDENTS NO. 30

I, RITESH RANJAN S/o N K PANDEY, aged about 41 years, presently working as CHIEF MANAGER with M/s. Power Grid Corporation of India Ltd. having its office at B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016, do hereby solemnly affirm and state as under:

1. That I am the authorised representative of Respondent No. 30 in the above matter and am fully aware of the facts and circumstances of the present case and as such is competent to swear this affidavit.
2. That at the outset, I deny each and every averment made in the said petition which is contrary to, and/ or is inconsistent with what is stated in reply. Nothing contained therein should be deemed to have

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been admitted unless the same is expressly admitted herein.

3. That instant writ petition has been filed seeking urgent implementation of conservation measures to recover protect and preserve the Great Indian Bustard and the Lesser Florican. The petitioners have inter alia prayed for issuance of suitable direction to M/s. Power Grid Corporation of India Limited to insure that the power lines in critical and semi-critical regions are removed, placed underground and marked with suitable diverters.

4. That the answering Respondent, namely, M/s Power Grid Corporation of India Ltd. is a Government of India Enterprise and has been declared as a Maharatna Company by the Government of India. It is the Central Transmission Utility in India and has been given "AAA" rating by CRISIL for domestic sector. The Respondent organization deals with Power lines comprising mostly of Extra High Voltage (EHV) lines, 400, 765, 1200 kV AC lines and 500 kV & 800 kV HVDC lines.

5. That M/s. Power Grid Corporation India Limited is at the forefront of the efforts made by the Government of India to take eco-friendly measures so as to mitigate impact of power transmission lines and allied

infrastructure on the wildlife in general and on the Great Indian Bustard in particular. The respondent organization as matter of policy avoids laying of transmission lines in the national parks and wildlife sanctuaries to the extent possible. It is also submitted that the answering Respondent being a responsible corporate entity provides utmost importance to Environmental Conservation and Sustainable Development since its inception which is evident from the fact that it is the first organization in power sector in Asia that has developed a comprehensive "Environmental and Social Policy & Procedures (ESPP)" in 1998 based on principles of "Avoidance, Minimization and Mitigation". The ESPP outlines the approach and commitment of the Respondent organization to deal with environmental and social issues and lays out management procedures and protocols to mitigate the same. It provides a framework for identification, assessment, and management of environmental and social concerns at both organizational and project level. Guided by the cardinal principle of Avoidance, the endeavor of the Respondent organization towards Environmental & Social prudence starts even before the implementation stage of the project i.e. the

preliminary survey stage. During both preliminary as well as detailed survey environmentally and socially sensitive areas such as Important Bird Habitats (IBA), Identified Migratory paths of the birds, Protected Areas, wetlands, Forests, Habitated areas, and places of archaeological & historical importance etc. are avoided as far as possible. This important step before project implementation helps in reducing the environmental and social impacts associated with activities on wildlife including complete avoidance of protected areas having known habitat/presence of Great Indian Bustard like Desert National Park in Thar Desert and Great Indian Bustard Sanctuary in Kutchh district of Rajasthan and Gujarat respectively. Further, Respondent organisation is also following guidelines of Wildlife Institute of India (WII) on "Eco-friendly Measures to Mitigate Impacts of Linear Infrastructure on Wildlife" and implementing various applicable provisions particularly in respect of minimizing/ mitigating the impact on birds and wild animals during planning, implementation of its transmission line.

6. That it is respectfully submitted that the petitioners have wrongfully attributed the loss of Great Indian Bustard population on Electric lines. The major factor

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outlined by different studies/researches which has caused the near extinction status of Great Indian Bustard is "Loss/Fragmentation of its Habitat" i.e. open and widespread grasslands converted mostly in cultivating field due to increase in population and meet their food requirements, poaching attack by grey wolf/dogs etc. The best example illustrating the same is the Desert National Park (DNP) wildlife sanctuary, which is spread over 3,162 sq. km. in Thar Desert of Jaisalmer & Barmer district of Rajasthan. The sanctuary's landscape is primarily sand dunes and a mix of perennial grass, shrubs and trees. The Sewan grassland landscape was the bustard's natural habitat and bustard, known locally as godawan, flourished for years in these grasslands, but now most of that land is lost to agriculture and other human activities and other infrastructure activities.

7. That it is further submitted that the reported loss of around 10 Great Indian Bustard to electric lines in last decade that too on assumption due to proximity of their carcass to electric lines is still to be established. Moreover, by raising generalized issue of power lines, without making any distinction between Transmission Lines and distribution lines is also

debatable as footprints, impact are quite different due to their size and height of conductor/wires. The two reasons attributed to power lines for fatality of GIB in the petition are Collision & Electrocution. In this context it is pertinent to note the Great Indian Bustard's movement behavior/pattern. It is a well-known fact that GIB is a large ground bird of about one meter height with a long neck and long legs with rather poor flying skills . It is also said that "This bird flies less and walks more." Coming to specifics it is pertinent to bring the following facts for the kind consideration of this Hon'ble Court:

Collision: Risk/chances of collision of GIB with low hanging distribution power lines mainly ranging from 440 volt to 11 kV may be there due to its large size (up to 1.2 meter high), heavy weight (up to 15-18 kgs) and compromised frontal vision and poor flying skills coupled with low flying capabilities. However, such characteristic features of GIB movement further reduces its chances of colliding with high voltage transmission lines (220 KV & above) are quite remote/negligible due to placing of conductor at sufficient high from the ground.

Electrocution: Risk of Electrocution of birds including GIB by transmission lines arises either

from perching or if the bird comes in contact with two conductors or one conductor and earthwire simultaneously. Risk of electrocution in high voltage line even for biggest raptors is eliminated in transmission lines due to large distance of separation between the two conductors (5-7 meters). Further, as an additional measure, Anti-perching devices such as Bird Guards are compulsorily installed on all suspension type transmission towers installed by the Respondent Organisation.

The above facts clearly indicates that all power lines particularly Extra High Voltage (EHV) lines comprising mostly of 400, 765, 1200 kV AC lines and 500 kV & 800 kV HVDC lines are not responsible for fatality of GIB. In spite of that respondent organization which mainly construct & maintain EHV lines in the country would like to submit that due to its careful route selection and other pro-active measures not a single accident of GIB collision or electrocution is reported from its network of around 1,61,490 circuit km of transmission lines spread across the length & width of the country.

8. That the answering Respondent is the first utility which in close consultation with the domain experts from Wildlife Institute of India (WII), Dehradun has

installed bird diverters on one of its line (765 kV Gwalior-Jaipur line) passing through the edge of GIB sanctuary in Gwalior district of Madhya Pradesh way back in 2014-15 though no existence/siting of GIB was reported in said area. Additionally, spacers installed in conductor bundles were also painted with fluorescent color, wherever needed, for ensuring clear visibility/reflection to birds. Photographs dated Nil showing bird diverters and coloured spacers installed on earthwire and conductor bundles respectively on the said Transmission Line is annexed as **Annexure CA 30/1. (Pg.....to.....).**

9. That Similarly, bird diverters on vulnerable earthwire are also installed on 29.2 km stretch of 765 kV Bhuj-Banaskantha line passing through Great Rann of Kachchh, Gujarat which attract lot of migratory birds including Flamingos for breeding after its inundation post monsoon to pre-empt even any remote chance of bird hit incident. Photographs showing bird diverters dated Nil on the Transmission Line is annexed as **Annexure CA 30/2.(Pg....to.....).**

10. That in order to shed light over uncertainty and keeping in view the absence of creditable data on impact of transmission lines on avifauna, respondent organisation has initiated another proactive measure

in 2016-17 by sponsoring a study by Wildlife Institute of India, Dehradun titled *"Impact Evaluation Study of Power Lines on Avifauna in Western Gujarat"*. The outcome of the study will help all Transmission and Distribution utilities in analyzing the actual impacts of Power lines on bird as well as formulating/implementing better safeguard measures for Avifauna protection including those for Great Indian Bustard and Lesser Florican in future. A Copy of the Memorandum of Understanding entered into between M/s Power Grid Corporation of India Ltd. & Wildlife Institute of India is annexed as **Annexure CA30/3. (Pg.....to.....).**

11. That it is most humbly submitted that the prayer of the of Petitioners praying for a direction to have all existing power lines underground is neither technically nor financially viable to make EHV lines underground. As regard distribution lines upto 33 kV which can be recognized as threat to GIB in selected area/habitat MoEF&CC in consultation with Central Electricity Authority (CEA) has already issued directives on 24th October 2016 to make all lines up to 33 kV either underground or insulated in forest/protected areas A Copy of the directive issued by Electricity

Authority (CEA) dated 24.10.2016 is annexed as **Annexure CA 30/4.**

12. That further, in compliance of the Hon'ble Supreme Court order dated 19th January 2018 in Writ Petition (C) no. 275 of 2015 a Task Force was constituted by MoEFCC for suggesting *"Eco-Friendly Measures to Mitigate Impacts of Power Transmission Infrastructures on animal and other Wildlife"*. After detailed deliberation, Task Force has recommended that for all transmission lines of 33 kV and below passing through protected areas (National Parks, Wildlife Sanctuaries, Conservation Reserve, Community Reserve), Eco-Sensitive Zones around the protected areas and wildlife corridors underground cable should be used and requested CEA for necessary amendment in this regard in Rule 59(3) of the CEA (Measures Relating to Safety and Electric Supply) Regulations, 2010. Moreover, it is also to submit MNRE & CEA has already taken up this matter and has issued a directive dated 18.02.2019 to different Power/Wind Energy Utilities requesting them to identify transmission lines and wind energy firms located in GIB habitat for implementation of measures such as installation of bird diverters on the conductors,

painting of cane tips of wind turbine and undergrounding of transmission lines up to 66 kV voltage level. A Copy of the directive dated 18.02.2019 issued by Ministry of Power is annexed as **Annexure CA 30/5.**

13. That the Respondent organisation most humbly submits that it is ready to abide by technologically feasible solutions and directions given by this Hon'ble Court in this regard.

14. That in view of the above and considering the authenticity of data, this Hon'ble may kindly be pleased to dismiss the instant Writ Petition against the answering respondent with costs.

Ritesh Ranjan

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबन्धक (पर्या. एवं सामाजिक प्रबंधन)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001(हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

VERIFICATION

That the contents of the counter affidavit are true and correct to the best of my knowledge and belief and nothing has been concealed therefrom.

