ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad

NAME OF THE BIDDER									
Item	DESCRIPTION OF ITEMS(SCHEDULE-2-SS) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	Code[1]	UNITS	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S, Lakhanpur (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	Quantity for 2Nos 132KV Feeder Bay Extension at 132/33KV Grid Sub-Station, Brajarajnagar	Total Quantity	Unit Price [2]		Total Price [2]
							In Foreign Currency	CIP	
						(1)	(2)	(3)	(1) x (3)
1	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	15	6	21			
2	145 KV,1250A,31.5KA,ISOLATORS								
2.1	S/I WITH OUT EARTH SWITCH		NOS	9	2	11			
2.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	2	4			
2.3	D/I WITHOUT EARTH SWITCH		NOS	2	0	2			
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6	12			
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III		NOS	12	6	18			
5	145 KV, 2 CORE, SINGLE PHASE, IVT		NOS	3	0	3			
6	132 KV Bus Post Insulators		NOS	18	4	22			
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		SET	5	2	7			
7.1	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	18	0	18			
7.2	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	6	0	6			
8	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)		NOS	4	0	4			
9	**36 KV,1250A,25KA,ISOLATORS**								
9.1	S/I WITH OUT EARTH SWITCH		NOS	9	0	9			
9.2	D/I WITH SINGLE EARTH SWITCH		NOS	5	0	5			
9.3	D/I WITHOUT EARTH SWITCH		NOS	2	0	2			
9.4	S/I WITH BEAM MOUNTED		NOS	2	0	2			
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II		NOS	27	0	27			
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)		NOS	3	0	3			
12	36 KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	8	0	8			
13	33 KV Bus Post Insulators		NOS	27	0	27			
14	**BUS BAR & CIRCUIT MATERIALS**								
14.1	**TENSION & SUSPENSION ANTI FOG TYPE INSULATOR**								
14.1.1	120 kN ANTIFOG INSULATOR ***for Double Moose cond*** (TENSION) for 132kV & 33kV side		NOS	1,240	60	1300			
14.1.2	90 kN ANTIFOG INSULATOR ***for Double/ Single Moose cond*** (SUSPENSION) for 132kV & 33kV side		NOS	350	54	404			
14.2	ACSR MOOSE CONDUCTOR		KMS	4	0.35	4.35			
14.3	**HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS**								

14.3.1	132 KV Single Tension H/W fitting suitable for twin ACSR Moose		NOS	42	0	42			
14.3.2	132 KV Single suspension H/W fitting suitable for single ACSR Moose		NOS	24	6	30			
14.3.3	132 KV Single suspension H/W fitting suitable for twin ACSR Moose		NOS	9	0	9			
14.3.4	132 KV Single Tension H/W fitting suitable for single ACSR Moose		NOS	36	6	42			
14.3.5	33 KV Single Tension H/W fitting suitable for single ACSR Moose		NOS	30	0	30			
14.3.6	33 KV Single Suspension H/W fitting suitable for single ACSR Moose		NOS	27	0	27			
14.3.7	33 KV Single Tension H/W fitting suitable for twin ACSR Moose		NOS	24	0	24			
14.3.8	132 KV 'T' Clamp for single Moose run with single Moose ACSR drop		NOS	24	6	30			
14.3.9	132 KV 'T' Clamp for twin Moose run with single Moose ACSR drop		NOS	33	12	45			
14.3.10	33 KV 'T' Clamp for single Moose run with single Moose ACSR drop		NOS	30	0	30			
14.3.11	33 KV 'T' Clamp for twin Moose run with single Moose ACSR drop		NOS	27	0	27			
14.3.12	132 KV PI Clamp		NOS	18	4	22			
14.3.13	Spacer for Twin Bus ACSR 132 KV Bus		NOS	54	0	54			
14.3.14	Spacer for Twin Bus ACSR 33 KV Bus		NOS	22	0	22			
14.3.15	132 KV LA Clamp		NOS	12	6	18			
14.3.16	132 KV CVT Clamp		NOS	6	6	12			
14.3.17	132 KV CT Clamp(BIMETALLIC)		NOS	30	12	42			
14.3.18	132 KV IVT Clamp		NOS	3	0	3			
14.3.19	132kKV Isolater Pad Clamp		NOS	90	30	120			
14.3.20	132 KV CB Clamp		NOS	30	12	42			
14.3.21	33 KV PI Clamp		NOS	27	0	27			
14.3.22	33 KV Isolator pad clamp		NOS	129	0	129			
14.3.23	33 KV LA Clamp		NOS	27	0	27			
14.3.24	33 KV CT Clamp		NOS	48	0	48			
14.3.25	33 KV IVT Clamp		NOS	3	0	3			
14.3.26	33 KV CB Clamp		NOS	48	0	48			
14.3.27	PG Clamp for ACSR Moose		NOS	48	0	48			
14.4	**EARTH SPIKES & IT'S HARDWARES & FITTING**								
14.4.1	FOR 132KV SIDE :30 NOS @ 7 MTRS LENGTH EACH		SET	26	4	30			
14.4.2	FOR 33 KV SIDE:25 NOS @ 5 MTRS EACH		SET	25	0	25			
14.5	**SUBSTATION EARTHING SYSTEMS**								
14.5.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)		MT	18.00	0.80	18.8			
14.5.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)		MT	9.00	0.70	9.7			
14.5.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)		NOS	120	20	140			
14.5.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)		NOS	165	20	185			
14.6	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**								
14.6.1	G.I Cable Trays(size: 450x75x2500mm)		MTRS	1850	200	2050			
14.6.2	G.I Cable Trays(size: 300x75x2500mm)		MTRS	2200	180	2380			
14.6.3	G.I Cable Trays(size: 150x75x2500mm)		MTRS	1350	150	1500			
14.6.4	Support G. I angle 50x50x6 mm for cable tray		MT	3	0.4	3.4			
14.7	**SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES**								
14.7.1	BAY MARSHALLING KIOSK		NOS	7	1	8			
14.7.2	SWITCH YARD AC CONSOLE FOR LIGHTING		NOS	2	0	2			
14.7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION		NOS	1	0	1			
14.7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY		NOS	2	0	2			
14.7.5	CT, PT & CVT Out Door Console Boxes		NOS	17	4	21			
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**								
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**								
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 24 Sets.		MT	24.00	4.80	28.8			
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets		MT	5.70	1.90	7.6			
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) =11Sets.		MT	9.13	0.00	9.13			
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.		MT	8.40	0.00	8.4			
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**								
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0.62 MT) =13 Sets.		MT	8.06	1.24	9.3			
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.62 MT) = 2 Sets.		MT	1.24	0.00	1.24			
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets		MT	5.40	0.00	5.4			
15.2.4	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) =2		MT	2.50	0.00	2.5			
15.2.5	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.		MT	2.12	0.00	2.12			
15.2.6	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 12 Sets.		MT	3.60	0.00	3.6			
15.2.7	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) =5Sets.		MT	2.60	0.00	2.6			
15.3	**TOTAL WEIGHT OF COLUMN & BEAM**		**MT**	**72.75**	**7.94**	**80.69**			
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**								
15.4.1	ISOLATORS-132KV								

