

Semi-Annual Environment Safeguard Monitoring Report

Loan Number : 3365-IND & 3375- IND

Reporting Period: January - June 2020

Green Energy Corridor and Grid Strengthening Project

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Date : 09.09.2020

ABBREVIATIONS

ADB	–	Asian Development Bank
CEA	–	Central Electricity Authority
CPTD	–	Compensation Plan for Temporary Damages
CTU	–	Central Transmission Utility
DFO	–	Divisional Forest Officer
ESPP	–	Environment and Social Policy & Procedures
ESMD	–	Environment & Social Management Department
EMP	–	Environmental Management Plan
EMR	–	Environment Monitoring Report
GRM	–	Grievances Redressal Mechanism
GRC	–	Grievance Redressal Committee
HVDC	–	High Voltage Direct Current
Ha./ha.	-	Hectare
IEE	–	Initial Environmental Examination
Km/km	–	Kilometers
MoEFCC	–	Ministry of Environment, Forest and Climate Change
PAL	–	POWERGRID Academy of Leadership
NBWL	–	National Board for Wildlife
PAPs	–	Project Affected Persons
POWERGRID	–	Power Grid Corporation of India Ltd.
PMU	–	Project Management Unit
RE	–	Renewable Energy
RoW	–	Right of Way
RMoEFCC		Regional Office of Ministry of Environment, Forest and Climate Change
S/s/ SS	–	Substation
SBWL	–	State Board for Wildlife
USD	–	United States Dollar
VSC	–	Voltage Source Converter

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EXECUTIVE SUMMARY

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. The Green Energy Corridor and Grid Strengthening Project ("The Project") has been planned to facilitate the transfer of renewable energy as well as increasing interregional connectivity. The project is a subset of India's 'green energy corridor' initiative to ensure that transmission system development is commensurate with renewable energy capacity development over time and will also increase the interregional transmission capacity between the southern and western regional systems.

The Asian Development Bank (ADB) is supporting the said project with a total financial assistance of \$1000 million (\$500 million Sovereign loan under Loan No.-3365-IND & \$500 million Non- Sovereign loan under Loan No.-3375-IND). The Loan No.-3365-IND & Loan No.-3375-IND became effective from 22nd March, 2017 & 24th November, 2017 with loan closing date of 30th June, 2021 and 31st August, 2021 respectively.

The Project comprises of number of subprojects involving construction of EHV lines and associated substations of different voltage levels spread across 5 States i.e. Chhattisgarh, Tamil Nadu, Kerala, Rajasthan & Punjab. This includes 1212 km of transmission lines of different voltages (765 kV/400 kV/ 320 kV VSC based HVDC) along with associated 5 no. new substations (± 800 kV HVDC terminals station at Raigarh & Pugalur, ± 320 kV HVDC terminals station at Pugalur & North Thrissur and 765/400 kV substation at Bikaner).

The Project is being implemented in accordance with POWERGRID's Environmental and Social Policy & Procedures (ESPP) & ADB's Safeguard Policy Statement, 2009. Additionally, various covenants as per agreed loan agreements and provisions made in project specific safeguard documents (IEE/CPTD/EMP) which were prepared and disclosed as per the framework are also applied to this project. The Project is classified as Environmental Category 'B' as per ADB's SPS. The present 6th Semi-annual Safeguard Monitoring Report for period January-June 2020 is part of the reporting framework agreed under loan covenants.

With careful route selection technique, the total forest involvement for proposed projects was restricted to 4.997 km which is only 0.41 % of total line length of 1212 km lines. Besides, a small stretch (0.49 km) of underground portion of ± 320 kV Pugalur-North Trichur line is passing through Peechi Vazhani Wildlife sanctuary which is unavoidable as no other utility corridor is available to lay the underground cable. However, required clearance/permission for diversion of forest and wildlife area as per the applicable provisions of The Forest (Conservation) Act, 1980 and The Wildlife (Protection) Act, 1972 respectively are already obtained from Ministry of Environment, Forest & Climate Change (MoEFCC). Besides, POWERGRID has been complying with all other applicable laws/rules/regulations of the country and no violation/ penalty in this regard has been reported till date.

No major environmental impacts are envisaged in the instant project except some impacts due to infringement of forest and wildlife area for construction of proposed lines. As regard Wildlife Mitigation Plan, POWERGRID has already deposited Rs 4 Crore to State Forest & Wildlife Dept. on March 23, 2019 for implementation of rail fencing as part compliance stipulated by the Chief Wildlife Warden (CWW)/ NBWL permission. Besides, as anticipated some localized impacts 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 will never be avoided completely. However, till date no complaints from public in respect of increase noise, traffic, dust etc. or any major inconvenience due to proposed intervention have been reported during reporting period. The project specific mitigation measures enlisted in EMP, which is also part of contract documents are being applied appropriately in different stages of project and regularly monitored for proper implementation.

All required safety measures are in place including due precautions/awareness programs as well as ensuring use of PPEs, which is evident from the fact that no fatal accidents were reported during the reporting period from any of the construction sites.

The two-tier grievance redress mechanism has been addressing/resolving the concerns and grievances of the complainant effectively. All concerns/grievances of affected persons/public including minor one are also recorded and regularly tracked for early resolution within stipulated timeframe.

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. There will be optimization of RoW resulting in reduction in land requirement due to high power carrying capacity of these lines. Besides, direct or indirect benefits of the Projects like the employment opportunity, improved & uninterrupted power supply, improvement in infrastructure facilities, improved business opportunity outweigh the negligible impacts of the project. Since this Green Energy Corridor subproject is planned to evacuate clean and green energy through renewable sources, 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.

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.

The Green Energy Corridor and Grid Strengthening Project has been planned to facilitate the transfer of renewable energy, as well as increasing interregional connectivity. This project is a subset of India's 'Green Energy Corridor' initiative to ensure that transmission system development is commensurate with renewable energy capacity development over time. The project will also incorporate increasing interregional transmission capacity between the southern and western regional systems via an 800 kV HVDC link. The Green Energy Corridor and Grid Strengthening Project includes of number of projects consisting of 800 kV HVDC, 765 kV and 400 kV, 320 kV VSC based transmission lines and associated 800 kV HVDC & 320 kV terminals, 765/400kV substation as part of increased inter-regional connectivity between India's western and southern regional power grids. The details of projects are as below;

- a. Establishment of +800 kV, 6000 MW HVDC system between the Western (Raigarh) and Southern (Pugalur) Regions;

Southern Region is facing power deficit mainly due to delay/deferment of anticipated generation projects and non-availability of gas for existing gas projects in Southern Region. Presently, maximum power demand of Southern region is about 39,000 MW and faces a deficit of about 3400 MW in spite of import capacity of about 4950 MW from NEW grid. As per 18th EPS of CEA the expected power demand of Southern region by the end of XII and XIII plan would be about 57,200 MW and 82,200 MW respectively. Power transfer requirement to Southern Region is expected to increase in coming years. Therefore, in view of large deficit and requirement of transmission system to meet future demands, the implementation of HVDC link has been proposed with a capacity of 6000 MW.

- b. Establishment of Pugalur - Trichur 2000 MW VSC Based HVDC System;

Considering the RoW problem in Kerala and dispersal of power beyond Pugalur, establishment of Voltage Source Converter (VSC) based 2000 MW HVDC link between Pugalur and North Trichur (Kerala) has been proposed. The present project will improve import capability of Southern Region.

- c. Green Energy Corridor (Part-D);

About 33 GW Renewable capacity addition has been envisaged in 12th Plan in the eight renewable energy rich States, viz. Rajasthan, Gujarat, Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh, Himachal Pradesh and J&K through Wind/ Solar & small Hydro generation. Considering above quantum of envisaged renewable capacity, it is expected that some of the Renewable Energy (RE) resource rich States including Rajasthan shall have more RE capacity than the capacity required for fulfilling their Renewable Purchase Obligations (RPO). Further, such RE rich host State may not absorb full RE energy locally particularly during the other than peak hour conditions when renewable generation is at peak.

Intermittency/ variability, inherent characteristics of renewable, also necessitates requirement of strong grid interconnections for grid stability.

For dispersal of power, high capacity transmission corridor, as part of inter-State transmission system, connecting major renewable pockets is being proposed right from the Bhuj Pooling Station in Gujarat (Western Region) to Moga in Punjab (Northern Region) via Chittorgarh/ Ajmer/ Bikaner in Rajasthan (NR). For onward dispersal of power beyond Ajmer/ Bikaner, 765 kV High capacity transmission corridor is proposed towards Moga in Punjab, a major load centre in Northern Region, as part of the subject scheme "Green Energy Corridors ISTS - Part-D".

- d. 400 kV AC Power Transmission system associated with HVDC terminal stations at Pugalur, Tamil Nadu

The Project involves construction of 400 kV AC Transmission system for transfer of power from Pugalur HVDC Terminal to 400 kV AC network of Tamil Nadu.

The total project cost is about \$2.5 billion. However, to meet the funding requirement for the proposed project, Asian Development Bank (ADB) has accepted POWERGRID's proposal to finance \$500 million as Sovereign loan under Loan No.-3365-IND & additional \$500 million as Non-sovereign loan under Loan No.-3375-IND for implementation of Green Energy Corridor and Grid Strengthening Project. The funding for the remaining part will be met from POWERGRID's own Internal Resources (IR). The above said was signed on 23rd February, 2017 and became effective from 22nd March, 2017. The loan closing date is 30th June, 2021.

1.1 OVERALL PROJECT DESCRIPTION

Following subprojects are covered under the subject loan:

1. Establishment of +800 kV, 6000 MW HVDC system between the Western (Raigarh) and Southern (Pugalur) Regions;
 - a) Establishment of Raigarh ± 800 kV HVDC Station with 6000 MW HVDC terminals.
 - b) Establishment of Pugalur ± 800 kV HVDC Station with 6000 MW HVDC terminals.
2. Establishment of Pugalur - Trichur 2000 MW VSC Based HVDC System;
 - a) Establishment of VSC based ± 320 kV, 2000 MW HVDC link between Pugalur and North Trichur (Kerala)- **Underground Cable portion: 28 km**
 - b) ± 320 kV, 2000 MW VSC based HVDC terminal at Pugalur.
 - c) ± 320 kV, 2000 MW VSC based HVDC terminal at North Trichur.
3. Green Energy Corridor (Part-D)
 - a) Ajmer (New) - Bikaner (New) 765 kV D/c line – **263 km**
 - b) Bikaner (New) - Moga (POWERGRID) 765 kV D/c line – **293 km**
 - c) LILO of 400 kV Bhadla (RVPN) -Bikaner (RVPN) D/c line at Bikaner (New)-**9 km**
 - d) 765/400 kV Substation at Bikaner.
4. 400 kV AC Power Transmission system associated with HVDC terminal stations at Pugalur, Tamil Nadu
 - a) Pugalur HVDC Station - Pugalur (Existing) 400 kV (quad) D/c line- **58 km**.
 - b) Pugalur HVDC Station - Arasur 400 kV (quad) D/c line - **60 km**
 - c) Pugalur HVDC Station - Thiruvalam 400 kV (quad) D/c line - **390 km**
 - d) Pugalur HVDC Station - Edayarpalayam 400 kV (quad) D/c line - **57 km**
 - e) Edayarpalayam - Udumulpet 400 kV (quad) D/c line - **54 km**

1.2 PROJECT OBJECTIVES

The objective of the project is to increase transmission of renewable energy and interregional connectivity leading to increase in overall efficiency and more reliable transmission system capacity in selected regions of India.

1.3 ENVIRONMENTAL CATEGORY

As per the Asian Development Bank's (ADB) classification of project on the basis of potential environmental impacts, the Green Energy Corridor and Grid Strengthening Project is classified as Environmental Category 'B'.