Ritesh Ranjan

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबन्धक (पर्या. एवं सामाजिक प्रबंधन)/Chief Manager (ESMD)
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Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

IN THE SUPREME COURT OF INDIA

CIVIL APPELLATE JURISDICTION

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary
Ministry of Environment & Others ....Respondents

COUNTER AFFIDAVIT/REPLY ON BEHALF OF RESPONDENTS NO. 30

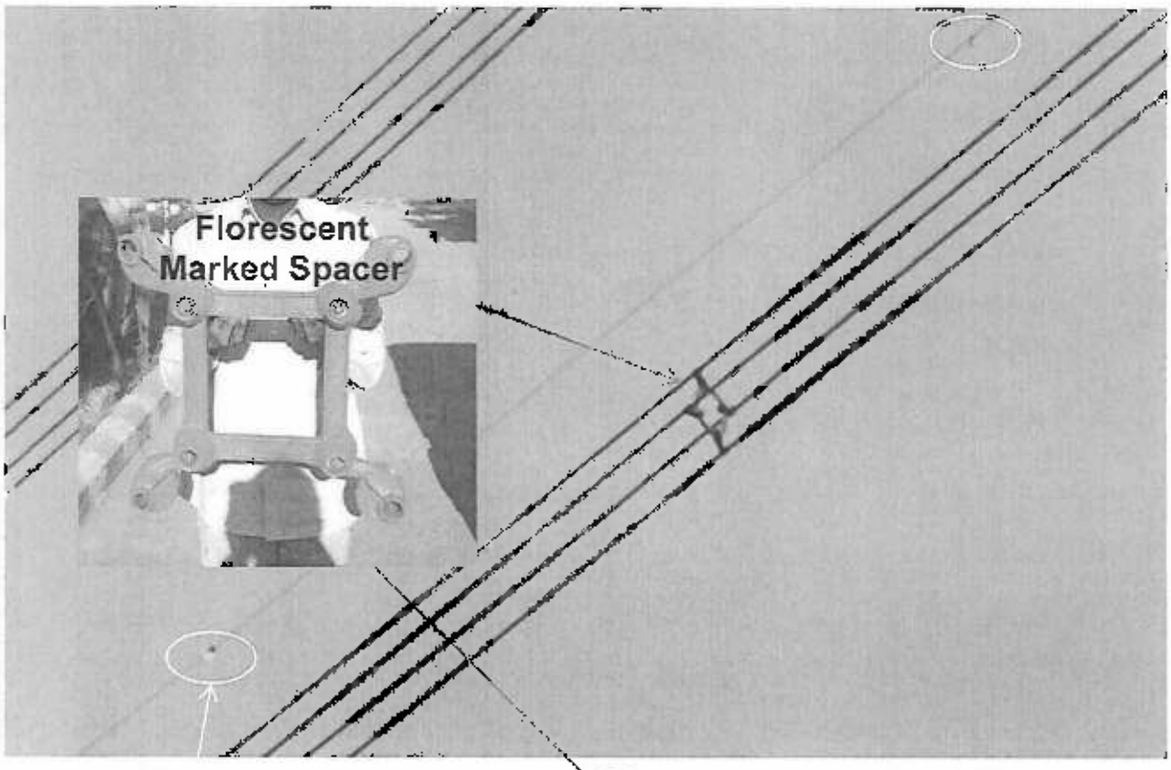
PAPER BOOK

[FOR INDEX KINDLY SEE INSIDE]

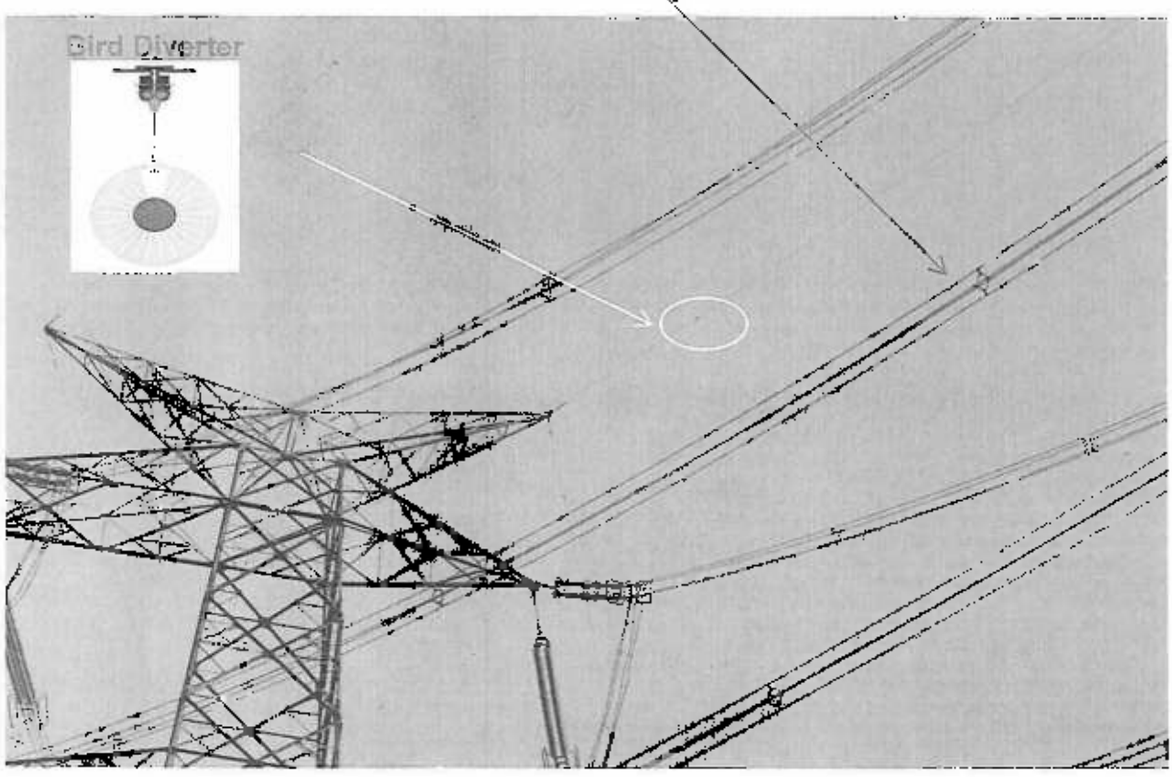
ADVOCATE FOR RESPONDENT NO.30: SOMESH CHANDRA JHA

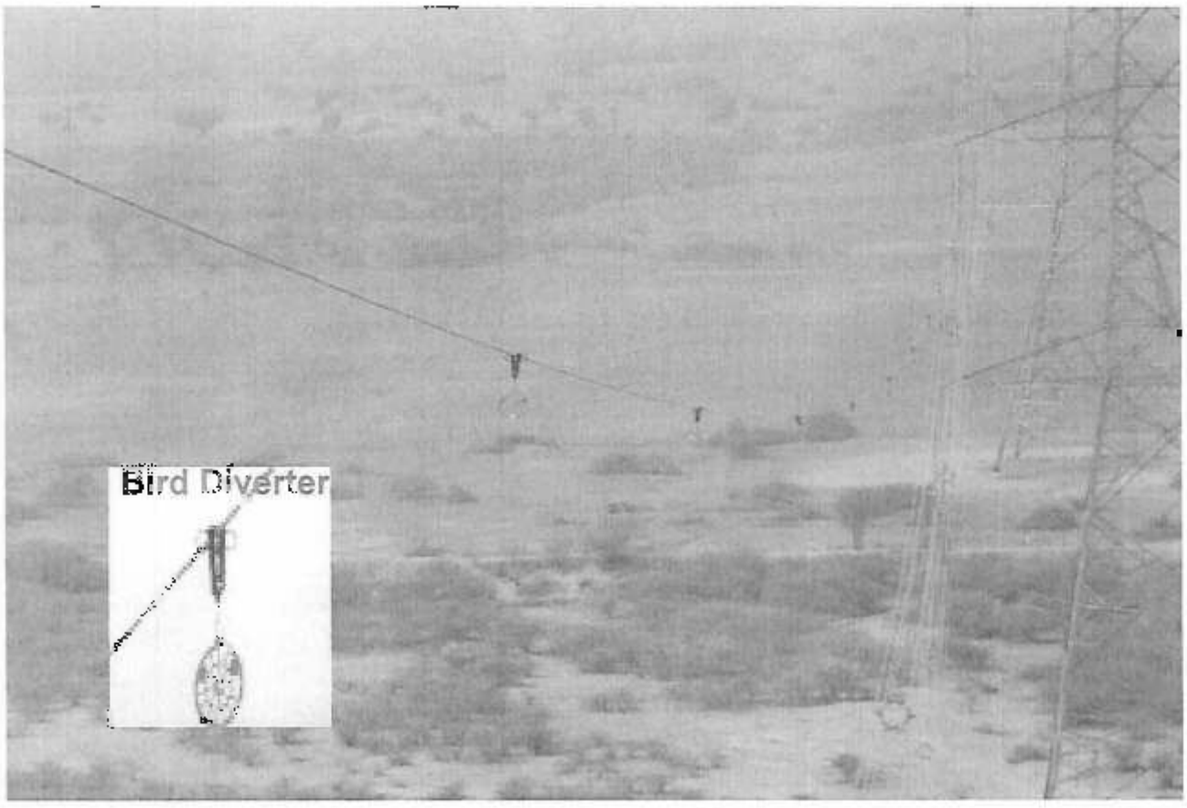
INDEX

S.NO.	PARTICULARS	PAGE NOS.
1.	Counter affidavit/reply on behalf of respondents no. 30	
2.	**Annexure CA 30/1** Photographs dated Nil showing coloured conductor bundles on the Transmission Lines	
3.	**Annexure CA 30/2** Photographs showing bird diverters dated Nil on the Transmission Lines	
4.	**Annexure CA 30/3** A Copy of the Memorandum of Understanding entered into between M/s Powergrid Corporation of India Ltd. & Wildlife Institute of India	
5.	**Annexure CA 30/4** A Copy of the directive issued by Central Electricity Authority (CEA) dated 24.10.2016	
6.	**Annexure CA 30/5** A Copy of the directive dated 18.02.2019 issued by Ministry of Power	