15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =11 Nos		MT	5.93	1.32	7.246			
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.		MT	1.96	0.00	1.958			
15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 4 Nos.		MT	2.24	2.24	4.482			
15.4.5	ISOLATORS-33 KV								
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =9 Nos.		MT	2.653	0.000	2.653			
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.		MT	1.311	0.000	1.311			
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.		MT	3.353	0.000	3.353			
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.		MT	3.218	1.287	4.505			
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 18 Nos		MT	2.678	0.000	2.678			
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.		MT	1.420	1.420	2.839			
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos		MT	0.693	0.000	0.693			
15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos		MT	0.373	0.000	0.373			
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12+6 Nos		MT	2.158	1.079	3.236			
15.4.15	BPI-132 KV (Unit Weight - 309.883 Kg) = 18+4Nos		MT	5.576	1.239	6.816			
15.4.16	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos		MT	2.232	0.000	2.232			
15.4.17	NCTS (Unit Weight - 138.24 Kg) = 4 Nos		MT	0.553	0.000	0.553			
15.4.18	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**		**MT**	**36.35**	**8.58**	**44.928**			
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & equipment structures**		**MT**	**7.25**	**1.40**	**8.65**			
16	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**								
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**								
16.1.1	XLPE 3.5 CX300 mm^2		MTRS	500	0	500			
16.1.2	XLPE 3.5 CX185 mm^2		MTRS	300	0	300			
16.1.3	XLPE 3.5 CX120 mm^2		MTRS	200	0	200			
16.1.4	PVC 3.5 CX70 mm^2		MTRS	600	400	1000			
16.1.5	PVC 3.5 CX35 mm^2		MTRS	1750	200	1950			
16.1.6	PVC 4 CX 16 mm^2		MTRS	1000	500	1500			
16.1.7	PVC 4 CX 6 mm^2		MTRS	3750	300	4050			
16.1.8	PVC 2CX 6 mm^2		MTRS	2200	0	2200			
16.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**								
16.2.1	2 CX 2.5 mm2		MTRS	5500	500	6000			
16.2.2	4 CX 2.5 mm^2		MTRS	10500	1500	12000			
16.2.3	5 CX 2.5 mm^2		MTRS	4500	300	4800			
16.2.4	7CX 2.5 mm^2		MTRS	5500	600	6100			
16.2.5	10 CX 2.5 mm^2		MTRS	10000	500	10500			
16.2.6	12 CX 2.5 mm^2		MTRS	9000	500	9500			
16.2.7	16 CX 2.5 mm^2		MTRS	5000	400	5400			
16.2.8	19 CX 2.5 mm^2		MTRS	2000	500	2500			
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB		MTRS	600	0	600			
17	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**								
17.1	24 Fibre Optic Approach cable along with HDPE Pipes		Kms	0.5	0.5	1			
17.2	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system		No.	1	1	2			
17.3	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)		No.	1	1	2			
17.4	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data aquisition & configuration of RTU.		No.	1	0	1			
17.5	48 V, 300 AH, maintenance free VRLA Battery set.		Set	1	0	1			
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.		No	1	0	1			
17.7	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)		MTRS	500	0	500			
17.8	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)		MTRS	500	0	500			
17.9	1.5 sq. mm 10 core control cable(Digital Input)		MTRS	200	0	200			
17.10	10 sq. mm 2 core multi strand control cable(Battery)		MTRS	100	0	100			
17.11	Earth Flat, Cable Tray, Telephone cable,ACDB, DCDB, Foundation rail, Junction Box,.		LS	1	1	2			
18	**SUPPLY OF POWER TRANSFORMER, STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**								
18.1	POWER TRANSFORMER 132/33KV,20MVA (AS PER SPECIFICATION)		NOS	2	0	2			
18.2	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)		NOS	2	0	2			
18.3	**Supply of materials for erection of station transformers**								

