Environmental Monitoring Report

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India: Uttarakhand Climate Resilient Power System Development Project

Prepared by the Power Transmission Corporation of Uttarakhand Limited (PTCUL) for the Asian Development Bank (ADB).

Asian Development Bank

Environmental Safeguards Monitoring Report

SFG Log: 6347

First Semi-Annual Report

Reporting Period: Jan 2024 to Jun 2024

Title of the Project

Uttarakhand Climate Resilient Power System Development Project

Loan No.-4402
Grant No.-9238

Prepared by the **POWER TRANSMISSION CORPORATION OF UTTARAKHAND LTD. ON BEHALF OF GOVERNMENT OF UTTARAKHAND, INDIA** for the **Asian Development Bank**

ABBREVIATIONS

ADB	Asian Development Bank
PTCUL	Power Transmission Corporation of Uttarakhand Limited
UPCL	Uttarakhand Power Corporation Ltd.
UKPCB	Uttarakhand Pollution Control Board
ASI	Archeological Survey of India
dB	Decibels
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EIA	Environmental Impact Assessment
EMA	Environment Monitoring Agency
EMP	Environmental Management Plan
ESMC	Environmental and Social Management Cell
ESMU	Environmental and Social Management Unit
GHG	Greenhouse Gas
GOU	Government of Uttarakhand
GOI	Government of India
GRC	Grievance Redressal Committee
IA	Implementing Agency
IEE	Initial Environmental Examination
Ltd.	Limited
NO_2	Nitrogen dioxide
PM_{10}	Particulate Matte r(Size less than 10µm)
$PM_{2.5}$	Particulate Matter (Size less than 2.5µm)
PMU	Project Management Unit
ROW	Right of Way
S/S	Substation
SEIA	Summary Environmental Impact Assessment
SIEE	Summary Initial Environmental Examination
SO_2	Sulphur dioxide
T&D	Transmission and Distribution
PISC	Project Implementation & supervision Consultants
PPIU	PTCUL Project Implementation Unit

Electrical Terminology

V	Volt	Unit of Voltage
kV	Kilovolt	1000 volts
W	Watt	Unit of active power
kW	Kilowatt	1000 watts
MW	Megawatt	1000 kW
MWh	Mega watt hour	Unit of energy
VA	Volt ampere	Unit of apparent power
MVA	Million-volt ampere	10^6VA
LILO	Line–in–Line-Out	

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EXECUTIVE SUMMARY

Under the provisions of the Uttar Pradesh Reorganization Act 2000, enacted on 25 August 2000, the state of Uttaranchal1 was carved out of Uttar Pradesh on 9 November 2000 as the 27th state of India. It borders Nepal to the east, Indian states of Uttar Pradesh to the south, Himachal Pradesh to the west and northwest, and Haryana on its south western corner. Uttarakhand's population of 10,086,292 (Census of India, 2011), makes it the 20th most populous state in India.

The power sector in Uttarakhand has been unbundled under the Electricity Act 2003 into three independent utilities:

- Uttarakhand Jal Vidyut Nigam Limited (UJVNL) for power generation;
- Power Transmission Corporation of Uttarakhand (PTCUL) for transmission and;
- Uttarakhand Power Corporation Limited (UPCL) for distribution.

The state's total installed electricity generation capacity was 3,356 MW as of March 2018. Of this, 1,816 MW (54.11%) is generated from hydropower, 520 MW (15.5%) from natural gas, 440 MW (13.1%) from coal, 547 MW (16.3%) from other renewable energy (0.07% from small hydro, wind and solar) and 31 MW (0.92%) from nuclear sources.2 It experienced a peak energy deficit of 0.7% in FY2017–2018 and is anticipating 3% energy shortage in FY2018–2019.3 To bridge the energy gap, a number of generation projects are in various stages of implementation. Hydropower potential in Uttarakhand is estimated to be 25,000 MW, of which only 3,600 MW have been developed. About 5,500 MW of new hydropower plants are under construction in four river basins of Uttarakhand (Bhagirathi, Alaknanda, Sharda and Yamuna). However, the capacity of the present transmission system is not sufficient to evacuate the power generated from the proposed new hydropower stations. Thus, the expansion of transmission network will play a vital role not only in evacuating power from new generation projects to load centers efficiently but also in reducing power purchase cost which otherwise need to be purchased from expensive gas-based power plants or shot-term power from central exchange.

Considering the requirement of future load growth in Kumaon and Garhwal Zone of Uttarakhand state, N-1 contingency and reliability of Power Supply, Enhanced power handling capability, reliable supply for industrial growth in the state, help to meet United Nations Sustainable Development Goal Number Seven (SDG- 7) and helpful in improving PTCUL system availability and grid stability, Uttarakhand Transmission Strengthening and Distribution Improvement Project (UTSDIP) scheme was envisaged and approved in 2nd Inter Corporation Co-ordination Committee Meeting (ICCC) dated 07.01.2021 comprising of UPCL, UJVNL and PTCUL and 78thBoD Meeting of PTCUL dated 23.12.2021. Hence different projects of lines & sub-stations were taken in Garhwal and Kumaon Zone under "Uttarakhand Climate Resilient Power System Development Project" formally known as Uttarakhand Transmission Strengthening and Distribution Improvement Project (UTSDIP) under ADB funding.

Uttarakhand Climate Resilient Power System Development Project (PTCUL)	
Executing Agency	Government of Uttarakhand
Implementing Agency	Power Transmission Corporation of Uttarakhand Ltd.
Environment Safeguards Categorization	Category-B
Environment Safeguards Documentation	IEE
Project Stage Obtained	Design
Detailed Design Required Post-Approval	Yes. The substation land has been handed over to the contractor. Technical design work has been started.
Contract(s) Awarded	Package 1 (Lo1-1): Contract Awarded Package 1 (Lo1-2): Contract Awarded Package 2: Contract Awarded Package 3 (Lo1-1): Contract Awarded Package 3 (Lo1-2): Yet to be awarded Package 4 (Lo1-1): Contract Awarded Package 4 (Lo1-2): Contract Awarded Package 5: Dropped Package 6: Tender to be awarded
Bidding Document(s) Include EMP Cleared by ADB	Yes
Contract(s) Awarded Include EMP Cleared by ADB	EMP plan as per approved Bidding Document has been made part of the contract agreement of Package-1(Lot-1, 220 KV GIS Selaqui) & (Lot-2, 4 Nos 132 KV GIS) and Package-2 (220 KV AIS Mangalore). In the EMP Plan which was part of contract agreement, it is mentioned therein that "...The definitive version of the project-level EMP cleared by ADB is the most recent version disclosed on its website. The EMP is dynamic and can be updated as appropriate during the project implementation. However, any update to the EMP will first need to be cleared by ADB..." Therefore, the latest version of IMP, cleared by ADB, shall be followed in all contracts. Contractors have been apprised of the same
National Environment, Health and Safety Clearance(s) Obtained	Necessary formalities regarding issuance of labour license have been completed. The same is expected to be received by third week of September 2024 works)

Contractor(s) Given Access to Site	Package 1 (Lo1-1): Yes Package 1 (Lo1-2): Yes Package 2: Yes Package 3 (Lo1-1): Yes Package 3 (Lo1-2): NA Package 4 (Lo1-1): No Package 4 (Lo1-2): No Package 5: Dropped Package 6: Nil
Construction Progress (%)	Package 1 (Lo1-1): 0% Package 1 (Lo1-2): 0% Package 2: 0% Package 3 (Lo1-1): 0% Package 3 (Lo1-2): 0% Package 4 (Lo1-1): 0% Package 4 (Lo1-2): 0% Package 5: Dropped Package 6: 0%
Unanticipated Impacts including Change of Scope or Design	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): Nil Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: Nil
Number of Site Inspections and Audits Undertaken by Environment Safeguards Staff in Reporting Period	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): Nil Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: Nil
Corrective Action Required from Previous Reporting Period	NA (1st Semi-Annual Environment Safeguard Monitoring Report)
Outstanding Corrective Action this Reporting Period	NA (1st Semi-Annual Environment Safeguard Monitoring Report)
Non-Compliances Recorded this Reporting Period	NA (1st Semi-Annual Environment Safeguard Monitoring Report)
Corrective Action Required	NA (1st Semi-Annual Environment Safeguard Monitoring Report)

Number of Health and Safety Incidents	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA
GRM Functional	Yes, GRC is function. PTCUL office Order is enclosed as Annexure-A
Number of Unresolved Grievances from Prior Reporting Period	Nil
Number of Grievances Received in Reporting Period	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA
Number of Grievances Resolved this Reporting Period	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA
Number of Grievances Still Outstanding	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA
Number of Grievances referred to Court of Law	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil

	Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA
Number of Grievances referred to the Account ability Mechanism	Package 1 (Lo1-1): Nil Package 1 (Lo1-2): Nil Package 2: Nil Package 3 (Lo1-1): Nil Package 3 (Lo1-2): NA Package 4 (Lo1-1): Nil Package 4 (Lo1-2): Nil Package 5: Dropped Package 6: NA

1.0 Introduction

1.1 Brief Project Description:

Power Transmission Corporation of Uttarakhand Limited (PTCUL) the State Transmission Utility (STU) of the Uttarakhand state in India, is engaged in Power Transmission with the mandate for planning, co-ordination, Supervision and control of complete Intra state Transmission system. The Uttarakhand climate resilient power development project will support the government of Uttarakhand in strengthening its power system network to meet the future electricity demand growth and to improve quality & reliability of power supply of its consumer, while facilitating efficient utilization of the State's hydropower and renewable energy resources. The primary focus of the project is the climate resilience of the power systems. The project will also strengthen the functional capacity & knowledge of implementing agencies for integrated and climate resilient power system development in Uttarakhand.