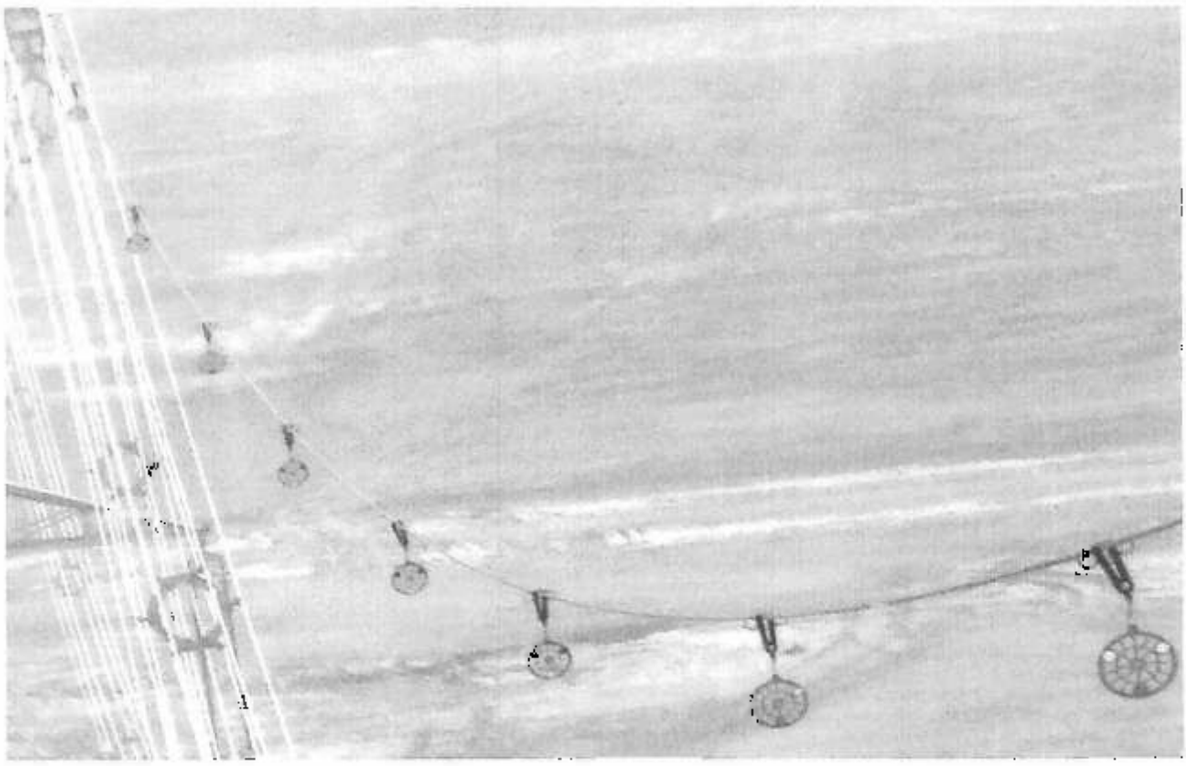


Bird Diverters & Fluorescent Marked Spacer installed in 765 kV Gwalior-Jaipur line





Bird Diverters installed in 765 kV Bhuj-Banaskantha line



Bond

Indian-Non Judicial Stamp
Haryana Government

Date : 26/10/2017

Certificate No. G0Z2017J854

GRN No. 31099571

Stamp Duty Paid : ₹ 101
(Rs. Only)

Penalty : ₹ 0
(Rs. Zero Only)

Deponent

Name : Powergrid Corporation of India ltd

H.No/Floor : Plotno2 Sector/Ward : 29 Landmark : Na

City/Village : Gurugram District : Gurugram State : Haryana

Phone : 0

Purpose : AGREEMENT to be submitted at Other

The authenticity of this document can be verified by scanning this QrCode Through smart phone or on the website https://egrashry.nic.in

Memorandum of Understanding between

POWER GRID CORPORATION OF INDIA LIMITED
and
WILDLIFE INSTITUTE OF INDIA

This Memorandum of Understanding (MoU) hereinafter, together with all Appendices attached hereto and forming an integral part hereof, called the "Understanding" is made at New Delhi and entered into on 27th day of October, 2017 between **Power Grid Corporation of India Ltd. (POWERGRID)**, a Government of India Enterprise, registered under the Companies Act, 1956, having its registered office at 'B-9, Qutub Institutional area, Katwaria Sarai, New Delhi - 110 016 (hereinafter, referred as "POWERGRID" or the "FIRST PARTY") which expression shall, unless excluded by or repugnant to the subject or context, be deemed to include its successor, administrators, assignees and nominees of the FIRST PARTY

AND

Wildlife Institute of India (WII), an autonomous institution under the Ministry of Environment Forest and Climate change, Government of India engaged in Wildlife research in the areas of Biodiversity, Endangered Species, Wildlife Policy, Wildlife Management, Wildlife Forensics, Spatial Modeling, Eco-development, Habitat Ecology and Climate Change (hereinafter referred to as "WII/Second Agency" or "Implementing Agency") which expression shall, unless excluded by or repugnant to the subject or context, be deemed to include its successors, administrators, assigns and nominees of the WII.

POWERGRID and WII shall hereinafter collectively be called "the Parties" and individually referred to as "the Party"

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WHEREAS WII, as a pioneer in the field of research on wildlife of the country shall undertake a study on "Assessing the impacts of power lines on Avian species in the arid plains of Western Gujarat" (Hereinafter referred to as the 'Project')

AND WHEREAS the POWERGRID as part of its Corporate Social Responsibility has been assisting/sponsoring social welfare activities

AND WHEREAS WII vide its proposals dt. 7th March, 2017 requested POWERGRID to consider above referred project for consideration under their CSR initiative for the study to be undertaken by WII in the Western Gujarat and POWERGRID vide its letter dt. 19th June, 2017 agreed to sponsor such study under its CSR at an estimated cost of Rs. 90,00,000/- (Rupees Ninety lakhs only) on the terms and conditions mentioned in this Understanding.

NOW THEREFORE, the parties hereto, in consideration of the premises set forth hereinabove and of the mutual covenants and undertaking set forth hereinafter, hereby agree as follows:

Section 1

1. Construction of the MoU

1.1. The MoU shall be governed by and construed in accordance with the laws of INDIA.

2. Instructions and approvals

2.1. The Project shall be implemented by WII in accordance with the Project Implementation Plan, Scope of work, Time Frame and Payment Schedule as set out in Schedule I within the geographical area specified therein and with due diligence, efficiency and with due regard to the judicious use of funds.

2.2. No variation in the Project Implementation Plan as detailed in the Schedule-I, shall be allowed to WII, unless otherwise agreed to in writing by POWERGRID in the form of an amendment.

3. General provisions

3.1. Nothing contained in this MoU shall be construed or have effect as constituting a relationship of employer and employee or principal and agent between POWERGRID and WII.

3.2. WII hereby agrees to implement the Project on the terms and conditions stated herein as the Implementation Agency.

3.3. WII shall be solely and exclusively responsible for all acts and omissions of its staff and any persons, associations, institutions engaged by WII whether or not in the course of implementing the project and for the health, safety and security of such persons or entities and their property.

3.4. POWERGRID shall not be liable directly or indirectly for any loss or damage caused to any material or life by the act of WII or its agents or third parties while implementation and post implementation of the project.

3.5. The advances/commitments made by POWERGRID under this Understanding are a part of Corporate Social Responsibility policy of POWERGRID, and the same shall not be construed as an advance under the regular business of POWERGRID.

3.6. WII declares and undertakes that WII is in compliance of the laws and bye laws applicable to it, and that it has required authorization, permission & clearances and complied all

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formalities required by or under the laws and bye-laws and rules regulating the work and conduct of WII and for implementing the project.

4. Amendment

4.1. In case any amendments are required in any part of the MoU, the Parties on mutual Understanding shall incorporate such amendments by way of amendments to this Understanding which shall be binding and be followed by the parties.

5. Termination

5.1. In case of deficiency/non-adherence to provisions of MoU by WII, POWERGRID may serve a notice of 21 days period to rectify the deficiency / non-adherence to the provisions of MoU by WII. In case of continuing unsatisfactory performance beyond 21 days, POWERGRID shall have the right to terminate the MoU without any further notice. In this eventuality, WII shall be liable to refund all the payments made to it on the date of termination and the project shall be completed at the risk and cost of WII.

5.2. POWERGRID shall also have a right to terminate the MoU unilaterally after giving 1 month notice period to WII of its intention to do so and shall stop further disbursement. However, the payments already made and utilized by WII shall not be recovered from WII. POWERGRID shall also not be responsible for disbursing any future payments thereafter.

6. Terms of payment & other obligations

6.1. POWERGRID shall release funds to WII to meet approved or agreed expenses of the Project and commitments related to the said Project as per clause V of Schedule I.

6.2. The funds disbursements shall be made in Indian Rupees. WII will submit the Bank account number/details of nationalized bank for release of funds through e-banking.

6.3. Without prejudice to the other provisions of this MoU, in the event the implementation of the Project is not as per the scope of work and targets, POWERGRID shall reserve the right to withhold or reduce the amount/installment amount applied for by WII or stop further disbursements of Amount/installments to WII and release of the further installment amount shall be made upon remedying of the unsatisfactory work and on resolution of the outstanding queries by WII to the satisfaction of POWERGRID.

6.4. In the event of excess release of funds to WII, POWERGRID shall demand and recovet from WII such excess disbursements and WII would be liable to refund the excess disbursements within a period of 15 days of ascertainment of the final amount.

6.5. Income Tax at applicable rates shall be deducted at source for all items.

6.6. WII undertakes that WII shall not sell, mortgage/hypothecate, lease the said project assets under any law for the time being in force, without prior written approval of POWERGRID.

7. Force Majeure

If the performance of the MoU by either party is delayed, hindered or prevented or is otherwise frustrated by reason of force majeure, which shall mean war/ hostilities, riot or civil commotion, fire, flood or earthquake, tempest, lightening or other natural physical disaster; restrictions imposed by the Government or other Statutory bodies which prevents or delays the execution of the Understanding by WII, any event beyond the control of the parties to the Understanding, then the party so affected shall promptly notify the other party in writing specifying the nature of the Force Majeure and of the anticipated delay in

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the performance of the Understanding. From the date of the notification, POWERGRID shall at its discretion, either terminate the Understanding forthwith or suspend the performance of the Understanding for a period not exceeding 6 months. If at the expiry of the second period of suspension, the reasons for the suspension still remain, POWERGRID and WII shall treat the Understanding as terminated.