18.3.1	HDG **DP STRUCTURE**: each set shall comprise of [2X **9.0 Mtrs** (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].		SETS	2	0	2			
18.3.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch		SETS	2	0	2			
18.3.3	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)		SETS	2	0	2			
18.3.4	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.		SETS	2	0	2			
19	**Switch yard lighting:** Design, engineering, procurement of labour, material including all associated works for construction of switch yard lightings as per technical specification and approved drawings. The fixture shall be of reputed make (Philips/CGL/Bajaj) and fixtures shall be LED and proper cabling from the lighting outdoor distribution boards to the junction boxes and from junction boxes to the fixtures. The lighting fixtures are to be installed on the switch yard structures. The quantity of such fixtures are to be designed and to be ascertained.								
19.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)		SET	46	8	54			
19.2	STREET LIGHTING: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE								
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.		SET	25	0	25			
19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.		SET	25	0	25			
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.		NO	1	0	1			
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.		NO	1	0	1			
20	2 TR CAPACITY 5-STAR rated SPLIT AIR CONDITIONING UNITS WITH REMOTE CONTROL FACILITY: INCLUDING SUPPLY OF AIR CONDITIONERS,VOLTAGE STABILISER,CONTROL BOXES ETC FOR COMPLETING THE A.C SCHEME.(AS PER SPECIFICATION) FOR CONTROL ROOM, CARRIER ROOM & CONFERENCE ROOM.		SET	20	0	20			
21	**FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**								
21.1	FOAM TYPE-9 LTRS		NOS	4	0	4			
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS		NOS	4	0	4			
21.3	DRY POWDER TYPE -6 KGS		NOS	4	0	4			
21.4	CO_2 - 4.5 KGS		NOS	10	0	10			
	CO_2 - 9.0 KGS		NOS	10	0	10			
21.5	CO_2 (TROLLY MOUNTED)- 22.5 KGS		NOS	4	0	4			
21.6	Water type- 9 LTRS		NOS	4	0	4			
21.7	Foam type - 50 LTR		NOS	4	0	4			
21.8	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement		SET	6	0	6			
22	**PROTECTION,CONTROL METERING, EVENT LOGGER,BUS BAR PROTN PAN,COMM PAN, RELAY TOOL KITS AS PER TECH SPEC**								
22.1	TIME SYNCH EQUIPMENT		NOS	1	0	1			
22.3	**132 KV SIDE (SIMPLEX TYPE PANEL)**								
22.3.1	FEEDER CONTROL PANEL		NOS	2	2	4			
22.3.2	FEEDER RELAY PANEL		NOS	2	2	4			
22.3.3	TRANSFORMER CONTROL PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)		NOS	2	0	2			
22.3.4	TRANSFORMER RELAY PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)		NOS	2	0	2			
22.3.5	BUSCOUPLER CONTROL		NOS	1	0	1			
22.3.6	BUSCOUPLER RELAY PANEL		NOS	1	0	1			
22.3.7	COMMON PANEL (KP-1)		NOS	1	0	1			
22.4	**33 KV SIDE**								

22.4.1	FEEDER CONTROL & RELAY PANEL		NOS	5	0	5			
22.4.2	TRANSFORMER CONTROL & RELAY PANEL		NOS	2	0	2			
22.4.3	BUSCOUPLER CONTROL & RELAY PANEL		NOS	1	0	1			
23	**AC & DC SYSTEM**								
23.1	**AC SYSTEM**								
23.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)		SET	1	0	1			
23.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)		SET	1	0	1			
23.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)		SET	1	0	1			
23.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)		SET	1	0	1			
23.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD		SET	1	0	1			
23.1.6	INDOOR RECEPTACLE BOARD		SET	1	0	1			
23.2	**DC SYSTEM**								
23.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)		SET	1	0	1			
23.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD		SET	1	0	1			
23.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC		SET	1	0	1			
23.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)		SET	1	0	1			
24	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS		SET	1	0	1			
25	WALKIE TALKIE SET		SET/ PAIR	2	0	2			
26	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.		NOS	2	0	2			
27	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.		SET	1	0	1			
28	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.		SET	1	0	1			
29	WATER COOLER WITH WATER PURIFIER SYSTEM		NOS	1	0	1			
30	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)		SET	1	0	1			
31	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)		SET	1	0	1			
32	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.		SET	1	0	1			
33	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.		NOS	37	4	41			
TOTAL OF SUBSTATION (PLANT) SUPPLY									