1.4 ENVIRONMENTAL PERFORMANCE INDICATOR:

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 Loan Covenants agreed with ADB;
4. Compliance with Environment Management Plan

1.5 OVERALL PROJECT PROGRESS, AGREED MILESTONES & COMPLETION SCHEDULES

Name of project	Project Details	Progress as on June 2020	Completion Schedule
Establishment of +800 kV, 6000 MW HVDC system between the Western (Raigarh) and Southern (Pugalur) Regions	<p>Substation:</p> <p>a) Establishment of Raigarh ±800 kV HVDC Station with 6000 MW HVDC terminals.</p> <p>b) Establishment of Pugalur ±800 kV HVDC Station with 6000 MW HVDC terminals</p>	9% progress during reporting period of January-June 2020 and overall progress is 88%	March 2021
Establishment of Pugalur - Trichur 2000 MW VSC Based HVDC System	<p>Transmission Line:</p> <p>Establishment of VSC based ±320 kV, 2000 MW HVDC link between Pugalur & North Trichur (Kerala) (UG: 28 km)</p> <p>Substation:</p> <p>a) ±320 kV, 2000 MW VSC based HVDC terminal at Pugalur.</p> <p>b) ±320 kV, 2000 MW VSC based HVDC terminal at North Trichur.</p>	15% progress during reporting period of January-June 2020 and overall progress is 77%	March 2021

Green Energy Corridor (Part-D)	<p>Transmission Line:</p> <p>a) Ajmer (New)-Bikaner (New) 765 kV D/c b) Bikaner -Moga 765 kV D/c c) LILO of one circuit of 400 kV Bhadla (RVPN) - Bikaner (RVPN) D/c line at Bikaner</p> <p>Substation:</p> <p>a) 765/400 kV Substation at Bikaner.</p>	Project Commissioned in March 2020	Commissioned (March 2020)
400 kV AC Power Transmission system associated with HVDC terminal stations at Pugalur, Tamil Nadu	<p>Transmission Line:</p> <p>a) Pugalur HVDC Station- Pugalur 400 kV D/c. b) Pugalur HVDC Station – Arasur 400 kV D/c. c) Pugalur HVDC Station – Thiruvalem 400kV D/c. d) Pugalur HVDC Station- Edayarpalayam 400 kV D/c. e) Edayarpalayam- Udumulpet 400 kV D/c</p>	During reporting period 20% tower foundation, 17% erection and 21 % stringing work has been made. The overall progress is approx. 86% of tower foundation & 71% of erection & 30% Stringing.	Pugalur– Pugalur line Test charged in May, 2020. For remaining components commissioning expected by March 2021

SECTION 2: COMPLIANCE STATUS WITH APPLICABLE STATUTORY REQUIREMENTS

S. 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, Forest and Climate Change (MoEFCC), Govt. of India has to be obtained before construction of line in forest areas.	The project involves a total of 4.997 km (22.73 ha.) of forest land en-route of 1212 km. The details of sub-project wise forest involvement along with updated forest clearance status are presented in Table-1 .
2.	Wildlife (Protection) Act, 1972	This Act is applicable whenever a transmission line traverses protected area such as National Parks, Wildlife Sanctuaries etc. Prior approval from Ministry of Environment, Forest and Climate Change (MoEFCC), Govt. of India has to be obtained before construction of line in protected areas.	The UG portion (28 km) of ±320 kV line between Pugalur and North Trichur involves 0.49 km (0.098 ha.) of Peechi Wildlife Sanctuary. POWERGRID has already obtained permission/ approval from Standing Committee of National Board for Wildlife (NBWL), MoEFCC. Details of permission/approval status is presented in Table-1 .
3.	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.
4.	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/ reprosorsors). Annual return (Form -13) for the same is to be submitted to the concerned State Pollution Control Board.	Transformer oil (Used mineral oil) is changed only after 10-15 years of operation Since the instant project is under implementation phase, oil change/ replacement is not envisaged at present.
5.	Ozone Depleting	Controls and regulations specified on manufacturing,	Necessary provisions have been made in contract

S. No.	Legal Requirements	Applicable Attributes	POWERGRID's Compliance Status
	Substances (Regulation and Control) Rules, 2000	import, export, and use of CFC compounds.	document for restricting the use/supply of CFC compounds.

Table-1: Details of Forest/ Wildlife Clearance Status

Sl. No.	Name of the Line	Forest Area (Ha.)	State	Present Status
1.	Establishment of +800kV, 6000MW HVDC system between the Western (Raigarh) and Southern (Pugalur) Regions			
<i>Transmission line not covered under funding</i>				
2.	Establishment of Pugalur - Trichur 2000 MW VSC Based HVDC System			
a.	±320 kV 2000MW VSC based HVDC link between Pugalur and North Trichur (Kerala)	0.244 (0.146 ha. forest + 0.098 ha. Peechi WLS)	Kerala	Forest area (0.244 ha.): Stage-II (Final) approval obtained on 24.09.19 (Copy enclosed as Appendix-1). Similarly, clearance/permission for 0.098 ha. Peechi Wildlife Sanctuary area already obtained from MoEFCC on 25.01.18. (Copy enclosed as Appendix-2). Further, POWERGRID already deposited Rs. 4.0 Crores to State Forest & Wildlife department on 29.03.19 towards cost for Wildlife Mitigation Plan.
3.	Green Energy Corridor (Part-D)			
a.	Ajmer (New) – Bikaner (new) 765 kV D/c	1.5766	Raja sthan	Forest area involved only strip plantation along road crossings (National/ State Highway). Stage-II (final) approval obtained on 05.09.19.
b.	Bikaner (New) – Moga (POWERGRID) 765 kV D/c	9.12 5.50	Punjab Raja sthan	Stage-II (final) approval obtained 17.09.18. Forest area (5.50 ha.) involved only strip plantation along road crossings (National/ State Highway). For 2.01 ha. (Bikaner Division)- Stage-II (final) approval obtained on 21.01.20. For 3.49 ha. (Hanumangarh Division)- Working permission issued on 11.09.19.
c.	LILO of 400 kV D/c Bhadla-Bikaner Line at Bikaner	0.9079	Raja sthan	Stage-II (final) approval obtained on 31.07.19.
4.	400 kV AC Power Transmission system associated with HVDC terminal stations at Pugalur, Tamil Nadu			
a.	Pugalur HVDC - Pugalur 400kV	-	-	No forest involved

b.	Pugalur HVDC - Arasur 400kV D/c			
c.	Pugalur HVDC - Thiruvalem 400kV D/c	5.382	Tamil Nadu	Stage-I issued on 02.12.19 . Compliance of Stage-I conditions under progress. For felling of trees of spontaneous growth as per Hon'ble Supreme Court of India order dated 12.12.1996, hearing of the case before Central Empowered Committee (CEC) completed on 27.02.2020 and recommendation of CEC forwarded to Hon'ble Supreme Court on 04.03.2020. Matter to be heard by Hon'ble SC.
F	Pugalur HVDC Edayarpalayam 400kV D/c	-	-	No forest involved
e.	Edayarpalayam – Udumulpet 400kV			

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
<p>The Borrower shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project 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 Environmental Safeguards; and (d) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions set forth in the Safeguards Monitoring Report.</p>	<p>LA, Sch. 5, para. 13</p>	<p>Being complied. For details of compliance status refer section - 2, 4 & 7.</p>
<p>The Borrower shall ensure that (a) the Project and/or Project facilities are not located within national parks, forests, and wildlife sanctuaries, unless prior environmental clearances are obtained from the relevant government agencies and unless requirements on biodiversity conservation and sustainable natural resource management in Environmental safeguards are met; (b) the monuments of cultural or historical importance are avoided; and (c) works do not commence without obtaining prior forest clearances, wherever applicable.</p>	<p>LA, Sch. 5, para. 14</p>	<p>Complied. For details of compliance status refer section - 2.</p>
<p>The Borrower shall make available necessary budgetary and human resources to fully implement the EMP, the CPTD and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	<p>LA, Sch. 5, para. 18</p>	<p>Complied/Being complied. All such provisions are integral part of approved IEARs and CPTDs and are being implemented.</p>
<p>The Borrower shall ensure that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) comply with the measures relevant to the contractor set forth in the IEE, the EMP and the CPTD (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set forth in a Safeguards Monitoring Report;</p> <p>(b) make available a budget for all such environmental and social measures.</p>	<p>LA, Sch. 5, para. 19</p>	<p>Complied/Being complied. Point (a) to (d) complied and point (e) is being complied as it is completed with project implementation at site</p>

<p>(c) provide the Borrower with a written notice of 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 IEE, the EMP, the CPTD and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction;</p> <p>(e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>		
<p>The Borrower shall do the following:</p> <p>(a) submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(b) 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 IEE, the EMP and the CPTD, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;</p> <p>(c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP and the CPTD promptly after becoming aware of the breach; and</p> <p>(d) in the event unexpected significant safeguard impacts are identified, promptly engage qualified and experienced external expert or agency under terms of reference intimated to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts.</p>	<p>LA, Sch. 5, para. 20 & Clause 17.5 (a) (LA-3375-IND)</p>	<p>Monitoring reports are being submitted in due time and also disclosed on website after ADB clearance.</p> <p>POWERGRID's corrective measures in response to COVID-19 have already been shared with ADB in May' 20.</p> <p>Will be complied in case of any breach.</p> <p>Will be complied if such situation warrants.</p>
<p>The Borrower shall ensure that subsequent to award of Works contract, no Works are commenced by the contractor unless the applicable provisions of the IEE, the EMP and the CPTD, as approved by ADB, have been complied with.</p>	<p>LA, Sch. 5, para. 21</p>	<p>Compliance ensured</p>
<p>Any changes to the location, land alignment, or environment impacts on account of detailed designs of the Project shall be subject to prior approval by ADB before commencement of Works for transmission lines or substations under the Project.</p>	<p>LA, Sch. 5, para. 23</p>	<p>No such deviations reported so far.</p>

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

The instant project is being implemented as per approved IEE and EMP and in accordance with ESPP & ADB's Safeguard Policy Statement, 2009. POWERGRID has prepared Initial Environmental Examination (IEE) reports 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 separate fund has been allocated 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. 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./stage	Project activity	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.
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 is 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			
3	Transmission line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from power lines including those of ICNIRP	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 National ambient noise standards which are also compatible with the EHS guidelines of the World Bank.	Expected noise emissions based on substation design	Compliance with regulations - once	POWERGRID	Part of detailed siting survey and design	Complied

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally and 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.
5	Location of line towers & line alignment and design	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	POWERGRID	Part of tower siting survey and detailed alignment survey and design	Complied Route alignment criterion is part of survey contract.
		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	POWERGRID	Part of tower siting survey and detailed alignment survey and design	
			Minimise impact on agricultural land	Tower location and line alignment selection (distance to agricultural land)	Consultation with local authorities and land owners – once			

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			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			
6	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.	Land for proposed substations are either prior existing lands under POWERGRID's control or Govt land or private land purchased through willing buyer – willing seller basis on negotiated rates. Details of lands & compensation thereof have been provided separately in Social Monitoring Report.
7	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, sanctuary area of 0.098 ha (0.49 km) in Peechi Wildlife Sanctuary could not be avoided. However, requisite permission obtained from Standing Committee of NBWL, MoEFCC as per the provisions of Wildlife (Protection) Act, 1972. For details refer Appendix "2".

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

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			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
8	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.
			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		Part of tower siting survey and detailed alignment survey and design	
9	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 22.73 ha. (4.997
			Minimise the need by using existing towers, tall towers and RoW, wherever possible		Consultation with local authorities and design engineers- once			

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

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities-once			km) forest land ³ could not be avoided. However, as per regulation, forest clearance under Forest (Conservation) Act, 1980 obtained/being obtained from MoEFCC (for details refer Table- 1).
			Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations – once for each subproject			
10	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	
11	Noise related	Nuisance to neighbouring properties	Substations sited and designed to ensure noise will not be a nuisance and shall comply with National Ambient Noise Standards, which are also compatible with the EHS guidelines of	Noise levels	Noise levels to be specified in tender documents-once	POWERGRID	Part of detailed equipment design	Complied. Maximum noise limit of 80 dB stated in the technical specification for transformer.