8. Settlement of disputes

Parties shall amicably resolve any dispute arising from this agreement. Should the Parties be unable to reach agreement on the meaning or interpretation of any of the clauses set out hereto or any other matters arising out of the Agreement the matter in dispute shall be referred to the Permanent Machinery of Arbitration (PMA) in the Department of Public Enterprises (DPE) as communicated by DPE OM No.4(1)/2011-DPE(PMA)-GL dated 12th June 2013.

9. Jurisdiction

9.1. All disputes arising between the parties shall be subject to the exclusive jurisdiction of the Courts in Delhi/New Delhi only.

10. Inspection & Evaluation

10.1. POWERGRID shall, at its discretion, undertake inspection/evaluation of the impact/progress of the Project. Such inspection shall be carried out anytime during the tenure of the MoU. WII shall as and when required, give POWERGRID representative full cooperation and access to its records for such inspection carried out in connection with this MoU..

10.2. WII shall upon receipt of prior seven days notice permit and make suitable arrangements for the representatives of any POWERGRID and POWERGRID's Agent, at such intervals as POWERGRID may determine-

i. To visit and inspect the Assets created and the Project Sites to carry out technical, financial and legal inspections.

ii. To examine WII's books of records, account and documents, including the bidding documents; to make copies there from; at all times upto the completion of the Project.

10.3. WII confirms that all information provided / to be provided to POWERGRID or any representatives of the POWERGRID in connection with the Project, whether before or after the execution of this Understanding, by or on behalf of WII is/shall be true, correct and complete in all respect, and is not/shall not be false or misleading in any respect nor incomplete by omitting to state any fact necessary to make such information.

10.4. WII shall promptly notify POWERGRID of any proposed change in the nature or scope of the Project and of any event or condition which might materially and adversely affect the Project.

10.5. WII shall maintain records showing the expenditure incurred utilization of the Drawdown's, the operations and financial condition of WII and such records shall be open to examination by POWERGRID, and their authorized representatives. WII shall provide photocopies of any such records to POWERGRID on demand.

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10.6. As per POWERGRID policy, Impact Assessment may be conducted after completion of the Project. WII shall give complete cooperation for Assessment of the Impact of the project.

Refund of Unutilized/Unspent Funds

10.7. The implementing agency (WII) shall submit an Utilization certificate certified by a Chartered Accountant to the satisfaction of POWERGRID.

10.8. Any unspent or unutilized amount, disbursed earlier by POWERGRID for the project to WII, shall on completion of the project, be refunded to POWERGRID within 30 days of the completion of the project or termination of the MoU, whichever is applicable.

11. Notices

Every notice to POWERGRID and WII shall, save as otherwise herein specifically provided, be in writing and in the English Language and shall be delivered by hand or sent by mail (Registered/Speed Post) and shall be deemed to have been given and received, if delivered by hand, upon delivery, if sent by mail, the 3rd day (excluding Saturday, Sunday and other closed days) following the date of mailing, and if sent by Email, the 2nd day (excluding Saturday, Sunday and other closed days) following the date of transmission. The mailing address, of WII and the POWERGRID for purposes shall respectively be:

FOR POWER GRID CORPORATION OF INDIA LIMITED
Executive Director (ESMD, CSR & LA)
Power Grid Corporation of India Limited,
"Saudamini", Plot no. 2, Sector 29,
Gurgaon, Haryana-122001
E-mail: csr@powergrid.co.in

FOR WILDLIFE INSTITUTE OF INDIA
Director
Wildlife Institute of India ltd.
Chandrabani, Mehu Wala Mafi,
Dehradun, Uttarakhand- 248007
E-mail: dwii@wii.gov.in
vbm@wii.gov.in

or such other mailing address as to which WII or POWERGRID may, for itself, from time to time notify the other as aforesaid.

12. General Conditions

(i) Since the project will be undertaken in the arid plains of Western Gujarat, therefore, the project may be centrally coordinated by POWERGRID Corporate CSR Group, Sh. A. K. Stivastava, General Manager (CSR) shall be the Officer-in-charge of POWERGRID for this project and all communications in this regards are to be addressed to him. However a local Nodal Officer/Co-ordinator, will be identified and communicated to WII separately within a fortnight of signing of the MoU.

(ii) On behalf of WII, Director, Wildlife Institute of India shall be the official in-charge. Details about name, phone number and emails of concerned nodal

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officers from POWRGRID & WII shall be made available to each party before implementation of the CSR project.

(iii) The progress report of the program/project will be submitted by WII periodically supported with photographs and /or video of the project.

(iv) At the end of the program, the study report be submitted by WII to POWERGRID, clearly indicating activities undertaken and objectives attained.

(v) WII shall appoint a coordinator to co-ordinate various activities under this project and coordinate to arrange for periodical inspections and monitoring of the program by POWERGRID Officials, as it may identify.

(vi) WII shall provide name, email id and telephone number(s) of its contact persons to POWERGRID, who would be responsible for the implementation and co-ordination of the program.

Schedule I

I. **Name of the Project**

"Assessing the impacts of power lines on Avian species in the arid plains of Western Gujarat", by Wildlife Institute of India, Dehradun.

II. **Objectives of the Project**

The project is proposed to be carried out in entire arid plains of Greater and Little Rann of Kutch in Gujarat. It will have the following objectives:

1. To assess the electrocution and collision risk to birds due to existing power lines and wind farms, identify problematic configurations and generate comprehensive data on mortality of avifauna.
2. To identify sensitive bird habitats along existing and proposed power line and wind farm corridors in Western Gujarat.

III. **Project Details**

1. Project Purpose and Scope

"Assessing the impacts of power lines on Avian species in the arid plains of Western Gujarat"

Benefits of the project

- Data on bird mortality from power lines and wind turbines in the study area
- Data on problematic configurations in the existing power lines in the study area that are of high risk to the birds
- A database on sensitive bird habitats and presence of vulnerable species along power lines in the region will be generated
- The fine scale movement data to be generated through tracking of large birds like cranes and flamingos will be the first attempt in understanding the species in their wintering and breeding grounds in India
- A best practice guidance document on "Eco-friendly measures to reduce/ minimise negative impacts of power transmission on avian species."

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- In India currently there exists a gap in terms of expertise in this area of research. Therefore, this study would result in building expertise and capacity in this niche domain. The study may also lead towards achieving higher degree for the project personnel.

2. **Location and Site**

The Rann of Kutch region is a unique desert system, and is globally outstanding for its biological distinctiveness and richness. The unique flora and fauna makes it a location of choice for various migratory as well as local bird species. Many parts of the proposed sites of study have been identified as high priority areas for avifaunal conservation and recognized as Important Bird Areas (Islam and Rahmani 2004). Several globally threatened bird species that come here in the winters include a no. of raptors: four eagle species, and six vulture species, due to the presence of regional cattle carcasses disposal, etc. Given that tall trees are largely absent, the anthropogenic structures such as utility poles, transmission towers, etc. provide tall perches used by these raptors, making them highly vulnerable to collisions and electrocutions.

The Gulf of Kutch has also seen rapid industrialization in recent times and there has been a mushrooming of ports & harbors all along the coast. The Gulf is also known as the 'The Gulf of Rich' due to the tremendous economic activities in the region. In order to meet the power demand for the ever increasing industries, new sub-stations and huge network of power lines exists in the area. This network is continuously expanding given the immense potential of renewable resources (tidal, wind & solar) in Kutch area. The study area is an important area for several threatened, endemic and migratory species, which are exposed to the risk of coming in contact with these anthropogenic structures. Therefore, it becomes important to undertake detailed study of the area and understand the threats to its species and their survival due to power lines and power generating turbines. This study would serve as the basis for policy and management for reduction of avian mortality, and for framing strategies for setting up power line corridors.

3. **Methodology and Timelines**

For identifying the impact of power lines on birds, a combination of on ground field surveys and lab based GIS approaches will be carried out to achieve the project objectives. At the start, information on previously reported avian mortalities due to power lines in the region will be gathered. This information will form the basis for the initial set of surveys to be carried out. Extensive vehicular surveys and systematic surveys by foot will be made along select power line corridors in the study region. The main focus of these surveys will be during the winter months (November to March) when a large no. of migratory birds arrives in the region. In the Kutch region, however, birds like flamingo congregate in large numbers to breed during the monsoon (July to September), and therefore, surveys will also be centered at that time. Avian remains will be searched near each transmission tower.

Activity	2017			2018				2019
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar
Recruitment of researchers								
Procurement of equipment								
Literature survey								
Field work								
Analysis of data								
Report writing								

Indicative Cost Estimation of the Project

S. No	Activity	Description	Period	Amount
1	Salary for Project Associate	A salary of Rs. 50000/month (consolidated) for 24 months is required to be paid to one project associate, who will be responsible for carrying out the work and GIS related works (April 2017 - March 2019)	24 months	1200000
2	Salary for Project Assistant	A salary of Rs.25000/month (consolidated) for 24 months is required to be paid to one project assistant, who will be assist the project associate in carrying out field work (April 2017 - March 2019)	24 months	600000
3	Salary for field support staff	A salary of Rs. 10000/month/person for two field support staff is required for 22 months	22 months	440000
4	Basic expenses for volunteers	Living and travel expenses for local volunteers (10 members)	20 weeks	500000
5	Travel expenses	Travel from Dehradun to Gujarat and back for two project investigators @ Rs. 20000/trip per person for four trips	4 trips/person	160000
		Travel from Dehradun to Gujarat for the project associate and project assistant @ Rs. 10,000/trip per person and for four trips (2 trips per year)	4 trips/person	80000
		Vehicle hiring and fuel expenses at the study site + vehicle maintenance and repair	20 months	800000
6	Accommodation	Accommodation expenses for two investigators for four trips/person	4 trips/person	80000
		Accommodation expenses for the project associate and project assistant during transit	4 trips/person	50000
		Hiring of basecamp @ Rs. 5000/month for 24 months	24 months	120000
7	Equipments	a. GSM/GPS transmitters (KoECO WT-300) 20 units for tracking birds @ Rs. 120000/transmitter	20 units	2400000
		b. Nikon Monarch Binoculars (8 x 40)	2 units	80000
		c. Nikon digiscope system 82 mm ED	1 unit	200000
		d. Laptop and a work station for project personnel	2 units	200000
		e. GPS (Etrex)	2 units	60000
		f. Field gear and camping equipment for project personnel	2 sets	100000
		g. Procurement of spatial data and digitization	-	500000
8	Miscellaneous	Research permission fees, stationary, consumables	-	100000
9	Publications	Publication of technical report and papers (50 copies)	-	50000
10	Contingency		-	100000
		Total		78,20,000
		15% Institutional Charge		11,73,000
		Grand Total		89,93,000
		Grand total (rounded off)		90,00,000

The total cost estimate for the project is Rs. 90,00,000/- (Rupees Ninety lakhs only) inclusive of all.