Mandatory Spare Parts

Item	DESCRIPTION OF ITEMS SUPPLY OF MANDATORY SPARES FOR THE FOLLOWING EQUIPMENTS. (As per Technical Specification)	Code[1]	UNITS	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S, Lakhanpur (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	Quantity for 2Nos 132KV Feeder Bay Extension at 132/33KV Grid Sub-Station, Brajarajnagar	Total Quantity	Unit Price [2]		Total Price [2]
							In Foreign Currency	CIP	
						(1)	*(2)*	*(3)*	*(1) x (3)*
1	145 KV,(800-400-200 A),31.5KA,4CORE SINGLE PHASE CURRENT TRANSFORMER INCLUDING TERMINAL CONNECTOR		NOS	2	0	2			
2	**145 KV,1250A,31.5KA,ISOLATORS**								
2.1	MALE & FEMALE CONTACTS		SET	1	0	1			
2.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.		SET	1	0	1			
2.3	LIMIT SWITCH		SET	2	0	2			
2.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.		SET	1	0	1			
2.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1	0	1			
2.6	EARTHING ROD & BLADE CONTACT SIDE		SET	1	0	1			
2.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD		SET	1	0	1			
2.8	POST INSULATOR SUPPORT		SET (3NOS. PER SET)	1	0	1			
3	145 KV,6600pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER INCLUDING TERMINAL CONNECTOR		NOS	1	0	1			
4	120 KV,METAL OXIDE 10 KA, CLASS III SURGE ARRESTOR, COMPLETING WITH INSULATING BASE & SURGE MONITOR.		NOS	2	0	2			
5	145 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR		NOS	1	0	1			
6	132 KV Bus Post Insulators		NOS	2	0	2			
7	**145KV,3150A,40KA,SF6,CIRCUIT BREAKER**				0	0			
7.1	COMPLETE ONE POLE ASSEMBLY OF BREAKER		NOS	1	0	1			
7.2	SPRING CHARGING MOTOR		NOS	1	0	1			
7.3	BREKER AUXILIARY CONTACTS		SET	1	0	1			
7.4	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.		SET	1	0	1			
7.5	DENSITY MONITORING SYSTEM (IF REQUIRED)		SET	1	0	1			
7.6	CLOSING COIL		NOS	4	0	4			
7.7	TRIPPING COIL		NOS	4	0	4			
7.8	SF6 GAS FILLING DEVICE		NOS	1	0	1			
7.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER		SET	1	0	1			
8.1	36 KV,(800-400-200 A),25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER		NOS	2	0	2			
8.2	36 KV,(800-400-200 A),25KA,4 CORE SINGLE PHASE CURRENT TRANSFORMER		NOS	1	0	1			
9	**36 KV,1250A,25KA,ISOLATORS**								
9.1	MALE & FEMALE CONTACTS		SET	1	0	1			
9.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.		SET	1	0	1			
9.3	LIMIT SWITCH		SET	2	0	2			
9.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.		SET	1	0	1			
9.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1	0	1			
9.6	EARTHING ROD & BLADE CONTACT SIDE		SET	1	0	1			
9.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD		SET	1	0	1			
9.8	POST INSULATOR SUPPORT		SET (3NOS. PER SET)	1	0	1			
10	30 KV,METAL OXIDE, 10 KA, CLASS II SURGE ARRESTOR COMPLETE WITH INSULATOR BASE AND SURGE MONITOR		NOS	3	0	3			
11	36 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR		NOS	1	0	1			
12	**36KV, 1250A,25KA,VACUUM CIRCUIT BREAKER**								