Considering the requirement of future load growth in Kumaon and Garhwal Zone of Uttarakhand state, N-1 contingency and reliability of Power Supply, Enhanced power handling capability, reliable supply for industrial growth in the state, help to meet United Nations Sustainable Development Goal Number Seven (SDG- 7) and helpful in improving PTCUL system availability and grid stability, Uttarakhand Transmission Strengthening and Distribution Improvement Project (UTSDIP) scheme was envisaged and approved in 2nd Inter Corporation Co-ordination Committee Meeting (ICCC) dated 07.01.2021 comprising of UPCL, UJVNL and PTCUL and 78th BoD Meeting of PTCUL dated 23.12.2021. Hence different projects of lines & sub-stations were taken in Garhwal and Kumaon Zone under "Uttarakhand Climate Resilient Power System Development Project" formally known as Uttarakhand Transmission Strengthening and Distribution Improvement Project (UTSDIP) under ADB funding.

1.2 Project Progress Status and Implementation Schedule

The updated status of and implementation schedule activities for the construction of various substation & lines from January 2024 to June 2024 are given below;

1.2.1 Project Progress Status

Sr. No.	Package	Lot	Name of Project	Contract Status	Site Status	Physical Progress
1	P-1	Lot-1	220/33 KV (2x 50 MVA) GIS Substation, Selaqui, Dehradun	Awarded	Site handed over to contractor. Design under progress	0%
2		Lot-2	132/33 KV (2x40 MVA) GIS S/s, Araghar, Dehradun	Awarded	Site handed over to Contractor. Design under progress	0%
3			132/33 KV (2x40 MVA) GIS S/s, Dhaulakhera, Nainital			
4			132/33 KV (2x40 MVA) GIS S/s, Khatima-II, US Nagar			
5			132/33 KV (2x20 MVA) GIS S/s, Lohaghat, Champawat			
6	P-2	-	220/132/33 KV (2x160 MVA + 2x40 MVA) AIS S/s, Manglore, Haridwar	Awarded	Site handed over to Contractor. Design under progress	0%
7	P-3	Lot-1	LILO of 220 kV Roorkee-Nara line at proposed 220 kV S/s Manglore (Length of line -1.00 km)	Awarded	Site handed over to Contractor. Design under progress	0%
8		Lot-2	LILO of 132 kV Manglore-Asahi line & Manglore Air Liquid line at 220 kV S/s Manglore, Length of line 1.0 km.	Yet to be awarded	NA	NA
9			LILO of 132 kV Kathgodam-Rudrapur line at 132 kV S/s Dhaulakhera (Haldwani), Length of line 0.6 km.			
10			LILO of 132 kV Khatima-Sitarganj line at proposed 132/33 KV S/s Khatima-II, Length of line 2.0 km.			
11			Stringing of second circuit of 132 kV D/C Transmission line on Panther conductor from Pithoragarh (PGCIL)-Champawat (Lohaghat),			

			Length 39.33 km.			
12	P-4	Lot-1	LILO of 220 kV Khodri-Jhajra line at proposed 220 kV Substation Selaqui Dehradun with Underground Cable, Length of line -0.7 km (approx.)	Awarded	Site yet not handed over to contractor	0%
13		Lot-2	LILO of 132 kV Majra-Laltappar line at proposed 132 kV Substation Araghar Dehradun through 132 kV Underground Cable, Length of line -3.6 km (approx.)			
14	P-5	-	Construction of 400/220KV (2X315 MVA) GIS Substation, Landhora Haridwar	Dropped	NA	NA
15		-	Construction of LILO of 400 KV Kashipur-Puhana Line at 400KV Substation, Landhora (Length of Line-3.00Km)			
16		-	Construction of LILO of 220 KV Manglore-Nara line at proposed 400/220/132 KV Substation Landhora (Length of Line-25.00 Km)			
17	P-6	-	132/33 KV (2X40 MVA) AIS Substation, Serverkhera, US Nagar	Tender to be floated	NA	NA
18		-	Construction of LILO of 132 KV Kashipur-Mahuakheraganj line at 132 KV Substation Serverkhera (Length of Line-8.7 Km)			
19		-	Construction of LILO of 132 KV D/C Transmission line from 220 KV Substation Mahuakheraganj to 132 KV Substation Jaspur (Length of Line-23.32 Km)			

Note: No other package/ lot, in addition to the information given in above table, are coming up under the already approved scope of work.

1.2.2 Project Implementation Schedule

The entire works related to loan 4402 were scheduled to be completed within 730 days from the effective date of contract agreement. Progress details of substation are provided below;

Sr. No.	Package	Lot	Name of Project	Contract Award Date	Completion Date	Remarks
1	P-1	Lot-1	220/33 KV (2x 50 MVA) GIS Substation, Selaqui, Dehradun	12.04.24	730 days from Project Zero Day	M/s Flowmore Ltd. JV with M/s Jiaangse Jingdian Elect. Co.
2		Lot-2	132/33 KV (2x40 MVA) GIS S/s, Araghar, Dehradun	12.04.24	730 days from Project Zero Day	M/s Flowmore Ltd. JV with M/s Jiaangse Jingdian Elect. Co.
3			132/33 KV (2x40 MVA) GIS S/s, Dhaulakhera, Nainital			
4			132/33 KV (2x40 MVA) GIS S/s, Khatima-II, US Nagar			
5			132/33 KV (2x20 MVA) GIS S/s, Lohaghat, Champawat			
6	P-2	-	220/132/33 KV (2x160 MVA + 2x40 MVA) AIS S/s, Manglore, Haridwar	Awarded	730 days from Project Zero Day	M/s Transglobal Power Ltd., Bangalore
7	P-3	Lot-1	LILO of 220 kV Roorkee-Nara line at proposed 220 kV S/s Manglore (Length of line -1.00 km)	Awarded	730 days from Project Zero Day	M/s Salasar Techno Engg. Ltd. UP
8		Lot-2	LILO of 132 kV Manglore-Asahi line & Manglore Air Liquid line at 220 kV S/s Manglore, Length of line 1.0 km.	Yet to be awarded	NA	NA
9			LILO of 132 kV Kathgodam-Rudrapur line at 132 kV S/s Dhaulakhera (Haldwani), Length of line 0.6 km.			
10			LILO of 132 kV Khatima-Sitarganj line at proposed 132/33 KV S/s Khatima-II, Length of line 2.0 km.			
11			Stringing of second circuit of 132 kV D/C Transmission line on Panther conductor from Pithoragarh (PGCIL)-Champawat (Lohaghat), Length 39.33 km.			

12	P-4	Lot-1	LILO of 220 kV Khodri-Jhajra line at proposed 220 kV Substation Selaqui Dehradun with Underground Cable, Length of line -0.7 km (apprx.)	Awarded	730 days from Project Zero Day	M/s Rajesh Power Services Pvt. Ltd., Ahmedabad
13		Lot-2	LILO of 132 kV Majra-Laltappar line at proposed 132 kV Substation Araghar Dehradun through 132 kV Underground Cable, Length of line -3.6 km (approx.)			M/s Aquarian Enterprises, Delhi
14	P-5	-	Construction of 400/220KV (2X315 MVA) GIS Substation, Landhora Haridwar	Dropped	NA	NA
15		-	Construction of LILO of 400 KV Kashipur-Puhana Line at 400KV Substation, Landhora (Length of Line-3.00Km)			
16		-	Construction of LILO of 220 KV Manglore-Nara line at proposed 400/220/132 KV Substation Landhora (Length of Line-25.00 Km)			
17	P-6	-	132/33 KV (2X40 MVA) AIS Substation, Serverkhera, US Nagar	Tender to be floated	NA	NA
18		-	Construction of LILO of 132 KV Kashipur-Mahuakheraganj line at 132 KV Substation Serverkhera (Length of Line-8.7 Km)			
19		-	Construction of LILO of 132 KV D/C Transmission line from 220 KV Substation Mahuakheraganj to 132 KV Substation Jaspur (Length of Line-23.32 Km)			

*Note: Project Zero Day i.e. the date on which mobilization advance is received by contractor.