³ As per provision of Forest (Conservation) Act, 1980, Compensatory Afforestation (CA) on degraded forest land double the extent of diverted forest area to be undertaken. However, it may be noted that the role of User Agency (POWERGRID) is limited to depositing the cost for afforestation activities as demanded by forest authorities who in turn undertake the actual afforestation work. In the instant project, CA Scheme have already been prepared for all subprojects involving diversion of forest land which are also available publicly on MoEFCC website following link:
400 kV D/c Pugalur-Thiruvalam: http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_1113012381214481CAScheme.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
320kV HVDC Pugalur-North Thrissure: http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_81117121412171291certificate17817.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
765 kV D/c Ajmer –Bikaner: http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_1112912491210541CAScheme.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
765kVD/c Bikaner-Moga: http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_111412371216251ca.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/ &
http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_1113012101215381CAScheme.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/
LILO of 400 kV D/c Bhadla-Bikaner at Bikaner: http://forestsclearance.nic.in/DownloadPdfFile.aspx?FileName=0_0_5111412331214131CAScheme.pdf&FilePath=../writereaddata/DivertedLand/GirthFile/

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			the World Bank.					
12	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.
13	Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete with spill clean up equipment.	Equipment specifications with respect to potential pollutants	Tender document to mention specifications – once	POWERGRID	Part of detailed equipment design /drawings	Complied. Underlying pit with a storage capacity of at least 20% of the total oil of the transformer & a common Secondary Containment of capacity of 220% of largest transformer oil volume is part of detailed design.
			Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications – once	POWERGRID	Part of detailed substation layout and design /drawings	Complied. Provision of soak pit is part of design where sewage line is not present.
14	Equipments submerged under flood	Contamination of receptors	Substations constructed above the high flood level(HFL) by raising the foundation pad	Substation design to account for HFL (elevation with respect to HFL elevation)	Base height as per flood design- once	POWERGRID	Part of detailed substation layout and design/ drawings	Complied. Substations are designed above HFL.
15	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 equipments are integral part of Substation design.
			Provision of fire fighting equipment to be located close to transformers					

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
Construction								
16	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied. Low noise producing machineries/ equipments are being used.
17	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.
18	Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	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 received by local authorities – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	
19	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.

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		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
20	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. Imposing speed limits on Project vehicles in project/habitation areas.	Traffic flow (Interruption of traffic)	Frequency (time span)- on daily basis	POWERGRID (Contractor through contract provisions)	Construction period	
21	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	Temporary fill placement (m ³)	Absence of fill in sensitive drainage areas – every 4 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
22	Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m ²)	Clearance strictly limited to target vegetation – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
			No use of herbicides and pesticides					

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
23	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 (avg. 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.
		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 m ²)	Use or intended use of vegetation as approved by the statutory authorities – once per site	POWERGRID (Contractor through contract provisions)	Construction period	All felled trees are handed over to owner for disposal. POWERGRID has no role in storage and disposal of felled tree/wood.
24	Wood/vegetation harvesting	Loss of vegetation and deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities).	Illegal wood /vegetation harvesting (area in m ² , number of incidents reported)	Complaints by local people or other evidence of illegal harvesting – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/Being Complied No complaints received on illegal harvesting.
25	Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings/ substation foundation disposed of by placement along roadsides, or at nearby house blocks if requested by landowners.	Soil disposal locations and volume (m ³)	Acceptable soil disposal sites – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/Being complied. 90-95% of the excavated soil is used for refilling/ resurfacing and rest is being disposed of along with other debris at selected location

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
26	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil will be 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	Borrow area sitting (area of site in m ² and estimated volume in m ³)	Acceptable soil borrow areas that provide a benefit - every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
		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 (P ^H , BOD /COD, Suspended solids, others)	Timing of major disturbance activities –prior to start of construction activities	POWERGRID (Contractor through contract provisions))	Construction period	Complied/ Being Complied
27	Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground cover left undisturbed	Ground disturbance during vegetation clearance(area, m ²)	Amount of ground disturbance – every 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			
28	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 (m ³)of fill disposal	Appropriate fill disposal locations – every 2 weeks	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
29	Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Location of hazardous material storage; spill reports (type of material spilled, amount (kg or m ³) & 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.
30	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
31	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. Regular monitoring is undertaken to ensure compliance of applicable contract provisions by contractor.
32	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
33	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				

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in				
			Repair /reinstate damaged bunds etc. after construction completed	Status of facilities (earthwork in m ³)				
		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 deptt. (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
34	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimised, use of existing roads. Limit site clearing to work areas Regeneration of vegetation to stabilise works areas on completion (where applicable) Avoidance of excavation in wet season Water courses protected from siltation through use of bunds and sediment ponds	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m ² ; amount of bunds constructed [length in meter, area in m ² , or volume in m ³])	Incorporating good design and construction management practices – once for each site	POWERGRID (Contractor through contract provisions)	Construction period	Complied/ Being Complied
35	Nuisance to nearby properties	Losses to neighbouring land uses/	Contract clauses specifying careful construction practices.	Contract clauses	Incorporating good construction	POWERGRID (Contractor through	Construction period	Complied/ Being Complied

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		values	As much as possible existing access ways will be used	Design basis and layout	Incorporating good design engineering practices– once for each site.	contract provisions)		
			Productive land will be reinstated following completion of construction	Reinstatement of land status (area affected, m ²)	Consultation with affected parties – twice – immediately after completion of construction and after the first harvest			
		Social inequities	Compensation will be paid for loss of production, if any.	Implementation of Tree/Crop compensation (amount paid)	Consultation with affected parties – once in a quarter	POWERGRID	Prior to construction	Compensation provided as per POWERGRID's procedure for tree/crop compensation (for details of compensation paid please refer Social Monitoring Report)
36	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.
37	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.

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
38	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.
39	Health and safety	Injury and sickness of workers and members of the public	<p>Safety equipment's (PPEs) for construction workers</p> <p>Contract provisions specifying minimum requirements for construction workers camps</p> <p>Contractor to prepare and implement a health and safety plan.</p> <p>Contractor to arrange for health and safety training sessions</p>	Contract clauses (18.1.3, 18.3.1.1, 18.3.1.4 etc.) (requirements of worker camp, number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	POWERGRID (Contractor through contract provisions)	Construction period	<p>Complied with project specific safety plan and general conditions of contract, which covers all applicable regulations.</p> <p>Photographs related to, Health Check-up/ Safety Awareness and Training use of PPEs placed as Plate- 1.</p> <p>Further, in view of COVID-19 outbreak, corrective measures in respect of health & hygiene, sanitation, adequate PPEs and social distancing norms are being strictly followed in all active sites as per Govt. of India guidelines and COVID specific guidelines issued by POWERGRID's Corporate Safety Cell (sample photos of such measures are placed at Annexure-1)</p>

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
40	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	<p>Provided proper training and have very good env. monitoring process.</p> <p>Regular training being imparted to employees on E & S aspects. During reporting period such training programme was conducted at Manesar on 12 & 13th March 2020. Training modules and photographs of said training placed as Plate-2.</p> <p>Appropriate clause incorporated in contact provision for EMP implementation. Site managers review the implementation on daily basis.</p>
			Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site - once			
			Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract – once			
Operation and Maintenance								
41	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 and the regulation of supervision at sites.	Compliance with setback distances (“as-built” diagrams)	Setback distances to nearest houses – once in quarter	POWERGRID	During operations	Complied during survey. Route alignment criterion is part of survey contract which was followed thoroughly during construction and no such exposure to safety related risks is anticipated.

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
42	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/reflector, 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	Though route of Ajmer - Bikaner & Bikaner - Moga under GEC Part-D don't form part of any identified bird flyways/migratory path bird diverters shall be installed in the forest stretches of both lines as part compliance to forest clearance condition.
43	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.
44	Oil spillage	Contamination of land/nearby water bodies	Each transformer has a secure and impervious underlying pit with a storage capacity of at least 20% of the total oil volume of the transformer and the individual pits are connected to a main collection sump of capacity of 220% of largest transformer oil volume, which acts as a Secondary Containment, in case of a leakage. (refer para 8.6 of TS)	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 photograph placed as Plate-3). However, no spillage of transformer oil is reported so far. Photograph
45	SF ₆ management	Emission of most potent GHG causing	Reduction of SF ₆ emission through awareness, replacement of old seals, proper	Leakage and gas density/level	Continuous monitoring	POWERGRID	During Operations	Complied/ being complied. Regular monitoring and

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
		climate change	handling & storage by controlled inventory and use, enhance recovery and applying new tech. to reduce leakage					controlled inventory is ensured to avoid any leakage of SF6.
46	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (lost work days due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	POWERGRID	Design and operation	Complied/ being complied. All safety related precautions/ 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	Provision of facilities	Complaints received from staff /workers every 2 weeks			
			Provide adequate sanitation and water supply facilities					
47	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimise hazards	Usage of appropriate technologies (no. of injury incidents, lost work days)	Preparedness level for using these technology in crisis- once a month	POWERGRID	Design and Operation	Complied/ being complied. Used of technology like tripping line/substation in milliseconds in case of any hazards. Boundary and Security fences are maintained at substation. Sufficient barriers with warning sinages are maintained at
			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				

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
			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			appropriate places of line/substation (sample photograph placed as Plate-3). Further, regular awareness/ mock drill on electrical safety and other occupational hazards are being undertaken
48	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations & line maintenance crews. Preparation and training in the use of O&M manuals and standard operating practices	Training/awareness programs and mock drills for all relevant staff	Number of programs and per cent of staff covered – once each year	POWERGRID	Operation	Being complied. Regular trainings are being imparted to O & M staffs based on their skill at regular interval
49	Inadequate periodic environmental monitoring.	Diminished ecological and social values.	Staff to receive training in environmental monitoring of project O & M activities	Training/awareness programs and mock drills for all relevant staff	Number of programs and per cent of staff covered – once each year	POWERGRID	Operation	Complied/being complied. During reporting period total 52 mandays training impacted on E & S aspects (refer Plate -2).
50	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.

Cl. No./stage	Project activity	Potential Impact	Proposed mitigation measures	Parameter to be monitored	Measurement & frequency	Institutional responsibility	Implementation schedule	Compliance Status
51	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
52	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
53	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 Bikaner substation is 54 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. A Project Management Unit (PMU) has been set up headed by Executive Director (Corporate Planning) at headquarters to coordinate and implement all environment and social issues with the assistance of functional department like Environment & Social Management Deptt., Engineering etc. Apart from site managers review the progress on daily basis and regular project review meetings held at least on monthly basis, chaired by the Executive Director of the region wherein the environmental aspects of the projects are discussed and remedial measures taken wherever required. The exceptions of these meetings will be submitted to the Directors and Chairman & Managing Director (CMD).

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

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

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

SECTION: 6 MONITORING OF ENVIRONMENTAL RECEPTORS/ ATTRIBUTES

It is evident that environmental impacts associated with power transmission project are not far reaching as these developmental activities are non-polluting in nature and do not involve any significant 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 and site selection.

By adopting careful route selection by using modern technique like GPS, GIS, remote sensing etc. the total forest involvement for proposed projects was restricted to 4.997 km which is only 0.41 % of total line length of 1212 km line. However, a small stretch (0.49

km) of underground portion of ± 320 kV Pugalur-North Trichur line is passing through Peechi Vazhani Wildlife sanctuary which is unavoidable as no other utility corridor is available to lay the power cable. Moreover, actual area involved/affected is very small to the tune of 0.098 ha. as the said line will be laid underground with RoW of 2m only. Further, the line is passing along the pre-existing NH-544 corridor in the wildlife area which is already disturbed/ fragmented and hence, no additional impact on wildlife and its habitat is anticipated. Additionally, conditions/recommendations of SBWL/NBWL as mentioned in wildlife permission shall also be complied with, which in turn will further negate any residual impacts due to construction of said line.

The proposed project doesn't have much anticipated impact on environmental attributes like air, water, soil etc. and are mostly concentrated to construction stage. Air quality impact is restricted to the construction phase only as no emissions to air takes place during ordinary operations of transmission lines. Impacts on air quality due to airborne dust in the vicinity of the work sites (at points along the route of the transmission line where towers are located) mainly result from excavation and construction activities and tail gases from construction equipments and vehicles. Since all the proposed alignments are accessible, no construction of access roads is envisaged thereby avoiding any airborne dust pollution in the vicinity. The construction activities are small scale and of a temporary nature. Moreover, the activities are not concentrated to one place (localized) rather it is widely dispersed that provide adequate buffering to air environment. Therefore, impacts on air quality from construction activities are considered insignificant. Further, no liquid effluent is generated due to project activity. However, small quantities of domestic sewage from staff quarters and construction camp is generated which is discharged in local soak pits. Construction of transmission tower foundation, stringing and other activities are mostly manual in nature and use of 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 COVID-19 outbreak 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 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 no symptomatic/ positive COVID case has been reported from any construction sites during reporting period. Some photographs related proper health & hygiene, sanitization, availability of PPEs and adherence to social distancing norms including daily awareness on COVID during Tool Box Talk etc. are placed as **Annexure-1**.