IV. Timeline

Total duration of this project is 24 months as indicated above in the bar chart however zero date shall be the date of signing of the Memorandum of Understanding (MoU).

V. Terms of Payment

The payment shall be released to WII as per the milestones indicated below:

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Sl. No.	Milestone	Amount
1.	Signing of MOA	10% of POWERGRID's financial assistance on estimated project cost including WII's consultancy charges.
2.	Placement of LOA for purchase of equipment	100% of the LOA value
3.	End of 1st year	30% of the remaining financial assistance at the end of the Ist year subject to submission of utilization certificate of the previous advance
4.	Draft final report submission	Balance payment subject to submission of utilization certificate of the previous advance

POWERGRID shall not bear the cost overrun. However, in case, if a request for additional financial assistance under CSR is made, POWERGRID in its sole discretion may or may not approve such additional release of funds.

VI. Credits and Acknowledgements

It is hereby agreed that both the Parties can disseminate information regarding this collaboration and the significance of the Project through appropriate forums and means such as the Parties' respective websites, newsletters, advertisements, publication of research papers etc. WII will publicize in a visible manner POWERGRID's association with the Project through display on systems/unit/boards/wall paintings/flex banner etc. containing POWERGRID's name and logo at the site.

VII. General Compliances:

a. Photography of the various phases of the project to be developed and submitted to POWERGRID by WII along with soft copy.
b. Progress Report is to be submitted by WII periodically separately in respect of the Project.

In witness whereof, the parties hereto have caused this MoU to be signed in their respective names on the date and place first herein above written.

For and on behalf of
POWERGRID

Signature : 27/10/17

Name : एस. के. गुप्ता/S. K. GUPTA

Designation : पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड Power Grid Corporation of India Ltd. Plot No.-2, Sector-29, Gurgaon- 122 001 (Haryana)

Witness:

1. (R. K. SRIVASTAVA) 27/10

2. (Anjan Sanyal) Asst GM, CSR 27/10/17

For and on behalf of
Wildlife Institute of India (WII)

Signature : 31/10/17

Name : Dr. V. B. Mathur

Designation : निदेशक/Director भारतीय वन्यजीव संस्थान WILDLIFE INSTITUTE OF INDIA देहरादून/Dehradun

Witness:

1. 31/10/2017 R. Suresh Kumar Scientist-E

2. 31/10/17 Dr. Anjan Basath, Scientist-C

WILDLIFE INSTITUTE OF INDIA DEHRADUN

F.No.7-25/2012-FC
Government of India
Ministry of Environment, Forest and Climate Change
(Forest Conservation Division)

****

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi - 110 003
Dated: 24th October, 2016

To

The Principal Secretary (Forests),
All States/ Union Territories.

Sub: Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act, 1980- Guidelines for laying transmission lines through forest areas - *reg.*

Sir,

In continuation of this Ministry's letter of even number dated 5th May 2016 on the above-mentioned subject where under this Ministry sent a copy of revised guidelines for laying transmission lines through forest areas, I am directed to say as below:

(i) The norms/ standard for laying underground insulated cables through forest areas shall be as below:

Line voltage	Trench width	Trench depth
33 KV	600 mm	1200 mm
11 KV	300 mm	900 mm

(ii) For laying double circuit (D/C) underground cables through forest areas trench width shall be twice the afore-mentioned width stipulated for the single circuit cable.

(iii) The following shall be ensured while laying and maintenance of 11 KV and 33 KV transmission and distribution lines in areas critical from wildlife point of view:

(a) Laying/maintenance of lines shall conform to IS 5613, Rural Electrification Corporation Limited (REC) Construction Standards and applicable guidelines of Central Board of Irrigation and Power;

(b) Suitable guard spikes may be provided on 400 Volts, 11 KV and 33 KV poles at height of 4 ft. and 7 ft. toward off animals coming close to poles and likely to damage it by rubbing against them;

(c) Tower accessories as stipulated in Indian Electricity Rules, 1956 shall be provided on all the towers;

(d) Concerned Electricity Department should undertake rigorous exercise to inspect the lines so as to ensure that mandatory ground clearances are not

violated as stipulated in the Indian Electricity Rules, 1956. Lines should be inspected periodically, say, at least once in a year by electricity Department officials and corrective actions shall be taken in this regard. Maintenance of the minimum ground clearance and periodical inspection should be certified by an officer not below the rank of an Executive Engineer;

(e) Joint inspection of every transmission/distribution line by officials of Electricity Department and Forest Department may be undertaken twice in a year, say, once before onset of monsoon and once after monsoon so as to identify any need for lopping of trees and ensuring necessary action in this regard;

(f) Every tripping of an Electric line should be investigated by the owners of such line and they should take suitable measures to avoid recurrence of the same;

(g) Forest Department shall inform the concerned power supplier/line owner of the area about every electrical accident occurring in and around forest area involving human/animals which in turn shall submit an accident report in Performa as given at Annexure-XIII of Indian Electricity Rules, 1956 duly completed in all respects to Electrical Inspector of the State. All electrical accidents should be investigated by Electrical Inspector and suitable measures should be taken as proposed in the investigation report.

(iv) In case of the demand for **reduction in the width of right of way (RoW) of transmission lines in forest areas in the cases where ABC cables are used in place of overhead lines,** it is clarified that as per definitions in Measures relating to Safety and Electric Supply, Regulations, 2010, conductor is defined as bare or insulated and as such the vertical & horizontal clearance specified in Regulation 61 have to be maintained for both bare and insulated conductors like ABC *etc.*

(v) To prevent death of animals like elephant *etc.* in the forest areas due to electrocution by the distribution lines, in the forest area the distribution companies shall preferably use ABC or underground cable. In case of the overhead lines, the clearance above ground of the lower conductor of 11 KV and 33 KV overhead lines should be as per the CEA regulation 58(3) and 58(4) or above maximum trunk height of the elephant, which ever higher.

Yours faithfully,

(Nisheeth Saxena)
Sr. Assistant Inspector General of Forests

Copy to:-

1. Prime Minister's Office *(Kind attn.:* Shri Ajeet Kumar, Deputy Secretary), South Block, New Delhi.

2. Secretary, Ministry of Power, Government of India, Shram Shakti Bhawan, New Delhi.
3. Principal Chief Conservator of Forests, all States/Union territories.
4. Nodal Officer, the Forest (Conservation) Act, 1980, all States/Union territories.
5. All Regional Offices, Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India (GoI).
6. Joint Secretary in-charge, Impact Assessment Division, MoEF&CC, GoI.
7. All Assistant Inspector General of Forests/ Director in the Forest Conservation Division, MoEF&CC, GoI.
8. Deputy Secretary (ROHQ) Division, MoEF&CC, GoI.
9. Sr. Director (Technical), NIC, MoEF&CC, GoI with a request to place a copy of the letter on website of this Ministry.
10. Sr. PPS to the Secretary, Ministry of Environment, Forest and Climate Change, GoI.
11. PPS to the Director General of Forests & Special Secretary, MoEF&CC, GoI.
12. PPS to the Addl. Director General of Forests (Forest Conservation), MoEF&CC, GoI.
13. PPS to the Inspector General of Forests (Forest Conservation), MoEF&CC, GoI.
14. Guard File.

(NisheethSaxena)
Sr. Assistant Inspector General of Forests

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली अभियांत्रिकी एवं प्रौद्योगिकी विकास प्रभाग
Power System Engineering & Technology Development Division
Room No. 334, Sewa Bhawan, R.K. Puram
New Delhi – 66, Telefax: 26170541 Telephone: 26732342

सं./No. CEA/PSETD/201/2019/2042 दिनांक:18.02.2019

To,

As per attached list

विषय: पावर ट्रांसमिशन लाइनों और पवन ऊर्जा खेतों से ग्रेट इंडियन बस्टर्ड को होने वाले नुकसान को कम करने के उपायों को अपनाने के संदर्भ में।

Subject: Adopting measures to mitigate harm to Great Indian Bustard from Power Transmission lines and Wind Energy Farms - reg.

महोदय,

As you may be aware Great Indian Bustard (GIB), one of the flagship bird species of India and State bird of Rajasthan, is a near extinct species and the global population of this bird has been reduced to less than 150 birds. The majority of the surviving birds live in the fragmented grasslands of Rajasthan and Gujarat, along with a few individuals in Maharashtra, Andhra Pradesh and Karnataka etc.

The overhead power transmission lines and Wind turbines of Wind Energy Farms pose a threat to habitat of this bird and causes unnatural death of the birds due to electrocution and collision.

CEA vide its letter no. CEA/PSE&TD/501/2018/749 dated 04.07.2018 had already circulated the eco-friendly suggestions made in chapter 12 of Wildlife Institute of India's (WII under MoEF&CC) document for designing new linear infrastructure passing through wildlife rich areas for mitigation of ecological impacts of power lines.

In addition, to mitigate the serious issue of depleting Great Indian Bustard population, it is requested that critical power transmission lines and wind energy firms passing through the GIB habitats may be identified in consultation with WII and measures such as putting up bird diverters

on the conductors, painting of cane tips of wind turbines and undergrounding of the transmission lines up to 66 kV voltage level, etc. may be adopted.

To discuss the issue, a meeting will be held on 08.03.2019 at 03.00 P.M. in the 2nd Floor, Conference Room, Sewa Bhawan, R.K.Puram, New Delhi. It is requested to make it convenient to attend the meeting and details of identified transmission lines and wind farms and the necessary measures proposed to be taken to avoid electrocution and collision of Great Indian Bustard may be intimated to this office by 5th March,2019.

Please confirm the participation by return mail.