1.2.3 Project Key Personnel

Sr. No.	Package & Lot	Project Key Personnel	Responsibility	Contact No.
1	Package-1 (Lot-1)	Er. Vikalp Gautam (SE)	Project Manager	9411100259
2	Package-1 (Lot-2)	Er. L. M. Bisht (SE)	Project Manager	7088117619
3	Package-2	Er. A. K. Singh (SE)	Project Manager	7088117327

4	Package-3 (Lot-1)	Er. A. K. Singh (SE)	Project Manager	7088117327
5	Package-3 (Lot-2)	-	-	-
6	Package-4 (Lot-1)	Er. Vikalp Gautam (SE)	Project Manager	9411100259
7	Package-4 (Lot-2)	Er. Vikalp Gautam (SE)	Project Manager	9411100259
8	Package-5	-	-	
9	Package-6	-	-	
10	All Package	Er. Lalit Kumar (SE)	Nodal Officer (Forest)	9412059813
11	All Package	Er. Vikalp Gautam (SE)	Nodal Officer (EHSSGS)	9411100259
12	All Package	Er. Pankaj Kumar (EE)	Officer (Environment)	7088112828
13	PISC/PMC	PISC/PMC shall be appointed by December 2024	-	-

2.0 Compliance to National Regulations and International Agreements

All the compliances related to environment safeguards shall be made during the execution of the project and till completion of the project. Presently, the design phase of construction is under progress for the works awarded under various packages and lot. The following are the major acts/rules/notifications related to environment safeguard shall be complied during project executions. Any other relevant rules/acts/notifications notified by Government of India and Uttarakhand shall also be complied. ADB SPS, 2009 requirements will be followed throughout the implementation period of the Project.

Sr. No.	Act/Rule/Notification	Objective	Compliance/ Status
1	The Environment (Project) Act 1986	To protect & improve the overall environment	Since, the zero project day has not started yet for anyway works awarded, the status of compliance may be treated as nil. However, compliance of all the relevant acts/rules/notifications shall be made (if applicable) as per requirement of MoEF&CC and ADB.
2	The Environment (Protection) rules 1986		
3	Indian Forest Act 1927	To consolidate the laws related to forest, the transit of forest produce and the duty levy able on timber and other forest produce. Conservation of forests, judicious use of forest land for non-forestry purposes and to replenish the loss of forest cause by compensatory afforestation on degraded forest land and non-forest land. Procedure of submission of the proposal seeking approval from central government for diversion of forestland to non-forest land	
4	Forest (Conservation) Act 1980		
5	Forest (Conservation) Rules 1981		
6	Forest Conservation Rules (Notification) 2003		
7	Wild Life (Protection) Act 1972	To protect wild life in general & National parks and Sanctuaries in particulars	
8	The Wild Life (Protection) Amendment Act 2002	To protect wild animals, birds and plants with a view to ensure the	

		ecological & environmental security of the country	
9	The Water (Prevention & Control of Pollution) Act 1974	To control water pollution by controlling discharge of pollutants as per prescribed standards	
10	The Air (Preservation & control of Pollution) Act 1981	To control air pollution by controlling emission of air pollutants as per prescribed standards	
11	The Noise Pollution (Regulation & Control) Rules 2000 & 2006	To regulate and control noise producing and generating sources with the objective of maintaining the ambient air quality standards in respect of noise	
12	The Ancient Monuments and Archeological Sites and Remain Act 1985	To provide for the preservation of ancient and historical monuments and Archeological sites and remains of National importance and protection sculptures, carving and other like objects	
13	The Electricity Act 2003	To provide for the preservation of ancient and historical monuments and Archeological sites and remains of National importance and protection sculptures, carving and other like objects	

3.0 Compliance to Environmental Covenants from the ADB Loan Agreement

Sr. No.	Product	Schedule	Para No.	Covenant	Remarks/Issues
1	Loan 4402-IND	4	4	Subject to paragraph 5 below, the borrower shall ensure, or cause the EA and each IA to ensure, that no works contract which involves environmental impacts is awarded until: (a) the relevant authority of the borrower and/ or state, as required, has granted the approval of the IEE, and the EA has obtained ADB's clearance of the IEE based on the final design; and (b) the EA has incorporated the relevant provisions from the EMP	Being complied

				into the Works contract.	
	Loan 4402-IND	4	5	The borrower shall ensure, or cause the EA and each IA to ensure, that a contract for works involving environmental impacts may be awarded with the IEE based on preliminary design having been submitted to and cleared by ADB if the contract: (a) is of a "design and build" or "turnkey" type under which the design must be completed for the works contract before the IEE is updated to reflect the final project design; and (b) expressly provides that no works shall commence until: (i) an IEE for the works contract reflecting the final project design having been submitted to, and cleared by ADB.	Being complied
1	Loan 4402-IND	4	9	The Borrower shall ensure or cause the EA & each IA to ensure, that the preparation design, construction, implementation, operation & decommissioning of the project and all project facilities comply with (a) all applicable law & regulation of the Borrower and the stake relating to environment, health and safety (b) the environmental safeguards (c) all measure and requirements set forth in the IEE & EMP and any corrective or preventive actions set forth in a safeguards monitoring reports.	It will be ensured that the preparation design, construction, implementation, operation & decommissioning of the project and all project facilities are complied as per ADB's environment SPS (2009) All measures and requirements set forth in the IEE & EMP shall be strictly adhered to during required stages of project.
	Loan 4402-IND	4	13	The Borrower shall ensure, or cause the EA and each IA to ensure, that all necessary budgetary and human resources to fully implement the EMP and the RP as required, are made available on a timely basis	
2	Loan 4402-IND	4	14	The Borrower shall ensure or cause the EA & each IA to ensure that all bidding documents and contracts for work contain provisions that require contractor to	It is ensured that all bidding documents and contracts for work contain provisions that

				(a) Comply with the measures relevant to the contractor set forth in IEE the EMP and the RP to the extent, they concern impacts on affected people during construction and any corrective or preventive actions set forth in a safeguards monitoring report. (b) Make available a budget for all such environmental and social measures. (c) Provide the EA with a written notice of any unanticipated environmental resettlement or indigenous people risks or impact that arise during construction implementation or operation of the project that were not considering in the IEE, EMP and the RP. (d) Adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) Reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	require contractor to comply with the measures relevant to the contractor set forth in IEE with the version 3.0, dated 30.05.2022 of EMP during the construction and any corrective or preventive actions set forth in a safeguards monitoring report. Suitable budget shall be allocated accordingly. The written notice of unanticipated environmental resettlement that arise during construction or operation of the project shall be provided to EA as per guidelines.
3	Loan 4402-IND	4	15	The borrower shall ensure or cause the EA and each IA to ensure the following; (a) Submit semiannual safeguards monitoring reports to ADB until construction of works is complete and annual safeguard monitoring reports to ADB during operation of the works and disclose relevant information from such reports to affected person promptly upon submission (b) If any unanticipated environmental or social risks	It is being compiled the project falls under category 'B' & IEE for the projects has been prepared accordingly Consultant supporting ESMU in (PMU) project monitoring unit shall be appointed shortly for internal monitoring of the EMP implementation & submitting semi-annually reports to PMU's project

				and impacts arises during construction implementation or operation of the project that were not considered in the IEE, the EMP & promptly inform ADB of the occurrence of such risks or impacts with detailed description of the event and proposed corrective action plan. (c) Report any breach of compliance with the measures and requirements set forth in the EMP or the RP promptly after becoming aware of such breach.	monitoring unit which will be further submitted to ADB by PMU.
	Loan 4402-IND	4	16	The borrower shall ensure, or cause the EA and each IA to ensure, that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in appendix 5 of the SPS.	
	Loan 4402-IND	4	17	The borrower shall ensure, or cause the EA and each IA to ensure, that works contracts under the Project follow all applicable labor laws of the Borrower and the State and that these further include provisions to the effect that contractors, (a) Carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; (b) Follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts shall also include clauses for termination in case of any breach of the stated provisions by the contractors.	