12.1	ONE COMPLETE POLE ASSEMBLY OF CIRCUIT BREAKER		SET	1	0	**1**			
12.2	TRIPPING CIOLS		NOS	4	0	**4**			
12.3	CLOSING COIL		NOS	4	0	**4**			
12.4	SPRING CHARGING MOTOR		NOS	1	0	**1**			
12.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1	0	**1**			
12.6	SET OF GASKET,"O" RINGS,SEALING PER CIRCUIT BREAKER		SET	1	0	**1**			
12.7	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.		SET	1	0	**1**			
13	33 KV Bus Post Insulators		NOS	3	0	**3**			
14	**BUS BAR & CIRCUIT MATERIALS**								
14.1	120 kN ANTIFOG INSULATOR STRINGS ***for Double Moose cond*** (TENSION)-132 KV		SET	2	0	**2**			
14.2	120 kN ANTIFOG INSULATOR STRINGS ***for Single Moose cond*** (TENSION)-132 KV		SET	2	0	**2**			
14.3	120 kN ANTIFOG INSULATOR STRINGS ***for Double Moose cond*** (TENSION)-33 KV		SET	2	0	**2**			
14.4	120 kN ANTIFOG INSULATOR STRINGS ***for Single Moose cond*** (TENSION)-33 KV		SET	2	0	**2**			
14.5	90 kN ANTIFOG INSULATOR STRINGS ***for Double/ Single Moose cond*** (SUSPENSION)-132 KV		SET	2	0	**2**			
14.6	90 kN ANTIFOG INSULATOR STRINGS ***for Double/ Single Moose cond*** (SUSPENSION)-33 KV		SET	2	0	**2**			
15	ACSR MOOSE CONDUCTOR		MTRS	250	0	**250**			
16	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS ETC. FOR 132 KV & 33 KV		SET (EACH TYPE THREE NOS.)	1	0	**1**			
17	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**								
17.1	**POWER CABLES,1.1KV,XLPE & PVC,ARMOURED, ALUMINIUM CONDUCTOR(As per Specification)**								
17.1.1	3.5 CX300 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE		PCS.	1	0	**1**			
17.1.2	3.5 CX185 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE		PCS.	1	0	**1**			
17.1.3	3.5 CX120 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE		PCS.	1	0	**1**			
17.1.4	3.5 CX70 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC		PCS.	1	0	**1**			
17.1.5	3.5 CX35 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC		PCS.	1	0	**1**			
17.1.6	4 CX 16 mm^{2-} -PVC		MTRS	250	0	**250**			
17.1.7	4 CX 6 mm^2 -PVC		MTRS	250	0	**250**			
17.1.8	2CX 6 mm^2 -PVC		MTRS	250	0	**250**			
17.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**								
17.2.1	4 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500	0	**500**			
17.2.2	5 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500	0	**500**			
17.2.3	7 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500	0	**500**			
17.2.4	10 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500	0	**500**			
17.2.5	12 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250	0	**250**			
17.2.6	16 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250	0	**250**			
17.2.7	19 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250	0	**250**			
17.2.8	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB		MTRS	50	0	**50**			
17.3	**CARRIER COMMUNICATION & OTHER MATERIALS**								
17.3.1	ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 48 V VRLA TYPE BATTERY 300 AH,)		NO	2	0	**2**			
17.3.2	ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 220 V PLANTE TYPE BATTERY 350 AH,)		NO	2	0	**2**			
17.3.3	ONE COMPLETE SET OF ELECTRONIC CARDS FOR BATTERY CHARGER FOR 300 AH (48V)		SET	1	0	**1**			
17.3.4	ONE COMPLETE SET OF ELECTRONIC CARDS FOR BATTERY CHARGER FOR 350 AH (220V)		SET	1	0	**1**			
18	**PROTECTION, CONTROL METERING, EVENT LOGGER, BUS BAR PROTN PAN, COMM PAN, RELAY TOOL KITS AS PER TECH SPEC AND BOQ FOR PCM**								
18.1	**132 KV SIDE**								
18.1.1	DISTANCE PROTECTION RELAY		NOS	1	0	**1**			
18.1.2	OVER CURRENT & EARTH FAULT RELAY		NOS	1	0	**1**			
18.1.3	MASTER TRIP RELAY		NOS	2	0	**2**			
18.1.4	DIFFERENTIAL PROTECTION RELAY		NOS	1	0	**1**			
18.1.5	TRIP SUPERVISION RELAY		NOS	3	0	**3**			
18.1.6	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)		SET	1	0	**1**			
18.1.7	ANNUNCIATOR		NOS	1	0	**1**			
18.1.8	DISCREPANCY CONTROL SWITCH								
	a) FOR CIRCUIT BREAKER		NOS	2	0	**2**			
	b) FOR ISOLATOR		NOS	2	0	**2**			
18.1.9	PROTECTION TRANSFER SWITCH		NOS	1	0	**1**			
18.1.10	AMMETER SELECTOR SWITCH		NOS	1	0	**1**			
18.1.11	VOLTMETER SELECTOR SWITCH		NOS	1	0	**1**			
18.1.12	AMMETER ALONG WITH TRANSDUCER		SET	1	0	**1**			

18.1.13	VOLTMETER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.1.14	MW METER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.1.15	MVAR METER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.2	**33 KV SIDE**								
18.2.1	OVER CURRENT & EARTH FAULT RELAY		NOS	1	0	**1**			
18.2.2	MASTER TRIP RELAY		NOS	2	0	**2**			
18.2.3	OTHER AUXILIARY RELAYS (EACH 1 NO. OF DIFFERENT TYPE)		SET	1	0	**1**			
18.2.4	ANNUNCIATOR		NOS	1	0	**1**			
18.2.5	CONTROL SWITCHES FOR								
	a) CIRCUIT BREAKER		NOS	2	0	**2**			
	b) ISOLATOR		NOS	2	0	**2**			
18.2.6	PROTECTION TRANSFER SWITCH		NOS	1	0	**1**			
18.2.7	AMMETER SELECTOR SWITCH		NOS	1	0	**1**			
18.2.8	VOLTMETER SELECTOR SWITCH		NOS	1	0	**1**			
18.2.9	AMMETER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.2.10	VOLTMETER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.2.11	MW METER ALONG WITH TRANSDUCER		SET	1	0	**1**			
18.2.12	MVAR METER ALONG WITH TRANSDUCER		SET	1	0	**1**			
	TOTAL OF MANDATORY SPARE PARTS SUPPLY								
TOTAL OF SUBSTATION-SCHEDULE-1 -Plant and Mandatory Spare Parts (to Schedule No. 6 Grand Summary)									

Name of Bidder:_____

Signature of Bidder:_____

[1] Bidders shall enter a code repre*senting the country of origin of all* imported plant and equipment.