As regard workplace Safety all required measures including COVID specific requirements are in place including due precautions/ awareness programs as well as ensuring use of PPEs. It is noteworthy to mention that no accidents (fatal or non-fatal) including major/minor injuries have been reported during the reporting period from any of the construction sites.

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

Grievance Redress Mechanism (GRM) is an integral and important mechanism for addressing/resolving the concern 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 project level GRCs have been established 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.

In the instant project, 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. Some of these complaints 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. During reporting period of January-June 2020, only 2 court cases have been filed. Details of written & verbal complaints including court cases along with their status as of June 2020 are presented in **Appendix-3**.

SECTION: 9 CONCLUSION

It is may be noted from above that the subprojects activities are non-polluting in nature and don't have significant adverse impacts on environment except the involvement of 4.997 km of forest including 0.49 km of Wildlife sanctuary area. However, with the condition of raising the compensatory afforestation on double the area diverted and measures like extended tower to reduce tree felling will go a long way in mitigating the likely loss of vegetation. Besides, conditions/recommendations of forest & wildlife clearance shall be complied with, which in turn will further negate any residual impacts. 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. There will be optimization of RoW resulting in reduction in land requirement due to high power carrying capacity of these lines. 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 Green Energy Corridor subproject is planned to evacuate clean and green energy through renewable sources, 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)

Appendix- 1: Stage-II (Final) Forest Clearance



भारत सरकार
GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE
Regional Office (Southern Zone),
Kendriya Sadan, IVth Floor, E& F Wings, 17th Main Road,
IInd Block, Koramangala, Bangalore – 560 034,
Tel.No.080-25635905, E.Mail: rosz.bng-mef@nic.in



BY SPEED POST
F.No.4-KLB1153/2018-BAN/968
Dated the 24th September, 2019

To

The Principal Secretary,
Government of Kerala,
Forests & Wildlife (C) Department,
Secretariat, Thiruvananthapuram,
Kerala, PIN – 695 001.

Subject: Diversion of 0.244 ha. (0.098 ha. from Peechi Wildlife Sanctuary & 0.146 ha. from Thrissur Forest Division) of forest land for laying of a ± 320 KV HVDC underground Power Cable from Vadakkancherry to Thrissur in Kerala in the utility corridor of NH 544 (in a concrete duct bank of 2M width) in favour of M/s. Power Grid Corporation of India Ltd.

Sir,

Please refer to the State Government's letter No. C3/22/2018/F&WLD dated 02/04/2018 and PCCF (Wildlife) & Chief Wildlife Warden's letter No. WL4-40979/2017 dated 19/09/2018 on the above mentioned subject seeking prior approval of the Central Government under Section'2' of the Forest (Conservation) Act, 1980. The in-principle (Stage-I) approval to the project was accorded by the Central Government vide letter of even number dated 9th October, 2018. The State Government vide letter No. C3/22/2018/F&WLD dated 22/06/2019 and PCCF's letter No. FC2-27056/2017 dated 04/09/2019 have reported compliance to the conditions stipulated by the Central Government in the in-principle approval.

After careful consideration of the proposal of the State Government, I am directed to convey Central Government's approval (Stage-II) under Section'2' of Forest (Conservation) Act, 1980 for diversion of 0.244 ha. (0.098 ha. from Peechi Wildlife Sanctuary & 0.146 ha. from Thrissur Forest Division) of forest land for laying of a ± 320 KV HVDC underground Power Cable from Vadakkancherry to Thrissur in Kerala in the utility corridor of NH 544 (in a concrete duct bank of 2M width) in favour of M/s. Power Grid Corporation of India Ltd, subject to the following conditions:-

1. The legal status of forest land shall remain unchanged.
2. The boundary of the forest land to be diverted shall be suitably demarcated on ground at the project cost as per the directions of concerned Divisional Forest Officer, keeping in view the movement of wildlife.
3. Additional amount of the Net Present Value (NPV) of the diverted forest land if any, becoming due after revision of the same by the Hon'ble Supreme Court of India in future, shall be charged by the State Government from the user agency. The user agency shall furnish an undertaking to this effect.

Continued...

Signed

4. The wildlife mitigation measures as approved by the Chief Wildlife Warden must be strictly implemented.
5. The layout plan of the proposal shall not be changed without prior approval of Central Government.
6. The total forest area utilized for the project shall not exceed 0.244 ha. The Forest land shall be used only for the purpose for which it is diverted.
7. The forest land proposed to be diverted shall under no circumstances be transferred to any other agencies, department or person without prior approval of Government of India.
8. Any other condition that the Ministry of Environment, Forest and Climate Change may stipulate from time to time in the interest of conservation, protection and development of Forest and Wildlife.
9. Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as per the MoEF&CC Guideline F.No.11-42/2017-FC dated 29/01/2018.
10. The State Government and user agency shall comply the provisions of the all Acts, Rules, Regulations, Guidelines, NGT order & Hon'ble Court Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.

Yours faithfully,

(M.K.Shambhu)

Deputy Inspector General of Forests (Central)

Copy to:-

1. The Director General of Forests & Special Secretary to Govt. of India, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Agni Wing, Aliganj, Jor Bagh Road, New Delhi – 110 003.
2. The Principal Chief Conservator of Forests, Forests Deptt, Government of Kerala, 'Vanalakshmi', 1st Floor, Forest Headquarters, Vazhuthacaud, Thiruvananthapuram-695 014, Kerala.
3. The Additional Principal Chief Conservator of Forests (Special Afforestation) & Nodal Officer (FCA), Office of the Principal Chief Conservator of Forests, Forests Department, Government of Kerala, 'Vanalakshmi', 1st Floor, Forest Headquarters, Vazhuthacaud, Thiruvananthapuram, PIN- 695 014, Kerala.
4. M/s. Power Grid Corporation of India Ltd, SRTS-II, RHQ, Near RTO Driving Test Track, Singanayakanahalli, Yelhanka Hobli, Bangalore -560 064.
- ✓ 5. Guard file.



(M.K.Shambhu)

Deputy Inspector General of Forests (Central)

Appendix- 2 : MoEFCC Recommendation/Permission of for Peechi Vazhani Wildlife Sanctuary Area



Government of India
Ministry of Environment, Forest and Climate Change
(Wildlife Division)

6th Floor, Vayu Wing
Indira Paryavaran Bhawan
Jor Bag Road
New Delhi 110 003
Date: 08 Feb 2018

F.No. 6-4/2018 WL

To
The Principal Secretary
Kerala Forest Department
Vazuthacaud
Thiruvananthapuram 695 014

Sub: Minutes of the 47th Meeting of Standing Committee of National Board for Wildlife- reg.

Sir,

The 47th Meeting of Standing Committee of National Board for Wildlife was held on 25th January 2018 under the chairmanship of Hon'ble Minister for Environment, Forest and Climate Change. The following policies and proposals pertaining to your State were considered:

Monitoring Terms and Conditions Mentioned while Approving Projects

The DIGF(WL) briefed the Committee and stated that the Standing Committee of NBWL considers and recommends the developmental activities / projects inside the Protected Areas along with site specific mitigation measures to safeguard the interest of wildlife. During the field visits by different Committees constituted by the Standing Committee of NBWL, it has been observed that such projects were implemented without implementing some of the terms and conditions. In other words, the interests of wildlife conservation were ignored sometimes intentionally. The conservationists are of the view that the Protected Areas (PAs) have suffered due to sanctioning of the developmental projects inside the PAs in the recent years while the project proponents ignored the conditions mentioned for protection of wildlife while recommending the projects.

Dr. H S Singh, Member, NBWL was of considered view that there is a need to establish a mechanism of monitoring to ensure that the development activities / projects are taken up inside the Protected Areas only after implementing the terms and conditions. In the background of this fact, it is necessary to develop a format of the certificate from the Chief Wildlife Wardens of the States for each project for fulfilling the terms and conditions as mentioned in the approval before implanting the project. It should be mandatory for submitting the certificate for each such project by the State Chief Wildlife Warden in time so that the interests of wildlife are secured fully.

The Member Secretary, NBWL mentioned that in case of diversion of forestland for non-forestry uses and in case of Environmental Clearances a condition is being stipulated that annual compliance report of the compliance of the stipulated conditions shall be submitted by the user agency. Further in the green portal of the Ministry software is under development which will help in monitoring the implementation of terms and conditions stipulated in approval / recommendations given under the Forest (Conservation) Act 1980, Environmental (Protection) Act 1986 and Wildlife (Protection) Act 1972.

Laying of ± 320 kv HVDC underground power cable from Vadakkancherri to Thrissur

The DIGF(WL) briefed the Standing Committee on the proposal and stated that the project involves the diversion of 0.098 ha forestland from the Peechi Vazhani Wildlife Sanctuary for underground laying of power cable of 12" diameter of length of 490 m and width of 2 m from Vadakkancherri to Thrissur. The project would provide electricity to the households and for irrigation purpose in the region. He added that the State CWLW has recommended the proposal with the condition that the project proponent would construct rail fence barrier in the stretch that is falling in the Peechi Vazhani Wildlife Sanctuary.

After discussions, the Standing Committee decided to recommend the proposal along with the conditions and mitigation measures stipulated by the CWLW with the condition that Wildlife Mitigation Plan will be prepared and implemented by the CWLW / State Government at the project cost and standard mitigation measures should be adopted by the user agency in consultation with the CWLW.

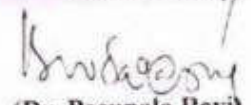
Construction of Jetty along the west bank of Mattancherry Channel in Fort Kochi for Indian Coast Guard

The DIGF(WL) briefed the Standing Committee on the proposal and stated that the project involves the construction of Jetty along the west bank of Mattancherry Channel in the Kochi Fort for Indian Coast Guard located at 3.3 km away from boundary of Mangalavanam Bird Sanctuary. He added that the proposal requires the recommendation of Standing Committee as part of Environment Clearance. He added that the State CWLW has recommended the proposal without imposing conditions.

After discussions, the Standing Committee decided to recommend the proposal.

The above recommendation(s) are subject to the existing directives of Hon'ble Supreme Court and provisions of Forest (Conservation) Act, 1980.

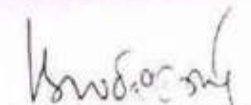
Yours faithfully,


(Dr. Pasupala Ravi)
Scientist C

E-mail: ddwlmeff@gmail.com

Copy to

1. Chief Wildlife Warden, Kerala Forest Department, Vazuthacaud, Thiruvananthapuram 695 014
2. Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (SZ), Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore 560 034
3. Joint Secretary, IA Division, MoEF&CC
4. Inspector General of Forests, FC Division, MoEF&CC


(Dr. Pasupala Ravi)

PW2-2123/2017



Office of the Wildlife Warden,
Peechi Wildlife Division,
Peechi P.O., Pin: 680653, E-mail:
ww-peechi.for@kerala.gov.in
Ph: 0487-2699017,

Date: 29-03-2019

Acknowledge Receipt

Received and deposited of Rs.4,00,00,000/- (Rupees Four Crore Only) from POWERGRID CORPORATION OF INDIA LTD. to the Account of Forest Development Agency, Peechi (A/c No.67248658937) on 29-03-2019 for the purpose of Mitigation plan for Diversion of 0.244 Ha (0.098Ha from Peechi Wildlife Sanctuary & 0.146 Ha from Thrissur Forest Division) of forest land for laying of \pm 320KV HVDC Underground Power Cable from Wadakanchery to Thrissur.




Wildlife Warden,
Peechi.