4.0 Compliance to Project Administration Manual (PAM)

Sr. No.	Organization	Tasks	Compliance Status
1	Executing Agency: Energy Department, GOU	Responsibility for execution of the project and ensuring project implementation on behalf of GOU	Compliance shall be made as per relevant guidelines of ADB, GOU & GOI as per the requirement
		Oversee satisfactory safeguards implementation for the project.	
		Co-ordinate communication with GOI and GOU with respect to the project	
2	Implementing Agency: PTCUL	Conduct day to day project management.	Being complied
		Procurement of goods and works timely approval of bid documents bid evaluation reports and contract awards	Shall be complied during required stages of work
		Overall responsibility for satisfactory safeguards implementation supervision and monitoring.	Shall be complied during required stages of work
		Periodic monitoring of the project implementation activities.	Shall be complied during required stages of work
		Prepare withdrawal applications, maintain project accounts and complete loan and grant in financial records.	Shall be complied during required stages of work
		Prepare financial statements and ensure timely conduct of audit.	Shall be complied during required stages of work
		Ensure co-ordination in the technical department responsible for project implementation and the finance department to ensure timely availability of counterpart funds	Shall be complied during required stages of work
3	Project Management Unit: Respective PIUs	Periodic review of the project activities to ensure timely implementation of the project and safeguards requirement	Shall be complied during required stages of work
		Ensure compliance with loan covenant including social & environmental safeguards, financial & economical and others	Shall be complied during required stages of work
		Ensure timely submission of bid documents, bid evaluation reports and contract, awards ensuring that the EMP is included in the contract documentation	Shall be complied during required stages of work
		Responsible for finalizing surveys and detailed designer update of safeguards documents to reflect detailed design & as needed safeguards monitoring & Implementation preparation of safeguard monitoring reports & timely submission to ADB.	Shall be complied during required stages of work
		Responsible for requesting budgetary alteration from counterpart fund.	Shall be complied during required stages of work
		Responsible for preparation of annual contract awards and disbursement projection.	Shall be complied during required stages of work

		Shall provide information to ADB mission as necessary.	Shall be complied during required stages of work
4	Project Implementation & Construction Support Consultants (PISC)	Planning and coordination of project implementation	No PISC/PMC has been appointed yet. The same shall be appointed by December 2024 and compliances will be made.
		Project management and control including administration	
		Procurement including contract management;	
		Trouble shooting of project implementation problems;	
		Progress reporting;	
		Management of project management software, such as Microsoft Project or its equivalent	
		Training of key staff of the executing and the implementing agencies on statistical data processing and visualization	
		Various capacity development activities, such as preparing an operations manual and standard operating procedure	

*Note: Project Zero Day is i.e. the date on which mobilization advance received by contractor. The zero day shall be the date of start of the project. Date of start has not been given for any project yet except project of Package-1, Lot-1. The projects are in design stage.

5.0 Compliance to Contract

The execution of project activities shall be done by the contractor as per the Section 7 (General Conditions of Contract) clause 9.6 (Contractor's Responsibilities) and Section 8 (Special Conditions of Contract) clause 9.0 (Contractor's Responsibilities), the details of which are given below;

Contract Package	Contract Provisions	Compliance Status
Package 1 to 4 & 6	The contractor shall permit ADB or its representatives to inspect the contractor's site, assets, accounts and records, and other documents relating to the bid submission and contract performance of the contractor and to have them audited by auditors appointed by ADB, if so required by ADB.	Compliance shall be ensured during execution of the project.
	The contractor shall comply with all applicable national, provincial and local environment laws and regulations.	
	Within 28 days of the commencement date, the contractor shall submit a detailed site specific environment management plan (SSEMP)	
	The contractor shall a) establish an operational system for managing	

	environmental impacts b) comply with the approved SSEMP and any corrective or preventative actions set out in safeguards monitoring reports that the employer will prepare from time to time to monitor the implementation of the project EMP (EMP document enclosed in Bid document as An appendix 9, and incorporated in Special conditions of Contract section 9 sub clause 9.8 and) through the SSEMP c) allocate the budget required to ensure that such measures, requirements and actions are carried out d) submit semi-annual reports on the compliance of such measures to the employer.	
	Where unanticipated environmental risks or impacts become apparent during the contract, the contractor is required to update the SSEMP to outline the potential impacts to site works and associated mitigation measures for the project manager's approval.	

6.0 Compliance to Environmental Management Plan

Sr. No.	Item	Impact	Commitment	Compliance Status
1	New SS or connections at locations within existing SS	Corrective action	Contractors at request of PTCUL to address any short-term corrective actions as part of their scope of works in construction of new SS at locations which are also supporting existing substations and in the termination of second circuit stringing within the Pithoragarh substation of PGCIL.	Actions shall be ensured during the execution period.
2	Sitting and Design of Project infrastructure	Finalization of new substation design and layout, finalization of OH Land UG cable route alignments	Applicable to all Components: • Comply with all applicable national and state environment, health, and safety (EHS) regulatory requirements in addition to the mitigation measures set out in the EMP – if there is any conflict between national requirements and measures set out in the EMP the most stringent provisions will take precedence. • Designs to reflect the	It will be complied. It will be

			requirements of the EMP and international engineering best practice/good EHS practices	complied.
			• Identify presence of any unstable land/steep slopes and avoid these during the detailed design.	It will be complied.
			• Where SS sites and OHL towers are not on flat land conduct geotechnical/slope stability analysis with slopes to be graded with drainage installed to minimize landslide risk. Ensure resulting slope design/topography does not exacerbate surface erosion and/or trigger a landslide; all disturbed areas are to be revegetated. Bioengineering methods can be considered for providing slope protection.	It will be complied.
			• Stability of slopes over 30% shall be checked and approved by the PISC prior to selection of tower location/substation layout and related foundation to be used.	It will be complied.
			• Cut and fill requirements shall be minimized by design to reduce changes in topography and the extent of earthworks and thus dust generation during construction. Contractor shall quantify the extent of earthworks required and locations for disposal of excavated spoil such as through landscaping within SS site.	It will be complied.
			• Identify presence of floodplain or depressions that get waterlogged in the rainy season and avoid these during detailed design.	It will be complied.
			• Conduct flood and drainage risk assessment and incorporate effective drainage design (allowing for climate change) to prevent possible flooding or waterlogging of SS equipment/towers during the wet season, whilst ensuring that surface runoff from the project site is no more than the greenfield runoff rate.	It will be complied.
			Applicable only to Transmission Lines	
			• Carefully select the route/siting of towers to minimize impacts on existing structures (e.g., buildings) etc.	It will be complied.
			• UG cables shall generally follow	It will be

			the existing RoW of the road whilst avoiding impacts on trees, properties, public utility services, street furniture etc.	complied.
			• Any temporary disturbance compensated for in accordance with the LARP.	It will be complied.
			• Minimize visual impact and clutter in locating above ground equipment.	It will be complied.
			Applicable only to substations	
			• Substation transformers to be mounted on impermeable surface extending beyond the transformer footprint, bunded to 110% capacity and not connected to the surface water drainage system to collect oil spill, leaks, and overflows; transformers to be sited in a separately fenced area that can be kept locked.	It will be complied.
			• Provision of oil-water separator on all surface water drainage.	It will be complied.
			• Provide fire walls to transformers.	It will be complied.
			• Ensure maximum sound power level of equipment at 1 m is 85 dB through use of sound attenuation, in areas where these noise levels will be exceeded OHS noise warning signage identifying that ear protection to be worn must be installed as part of design.	It will be complied.
			• Provide well designed, covered, segregated materials and waste storage area of sufficient size to accommodate all anticipated storage requirements, ensure storage areas can be locked, are well-ventilated and will not reach extreme temperatures. Ensure space also provided in the storage area for solid and hazardous waste garbage bins to be stored. Fuel/oil/chemical/waste storage areas must have an impervious floor and be bunded so that the capacity of each bund is sufficient to contain at least 110% of the maximum design storage capacity within storage area, not connected to the surface water drainage system.	It will be complied.
			• Provide spill prevention kits (sorbent pads, loose sorbent material, etc.) at storage areas and other at-risk locations within clearly labelled	It will be complied.

			containers.	
			• Locate new transformers; storage areas; and septic tanks/soak away at least 50m from waterbodies and bore wells to reduce pollution risk, if closer proximity is required due to site layout further assessment to be carried out to demonstrate using a source-pathway-receptor model there will be no adverse impact on aquatic ecology or human health.	It will be complied.
			• Layout substations so transformers are the furthest distance possible from the adjacent receptors to minimize corona noise/transformer hum experienced. Where possible the quietest available equipment with manufacturer-supplied noise mitigation will be installed. Contractors to ensure that the design enables operation to always comply with 1-hour LAeq 70 dB(A) at the site boundary, 55dB(A) outside the fence line if located within a commercial zone, 45 dB(A) at the nearest residential properties including located those in commercial zones, and 40dB(A) at 100m distance from silent zones.	It will be complied.
			• If the noise levels at the site boundary or receptors cannot be met through siting alone, then an acoustically designed enclosures or fences will be installed around either the noise source and/or substation boundary to enable the required noise level to be met as a permanent installation as part of the design.	It will be complied.
			• Ensure that ICNRP occupational and community EMF exposure levels (reference and peak values) will be achieved within the substation and outside of the fence line respectively.	It will be complied.
			• All electrical hazards will feature written and visual warning signs that meet the IEEE standards to include the ISO 7010 "Hazard Type: Electrical Symbol" warning of the risk of electrocution	It will be complied.
			• Include a secure boundary fence or wall that is sufficiently high it cannot be	It will be complied.