भवदीय,

18/2/19

योगेन्द्र कुमार स्वर्णकार

निदेशक

Copy to :

Shri Bihari Lal,Under Secretary(trans), MoP, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001:Fax 011-23325242; email: transdesk-mop@nic.in

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

I.A. NO.....OF 2021

IN

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary

Ministry of Environment & Others ....Respondents

WITH

I.A. NO...../2021

AN APPLICATION SEEKING PERMISSION TO FILE ADDITIONAL AFFIDAVIT

WITH

ADDITIONAL AFFIDAVIT ON BEHALF OF RESPONDENT NO. 30

WITH

I.A. NO...../2021

AN APPLICATION SEEKING EXEMPTION FROM FILING DULY ATTESTED AND NOTARISED AFFIDAVIT

PAPERBOOK

[FOR INDEX – KINDLY SEE INSIDE]

ADVOCATE FOR RESPONDENT NO. 30 – SOMESH CHANDRA JHA

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1.	**I.A. No……..of 2020** An Application seeking permission to file Additional Affidavit.	
2.	Additional Affidavit on behalf of respondent no. 30	
3.	**Annexure AA 30/1** A copy of WII letter/action plan list of power lines prioritised for undergrounding and bird diverter installation.	
4.	**Annexure AA 30/2** A copy of the photograph showing the installation of the Anti-perching devices	
5.	**Annexure AA 30/3** A copy of the photographs showing the installation of Bundle Conductors	
6.	**Annexure AA 30/4** A copy of the photographs showing the Bird Diverters on Earth wires	
7.	**Annexure AA 30/5** A true copy of the relevant extract of the Manual on Reducing Avian	

	Collisions with Power Lines, 2012	
8.	**Annexure AA 30/6** A true copy of the detailed assessment report submitted by WII	
9.	**Annexure AA 30/7** A copy of the relevant extract of the Manual on Reducing Avian Collisions with Power Lines	
10.	**Annexure AA 30/8** A Copy of the study captioned as "STATISTICS OF AC UNDERGROUND CABLES IN POWER NETWORKS" published in December 2007 by CIGRE	
11.	**Annexure AA 30/9** A true copy of the letter dated 05.08.2014 issued by the Central Electrical Authority to MoEF&CC	
12.	**Annexure AA 30/10** A true copy of the manual titled "Reducing Avian Collisions with Power Lines" published by Edison Electric Institute (EEI)	
13.	**Annexure AA -30/11** A copy of the Judgment and order dated 23.12.2020 passed in Original Application No. 385/2019 (IA No. 333/2020) titled as Centre for Wildlife and Environment Litigation Vs. Union of India filed by the Hon'ble National Green	

	Tribunal.	
14.	**I.A. No.....of 2021** An Application seeking exemption to file duly attested and notarized affidavit.	

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

I.A. NO.....OF 2021

IN

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

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AN APPLICATION SEEKING PERMISSION TO FILE ADDITIONAL AFFIDAVIT

1. That the instant Public interest litigation has been instituted by the petitioners seeking identification and urgent implementation of conservation measures to recover, protect and preserve two endangered species of birds namely Great Indian Bustard (Ardeotis nigriceps) and The Lesser Florican (Syphcotides indicus) which are facing as alleged imminent extinction.

2. That M/s Power Grid Corporation of India Ltd. (hereinafter referred to as POWERGRID) which has been arrayed as respondent No.30 in the Writ Petition is a Government of India Enterprise and has been declared as a Maharatna Company by the Government of India. It is the Central Transmission Utility (CTU) in India and has been given "AAA" rating by CRISIL for domestic sector. The

Respondent organization deals with Powerlines comprising mostly of Extra High Voltage (EHV) lines, i.e. 400 kV, 765 kV, 1200 kV AC lines and 500 kV & 800 kV HVDC lines. The petitioners have inter alia prayed for issuance of suitable direction to POWERGRID to ensure that the powerlines in critical and semi-critical regions are removed, placed underground and marked with suitable diverters.

3. That on 24.01.2020, POWERGRID filed its counter-affidavit. Thereafter various pleadings/documents have been filed by co-respondents as well as the Petitioner which demands suitable response from the applicant herein. Moreover, Hon'ble National Green Tribunal vide its judgment dated 23.12.2020 passed in Original Application No. 385/2019 (IA No. 333/2020) titled as Centre for Wildlife and Environment Litigation Vs. Union of India has issued certain directions with regard to the conservation of GIB and the same is required to be placed on record. The applicant therefore craves the leave of this Hon'ble Court to file an additional affidavit to bring on record additional facts. It is most respectfully submitted that the said Additional Affidavit is vital for the proper adjudication of the instant case.

4. That the instant application may kindly be allowed in the interest of justice.

PRAYER

In view of the facts and circumstances enumerated above, the Applicant most humbly pray that this Hon'ble Court may be pleased to:

a) Allow the applicant to file the Additional Affidavit in the interests of justice; and

b) Pass any such order(s), as this Hon'ble Court may deem fit in the interest of justice.

AND FOR THIS ACT OF KINDNESS, THE APPLICANT AS IN DUTY BOUND SHALL EVER PRAY.

DRAWN & FILED BY:

[SOMESH CHANDRA JHA]

ADVOCATE FOR THE APPLICANT

Filed on: .01.2021

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

I.A. NO.....OF 2021

IN

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary

Ministry of Environment & Others ....Respondents

AFFIDAVIT

I, Ritesh Ranjan S/o Sh. N. K. Pandey age about 42 years, working as Chief Manager with M/s Power Grid Corporation of India Ltd. having its Registered office at B-9, Qutub Institutional Area, New Delhi, do hereby solemnly affirm and declare as under:

1. That I am the authorised representative of the applicant in the present Writ Petition and am well aware with facts and circumstances and records of this case and as such I am competent to swear this affidavit.

2. That the contents of the accompanying I.A. has been read over to me in vernacular and I state that the contents thereof are true and correct to the best of my knowledge and belief and on the basis of the records maintained in the office of the Applicant.

3. That the Annexures are true copies of their respective originals and forms part of the record.

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (पर्या. एवं सामाजिक प्रबंधन)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001(हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

VERIFICATION:

On this _____day of January 2021, the deponent abovenamed do hereby verify that the contents of this affidavit are also true and correct to the best of my knowledge and belief nothing material has been concealed there from.

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (पर्या. एवं सामाजिक प्रबंधन)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
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Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary

Ministry of Environment & Others ....Respondents

ADDITIONAL AFFIDAVIT ON BEHALF OF RESPONDENTS NO. 30

I, Ritesh Ranjan S/o Sh. N. K. Pandey age about 42 years, working as Chief Manager with M/s Power Grid Corporation of India Ltd. having its Registered office at B-9, Qutub Institutional Area, New Delhi-110016, do hereby solemnly affirm and state as under:

1. That I am the authorised representative of Respondent No. 30 in the above matter and am fully aware of the facts and circumstances of the present case and as such is competent to swear this affidavit.
2. That the instant Public interest litigation has been instituted by the petitioners seeking identification and urgent implementation of conservation measures to

recover, protect and preserve two endangered species of birds namely Great Indian Bustard (Ardeotis nigriceps) and The Lesser Florican (Sypheotides indicus) which are facing as alleged imminent extinction.

3. That POWERGRID which has been arrayed as respondent No.30 in the Writ Petition is a Government of India Enterprise and has been declared as a Maharatna Company by the Government of India. It is the Central Transmission Utility (CTU) in India and has been given "AAA" rating by CRISIL for domestic sector. The Respondent organization deals with Powerlines comprising mostly of Extra High Voltage (EHV) lines, i.e. 400 kV, 765 kV, 1200 kV AC lines and 500 kV & 800 kV HVDC lines. The petitioners have inter alia prayed for issuance of suitable direction to POWERGRID to ensure that the powerlines in critical and semi-critical regions are removed, placed underground and marked with suitable diverters.

4. That the instant Writ Petition was listed before this Hon'ble Court on 18.02.2020 and after hearing the parties, this Hon'ble Court was pleased to pass the following order:

".....It appears that one of the hazards in relation to the Great Indian Bustard bird is the existence of power lines which are said to obstruct the flight path and said to kill the said bird upon collusion. It is well known that the Great Indian Bustard bird is a large bird and finds it difficult to maneuver easily in flight. One of the solutions might be, if the flight path of these birds in the area is determined and overheads lines are taken down and laid underground....."

5. That POWERGRID is at the forefront of the efforts made by the Government of India to take eco friendly measure so as to mitigate impact of power transmission lines and allied infrastructure on the wild life in general and on the Great Indian Bustard in particular. The respondent organization as matter of policy avoids laying of transmission lines in the national park and wildlife sanctuaries to the extent possible.

6. That subsequent to the passing of the aforesaid order, Petitioners have filed Rejoinder affidavit as well as two application for directions bearing I.A. No. 85618/2020 and I.A. No. 126273/2020 respectively wherein certain misleading averments have been made by the petitioners. A meaningful perusal of the pleadings makes evident that

the Petitioners are not fully aware about the transmission system as lots of mixing of generation through wind mills and distribution lines have been reported intermittently without specifying any line posing threat to GIB belonging to the answering respondent i.e. POWERGRID. It is humbly submitted that POWERGRID, deals with Inter State Powerlines comprising mostly of Extra High Voltage (EHV) transmission lines.

7. It may also be noted that no line of the respondent is among the lines identified by WII for undergrounding and putting bird diverters. A copy of WII letter/action plan list of power lines prioritised for undergrounding and bird diverter installation is annexed as **Annexure AA- 30/1 (pages…….. to ……).**

8. In order to distinguish between Transmission Line (TL), & Distribution Line (DL) including Low Voltage (LV) line following table may kindly be referred;

Power Line Classification	**Voltage Level**
Transmission Line	66 kV and above
i) High Voltage (HV)	66 kV - 220 kV
ii) Extra High Voltage (EHV)	400 kV, 500 kV & 765 kV

iii) Ultra-High Voltage (UHV)	Above 800 kV
Distribution Line	33 kV and below
Low Voltage line	650 V and below

9. That in the context of bird mortality, it is most respectfully submitted that following are the two aspects normally associated with Extra High Voltage (EHV) line (i) risk of electrocution during perching and (ii) risk of collision during bird mancuvering which are mostly reported during landing and take-off in area close to water bodies, designated bird areas/ sanctuary having large congregation of birds or line intersecting identified bird fly or migratory paths.