Appendix - 3 : Details of Court Cases and Complaints as of June 2020

S N	Name of the line	Location No.	Name of complainants	Date of complaints/ Court case	Main Issue of complaints	Status of complaint	
A. Court Cases							
1.	Ajmer – Bikaner 765 kV D/C	87/0	Ms. Sushila Devi	06.01.18	Land Compensation	Matter under consideration of Additional District & Session Court, Bikaner. Hearing could not be held on 30.03.19, 27.08.19, 11.10.19 and 27.03.20.	
2.	Pugalur HVDC–	36/0	Sh. K.S. Natarajan	WP No. 15040 of 2018 filed on 28.06.18 to Madurai Bench of Madras High court	Seeking order of interim injunction restraining POWERGRID installing towers in their lands	Hon'ble Madras High Court issued stay for status quo order on 12.07.18. Counter statement filed by POWERGRID on 06.08.18 to dismiss the stay order. High court vacated stay & disposed the case on 17.09.18.	
3.	Pugalur (existing)	35/3	Sh. Saminathan				
4.	400KV D/C	35/4	Sh.Ramasamy				
5.	Pugalur-Thiruvallam	142/5	Sh. Periyasamy				
6.	400KV D/C	141/2	Sh. K.Mani	W.P. No. 35500/2019	Diversion of Transmission Line	Madras High Court dismissed the case on 07.02.20	
7.		142/1	Sh. K.Krishna Moorthy				
8.		75/1	Sh.Ramalingam Chettiyar				
9.	86/6-86/7	Sh. G. Anbalagan	W.P. No. 21235/2019				Matter pending for hearing.
10.	90/2	Sh. Ganesan	W.P. No. 7010/2020				Madras High Court dismissed the case on 19.03.20.
11.	91/7	Sh. Ashok kumar	W.P. No. 7011/2020				Counter affidavit filed by POWERGRID. Matter is pending for hearing.
12.	400Kv (Quad) Pugalur	AP 12/0	Kalaichelvi W/o Kumaresan				
13.	HVDC – Arasur Line	AP 13/0	Subbaraya Gounder S/o Nachimuthu Gr.	W.P. No. 32473/2019			
B. Written Complaints							
1.	Pugalur HVDC– Arasur 400KV D/C		Tamil Nadu Farmers Association, Coimbatore through District Collector (DC), Coimbatore.	29.12.17	To stop line construction works/ route diversion	POWERGRID submitted reply on 25.01.18 to District Collector, Coimbatore informing that due to technical reason route diversion is not possible. Issue resolved in coordination with District Collector and work is in progress as per original route.	
2.		73/0	Representation from ARC	14.03.18	Route diversion	POWERGRID submitted reply on 24.03.18	

			School received through DC, Coimbatore			informing that due to technical reason route diversion is not possible. Issue resolved in coordination with District Collector and work is in progress as per original route.
3.			From Sh. C. Vengatachalam received through DC, Tirupur	29.07.18	Route diversion to avoid stream	Tahsildar inspected the site and reported to District Collector, Tirupur that Stream is away from alignment. Issue resolved.
4.	Pugalur-Thiruvalla -m 400KV D/C	114/1 - 114/2	Sh. Raju	12.07.2019	Seeking Higher compensation	POWERGRID submitted reply to District Collector, Tiruvannamalai stating that compensation being paid as per norms and rate as decided by revenue authority norms only
5.		86/2	Sh. Sampath	08.07.2019		
6.		90/2	Sh. Ganesan	08.07.2019		
7.		91/7	Sh. Ashok Kumar	10.07.2019		
C. Verbal Complaints						
1.	Ajmer – Bikaner 765kV D/c	80/1	Mr. Tola Ram	15.11.17	Basis of assessment of Crop Compensation	Compensation framework explained to Complainant. Matter Resolved through discussion.
2.	Pugalur HVDC–Thiruvalla m 400KV D/c	57/1	Sh. S. Kanda samy Gounder	25.05.18	To stop line construction works/ route diversion	Issue resolved in close co-ordination with district authority.
3		56/4	Sh. M. Selvaraj			
4.	Pugalur-Edayarp alayam 400 KV D/C		Land owners of Suryanallur village	28.06.18	Route Diversion	Issue resolved amicably with villagers through meeting/ discussion in coordination with District Collector.

Plate 1: Health Check-up/ Safety Awareness & Training



Health Check Up for Workers at AP No. 87 of Pugalur-Thiruvalem line



Safety awareness training at AP No. 95/1 & 134/2 of Pugalur-Thiruvalem line



Tool Box Talk and Safety awareness training at location 10/0 & 17/1of Bikaner-Moga line

Compliance of Safety Checklists

Safety Check List TL Code - RL Revision-1(May, 2014)
POWER GRID CORPORATION OF INDIA LTD.
 (CORPORATE OPERATION SERVICES)
SITE SAFETY INSPECTION/AUDIT CHECKLIST
EXCAVATION & FOUNDATION

DATE OF INSPECTION: 31/01/2020 NAME OF THE LINE: 400KV Pugalur-Thiruvallam TL
 LOCATION NO: 40/0 CLASSIFICATION OF SOIL & TYPE OF TOWER: DP+5 DP+6
 NAME OF THE AGENCY: W/2 AP SLP Ltd.
 SITE ENGINEER/SUPERVISOR OF THE AGENCY: Mr. J. Manikandan / Mr. Arjun Paul
 SAFETY OFFICER OF THE AGENCY: Mr. Manikandan

S.NO.	CHECK LIST	YES/NO	REMARKS, IF ANY
1	Check List to be verified by the Agency's Site supervisor / Gang leader is available at site and updated.	Yes	Advised to provide updated version
2	Safe Work Procedures / Instructions in the language understood by the workers available with Site supervisor / Gang leader and workers are aware of the safe work procedures.	Yes	Emergency Plan available
3	Pre talk on safety issues to the workers being done by the Safety Stewards / Supervisor / Engineer / Safety Officer of the Agency.	Yes	Advised to conduct regularly
4	Appropriate safety messages / warnings are displayed at site to caution the workers.	Yes	
5	Adequate warning / protection to public / children during nearby excavated (RED FLAGS / CAUTION TAPE / HOPE / BARRIERS).	Yes	Advised to ensure adequacy of protection
6	Sufficient Angle of Repose / slope provided to prevent collapse of soil at vulnerable locations.	Yes	Soil to be checked 15 m from edge of pit
7	Adequate shoring and shuttering provided in collapsible soil conditions.	Yes	
8	(a) Drilling and Blasting, if any, carried out with adequate precautions.	N/A	
9	(b) Whether the blaster is a valid frame holder?	Yes	
10	Clear edges to prevent fall of objects inside the pit - the excavated earth, stones and tools dropped at least half of the depth of the pit away from the pit edges.	Yes	
11	Machines like concrete mixer, vibrator, etc. placed away atleast half of the depth of the pit from the pit to avoid collapse of the pit due to vibration produced by these machines.	Yes	Bill of items written and verified by SLP

Code: 1

- 2 -

12	The steel plate (bracketed for pouring the concrete) and the pit properly anchored to prevent the same from falling into the pit, endangering the person inside the pit.	Yes	
13	Jacks used for supporting the template are properly positioned / anchored to avoid sliding down of the template from the jacks and endangering the workers.	Yes	Temp. Scaffolding
14	All ladders used are of sound construction, appropriate height and free from any defect.	Yes	
15	All the workers are provided with good quality SAFETY HELMETS conforming to BIS Standard IS-2815.	Yes	W/2 AP SLP
16	All the workers engaged in steel work are provided with LEATHER SAFETY GLOVES.	Yes	Available to workers on requisition
17	The workers engaged in concrete work inside the pit are provided with GUMBOOTS.	Yes	
18	The workers engaged in handling cement are provided with appropriate DUST MASKS.	Yes	
19	Appropriate SAFETY BELT / Fall protection provided to workers working on form box to pour concrete into the form box / remaining in form box.	Yes	
20	(a) First aid box with listed items as per BOW Act, 1986 available. (b) Number of First Aid Trained persons and their names. (c) First Aid Register is available at site. (d) Nearest medical facilities for use during emergency identified (Location / Phone No.)	Yes	The nearest hospital available at site. First Aid Register is updated
21	At least one vehicle (four wheelers) is available for use in case of emergency.	Yes	

Signature / Name / Designation of POWERGRID REPRESENTATIVE: _____
 Signature / Name / Designation of AGENCY'S REPRESENTATIVE: _____

Code To: (1) Regional In-charge / POWERGRID / (2) Projects In-charge (Region) / POWERGRID / (3) Site In-charge / POWERGRID / (4) Project In-charge / AGENCY /

Safety Checklist Used for Excavation & Foundation work for Pugalur –Thiruvallam line

Safety Check List TL Code - RL Revision-1(May, 2014)
POWER GRID CORPORATION OF INDIA LTD.
 (CORPORATE OPERATION SERVICES)
SITE SAFETY INSPECTION/AUDIT CHECKLIST
STRINGING

DATE OF INSPECTION: 2/2/20 NAME OF THE LINE: 765KV Bikaner-Moga TL Part-III
 REACH/LOCATION NO: AP 33/0-AP 34/0
 NAME OF THE AGENCY: REC International Ltd
 SITE ENGINEER/SUPERVISOR OF THE AGENCY: K.K. Nayak / M. Harada
 SAFETY OFFICER OF THE AGENCY: Navneet Jain

S.NO.	CHECK LIST	YES/NO	REMARKS, IF ANY
1	Check List to be verified by the Agency's Site supervisor / Gang leader is available at Site and updated.	Yes	Harada M.
2	Safe Work Procedures / Instructions in the language understood by the workers available with Site supervisor / Gang leader and workers are aware of the safe work procedures.	Yes	
3	Pre talk on safety issues (importance of safety, inspection of TRP and PPEs, proper use of PPEs, safe stringing practices, safe show down procedure, safe material handling / loose hanging, safety to public / children, etc.) to the workers being done by the Safety Stewards / Supervisor / Engineer / Safety Officer of the Agency.	Yes	
4	Adequate warning / protection to public / children during nearby excavated (RED FLAGS / CAUTION TAPE / HOPE / BARRIERS).	Yes	Red, Blue, Caution Tape
5	Flag men are posted at all the tensioning Sites / Towers with proper SIGNALING FLAGS AND COMMUNICATION GADGETS and they are keeping watch over the movement of ground cables / conductors and warning them when they come close.	Yes	
6	Number of walkie Talkie available at Site & their condition.	12 nos	Ken Wood
7	All the workers are provided with good quality SAFETY HELMETS conforming to BIS Standard IS-2815.	Yes	Brand: Karanm
8	The workers engaged in Tower Erection work at height are provided with good quality FULL BODY DOUBLE LANYARD SAFETY BELTS conforming to BIS Standard IS-2811 / EN 361.	Yes	Brand: Karanm
9	Other PPEs provided to the workers: SAFETY SHOES / COTTON HAND GLOVES for manual handling / ELECTRICAL SAFETY GLOVES for SD work.	Yes	
10	The workers engaged in work at height are provided with FALL PROTECTION SYSTEMS like Rope Grab Mobile Fall Arrestor for ascending / descending the Tower / Removable Fall Arrestor for vertical movement from cross arm to conductor / rafter / Horizontal Life Line Rope for moving from one spanner to another spanner (Horizontal movement within tower).	Yes	
11	The towers working on the tower have been trained on safety for work at height before deployment for tower erection work and Training Records maintained.	Yes	Training in Progress
12	Life Line Rope / Lanyard of the Safety Belts are properly anchored / hooked while the person is working at height / working along the insulator string / conductor.	Yes	Life Line Rope is anchored & checked
22	Whether the Towers have been permanently earthed?	Yes	