[2] Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad

NAME OF THE BIDDER							
Item	**DESCRIPTION OF ITEMS(SCHEDULE-2-Line) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)**	**Code[1]**	**UNITS**	**Quantity for132 KV D/C line from Brajrajnagar to Lakhanpur**	**Unit Price[2]**		**Total Price[2]**
					In Foreign Currency	**CIP**	
				(1)	*(2)*	*(3)*	*(1) x (3)*
1	**SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts & Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs & bracing members). All Supply should confirm to the Technical Specification.**						
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (43 nos)		MT	147.490			
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (14 nos)		MT	8.554			
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (2 nos)		MT	2.698			
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (12nos)		MT	59.676			
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT) (2 Nos)		MT	2.036			
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (1 nos)		MT	2.104			
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214 MT) (9nos)		MT	55.926			
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (0 nos)		MT	0.000			
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (4 nos)		MT	9.368			
	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.125 MT) (2 nos)		MT	26.250			
	+6 EXTENSION (Nominal unit weight 4.161 MT) (2 nos)		MT	8.322			
	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 9.014 MT) (2 nos)		MT	18.028			
	+15 EXTENSION (Nominal unit weight 18.622 MT) (2 nos)		MT	37.244			
	T1S COLUMN- 132 KV(NOMINAL UNIT WT- 1.2 MT) = 6 Sets.		MT	7.200			

	G1 BEAM - 132 KV (NOMINAL UNIT WT- 0.62 MT) =4 Sets.		MT	2.480			
1.4	TEMPLATES						
1.4.1	PA (Nominal unit weight 0.665 MT)(4 Nos.)		MT	2.660			
1.4.2	PB (Nominal unit weight 0.602 MT)(1 Nos.)		MT	0.602			
1.4.3	PC (Nominal unit weight 0.904 MT)(1 Nos.)		MT	0.904			
1.4.4	UR (Nominal unit weight 1.475 MT)(1 Nos.)		MT	1.475			
1.4.5	OC+15 (Nominal unit weight 2.074 MT)(1 Nos.)		MT	2.074			
1.5	**WEIGHT OF THE STRUCTURES (including Tower stubs, & Foundation Nut and Bolts)**		**MT**	**395.091**			
1.7	**Weight of different type G.I Nuts and Bolts**		**MT**	**19.071**			
2.0	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**						
2.1	EARTHING DEVICE		Nos.	68			
2.2	DANGER BOARD		Nos.	68			
2.3	NUMBER PLATE		Nos.	68			
2.4	PHASE PLATE		Nos.	450			
2.5	BIRD GUARD		Nos.	258			
2.6	ANTICLIMBING DEVICE		Nos.	68			
2.7	CIRCUIT PLATE		Nos.	136			
3.0	**Supply of following POWER CONDUCTORS in the proposed 132 kV lines with provision for 1.5 % sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**						
3.1	ACSR PANTHER		Kms.	117.04			
4.0	**POWER CONDUCTOR ACESSORIES**						
4.1	For ACSR PANTHER						
4.1.1	VIBRATION DAMPER		Nos.	906			
4.1.2	MID SPAN JOINT		Set	70			
4.1.3	REPAIR SLEEVE		Set	25			
4.1.4	PG CLAMP FOR ACSR PANTHER		Set	24			
5.0	**Supply of OPGW fibre Optic Cable for speech, data & protection**						
5.1	24Fibre(DWSM)OPGW fibre Optic Cable		Kms.	24			
5.2	OPGW hardware set like suspension Asembly,Tensin Assembly(Dead end assembly, Pass through assembly) ,Vibration Damper,Down Lead Clamp Assemblies for 24 Fibre(DWSM) OPGW,Joint Box		Kms.	24			
6.0	**Supply of the following Anti fog type disc insulators as per the technical specification and as per the instruction of the Engineer in charge.**						
6.1	90 KN Disc Insulator		Nos.	2609			
6.2	120 KN Disc Insulator		Nos.	4379			
7.0	**Supply of the following hard ware fittings suitable for ACSR Panther conductors as per the technical specification.**						
7.1	For ACSR PANTHER						
7.1.1	Single suspension Hard wares fittings.(AGS type) suitable for 90 KN insulator.		Nos.	276			
7.1.2	Double suspension Hard wares fittings.(AGS type) suitable for 90 KN insulator.		Nos.	0			
7.1.3	Single tension Hard wares fittings suitable for 120 KN insulator.		Nos.	297			
7.1.4	Double tension Hard wares fittings suitable for 120 KN insulator.		Nos.	60			
7.1.5	“D” Shackle		Nos.	100			
7.1.6	Hanger		Nos.	258			
7.1.7	U'-Bolt.		Nos	43			

	TOTAL OF Schedule-1 Line To Schedule-6 Grand Summary			

Name of Bidder:_____

Signature of Bidder:_____

[1] Bidders shall enter a code repre*senting the country of origin of all* imported plant and equipment.