			climbed over, provide a gated, surfaced vehicular access for entry/exit off public highway having adequate sight lines for all drivers and warning signs of entranceway for road users.	
			• For control buildings provide adequate natural and/or artificial lighting levels to meet the IFC EHS Guidelines on Occupational H&S (Table 2.3.3. Minimum Limits for Workplace Illumination Intensity) and take a life-cycle approach to detailed design, considering the use of construction materials and the energy and water efficiency of the building during operation adopting the "green building" concept e.g., using natural ventilation for reducing the need for air conditioners. Detailed design is to include rainwater harvesting and enable PTCUL to readily fit solar panels on building rooftop once operational.	It will be complied.
			• Control building design will provide for sanitation and welfare facilities as per national regulations and international GIIP including indoor toilets (separate for men and women) with hand washing facilities (minimum of 1 unit to 6 males and 1 unit for 6 females shall be provided) and a dedicated cooking area / clean eating area / rest area for staff on-site etc.	It will be complied.
			• Dedicated shelter to be provided at the site entrance for use by security guards, shielding them from rain, wind, and extreme (hot / cold) temperatures.	It will be complied.
			• All wastewater to be connected to existing sewerage system or septic tank with soak away so no untreated wastewater will be disposed of to surface water or ground in operation, septic tank/soak away effluent to meet national general wastewater standards or IFC wastewater discharge limits, whatever is the most stringent.	It will be complied.
			• Potable water will be supplied that meets national ISO 10500 drinking water standards (full suite). If this is unavailable, ensure regular supply of	It will be complied.

			bottled water to the site during construction and operational phases. • Design of control building to include emergency exits with emergency exit signage. • Provide automatic fire alarm and fire suppression system in control building. • Provide fully stocked, in-date first aid kit installed in a prominent, signed position, first aid posters and emergency contacts to also be displayed. • Provide eye wash station and water supply to shower located near storage areas for fuel/oil/chemicals • Provide sand buckets, full of sand, placed in a prominent, signed location near to fire-risk locations such as transformers and oil storage areas. • Provide fire extinguishers (including for oil and electric fires) in a prominent, signed location near to fire-risk locations such as transformers and oil storage areas with service and expiration dates clearly labelled along with posters on fire safety. • Design to ensure all lighting is of energy efficient LED type with solar powered LED lighting where practical Use of fluorescent/HPSV lamps will be avoided since they are less energy efficient/classed as hazardous waste for purposes of disposal. • Outdoor lighting to be installed must be of low intensity with little or no blue wavelength and operated using passive infrared (PIR) technology movement sensors set at person height so as not to be kept permanently on overnight, it must be directional and shielded, so light does not fall outside substation boundaries.	It will be complied. It will be complied. It will be complied. It will be complied. It will be complied. It will be complied. It will be complied. It will be complied.
		General Conditions for transmission lines	Based on the requirements of the draft Standard Technical Specification for Steel pole Structure. GoI, Ministry of Power. Central Electricity Authority. April 2021, the Contractor shall ensure that:	

			• Route to have minimum crossings of major rivers, railway lines, National/State highways, overhead EHV power lines, and communication lines.	It will be complied.
			• Number of angle points to be kept to a minimum.	It will be complied.
			• Distance between the terminal points specified to be kept shortest possible, consistent with the terrain that is encountered (but considering environmental and social constraints to be identified within the IEE).	It will be complied.
			• Marshy and low-lying areas, riverbeds and earth slip zones to be avoided to minimize risk to the foundations.	It will be complied.
			• Areas subjected to flooding such as nalah shall be avoided.	It will be complied.
			• All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.	It will be complied.
			• It would be preferable to utilize level ground for the alignment.	It will be complied.
			• The areas requiring special foundations and those prone to flooding to be avoided.	It will be complied.
			• Crossing of power lines to be kept to a minimum. Alignment of a transmission line with respect to existing line will be kept considering ROW and tower falling distance.	It will be complied.
			• Crossing of communication lines to be minimized and it shall be preferably at right angle. Proximity and parallelism with telecom lines to be eliminated to avoid danger of induction to them.	It will be complied.
			• Certain areas such as quarry sites, tea, tobacco and saffron fields and rich plantations, gardens and nurseries which will present PTCUL problems in acquisition of right of way and way leave clearance during construction and maintenance to be avoided.	It will be complied.
			• Angle points during survey should	It will be

			be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line (subject to updating of the IEE for ADB clearance).	complied.
			• Routing of a transmission line to avoid large habitations, densely populated areas, protected / reserved forest / National Parks / Wild Life and Bird Sanctuaries, the habitant zones of Great Indian Bustard and other protected species, civil / military airfields and aircraft landing approaches, reserve coal belt areas, mining area, oil pipeline/underground inflammable pipelines etc. to the extent possible.	It will be complied.
		Exposure to safety risk	• Ensure all relevant safety clearances and right of way are applied to HV power lines per national standards, see Appendix A.	It will be complied.
			• During route survey identify presence of all buildings/properties within the ROWs with particular attention to mapping school compounds and playgrounds; minimum distances to center line to be inventoried.	It will be complied.
			• Installation of HV power lines above or adjacent (within the horizontal clearance) to residential properties or other locations intended for highly frequent human occupancy (e.g., schools or offices) to be avoided. No school compounds or playgrounds will fall within the horizontal safety clearance.	It will be complied.
			• Barbed wire type anti-climbing device shall be provided and installed by the Contractor for all tower structures. The height of the anticlimbing device shall be approximately 3 m above ground level. The barbed wire shall conform to IS: 278 (size designation A1). The barbed wires shall be given chromating dip as per procedure laid down in IS:1340.	It will be complied.
			• Each tower shall be fitted with a number plate, danger plate and a set of phase plates per circuit. The arrangement for fixing these accessories shall not be more than 4.5 m above ground level.	It will be complied. It will be

			• Ensure that ICNRP community EMF exposure levels (reference and peak values) will be achieved • All transmission towers will feature written and visual warning signs that meet the IEEE standards to include the ISO 7010 "Hazard Type: Electrical Symbol" warning of the risk of electrocution	complied. It will be complied.
		Visual impact of lines	For the micro-siting of HV power lines, the towers and lines to be located as far away as practical from residential dwellings. • Include visibility of the towers among the factors considered during final tower positioning, including determining the proper balance between heights of towers and the number of towers	It will be complied. It will be complied.
		Damage to socially/culturally sensitive and historical sites	• Contractors to conduct an inventory of physical cultural resources in and adjacent to the RoW prior to the start of any works including distances to the center line. • Careful selection of route alignments to avoid encroachment on socially, culturally, and archaeological sensitive areas (e.g., sacred groves, graveyards, religious worship place, monuments etc.) • Permanent or temporary facilities will strictly avoid protected ASI and GoU monuments including the 300m regulated area associated with protected ASI and GoU monuments.	It will be complied. It will be complied. It will be complied.
		Impacts to Designated sites	• No OHL works will be permitted in ESZ or draft notified ESZ. • SS sites and OHL route alignments plus any temporary facilities that are potential pollution sources (including from noise) will be located at least 500m from the core/buffer zones of national parks, wildlife sanctuaries, conservation/tiger reserves, and other internationally and nationally recognized biodiversity sites such as Ramsar Sites, Key Biodiversity Areas, Important Bird Areas, elephant corridors, tiger corridors etc. corridors, tiger corridors etc. SS sites	It will be complied. It will be complied.

			and OHL route alignments will be located at least 100m from reserve forests and other notified forest areas.	
			• Temporary laydown and storage areas that are not potential pollution sources may be located a minimum of 50m distant of notified forest areas/forest habitat.	It will be complied.
			• Only exception to OHL works allowed within 500m of tiger corridors and KBA is the LILO of 132 KV Khatima - Sitarganj line where at least 100m to the tree line must be maintained from the SS site and route alignment.	It will be complied.
			• Only those SS sites and UG cables as set out in the IEE will be permitted in the ESA and draft notified ESZ covering Dehradun.	It will be complied.
			• Only exception to permanent facilities allowed in notified forest areas/forest habitat will be second stringing of the OHL as set out in the IEE. No temporary facilities for second stringing of the OHL will be allowed within notified forest areas/forest habitat. The written permission of the Forest/Wildlife Department has been secured by PTCUL and their requirements will be followed (e.g., no new forest land will be utilized, no new towers will be constructed other than the originally approved, stringing of the second circuit will be done on the double circuit towers already erected, and no tree felling will be done) along with applicable requirements of the original forest clearance for diversion of land.	It will be complied.
			• For those works within the ESA and within 10km of protected areas where the ESZ is not yet gazette written permission (as applicable) will be obtained from the Forest/Wildlife Department, Mussoorie Dehradun Development Authority (for works in Dehradun-Mussoorie) the Uttarakhand Pollution Control Board.	It will be complied.
			• Except for laydown and storage areas that are not potential pollution sources temporary facilities (e.g.,	It will be complied.