Code: 1

- 2 -

14	(a) First aid box with listed items as per BOW Act, 1986 available. (b) Number of First Aid Trained persons and their names. (c) First Aid Register is available at site. (d) Nearest medical facilities for use during emergency identified (Location / Phone No.)	Yes	First Aid box K.K. Nayak Sangaria
15	Before commencing stringing activity, all Tower Members and Bolt & Nut are fixed and the Bolt properly tightened. WRITTEN CLEARANCE to take up stringing obtained.	Yes	
16	Before commencing stringing activity, it is ensured that all existing Tower Members and Bolt & Nut are replaced. RECORDS OF CONSTRUCTION OF FOUNDATION OF TOWERS IS MAINTAINED.	Yes	
17	Proper fixing of split pins and their verification before taking the insulator string is being ensured.	Yes	
18	Adequate number of BACK STAYS, depending on type of conductors (TWIN / QUAD / HEXA), are provided for all the cross insulators during stringing.	Yes	Back stay is provided
19	Showdown of main EB power from, wherever required, are taken with PTW, and no short cut methods used and clearance taken.	Yes	132KV Lin
20	(a) Whether a person is stationed near EB Power Line leading points, especially in LT Lines, to prevent inadvertent charging before closure of PTW. (b) Name of the Engineer / Supervisor available / responsible at site for ensuring proper fixing of lead cables and their removal during stringing line that does not accommodate.	Yes	K.K. Nayak
21	At least one vehicle (four wheelers) is available for use in case of emergency.	Yes	available at site
22	The polypropylene / wire ropes are of adequate strength & free from any damage. The damaged / discarded ropes are removed and are kept along with the other usable TRP, to prevent their use.	Yes	PP rope & wire rope are kept in store
23	CARRIER IN LAMP bearing tools such as B-shackle, Connecting clamps, steel ropes, pulleys, etc. are found to be used and free from any defect.	Yes	
24	Whether all lifting TRP have been issued for safe working load and valid test certificate available and checked?	Yes	TRP checked
25	The Stringing MIC / Technician / Puller are properly anchored and also permanently earthed to prevent any electric shock due to induction / lightning to the operators.	Yes	Certified
26	Whether Braking arrangement of TSM Machines / conductor drum is maintained at least 50% of the rated capacity.	Yes	
27	Proper scaffolding arrangements are made during stringing of conductors at Road crossing and Railway crossing.	Yes	
28	Whether PIVAL SAC operation is being done by WINCH MIC.	Yes	

Signature / Name / Designation of POWERGRID REPRESENTATIVE: _____
 Signature / Name / Designation of AGENCY'S REPRESENTATIVE: _____

Code To: (1) Regional In-charge / POWERGRID / (2) Projects In-charge (Region) / POWERGRID / (3) Site In-charge / POWERGRID / (4) Project In-charge / AGENCY /

Safety Checklist Used for Stringing work for Bikaner- Moga line

Plate - 2 : E & S Training Programmes

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 <i>(Sh. H S Sohal, IFS, CVO (BSNL))</i>	Tea	The Right to Fair compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 & Direct Purchase <i>(Dr R K Srivastava, Consultant (ESMD))</i>	Lunch	RoW Compensation vis-à-vis new development in the ambit of existing laws & RoW Guidelines <i>(Dr S S Singh, Sr. GM (ESMD))</i>	Tea	Latest Survey Techniques in relation with T/L Projects/ PTCC, Railway and Aviation Clearance <i>(Sh S C Taneja, Sr. GM (Engg.))</i>	
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 <i>(Ms. Vasvi Tyagi, IFS, CF, Gurgaon)</i>	Tea	Requirement of funding Agencies (IEAR/ FEAR/ CPTD etc.) & Public Consultation & Environment Management Plan (EMP) Implementation/Requirements of World Bank/ADB <i>(Dr S S Singh, Sr. GM (ESMD))</i>	Lunch	Forest & Wildlife Clearance <i>(Dr S S Singh, Sr. GM (ESMD))</i>	Tea	Panel discussion	Valedictory and Feedback



Plate - 2 : Photos of Sump pit and warning signage

Transformer Oil Sump Pit at Vadakancheri Substation



Warning Signage displayed at construction site of Pugalur-North Thrissure U/G cable work



Annexure-1: Photographs related Covid- 19 Specific Measures Implemented at various Sites

Disinfecting at site

PUGALUR HVDC (TAMIL NADU)

Office & peripheral Area



Site work locations



Work locations & Equipments



Consignments & other vehicles



Main Gate Entry

Washing, deposit of old mask, hand sanitizing, issuing of new mask, temperature scanning & Recording, Random checking of Arogya setu app status

Hand washing before entering into the site



Social distancing & awareness by using mega phone at entry



Collecting of used masks



Temperature Screening & Recording at main gate



Hand sanitizing and issuing of new mask



Workmen Covid'19 self declaration



Main Gate Entry

Washing, deposit of old mask, hand sanitizing, issuing of new mask, temperature scanning & Recording, Random checking of Arogya setu app status

Random checking of status of Arogya setu app



Covid awareness at gate by using mega phone



N 95 / FFP2 mask for all security & thermal scanning at each shift



SANITIZATION IN OFFICE & SERVICE AREA (RAIGARH HVDC TERMINAL STATION CHATTISGARH)



VEHICLE SANITIZATION AND DISPLAY OF BANNERS/ POSTERS (RAIGARH HVDC TERMINAL STATION, CHATTISGARH)



GATE ENTRY - TEMPERATURE MEASUREMENT, HAND SANITIZATION AND MASK DISTRIBUTION ENSURING SOCIAL DISTANCING (RAIGARH HVDC TERMINAL STATION, CHATTISGARH)



Pugalur - Thiruvalem 400 kV (quad) D/c line



WORKMEN ADHERING THE QUE WITH SOCIAL DISTANCING AT MAIN GATE ENTRANCE (THRISSUR HVDC TERMINAL STATION, KERALA)



SOCIAL DISTANCING IN OFFICE



**STAGGERED LUNCH TIMINGS FOR MAINTAINING SOCIAL DISTANCING
(THRISSUR HVDC TERMINAL STATION, KERALA)**



SOCIAL DISTANCE MARKING DONE IN FRONT OF TOILETS AND URINALS



ACTIVITY WISE TOOLBOX TALK BY AREA IN CHARGES AND EHS OFFICERS (THRISSUR HVDC TERMINAL STATION, KERALA)



STOCK OF 3-PLY FACEMASKS, FACE-SHIELD, HANDWASH & SANITIZERS (RAIGARH HVDC TERMINAL STATION, CHATTISGARH)



**COLLECTION OF USED FACEMASKS, SURGICAL HANDGLOVES
(RAIGARH HVDC TERMINAL STATION, CHATTISGARH)**



DISPOSAL FACILITY PROVIDED AT MAIN GATE ENTRANCE AND SITE OFFICE ENTRANCE (THRISSUR HVDC TERMINAL STATION, KERALA)



CLOSED BIN WITH FOOT OPERATED LID KEPT IN ALL VEHICLES, ONCE WORKERS REACH THEIR RESPECTIVE CAMPS WORKMEN WILL PUT THEIR USED MASK IN PROVIDED BIN AND NEW MASK WILL BE ISSUED FROM THE VEHICLE BY ACCOMPANIED SUPERVISOR AND VEHICLE DRIVER IS RESPONSIBLE FOR ENSURING THE SAME



Attachment 1: Comments-Responses Matrix

India: Green Energy Corridor and Grid Strengthening Project Environment Safeguard Monitoring Report (January-June 2020)

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
1	<p>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.</p> <p>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.</p> <p>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.</p> <p>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)</p> <ul style="list-style-type: none"> • 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 • Bhadla (POWERGRID) - Bhadla (RVPN) 400kV D/c (Quad) – this line is within 20km of the priority area <p>In addition to installing bird divertors, ADB request</p>	<p>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;</p> <ol style="list-style-type: none"> 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. <p>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).</p> <p>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.</p> <p>As regard Bird diverter, installation of Bird diverter work on line has already started in under 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</p>

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
	<p>POWERGRID to provide following further expert study to determine the extent of offset required:</p> <ul style="list-style-type: none"> • 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 <p>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</p> <ul style="list-style-type: none"> • 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 	<p>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</p> <p>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.</p>
2	<p>Table 1 re forest approvals for Pugalur HVDC - Thiruvalem 400kV D/c is the matter still to be heard by supreme court at end of reporting period? Is this hold up due to COVID-19 lockdown? When is a permission expected to be received?</p>	<p>Due to COVID-19 and subsequent delay in reconstitution of Godavarman Bench, the matter couldn't be taken up in SC in spite of POWERGRID's repeated applications (06.10.20, 31.10.20 & 17.11.20) for urgent mentioning. The matter was finally taken up by Hon'ble SC and permission obtained on 17.12.20.</p>
3	<p>Table 2, no. 8 – please update the table to cover the status of compliance with providing the bird divertors which is required by forest clearances; report on the km of line on which the bird divertors 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)</p>	<p>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.</p>
4	<p>Table 2, no. 9 – please add footnote for link to the Kerala, Rajasthan, and Tamil Nadu compensatory afforestation schemes as only link for Punjab 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.</p>	<p>Line wise compensatory afforestation links have been incorporated.</p> <p>As regard physical status/monitoring of afforestation, it is to pertinent to mention that POWERGRID role is very limited as all such afforestation 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</p>

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
		Management and Planning Authority (CAMPA) including monitoring of project wise afforestation status. Since the instant projects are recent one no status in respect of compensatory afforestation activity undertaken are updated on the website.
5	In relation to COVID-19 noted that good efforts being made to minimize spread based on photos provided and 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 Please include 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 when we undertook mission pre-lockdown toilets and hand washing facilities were not provided at the site we visited. There is photo of welfare facilities in annex, but from SS not field. It is extremely important to ensure adequate facilities available in field 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
6	Table 2, no. 42 – please update to reflect transmission lines are in critical habitat for Great Indian Bustard during non-breeding season with the bird divertors being required on the entire route transmission lines in Rajasthan, not just part in forest land (see above)	Already explained point no. 1 & 3
7	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. 44 transformer bunds and no. 47 security fences and warning signs	Incorporated as Plate-1 .
8	Table 2, no 52 it is mentioned noise levels at Bikaner SS are 54dBA 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. Similarly, EMF levels are to be measured on transmission lines where court cases raised this as a concern.	Noted, Noise level data at boundary of substation shall be included in next monitoring report. As regard EMF, it is to reiterate that POWERGRID's lines are designed as per guidelines of ICNIRP and ACGIH which are completely safe. Moreover, no case related to EMF is pending in court for any lines covered under subject scheme.
9	Please provide evidence if GRM contacts were being displayed at construction sites during this reporting period. 2no. new court cases were received in reporting period but were there any grievances submitted to the GRM? For the 2no. court cases in the period please provide further details of any with an environment component; if they are all related to social safeguards then please	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 been provided in Table-4.

No.	Comments by ADB	Responses and/or Actions Taken by POWERGRID
	confirm that all details and action taken provided in the SMR.	
10	During the mission earlier this year it was requested POWERGRID include an annex on associated facilities progress and any safeguard related issues; notably reporting on status of bird divertors required by forest clearances for the associated facility of Raigarh to Pugalur HVDC transmission line and what steps are being taken to ensure State Forest Department revegetate with dwarf trees beneath the transmission line in tiger reserve rather than waiting on natural regeneration which will take 15-30 years to establish?	It is to inform that bird diverters have already been installed in Tiger Corridor area (photo attached as Annexure-5). As regard dwarf tree plantation beneath the transmission line in tiger reserve, POWERGRID role is limited to depositing the cost of dwarf tree plantation as demanded by forest authorities who in turn undertake the actual plantation work. Accordingly, Rs 35.47 million was deposited on 24.10.18 against total 432.679 ha. forest land diverted to forest deptt. by POWERGRID (refer http://forestsclearance.nic.in/PartIIReport_A.aspx?pid=FP/MH/TRANS/29180/2017)
11	Please continue to pay attention to continual improvements in EHS during further implementation.	Noted.