[2] Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/.....]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country

NAME OF THE BIDDER							
Item	DESCRIPTION OF ITEMS(SCHEDULE-2-SS) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	UNIT	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S, Lakhanpur (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	Quantity for 2Nos 132KV Feeder Bay Extension at 132/33KV Grid Sub-Station, Brajarajnagar	Total Quantity	Unit Price [2]	Total Price [2]
					(1)	*(2)*	*(1) x (2)*
1	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	15	6	21		
2	145 KV,1250A,31.5KA,ISOLATORS						
2.1	S/I WITH OUT EARTH SWITCH	NOS	9	2	11		
2.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2	4		
2.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	2		
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6	12		
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	6	18		
5	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	0	3		
6	132 KV Bus Post Insulators	NOS	18	4	22		
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	SET	5	2	7		
7.1	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	18	0	18		
7.2	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	6	0	6		
8	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4	0	4		
9	**36 KV,1250A,25KA,ISOLATORS**						
9.1	S/I WITH OUT EARTH SWITCH	NOS	9	0	9		
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	5	0	5		
9.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	2		
9.4	S/I WITH BEAM MOUNTED	NOS	2	0	2		
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II	NOS	27	0	27		
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)	NOS	3	0	3		
12	36 KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8	0	8		
13	33 KV Bus Post Insulators	NOS	27	0	27		
14	**BUS BAR & CIRCUIT MATERIALS**						
14.1	**TENSION & SUSPENSION ANTI FOG TYPE INSULATOR**						
14.1.1	120 kN ANTIFOG INSULATOR ***for Double Moose cond*** (TENSION) for 132kV & 33kV side	NOS	1,240	60	1300		
14.1.2	90 kN ANTIFOG INSULATOR ***for Double/ Single Moose cond*** (SUSPENSION) for 132kV & 33kV side	NOS	350	54	404		
14.2	ACSR MOOSE CONDUCTOR	KMS	4	0.35	4.35		
14.3	**HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS**						
14.3.1	132 KV Single Tension H/W fitting suitable for twin ACSR Moose	NOS	42	0	42		
14.3.2	132 KV Single suspension H/W fitting suitable for single ACSR Moose	NOS	24	6	30		
14.3.3	132 KV Single suspension H/W fitting suitable for twin ACSR Moose	NOS	9	0	9		
14.3.4	132 KV Single Tension H/W fitting suitable for single ACSR Moose	NOS	36	6	42		

14.3.5	33 KV Single Tension H/W fitting suitable for single ACSR Moose	NOS	30	0	30		
14.3.6	33 KV Single Suspension H/W fitting suitable for single ACSR Moose	NOS	27	0	27		
14.3.7	33 KV Single Tension H/W fitting suitable for twin ACSR Moose	NOS	24	0	24		
14.3.8	132 KV 'T' Clamp for single Moose run with single Moose ACSR drop	NOS	24	6	30		
14.3.9	132 KV 'T' Clamp for twin Moose run with single Moose ACSR drop	NOS	33	12	45		
14.3.10	33 KV 'T' Clamp for single Moose run with single Moose ACSR drop	NOS	30	0	30		
14.3.11	33 KV 'T' Clamp for twin Moose run with single Moose ACSR drop	NOS	27	0	27		
14.3.12	132 KV PI Clamp	NOS	18	4	22		
14.3.13	Spacer for Twin Bus ACSR 132 KV Bus	NOS	54	0	54		
14.3.14	Spacer for Twin Bus ACSR 33 KV Bus	NOS	22	0	22		
14.3.15	132 KV LA Clamp	NOS	12	6	18		
14.3.16	132 KV CVT Clamp	NOS	6	6	12		
14.3.17	132 KV CT Clamp(BIMETALLIC)	NOS	30	12	42		
14.3.18	132 KV IVT Clamp	NOS	3	0	3		
14.3.19	132kKV Isolater Pad Clamp	NOS	90	30	120		
14.3.20	132 KV CB Clamp	NOS	30	12	42		
14.3.21	33 KV PI Clamp	NOS	27	0	27		
14.3.22	33 KV Isolator pad clamp	NOS	129	0	129		
14.3.23	33 KV LA Clamp	NOS	27	0	27		
14.3.24	33 KV CT Clamp	NOS	48	0	48		
14.3.25	33 KV IVT Clamp	NOS	3	0	3		
14.3.26	33 KV CB Clamp	NOS	48	0	48		
14.3.27	PG Clamp for ACSR Moose	NOS	48	0	48		
14.4	**EARTH SPIKES & IT'S HARDWARES & FITTING**						
14.4.1	FOR 132KV SIDE :26 NOS @ 7 MTRS LENGTH EACH	SET	26	4	30		
14.4.2	FOR 33 KV SIDE:25 NOS @ 5 MTRS EACH	SET	25	0	25		
14.5	**SUBSTATION EARTHING SYSTEMS**						
14.5.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)	MT	18.00	0.80	18.8		
14.5.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)	MT	9.00	0.70	9.7		
14.5.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)	NOS	120	20	140		
14.5.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	NOS	165	20	185		
14.6	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**						
14.6.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	1850	200	2050		
14.6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	2200	180	2380		
14.6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	1350	150	1500		
14.6.4	Support G. I angle 50x50x6 mm for cable tray	MT	3	0.4	3.4		
14.7	**SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES**						
14.7.1	BAY MARSHALLING KIOSK	NOS	7	1	8		
14.7.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2	0	2		
14.7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1	0	1		
14.7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2	0	2		
14.7.5	CT, PT & CVT Out Door Console Boxes (132 KV CT-5 Nos., 33 KV CT-8 Nos., 132 KV CVT-2 No., 132 KV IVT-1 No., 33 KV IVT-1 No.)	NOS	17	4	21		
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**						
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**						
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 20 Sets.	MT	24.00	4.80	28.8		
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets	MT	5.70	1.90	7.6		
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) =9Sets.	MT	9.13	0.00	9.13		
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.	MT	8.40	0.00	8.4		
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**						
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0.62 MT) =13 Sets.	MT	8.06	1.24	9.3		
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.62 MT) = 2 Sets.	MT	1.24	0.00	1.24		
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets	MT	5.40	0.00	5.4		
15.2.4	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) =2	MT	2.50	0.00	2.5		
15.2.5	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.	MT	2.12	0.00	2.12		
15.2.6	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 12 Sets.	MT	3.60	0.00	3.6		
15.2.7	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) =2Sets.	MT	2.60	0.00	2.6		
15.3	**TOTAL WEIGHT OF COLUMN & BEAM**	**MT**	**72.75**	**7.94**	**80.69**		
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**						
15.4.1	ISOLATORS-132KV						
15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =9 Nos	MT	5.93	1.32	7.2457		
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.	MT	1.96	0.00	1.9582		