			centralized concrete batching plant, hot mix plant, refueling areas, maintenance yards, storage areas for loose materials or fuel/oil/chemical, temporary worker camps) will not be sited in a notified or draft notified ESZ. However, they will be permitted in the ESA and within 10km of protected areas where the ESZ is not yet gazetted if written permission is requested from and provided to the contractor by the Forest/Wildlife Department, Uttarakhand Pollution Control Board, Mussoorie Dehradun Development Authority (for works in Dehradun-Mussoorie).	
		Land Acquisition and Compensation, resettlement and temporary disruption	• Where properties cannot be avoided in the design and where they are present within national safety clearances the properties will be expropriated by PTCUL following the procedures outlined in the Project LARP. The LARP will be updated by PTCUL during the design phase to include any such properties • Underground cables will be bored and laid using trenchless method through Horizontal Directional Drilling (HDD) machine as the preferred option. • Open trenching will only be used with the permission of PTCUL where sufficient open space is available away from narrow and congested roads, there will be no disturbance to vegetation/trees, and no social safeguard constraints present, and the trench will be open and backfilled within a single day. • UG cable alignment to be designed to be within road/sidewalk reserves as far as is practical, having minimal impact on private land holdings and any informal settlement, street vendors etc.	It will be complied. It will be complied. It will be complied. It will be complied.
		Damage to private property, crops and water supplies etc.	• Alignment to avoid or minimize crop disturbance where lines cross private land by crossing uncultivated land (not natural habitat) as much as possible. • During route survey identify and inventory presence of any surface waterbodies including rivers/ponds and groundwater sources including springs	It will be complied. It will be complied.

			/well/pumps within the ROW and confirm if any are used by local communities for drinking water or other purposes documenting distance to the center line. • Alignment to avoid impacting on rivers/ponds and groundwater sources especially water sources including springs/wells/pumps used by local communities.	It will be complied.
		Access roads	• No new permanent access roads will be constructed except to SS sites if needed; for HV power lines existing access roads will be used in the first instance along with manual construction to minimize soil compaction from vehicle movements. • Designs for access roads in steep terrain will be submitted for approval, no access roads will be cut into a hillside. • Access roads will be graded and sloped with drainage either side to prevent unnecessary flow of water across the road and to minimize soil erosion. • If new access roads are required the Contractor will make the access suitable for use and shall take all reasonable precautions to avoid damage, including, if required, the erection of temporary fences or gates where permanent fences, hedges or gates have been removed.	It will be complied. It will be complied. It will be complied. It will be complied.
		Drainage	• Final surface level of substation and tower foundations will be at least 0.5 m above the existing ground level or highest flood level including an allowance for climate change based on the findings of the climate change assessment prepared for the Project (whichever is higher) • Foundations to be constructed in such a way as to be adequately drained to prevent washouts and flooding impacts to adjacent land. • Junctions between new access roads and existing roads will not impede or damage the latter nor any associated drainage channels, irrigation infrastructure, etc.	It will be complied. It will be complied. It will be complied.

3	Biodiversity	Habitat Loss, Tree Cutting	• Contractor to employ field ecologists to undertake ROW walkover, map habitats beneath towers and ROW confirming if modified or natural habitat present, and listing species encountered. During ecological surveys field ecologists will enumerate the number and species of trees requiring to be cut and lopped. In forest habitat the quality of forest cover lost will be confirmed. Submit ecological survey report alongside design. • Presence or absence of sensitive receptors and critical habitat species identified in IEE to be confirmed by field ecologists during route surveys including detailed species surveys as required by the IEE. Adaptive management measures to be applied according to the findings of the surveys, e.g. realignment of Cable routing to avoid tree etc. • Carefully select route alignments and substation layouts to avoid or at least minimize the need to cut/trim trees by avoiding areas with a high concentration of trees. • Cutting or trimming of trees will only be planned when required to meet safety clearance requirements per CEA requirements. • Entry/exit pits for UG cables to be placed to avoid the are beneath tree crowns (zone for root protection) and other vegetation. UG cable alignment placed to avoid the tree crowns especially mature trees.	It will be complied. It will be complied. It will be complied. It will be complied. It will be complied.
		Primates / Elephants	• Detailed design to include retrofitting of transmission towers in forest area/habitat and within 500m with anti-climbing devises designed specifically for primates (barbed wire is less effective). • Ensure that the minimum height of lowest sag of HV power line conductors is at least 6m over and above the minimum clearance stipulated by CEA, for the safe passage of the terrestrial fauna.	It will be complied. It will be complied.
		Bird Electrocution	• Design of all OHL to minimize the	It will be

		and Collision	risk of bird electrocution and collision following international best practice for phase to phase and phase to ground clearances for large birds at risk, as identified in the IEE.	complied.
			• Maintain at least a 1.5 meter (60-inch) spacing between all energized components and grounded hardware or, where this spacing is not feasible, covering all energized parts and hardware to avoid electrocution.	It will be complied.
			• Bird diverters, wherever required as per MoEF&CC or WII guidelines or where birds are at risk of collision per the findings of the IEE (Appendix C), shall be provided and installed by the contractor immediately following stringing and before commissioning/energizing of the transmission line.	It will be complied.
			• Exact stretches for bird diverter marking are to be confirmed by field ecologists during route surveys and agreed with PTCUL.	It will be complied.
			• Technical specifications for bird diverter available at Central Electricity Authority website (www.cea.nic.in) shall be followed. They must also be an internationally accepted robust design, rotates, of contrasting color, reflects UV light, glows in the dark, and is guaranteed. At minimum the bird diverters to be placed at 10m spacing along the earth wire.	It will be complied.
			• Design of second circuit OHL will ensure that the conductors are installed in the same horizontal plane as the existing conductors (to avoid additional barrier being created to bird flight paths).	It will be complied.
			• To prevent birds perching immediately above the suspension insulator strings (I-Type / V-Type) and fouling the same with droppings as well as to help prevent electrocution, suitable bird guards shall be provided at cross arm tips of all suspension towers. The bird guard arrangement shall be such that it shall either prevent bird from perching in position where they are liable to cause damages or ensure that if birds do perch,	It will be complied.

			droppings will fall clear of the insulator string and they will not be at risk of electrocution. Suitable provision of cleat / plate to be provided on all suspension towers facilitating installation of bird guard after stringing. At minimum saw type bird guard conforming to IS: 5613 shall be provided.	
4	Equipment specifications and design parameters	Polychlorinated Biphenyls (PCB)	• PCBs will not be permitted for use in any transformers at substations or in any other project facilities or equipment. • Processes equipment, and systems not to use chlorofluorocarbons (CFCs) including halon.	It will be complied. It will be complied.
		Exposure to electromagnetic interference	Designs to comply with the reference levels of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) for EMF exposure. Contractor to provide EMF calculations to the PISC for review and approval. Applicable to all SS • Use of shielding equipment/materials to decrease electromagnetic field exposure included at any substation where calculations identify levels above ICNIRP reference levels at properties close to the substation.	It will be complied. It will be complied.
		Exposure to noise	• Design substations so operational noise complies with 1-hour LAeq 70 dB(A) at the site boundary, 55dB(A) outside the fence line if located within a commercial zone, 45 dB(A) at the nearest residential properties including located those in commercial zones, and 40dB(A) at 100m distance from silent zones. • Given transformers are generally in the range 60-80 dBA at 1m they are to be located at least 5 m inside the substation site boundary but this distance will need to be increase to between 20m – 100m depending on the land use adjacent to the substation for noise limits to be met without additional attenuation. Diesel generator sets will similarly need to be located away from the SS	It will be complied. It will be complied.

			boundaries. • If residential properties or other sensitive receptors are near the substation boundary, then measurements must be carried out during detailed design and baseline noise calculations (modelling) considering low frequencies associated with transformer hum will be undertaken by the Contractor to demonstrate that the noise standards/guidelines can be met. If background noise levels already exceed the standards/guidelines the design must ensure that noise levels result in a <3dBA increase in background.	It will be complied.
		Hazardous Materials	• No asbestos containing materials of any type will be used in the design and construction of project facilities.	It will be complied.
		Oil Management	• Secure oil storage areas bunded to 110% of capacity with an impervious floor of sufficient size to accommodate all anticipated oil storage requirements will be provided. Ensure these storage areas covered, can be locked, are well-ventilated, will not reach extreme temperatures and are not connected to the surface water drainage system. • Design shall ensure that all oil containing equipment on SS sites will be located within impermeable bunds with a capacity of at least 110% of the oil capacity of the transformer / circuit breaker within it.	It will be complied. It will be complied.
		SF6	• Use of alternative insulation medium (such as Hydrophobic Cycloaliphatic Epoxy) to be considered as the preferred option. • If no alternative the use of SF6 in gas insulated equipment must be minimized as part of design requirements. • Design of any gas insulated equipment will comply with international norms and standards for handling, storage, and management of SF6. • Equipment to be hermetically pressure sealed “sealed for life” units and be tested and guaranteed by the supplier at less than 0.1% leakage rate.	It will be complied. It will be complied. It will be complied. It will be complied.