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 undergrounding high voltage lines (≥ 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
<p>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.</p> <p>However, diverter cost can be reduced to 40% of existing cost with the development of more economic local diverters</p>	<p>Undergrounding cable available for 33kV power lines cost ~ 21 lakh/km with the 40% installation cost of total power line cost</p>

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

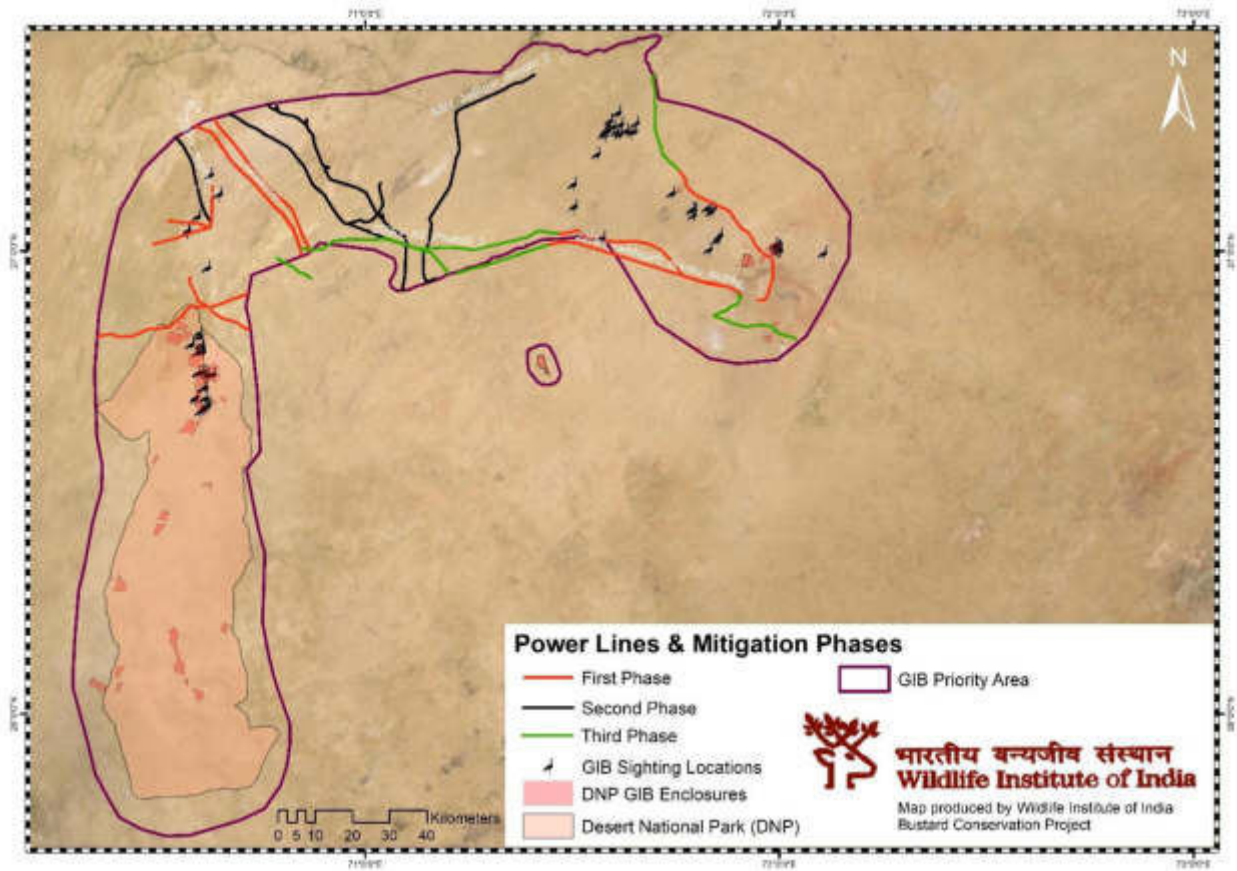
III		220	220kv Amarsagar – Phalodi	4(3)	71	9990	10,000/Diverter 9,99,00,000	20% of Diverter Cost 1,99,80,000	11,98,80,000
I		220	220kv Ramgarh Dechu	7(4)	49	9193	10,000/Diverter 9,19,30,000	20% of Diverter Cost 1,83,86,000	11,03,16,000
III		220	220kv Ramgarh Dechu	7(4)	43	8067	10,000/Diverter 8,06,70,000	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	Suzlon	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		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 Diverter				1,90,476			228,57,12,000 228.57 Cr
		104 KMs of 33 kV lines (for Diverter)				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. Atin 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 spatio-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 be 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, 11th Nov, 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 each 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, this 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 Kottur, 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 & OthersPetitioners

Versus

Union of India, through the Secretary

Ministry of Environment & OthersRespondents

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



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

Ritesh

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

Riteesh

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.

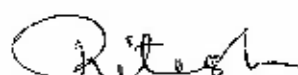
7. That it is further submitted that the reported loss of around 10 Great Indian Bustard to electric lines in last decade that too on assumption due to proximity of their carcass to electric lines is still to be established. Moreover, by raising generalized issue of power lines, without making any distinction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

Ritesh

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.....)**.

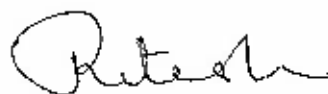
9. That Similarly, bird diverters on vulnerable earthwire are also installed on 29.2 km stretch of 765 kV Bhuj-Banaskantha line passing through Great Rann of Kachchh, Gujarat which attract lot of migratory birds including Flamingos for breeding after its inundation post monsoon to pre-empt even any remote 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

Ritesh

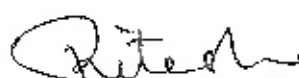
in 2016-17 by sponsoring a study by Wildlife Institute of India, Dehradun titled "*Impact Evaluation Study of Power Lines on Avifauna in Western Gujarat*". The outcome of the study will help all Transmission and Distribution utilities in analyzing the actual impacts of Power lines on bird as well as 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.

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

रीतेश रंजन/RESPONDENT
मुख्य प्रबन्धक (पर्या. एवं सामाजिक प्रबंधन) / Chief Manager (ESMD)
पावर ग्रीड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट सं-2, सेक्टर-29, गुरुग्राम-122001 (हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

Ritesh Ranjan

DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबन्धक (पर्या. एवं सामाजिक प्रबंधन) / Chief Manager (ESMD)
पावर ग्रीड कॉर्पोरेशन ऑफ इंडिया लि.
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IN THE SUPREME COURT OF INDIA
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Union of India, through the Secretary

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COUNTER AFFIDAVIT/REPLY ON BEHALF OF
RESPONDENTS NO. 30

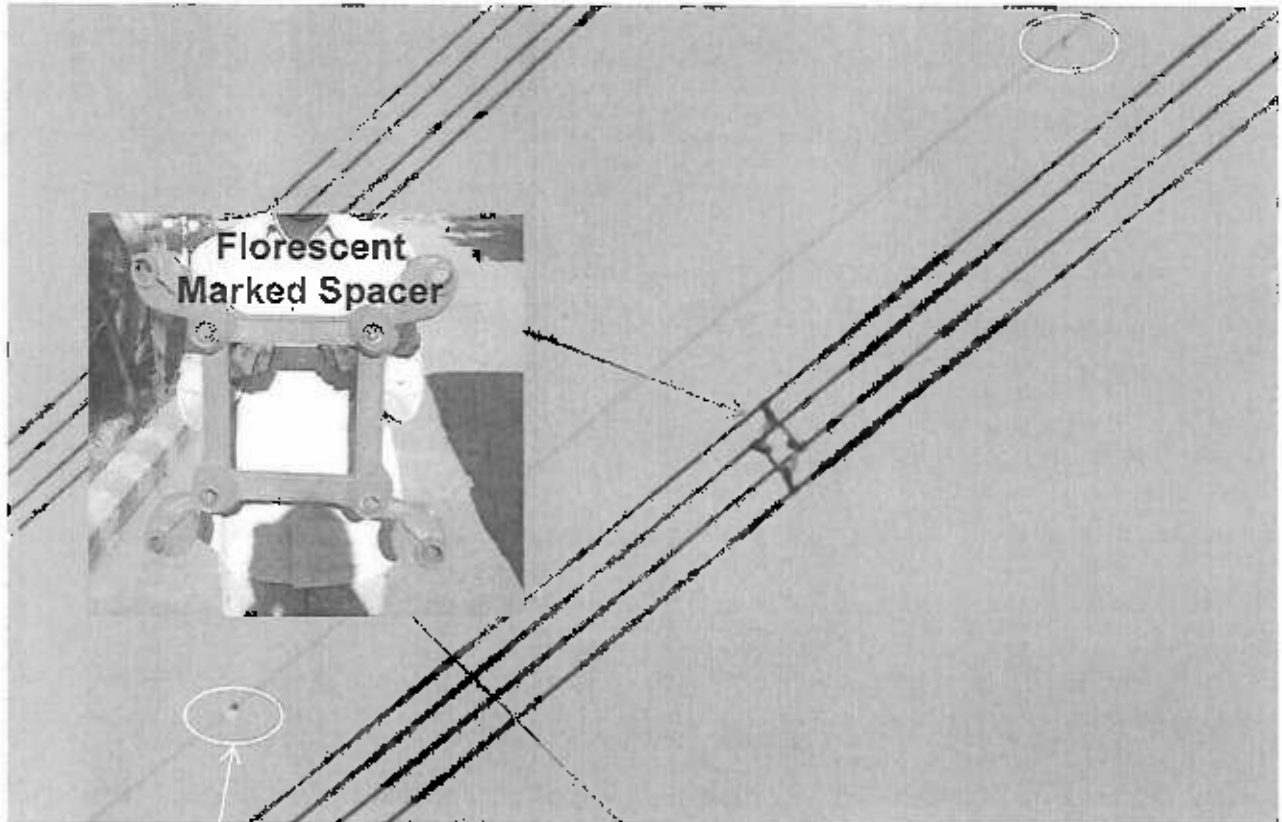
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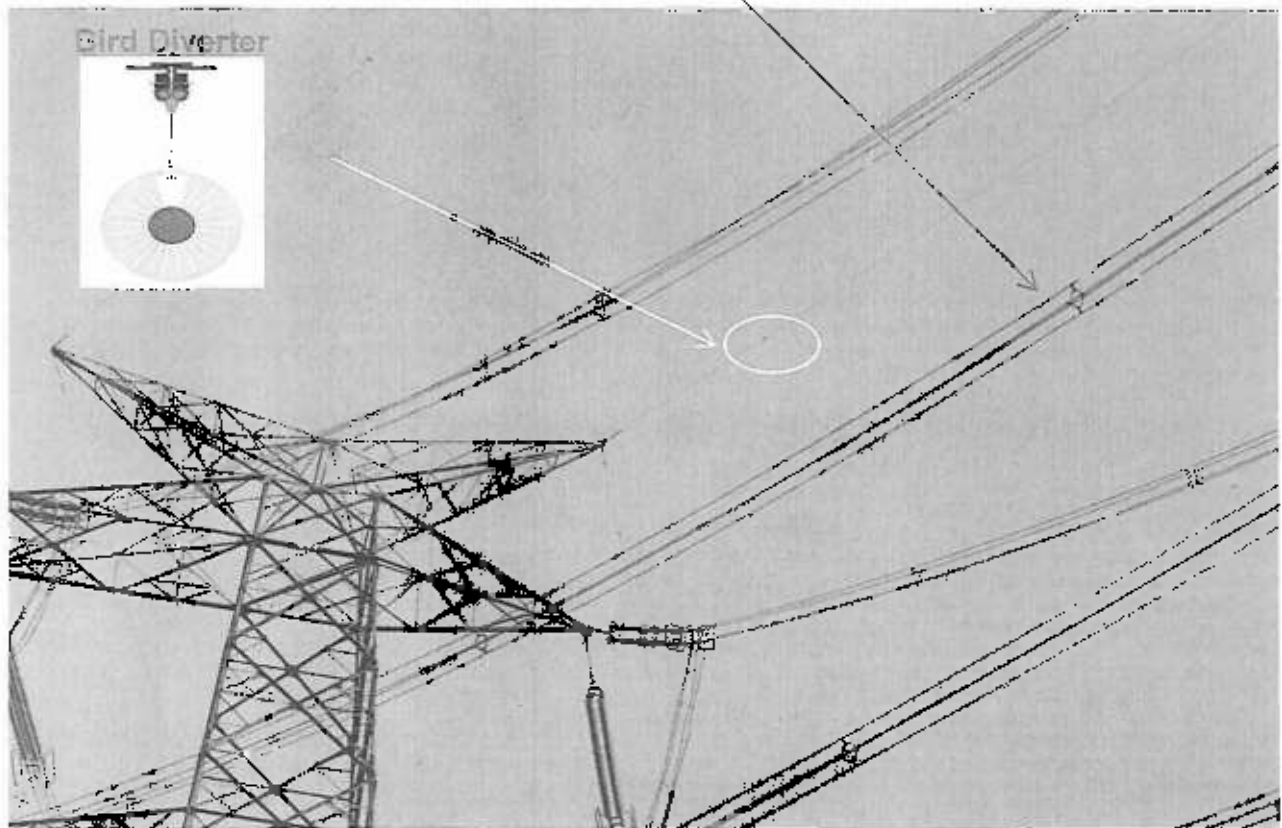
**ADVOCATE FOR RESPONDENT NO.30: SOMESH
CHANDRA JHA**