As regard first one, it is most humbly submitted that the risk of electrocution in EHV line even for biggest raptors is eliminated due to large distance of separation between two phases (8 m and 15 m for 400 kV & 765 kV respectively). Further, as an additional measure, anti-perching devices such as Bird Guards are compulsorily installed on all suspension type transmission line towers of the Respondent Corporation which further eliminates

any possibility of electrocution by sitting of bird. A copy of the photograph showing the installation of the Anti-perching devices is annexed as **Annexure AA-30/2(pages……..to……..)**

10. That it is most respectfully submitted that in respect of second one, the risk of collision in EHV lines is quite remote due to the placing of the conductors at sufficient height from the ground and also use of bundle conductors (2-6 conductors in each phase) which is easily visible to bird from far distance thus substantially reducing the risk of collision. However, many studies have concluded that the risk of collision of birds with EHV line is mostly occurred with earthwire as this is very thin and may not be visible to bird from long distance unlike bundle conductors. Therefore, bird diverters are installed on earth wire, wherever required.

A copy of the photographs showing the installation of Bundle Conductors is annexed as **Annexure AA-30/3 (pages…….to…….)**

A copy of the photographs showing the Bird Diverters on Earth wires is annexed as **Annexure AA-30/4 (pages…….to……..)**

11. That as regard 765 kV Gwalior-Jaipur line, it is most humbly submitted that the petitioners have reported the presence of Aviation marker in the said line in the said rejoinder affidavit, which is further indicative of the factum that the Petitioners are not fully conversant with integrities of measures to reduce GIB mortalities. The said devices are not aviation markers but well established and approved Bird Flight Diverter which is proven to reduce bird collision incidents as per the Manual on Reducing Avian Collisions with Power Lines, 2012.

A true copy of the relevant extract of the Manual on Reducing Avian Collisions with Power Lines, 2012is annexed as **Annexure AA-30/5(pages.....to.....)**

12. That it is further to submit that such installation of Bird diverters was done in consultation with the Wildlife Institute of India (WII) team comprising of GIB expert Dr. Suthirtha Dutta. Here, it is pertinent to mention that in spite of not reporting of any GIB in this area, installation of Bird Diverter was recommended by WII to take care of Indian Vulture (Gyps indicus) and Egyptian Vulture (Neophron percnopterus) nesting and roosting site in the area.

A true copy of the detailed assessment report submitted by WII annexed as **Annexure AA-30/6(pages.....to.....)**

13. That after the installation of the Bird Diverters in 2015, till date no bird collision including Vultures have been reported from this line. Similarly, POWERGRID has installed Bird Flight Diverters in another line i.e. 765 kV Bhuj-Banaskantha line in Kutch district passing through Great Rann of Kachchh and associated creek area, a prime habitat of large birds like Flamingos and Crane. It is most respectfully submitted that no collision/electrocution of bird has also been reported from this line as well. The above facts are clearly indicative that power lines particularly EHV/UHV lines comprising mostly of 400kV, 765kV, 1200 kV AC lines and 500 kV & 800 kV HVDC lines are not responsible for fatality of GIB.

14. That it is further submitted that many studies have inferred that the collision risk may be offset through assessment of potential avian impacts during route section and installation of line marking devises. In accordance to the same, POWERGRID finalizes route of its transmission line through careful route selection by

studying alternative routes using modern survey techniques/tools like GIS, GPS and by superimposing the proposed alternative alignment on the Integrated Biodiversity Assessment Tool (IBAT) map & Geospatial Map of Wildlife Institute of India (WII) to avoid bird habitat to the extent possible. As such POWERGRID lines are not reported in any of the news clippings, studies or reported incidents of bird hits as mentioned/annexed in the rejoinder & I.A. No. 85618/2020 filed by the Petitioners.

15. As regard undergrounding of powerlines, a study by University of California (Bumby et al. 2009) found that buried powerlines may be a solution to bird collisions in some instances but can cost 3 to 20 times and also have more environmental impacts than overhead power lines for all categories. A copy of the relevant extract of the Manual on Reducing Avian Collisions with Power Lines is annexed as **Annexure AA-30/7(pages.....to.....)**.

16. In addition to huge cost implication, the technical feasibility and constraints associated with undergrounding of EHV lines are as follows:

i. For the extra high voltage (EHV) transmission lines, underground cables are not suitable for long distance due to generation of large quantum of capacitive reactive power in the cable causing overvoltage. Capacitive reactive power is generated due to cable capacitance which is approximately 10 to 15 times higher than that of overhead transmission line. To limit this overvoltage, a substation has to be constructed at an interval of approximately 20 to 40 km to provide inductive reactive compensation. Further, the capacitive current getting generated also reduces the active power handling capability of the cable, requiring multiple parallel cable run to match the EHV line rating. Thus EHV Cable can be effectively used only if it is directly connected to the substation end to compensate the capacitive reactive power generated in the cable by providing reactors (Inductive compensation) at the substation. Commercially, EHV Cables are available in the world only up to 500kV rating.

ii. Laying of underground cable is also likely to put restrictions in respect of planting of trees, building over cables and excavation on the cable easement strip. It is submitted that as POWERGRID constructs long distance

high voltage transmission line (400 kV and above) for which laying of underground cable is techno economically not feasible. In fact, as a matter of record nowhere in the world underground AC cable system exists for voltages above 500 kV. The International Council on Large Electric Systems (French: Conseil International des Grands Réseaux Électriques, CIGRÉ) is a global non-profit organization in the field of high voltage electricity which was founded in Paris in 1921 and it conducted a study by its joint working group consisting of leading experts which also opined that laying of underground cable is techno economically not feasible.

A Copy of the study captioned as "STATISTICS OF AC UNDERGROUND CABLES IN POWER NETWORKS" published in December 2007 by CIGRE is annexed as **Annexure AA - 30/8 (Pages.....to.....).**

17. That it is further submitted that the Central Electricity Authority, an apex technical body on energy issues under the Ministry of Power, Govt. of India, vide its letter dated 05.08.2014 to the Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt of India, opined against underground cabling for high voltage transmission

lines in ecologically sensitive areas such as National Parks, wildlife sanctuaries and wildlife corridors considering the associated technical/safety challenges such as high capacitance, requirement of reactive compensation, requirement of digging and construction of long distance trenches throughout the line route and need for suitable termination arrangement at the interface of overhead line and underground cable.

A true copy of the letter dated 05.08.2014 issued by the Central Electrical Authority to MoEF & CC is annexed as **Annexure AA- 30/9(pages.....to.....)**

18. That it is pertinent to mention here about the comprehensive manual titled "Reducing Avian Collisions with Power Lines" published by Edison Electric Institute (EEI) in 2012 in collaboration with Avian Power Line Interaction Committee (APLIC) which provides in-depth information about the bird collision/electrocution risk and mitigative measures which may be of significant importance in deciding the measures to reduce bird mortality.

A true copy of the manual titled "Reducing Avian Collisions with Power Lines" published by Edison

Electric Institute (EEI) is annexed as **Annexure AA - 30/10 (pages.....to.....)**

19. That it is further submitted that the power lines mentioned in the clause (e) and (f) of the prayer clause in I.A. No. 85618/2020 do not belong to POWERGRID.

20. That it is also submitted that during the hearing dated 15.12.2020, the Ld. Counsel for the Petitioner had in all fairness informed the Hon'ble Court about the pendency of Original Application No. 385/2019 (IA No. 333/2020) titled as Centre for Wildlife and Environment Litigation Vs. Union of India filed before the Hon'ble National Green Tribunal wherein the Hon'ble Tribunal was considering the mitigation measures for protection of Great Indian Bustard (GIB). The Hon'ble National Green Tribunal vide its judgement and order dated 23.12.2020 *was pleased to dispose of the O.A. by holding as under:*

"12. In view of above, we dispose of this application with a direction that necessary steps be taken for protecting critically endangered GIBs by installing the diverters on all existing powerlines and undergrounding the new powerlines, as suggested by the six-member Committee of the MoEF&CC, as directed in para 7

above. Monitoring of compliance be done, preferably by the Wildlife Institute of India atleast twice in a year. Needless to say, the directions of this Tribunal are subject to further directions of the Hon'ble Supreme Court in the matter pending, noted above."

A true copy of the Judgment and order dated 23.12.2020 passed in Original Application No. 385/2019 (IA No. 333/2020) titled as Centre for Wildlife and Environment Litigation Vs. Union of India filed by the Hon'ble National Green Tribunal is annexed as Annexure **Annexure AA -30/11 (pages.....to.....)**

21. That it is further submitted that this Hon'ble Court vide order dated 15.07.2019 and 18.02.2020 has been pleased to appoint a committee of experts to look into the larger issue of conservation of the endangered species. The Ld. Counsel for the petitioners on 18.12.2020 submitted "Terms of Reference" to be adopted by the Committee. In this context, it is most humbly prayed a comprehensive study is required to understand the actual impacts of powerlines on bird as has already been done extensively in many European Countries & USA and to publish flyway zone including migratory path of big birds to

facilitate avoidance of such critical areas while planning/routing the power lines to reduce bird mortality in consultation with specialized institutions like WII, Salim Ali Centre for Ornithology and Natural History (SACON), Bombay Natural History Society (BNHS) etc

22. That the respondent organization most humbly submits that the instant petition being a PIL, POWERGRID is filing the instant affidavit not to convert it into an adversarial litigation but to assist the court by bringing all the relevant facts on record and is ready to abide by any direction given by this Hon'ble Court. That it is submitted that the aforesaid documents being filed along with this Application have got an important bearing on the matter in issue and are necessary for proper adjudication of the matter. Therefore, it would be expedient in the interest of justice to kindly permit the respondent to place on record the documents filed along with this Application.

Ritesh Ranjan

DEPONENT

VERIFICATION:

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (पर्या. एवं सामाजिक प्रभाव)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001 (हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

That the contents of the Additional Affidavit are true and correct to the best of my knowledge and belief and nothing has been concealed therefrom.