			• Installation designed and operated so that any leakage will trigger an alarm at the nearest concerned staffed substation requiring O&M staff to rectify the situation immediately. • Provide SF6 leakage detector at each substation • SF6 in fire extinguishers provided at substations to be avoided.	It will be complied. It will be complied. It will be complied.
		Geo hazards	• All designs shall incorporate specific measures, as required by Indian Standards for Earthquake Resistant Design of Structures and other regulations and in coherence with the MoP, GoI Disaster Management Plan for Power Sector to mitigate the risk of damage from seismic events, and other natural hazards including flooding, forest fires and landslides. All structural designs are to be checked for seismic safety by design team and an independent expert, separate to design team, to confirm national and international good practice standards are met.	It will be complied.
		Water body / river crossings	• During route survey identify and inventory presence of any surface waterbodies including rivers/streams/ponds within 500m of OHL RoWs and 50m of UG cables. • Carefully select route alignments to avoid bisecting lakes, ponds and wetland areas. • All OHL river/stream crossings required will be single span. • Any river crossing associated with UG LILO of 220 KV Khodri-Jhajra must be in conduit attached to bridge or HDD beneath the river.	It will be complied. It will be complied. It will be complied. It will be complied.
		Climate hazards	• All designs shall incorporate climate change adaptation measures per the climate risk assessment (to be completed)	It will be complied.
		Slope Stability	• Project components on slopes must incorporate slope stability measures such as bioengineering methods and retaining walls with adequate drainage to	It will be complied.

			avoid exacerbating surface erosion and/or triggering a landslide. All designs for works in steep topography to be checked by design team and an independent geotechnical engineer, separate to design team, to confirm national and international good practice standards are met. Steep topography is present at, • Lohaghat SS • Champawat second circuit stringing OHL	
5	Hazards to Life	Hazards to Life	• For all construction works undertake facilitated H&S risk assessment through a workshop during the design (and at other key stages) so it can inform both design and pre-construction preparations, considering both occupational and community H&S risks resulting from subsequent stages of the project. Facilitated workshop will involve the design and construction team of the contractors and PTCUL operational staff.	It will be complied.
		Explosions / Fire	• All substations and other project facilities will be designed and constructed according to national fire safety standards. • All substations will follow any national requirements for emergency response planning and response in compliance with Ministry of Power, GoI Disaster Management Plan for Power Sector- 2021. • Ensure Detailed design of OHL transmission incorporates lightening protection to minimize forest fire risks.	It will be complied. It will be complied. It will be complied.
		Electrical	• Ensure HV power line designs are in accordance with all national safety standards for OHL and UG cabling. • To prevent cable break incident of new UG cables, cable markings will be installed above the cable to inform those who may be excavating in future. • In case the armor is broken by a third party and the core damaged, protection relays to which the UG cables connect will be designed to detect this	It will be complied. It will be complied. It will be complied.

			and stop sending electricity immediately by automatically opening switchgear to prevent a live shock to the person.	
		Access	• Designs will ensure that there can be no illegal access to substations. • Include in the design of all towers anti-climb features together with posting of written and visual warning signs to include the ISO 7010 “Hazard Type: Electrical Symbol” warning of the risk of electrocution.	It will be complied. It will be complied.
		Building and tower safety	• All buildings will be designed in accordance with national building safety codes and Indian Standards for Earthquake Resistant Design of Structure. • All structural designs to be checked for building and seismic safety by design team and an independent expert, separate to design team, to confirm national and international good practice standards are met.	It will be complied. It will be complied.
6	Soils	Contaminated Land	• New substations making use of existing substations will be surveyed by a contaminated land professional employed by the contactor during the design phase to assess the potential for soil contamination to be present in the area proposed for works (Phase 1 Site Investigation). • If signs of potential contamination are present in this area, e.g., oil storage tanks, old leaking transformers, oil staining, etc. soil sampling and testing shall be undertaken in the proposed work area to determine the level of soil contamination. • The findings and recommendations of the survey will be submitted to PTCUL for approval. • If soil contamination is noted in the work area, a method statement for the management and/or removal and disposal of the contaminated soil as hazardous waste following international good EHS practices will be prepared and submitted to PTCUL for approval. • This is specifically applicable to	It will be complied. It will be complied. It will be complied. It will be complied.

			the following substations as well as any others supporting existing land use other than agriculture: • 220/33 KV (2X50 MVA) GIS Substation, Selaqui, Dehradun • 132/33 KV, (2X40 MVA) GIS Substation, Araghar. • 132/33 KV (2X40 MVA) GIS Substation, Dhaulakhera Nainital.	
7	Asbestos	Removal of asbestos at existing substations	• If demolition of existing buildings or structures is required, then they will be surveyed by a competent asbestos surveyor employed by the contractor during the design phase to confirm the risk of asbestos being present. The findings and recommendations of the survey will be submitted to PTCUL for approval. • If asbestos is found a method statement (Asbestos Management Plan) for its management and/or safe removal and disposal of asbestos as hazardous waste following international good EHS practices will be prepared and submitted to PTCUL for approval. • Removal and disposal of asbestos will be in accordance with the asbestos management plan. Site will need to be confirmed “clean” by a competent asbestos surveyor before any works on the new SS will be started.	It will be complied. It will be complied. It will be complied.
8	Final Designs	Community Consultations	• Contractors to undertake and document meaningful consultations with potentially affected persons and local communities within 500m of the substations and OHL RoWs and 50m of UG RoWs, ensuring representation of at least 30% women, as well as other stakeholders including local authorities and public utilities during design in order that any concerns raised can be reflected in the choice of SS site layout, route alignment and construction method. • Every individual on whose land the OHL towers will be installed will also be consulted one-on-one by the Contractor prior to finalization of the position of the tower footings.	It will be complied. It will be complied.

		Review of Documentation, update of the IEE	• Detailed designs will be reviewed by the contractor and PTCUL to confirm all measures required by the IEE/EMP have been adequately incorporated and that they reflect international engineering best practice/good EHS practice before they are approved. Prior to PTCUL approval of the designs and commencement of construction, ensure that PTCUL have updated the IEE as required to reflect the final scope of SS works/design/route alignment, seeking ADB clearance of any updated IEE before works start by contractor.	It will be complied.

7.0 Environmental Supervision and Monitoring Results

7.1 Environmental Supervision

Regarding EMP capacity development plan, initial introductory training has been imparted by ADB Inception Mission for Uttarakhand Climate Resilient Power System Development Project (Loan-4402 & Grant-9238) from 20th May to 24th May 2024.

No training has been imparted to contractor and sub-contractor etc. by implementing agency so far.

No budget has been allocated yet for any of the projects yet. The same shall be done at required stage of project.

Since, all the awarded projects are at initial stage of design the site inspections and audit related to environment safeguards have not been carried out yet.

7.2 Quantitative Environmental Monitoring

Sr. No.	Environmental Parameters	Analytical Parameters	Compliance Status
1	Air Quality Monitoring	PM10, PM2.5, SO2, NO2	The projects awarded are in design stage. The compliance of environment monitoring guidelines shall be
2	Ground Water Quality Monitoring	pH, Turbidity (NTU), Specific Conductance (micro mhos/cm), Total Dissolved Solids (TDS), Total Alkalinity (as $CaCO_3$), Total Hardness (as $CaCO_3$), Calcium (as Ca), Magnesium (as Mg), Chlorides (as Cl), Sulphates (as SO_4), Nitrates (as NO_2), Fluoride (as F), Arsenic (as As), Selenium (as Se), Cadmium (as Cd), Copper (as Cu), Lead (as Pb), Zinc (as Zn).	

3	Surface Water Quality Monitoring	Colour(Hazen Units),Dissolved Oxygen (DO), pH, Iron (asFe), Chlorides (as Cl), Biological Oxygen Demand (BOD), Total Dissolved Solids (TDS), Copper(as Cu), Total Chromium (as Cr), Sulphate (as SO_4), Nitrates (as NO_3), Fluoride (as F), Total Coliform (MPN/100ml), Cadmium (as Cd), Selenium (as Se), Arsenic (asAs), Lead (as Pb), Zinc (as Zn), Chromium (as Cr+6), Phenolic compounds (as C_6H_5OH, Oil & Grease).	made during construction phase. All the tests will be conducted by third party as and when required and reports will be submitted accordingly.
4	Noise Level Monitoring	Day and Nighttime	
5	Flora & Fauna	No such sites involved in the awarded projects.	