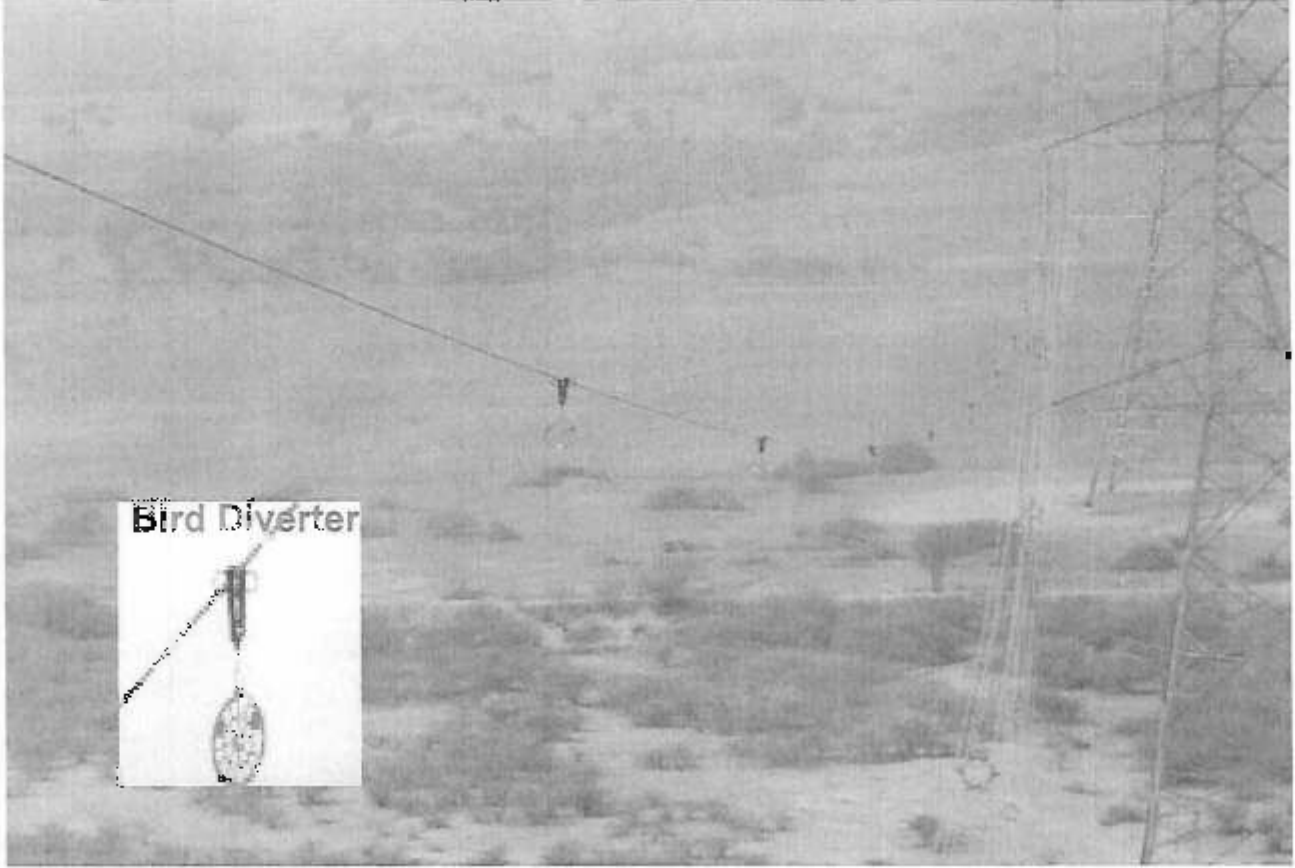
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S.NO.	PARTICULARS	PAGE NOS.
1.	Counter affidavit/reply on behalf of respondents no. 30	
2.	Annexure CA 30/1 Photographs dated Nil showing coloured conductor bundles on the Transmission Lines	
3.	Annexure CA 30/2 Photographs showing bird diverters dated 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	

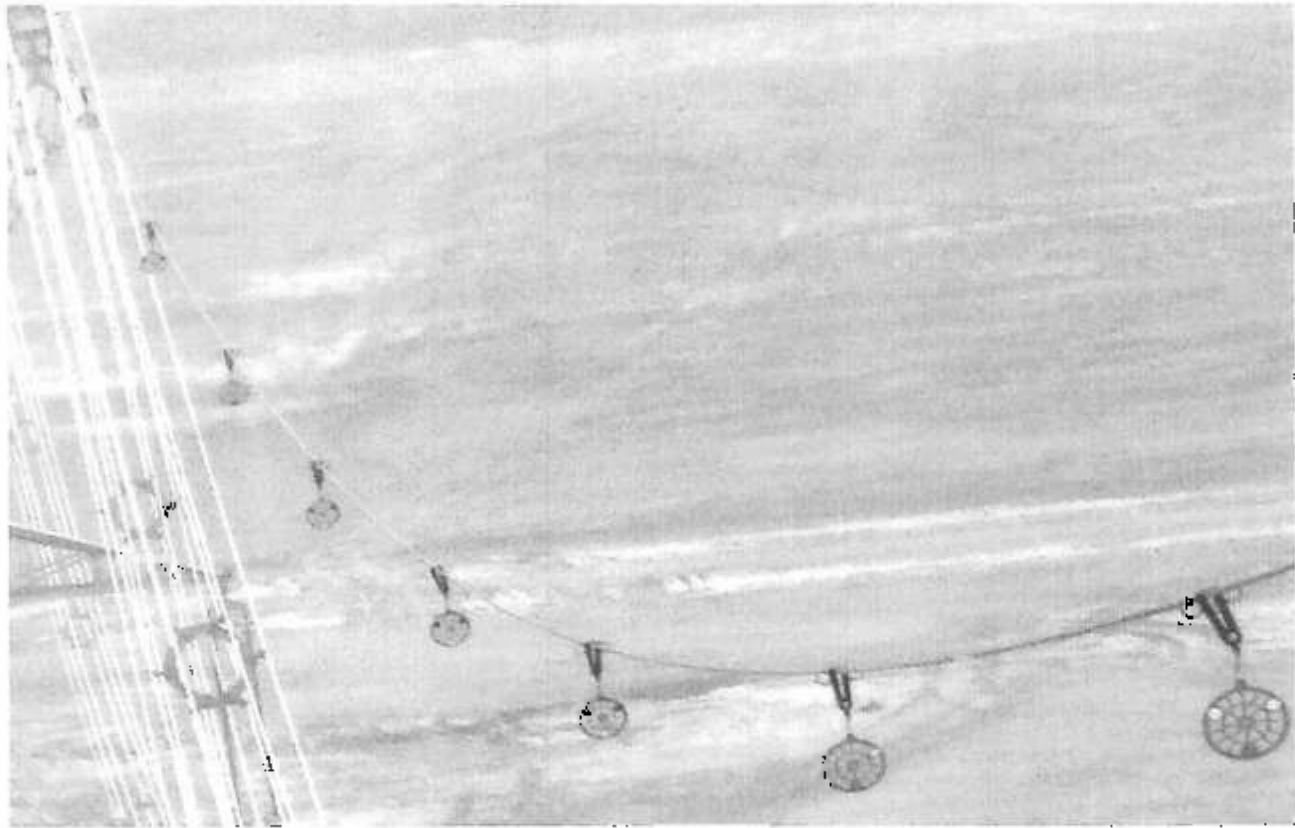


Bird Diverters & Fluorescent Marked Spacer installed in 765 kV Gwalior-Jaipur line





Bird Diverters installed in 765 kV Bhuj-Banaskantha line



Board



Indian-Non Judicial Stamp
Haryana Government



Date : 26/10/2017

Certificate No. G0Z2017J854



Stamp Duty Paid : ₹ 101

GRN No. 31099571



(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://egrasahry.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"

Signature



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

[Handwritten signature]



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 recover 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.

20/01/13



- 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

28/11/11



- officers from POWERGRID & 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."

[Handwritten signature]



- 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.

[Handwritten signature]



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
6	Accommodation	Vehicle hiring and fuel expenses at the study site + vehicle maintenance and repair	20 months	800000
		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
7	Equipments	Hiring of basecamp @ Rs. 5000/month for 24 months	24 months	120000
		a. GSM/GPS transmitters (Koroco W1-300) 20 units for tracking birds @ Rs. 120000/transmitter	20 units	2400000
		b. Nikon Monarch Binocular (8 x 40)	2 units	80000
		c. Nikon digital camera system 81 mm ED	1 unit	200000
		d. Laptop and a work station for project personnel	2 units	200000
		e. GPS (e-trax)	2 units	60000
		f. Field gear and camping equipment for project personnel	2 sets	100000
8	Miscellaneous	g. Procurement of spatial data and digitization		500000
9	Publications	Research permission fees, stationary, consumables		100000
10	Contingency	Publication of technical report and papers (50 copies)		50000
Total				1000000
15% Institutional Charge				78,20,000
Grand Total				11,78,20,000
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:

25/10/17



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 1 st year	30% of the remaining financial assistance at the end of the 1st 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:

- Photography of the various phases of the project to be developed and submitted to POWERGRID by WII along with soft copy.
- 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 : [Signature]
27/10/17

Name : एच. के. गुप्ता / H. K. GUPTA
 Designation : असिस्टेंट मैनेजर (सी.एस.आर.) / Assistant Manager (CSR)
पावर ग्रीड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
Power Grid Corporation of India Ltd.
प्लॉट नं-2, सेक्टर-28, गुर्गो-122 001 (हरियाणा)
Plot No.-2, Sector-28, Gurgaon- 122 001 (Haryana)

Witness:

- [Signature]
(R.K. SRIVASTAVA)
GM
- [Signature]
(Anjan Sanyal)
Asst GM, CSR


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

Signature : [Signature]
31/10/17

Name : A. V. B. Mathur

Designation : डायरेक्टर / Director
भारतीय वन्यजीव संस्थान, इंडिया
WILDLIFE INSTITUTE OF INDIA
देहरादून / Dehradun

Witness: [Signature]
31/10/17 R. Suresh Kumar
Sr Scientist - E

Page 5

[Signature]
31/10/17
 Dr. Anshu Bansal
 Scientist - C

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,

(Nishant 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.



(Nishant Saxena)
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 farms 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,

योगेन्द्र
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

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S.NO.	PARTICULARS	PAGE NOS.
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

Versus

Union of India, through the Secretary

Ministry of Environment & Others ...Respondents

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 (एच. एवं सहायक प्रबंधक) / Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट नं०-2, सेक्टर-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 (एच. एवं सहायक प्रबंधक) / Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट नं०-2, सेक्टर-29, गुरुग्राम-122001 (हरियाणा)
Plot No.-2, Sector-29, Gurugram-122001 (Haryana)

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 collision. 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.c. 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 maneuvering 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, 2012 is 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 devices. 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.



DEPONENT

VERIFICATION:

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (पर्या. एवं सार्वजनिक प्रयोग) / Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट नं०-2, सेक्टर-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 (विभा. एवं तकनीक प्रबन्धन) / Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट नं०-2, सेक्टर-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

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



DEPONENT

रीतेश रंजन/RITESH RANJAN
मुख्य प्रबंधक (वि. एवं संचालन प्रभुत्व)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट सं-2, सेक्टर-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 (वि. एवं संचालन प्रभुत्व)/Chief Manager (ESMD)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लि.
Power Grid Corporation of India Ltd.
प्लॉट सं-2, सेक्टर-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.

उत्तरी क्षेत्र-1 मुख्यालय, एस.सी.ओ. वे संख्या 5 से 10, सेक्टर-16ए, फरीदाबाद-121002 (हरियाणा) दूरभाष : 0129-2666500
Northern Region-I HQ, SCO Bay No. 5 to 10, Sector-16A, Faridabad - 121002 (Haryana) Ph.: 0129-2666500

पंजीकृत कार्यालय : बी-9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110 016

Registered Office : B-9, Qutab Institutional Area Katwaria Sarai, New Delhi - 110 016

REGD.OFFICE:- B-9, QUTAB INSTITUTIONAL AREA, KATWARIA SARAI, NEW DELHI - 110 016

CIN No.: L40101DL1989GO1038121 | Website: www.powergridindia.com

23/12/2020
Contd...
23/12/2020

- (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.




Contd...3

LOA Ref. No.: N1/C&M/20-21/Others/ST-Urgency/286,

Dated 23/12/2020

- (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 REQUIREMENTS:** 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]

Photographs of Bird Diverters Installed in Raigarh to Pugalur line