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (पर्या. एवं सामाजिक प्रबंधन)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001(हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

IN THE SUPREME COURT OF INDIA

CIVIL ORIGINAL JURISDICTION

I.A. NO.....OF 2021

IN

WRIT PETITION (CIVIL) NO. 838 OF 2019

IN THE MATTER OF:

Dr. M.K. Ranjitsinh & Others ....Petitioners

Versus

Union of India, through the Secretary

Ministry of Environment & Others ....Respondents

AN APPLICATION FOR EXEMPTION FROM FILING DULY ATTESTED AND NOTARIZED COUNTER AFFIDAVIT

To,

HON'BLE THE CHIEF JUSTICE OF INDIA
AND HIS LORDSHIP'S OTHER HON'BLE
COMPANION JUDGES OF THE SUPREME
COURT OF INDIA

THE HUMBLE PETITION OF THE
PETITIONERS ABOVE NAMED

MOST RESPECTFULLY SHOWETH

1. That the instant Additional Affidavit is being filed by M/s Power Grid Corporation of India Ltd., the Respondent No. 30 against the Writ Petition filed by the Petitioners whereby the Petitioners have sought urgent implementation of

conservation measures to recover protect and preserve the Great Indian Bustard and the Lessor Florican.

2. That for the sake of the brevity, the applicant craves the leave of this Hon'ble Court to refer and rely upon the contents of the accompanying Additional Affidavit at the time of hearing of this application.

3. That owing to the outbreak of the ongoing Covid – 19 pandemic, the applicant is incapacitated and unable to file the duly attested and notarized Additional Affidavit.

4. That the applicant undertakes to file the same as and when directed by this Hon'ble Court once the present situation returns to normalcy.

5. That the instant applicant may kindly be allowed in the interests of justice.

PRAYER

In view of the facts and circumstances enumerated above, the Applicant most humbly pray that this Hon'ble Court may be pleased to:

a) Exempt the applicant from filing the duly attested and notarized Additional Affidavit; and

b) Pass any such order(s), as this Hon'ble Court may deem fit in the interest of justice.

AND FOR THIS ACT OF KINDNESS, THE APPLICANT AS IN DUTY BOUND SHALL EVER PRAY.

DRAWN & FILED BY:

|SOMESH CHANDRA JHA|

ADVOCATE FOR THE APPLICANT

Filed on: .01.2021

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AFFIDAVIT

I, Ritesh Ranjan S/o Sh. N. K. Pandey age about 42 years, working as Chief Manager with M/s Power Grid Corporation of India Ltd. having its Registered office at B-9, Qutub Institutional Area, New Delhi, do hereby solemnly affirm and declare as under:

1. That I am the authorised representative of the applicant in the present Writ Petition and am well aware with facts and circumstances and records of this case and as such I am competent to swear this affidavit.

2. That the contents of the accompanying I.A. has been read over to me in vernacular and I state that the contents thereof are true and correct to the best of my knowledge and belief and on the basis of the records maintained in the office of the Applicant.

3. That the Annexures are true copies of their respective originals and forms part of the record.

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबन्धक (पर्या. एवं सा...)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001(हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

VERIFICATION:

On this _____day of January 2021, the deponent abovenamed do hereby verify that the contents of this affidavit are also true and correct to the best of my knowledge and belief nothing material has been concealed there from.

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबन्धक (पर्या. एवं सा...)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लाट सं०-2, सैक्टर-29, गुरुग्राम-122001(हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

LETTER OF AWARD (LOA)

M/s Welkin Conservation LLP 603, SNS Business Park, Opposite J. H. Ambani School, University Road, Vesu, Surat - 395007 Phone - 0261 - 2979918 mail ID: info@welkin.org.in **SAP Vendor Code: 2100069260**	**Our Enquiry-** Our email dated 15/12/2020. **Your offer Ref.:** WL/QUT/20-21/035-R01 Dated 16/12/2020 **Our LOA Ref. No.:** N1/C&M/20-21/Others/ST-Urgency/286, Dated 23/12/2020 **SAP PO No.:** 6900010125

Dear Sir,

With reference to the above, we are pleased to place an award on you for Supply and Installation of 200 nos. bird diverters in LILO of both circuits of 765kV D/C Fatehgarh (TBCB) to Bhadla (PG) at Fatehgarh - 2 PS under Fatehgarh2 construction office as per Annexure-I. Order will be governed by the terms and conditions brought out here-in-under. All other terms and conditions of your above-mentioned offer shall stand withdrawn without any cost implication to POWERGRID in so far as the same are inconsistent with what has been incorporated in this Purchase Order.

Sl. No.	Item Description	Qty.	Rate (excluding GST)	Amount (excluding GST)
01	Supply and Installation of 200 nos. bird diverters in LILO of both circuits of 765kV D/C Fatehgarh (TBCB) to Bhadla (PG) at Fatehgarh - 2 PS under Fatehgarh2 construction office. [details as per BOQ at Annexure-I]	As per Annexure-I		Rs. 9,00,000/-
	Total			Rs. 9,00,000/-
			Say	Rs. 9,00,000/-
	(Rupees Nine Lakh Only)			

(i) **SCOPE:** Supply and Installation of 200 nos. bird diverters in LILO of both circuits of 765kV D/C Fatehgarh (TBCB) to Bhadla (PG) at Fatehgarh - 2 PS under Fatehgarh2 construction office.

(ii) **DELIVERY/CONSIGNEE ADDRESS:**

765/400/220kV Fatehgarh-2 Substation ,
Devikot Village : Sawanta Tehsil: Fatehgarh District: Jaisalmer Pin Code: 345001
Contact Person: V.P.Sharma (Sr.DGM , POWERGRID) Mb: +91 70231 53343

(iii) **PRICE & PRICE BASIS:** Rates offered by bidders shall be FOR site basis. The rates shall be firm till the execution of this contract and no price variation will be allowed. The quoted prices are inclusive of all the expenses (excluding of GST) to be incurred for accomplishment of work including FOR site basis charges of brought item/material if any. GST shall be reimbursed against documentary evidences. No claim on account of any taxes, duties or other levies (except GST) or any interest therein shall be entertained by POWERGRID.

(iv) **TECHNICAL SPECIFICATION:** Work shall be executed as per the technical specifications Annexure-TS and terms and conditions complete in all respect.

(v) **INSPECTION:** Items will be inspected at site. The material shall be delivered in healthy condition at site.

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(vi) **COMPLETION SCHEDULE:** The entire work shall be completed within **01 (One) Month** from the date of issuance of Purchase Order.

(vii) **LIQUIDATED DAMAGES (LD):** If the Contractor fails to perform the work within the specified period given in the Letter of Award or any extension thereof, with respect to successful completion of entire scope under the subject package, the Contractor shall pay to the Owner as Liquidated Damages and not a penalty, a sum of **Half Percent [0.5%]** of the total contract price plus GST payable thereon for each calendar week of delay or part thereof in completion of works and handing over to the Owner. However, the amount of liquidated damages for the contract shall be limited to a maximum of **Five Percent [5%]** of the total contract price plus GST payable thereon. LD shall not be applicable if reasons of delay are not attributable to the contractor.

(viii) **PAYMENT TERMS:** 85% of supply cost with taxes, freight and packaging charges shall be paid after supply of material and submission of bills supported by requisite documents, GST invoice and certification of the same by Engineer-In-Charge or his authorized representative. Balance 15% of supply cost & installation/ other charges shall be paid within 15 days of installation and handing over of complete work and submission of invoice certified by Engineer-In-Charge or his authorized representative.

(ix) **Defect Liability Period/ Warranty period:** Defect liability/ Warranty period shall be **12 (Twelve) Months** from the certified date of completion of work/ handing over. During defect liability/ warranty period, contractor shall rectify any defect informed by Engineer-In-Charge or his authorized representative.

(x) **Contract Performance Guarantee:**

(a) You shall furnish an unconditional and irrevocable bank guarantee as per specified proforma from Public Sector Indian Bank or from a reputed commercial bank acceptable to POWERGRID (All Banks except Public Sector Indian Bank shall have ratings not less than A(-) (A Minus) from reputed credit agency) in favour of "Power Grid Corporation of India Limited" towards Contract Performance Guarantee within 15 days from the date of issuance of this Letter of Award for an amount equal to 3% (Three Percent) of the contract price initially valid up to ninety days beyond the end of defect liability/ warranty period towards the faithful performance of the contract.

(b) The CPG/Security Deposit shall be released three months after successful completion of the warranty period/defect liability period. The CPG shall be returned without any interest after successful completion of the warranty period based on recommendations of Engineer-in-Charge.

(c) Alternatively, 3% amount of the total contract value shall be deducted from Contractor's bills, which shall be released after successful completion of defect liability/ warranty period.

(xi) **PAYING AUTHORITY:** SR GM (F&A), FARIDABAD.

(xii) **ENGINEER-IN CHARGE: Chief GM, Jaisalmer** shall be Engineer-in-Charge for subject work.

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Contd...3

(xiii) **SAFETY NORMS:** The contractor has to follow strictly the safety norms applicable for the satisfactory performance of the contract. Any untoward incident or accident what so ever if takes place during the course of execution of contract due to the negligence or failure of the contractor to abide by all the safety norms etc. all responsibility or liabilities under workmen compensation Act / Labour laws and Regulations shall solely be on contractor's account only and POWERGRID shall not be held responsible on any accounts. The Contractor shall, at all times at his own expense exercise reasonable and proper precautions for the safety of all people directly or indirectly employed for the. Performance of the work and shall comply with the safety regulations/instructions/measures as per relevant clauses.

(xiv) **OTHER STATUTORY REQUIREMNTS:** The other entire statutory requirement as stand pertaining to scope of contract must be complied by you.

(xv) **FORECLOSING/TERMINATION OF CONTRACT:** POWERGRID reserves the right to foreclose/terminate the contract at any point of time during currency of contract or extended period of contract on the basis of unsatisfactory or poor performance of the agency or any other valid reason by serving 15 days' notice. In above case SD will be forfeited. Contractor shall have no claim towards it.

(xvi) **ARBITRATION:** For any kind of arbitration and disputes, the same shall be resolved in accordance with relevant clauses of General condition of contract (GCC) which may be obtained from this office upon request or downloaded from www.powergridindia.com. GM shall act as the sole arbitrator.

This LOA is being issued to you in duplicate. You are requested to return the duplicate copy of this LOA duly signed and stamped by your authorized signatory as token of your unequivocal acknowledgement.

For & behalf of
Power Grid Corporation of India Ltd.

23/12/2020

(Vijay Prakash Jarwal)
Manager [C&M]

Encl: BOQ [Annexure-I]