7.3 Pollution Control Monitoring

All the projects awarded under different packages and lots are in initial design phase. No construction activities have been started at site till date.

During construction phase of the project, the monitoring of different activities will be done as per Environmental Monitoring Plan (EMoP) of the project

Corrective actions with timeline and budget will be ensured for the prevention of any exceedances in the future.

Pollution control trainings/drills/inspections will be conducted during the execution of the project and the same shall be reported in required format.

If any materials used, solid or hazardous waste, or waste water is generated during the execution of the project, the same shall be reported in required format.

7.4 Occupational and Community Health and Safety Monitoring

All the projects awarded under different packages and lots are in initial design phase. No

construction activities have been started at site till date.

During execution of the project, health and safety activities and data will be obtained in accordance with the Environmental Monitoring Plan (EMoP) of the project and explanations of the instances where performance standards were exceeded along with details of responses taken to rectify the exceedances once identified, will also be provided in desired format.

Corrective actions with timeline and budget will be ensured for the prevention of any exceedances in the future.

Occupational and community trainings/drills/inspections will be conducted during the execution of the project and the same shall be reported in required format

If there are any near-miss or accident, illness, or other occupational or community health and safety related incident during the execution of the project the report will be provided in required format. There have been no accidents reported at any sites under all the awarded projects so far in the reporting period i.e. Jan 2024 to June 2024.

8.0 Grievance Redress

The GRC has been formed. The office order of PTCUL is enclosed herewith as Annexure-A.

All the projects awarded under different packages and lots are in initial design phase. No construction activities have been started at site till date However, during execution of project, if there are any grievances or complaint, regardless informal or minor or previously reported complaint with ongoing rectification, the same shall be reported with details corrective action taken in the desired format. Detailed grievance records and response reports shall also be maintained.

No grievances have been received in the reporting period i.e. Jan 2024 to June 2024.

9.0 Consultations

No consultation sessions had been held so far. The same will be conducted soon.

10.0 Conclusions and Recommendations

In order to have a multitier development in the projects, the emphasis on the implementation of EMP/CSEMP has been given top most priority. Compliance to National Regulations and to Environmental covenants as contained in ADB loan agreement be met. Environment cell shall monitor the implementation of environmental safeguards measure being undertaken by the contractor on regular basis. A grievance redressal committee shall be constituted with due representation of the people residing near the project site. Environmental monitoring will be conducted with the help of external monitoring laboratory for ambient air quality, water quality & noise level as per the schedule.

Since, no project construction activities have been started at site so far, therefore no negative environment impact have been noticed so far due to these projects. During

construction activities all of the mitigation measures will be taken following ADB Environmental Safeguard Policy 2009 and other relevant guidelines.

Enclosed:
Annexure-A

पावर ट्राँसमिशन कारपोरेशन ऑफ उत्तराखण्ड लि0

(उत्तराखण्ड सरकार का उपक्रम)

प्रबन्ध निदेशक कार्यालय

विद्युत भवन, नजदीक–आई0एस0बी0टी0 क्रासिंग, सहारनपुर रोड़, माजरा, देहरादून–**248002**

दूरभाष नं0 0135–2642006 फैक्स नं0 **0135&2643460** email:- md.ptcul@rediffmail.com

Letter no /MD/PTCUL/ Date

Office Memorandum

PTCUL being the implementation utility of the project titles as "Uttarakhand Climate Resilient Power System Development Project Loan no 4402" funded by Asian development Bank has to comply with grievance redress mechanism (GRM) as mentioned in resettlement plan and Initial Environment Examination.

As per clause no V(E) of RP plan, which state that "*A 4-tier grievance redress mechanism shall be established to address concerns and grievances of affected persons and workers involved in this Project. Considering that the three (3) implementing agencies will implement different project sub-components and will likely receive complaints that may differ in nature and complexity, the Project will have GRM established separately at each implementing agency for their respective components. It will however, follow the same four tier structure with (i) Tier-1 at EPC Contractor/Division level; (ii) Tier-2 at PIU level; (iii) Tier-3 at PMU level (supported by PISC); and (iv) Tier-4 at the Energy Department of the Government of Uttarakhand (the executing agency) at the highest level.*"

In compliance to above Division level Tier1(GRC-1) and PIU (PTCUL) level Tier2(GRC-2) committee comprising of following officers are hereby constituted: -

Package-1/Lot -1	**Tier 1 (GRC -1) Division level Committee members**	**Tier 2(GRC - 2) PIU level Committee members**
Lot-1-220/33 kV GIS S/S Selaqui and associated Line	1. Er.Vikalp Gautam Superintending Engineer (PI) Dehradun	1. Er.H.S. Hyanki Chief Engineer, (Project) ADB Haldwani
	2. Er.Deepak Kumar Executive Engineer (PI) Dehradun/Vikasnagar	2. Er.Vikalp Gautam Superintending Engineer (PI) Dehradun
	3. Er.Tikam Singh Chauhan Assistant Engineer (PI) Vikasnagar	3. Er.Deepak Kumar Executive Engineer (PI) Dehradun/Vikasnagar
	4. Project Manager authorized by EPC contractor	4. Representative from land revenue agricultural & Horticultural Department (Nominated by District Administration)
	5. Safe Guard Specialist from PISC	5. Elected representative of each Panchayat/Nagar Nigam including women Members (if woman member is available & in case elected member is woman) -(To be consulted during project implementation)

Package-2/Lot -2	Tier 1 (GRC-1) Division level Committee members	Tier 2(GRC-2) PIU level Committee members
132/33 kV GIS S/s Araghar 132 kv GIS S/s Dhaulakheda 132/33 kv S/s Khatima-II 132/33 kV S/s Lohaghat & Associated Line	1. Er. L.M. Bisht Superintending Engineer (PI) ADB Haldwani	1. Er. H.S. Hyanki Chief Engineer, (Project) ADB Haldwani
	2. Er. Deepak Kumar Executive Engineer(PI) Dehradun/Vikasnagar +Er. Sandeep Kaushik Executive Engineer (PI) Kashipur	2. Er.L.M. Bisht Superintending Engineer (PI) ADB Haldwani
	3. Er.Tikam Singh Chauhan Assistant Engineer(PI) Vikasnagar Er. Himanshu Vijay Singh Assistant Engineer (PI) Haldwani Er. Manoj Joshi Assistant Engineer Lohaghat	3. Er. Deepak Kumar Executive Engineer Dehradun/Vikasnagar (PI) Er. Sandeep Kaushik Executive Engineer (PI) Kashipur
	4. Project Manager authorized by EPC contractor	4. Representative from land revenue agricultural & Horticultural Department (Nominated by District Administration)
	5. Safe Guard Specialist from PISC	5. Elected representative of each Panchayat/Nagar Nigam including women members (if woman member is available & in case elected member is woman) (To be consulted during project implementation))
Package-3	**Tier 1 (GRC -1) Division level Committee members**	**Tier 2(GRC - 2) PIU level Committee members**
220/132/33 kv AIS S/s Manglore & Associated line	1. Er.A.K. Singh Superintending Engineer (PI) Roorkee	1. Er.H.S. Hyanki Chief Engineer, (Project) ADB Haldwani
	2. Er.Rakesh Kumar Executive Engineer PI Manglore	2. Er.A.K. Singh Superintending Engineer (PI) Roorkee
	3. Er. Anil Pal Assistant Engineer (PI) Padartha	3. Er.Rakesh Kumar Executive Engineer (PI) Manglore
	4. Project Manager authorized by EPC contractor	4. Representative from land revenue agricultural & Horticultural Department (Nominated by District Administration)

	5. Safe Guard Specialist from PISC	5. Elected representative of each Panchayat/Nagar Nigam including women members (if woman member is available & in case elected member is woman ((To be consulted during project implementation))

The above committee shall dispose all the grievances as per Grievance Redress Mechanism(GRM) mentioned in Initial Environment Examination (IEE)and Resettlemt plan (RP) of PTCUL including compliance of other directions issued by ADB or other authorities concerned from time to time.

(P.C. Dhyani)
Managing Director &
Additional Project Director

Letter no 2014/MD/PTCUL/MD(om) Date 06/07/2024

Copy forwarded to following

1. Secretary energy /Project director, GOU Dehradun
2. District Magistrate -Dehradun/Nanintal/Udhamsingh Nagar/Champawat
3. Mr. James Kolathanraj ,Senior Energy Specialist,Asian development Bank ,Sector Group,Phillipnes
4. Director (HR/Finance/Operations) PTCUL Vidhyut Bhawan Dehradun
5. M/s Flowmore Ltd plot no 2068/69 karol Bhagh 38 New Delhi
6. Transglobal Power Limited,1321/A, 15th cross, Girinagar, 2nd stage Banglore
7. Official concerned.

(P.C. Dhyani)
Managing Director &
Additional Project Director