15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 2 Nos.	MT	2.24	2.24	4.482		
15.4.5	ISOLATORS-33 KV						
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =9 Nos.	MT	2.65	0.00	2.6532		
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.	MT	1.31	0.00	1.3114		
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.	MT	3.35	0.00	3.3525		
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.	MT	3.22	1.29	4.5045		
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 24 Nos	MT	2.68	0.00	2.6784		
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.	MT	1.42	1.42	2.8392		
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos	MT	0.69	0.00	0.6933		
15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos	MT	0.37	0.00	0.3729		
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12 Nos	MT	2.16	1.08	3.2364		
15.4.15	BPI-132 KV (Unit Weight - 309.883 Kg) = 18Nos	MT	5.58	1.24	6.8156		
15.4.16	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos	MT	2.23	0.00	2.232		
15.4.17	NCTS (Unit Weight - 138.24 Kg) = 4 Nos	MT	0.55	0.00	0.5528		
15.4.18	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**	**MT**	**36.35**	**8.58**	**44.93**		
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & equipment structures**	**MT**	**7.25**	**1.40**	**8.65**		
16	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**						
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**						
16.1.1	XLPE 3.5 CX300 mm^2	MTRS	500	0	500		
16.1.2	XLPE 3.5 CX185 mm^2	MTRS	300	0	300		
16.1.3	XLPE 3.5 CX120 mm^2	MTRS	200	0	200		
16.1.4	PVC 3.5 CX70 mm^2	MTRS	600	400	1000		
16.1.5	PVC 3.5 CX35 mm^2	MTRS	1750	200	1950		
16.1.6	PVC 4 CX 16 mm^2	MTRS	1000	500	1500		
16.1.7	PVC 4 CX 6 mm^2	MTRS	3750	300	4050		
16.1.8	PVC 2CX 6 mm^2	MTRS	2200	0	2200		
16.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**						
16.2.1	2 CX 2.5 mm2	MTRS	5500	500	6000		
16.2.2	4 CX 2.5 mm^2	MTRS	10500	1500	12000		
16.2.3	5 CX 2.5 mm^2	MTRS	4500	300	4800		
16.2.4	7CX 2.5 mm^2	MTRS	5500	600	6100		
16.2.5	10 CX 2.5 mm^2	MTRS	10000	500	10500		
16.2.6	12 CX 2.5 mm^2	MTRS	9000	500	9500		
16.2.7	16 CX 2.5 mm^2	MTRS	5000	400	5400		
16.2.8	19 CX 2.5 mm^2	MTRS	2000	500	2500		
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	600	0	600		
17	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**						
17.1	24 Fibre Optic Approach cable along with HDPE Pipes	Kms	0.5	0.5	1		
17.2	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system	No.	1	1	2		
17.3	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No.	1	1	2		
17.4	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data aquisition & configuration of RTU.	No.	1	0	1		
17.5	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	0	1		
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	0	1		
17.7	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)	MTRS	500	0	500		
17.8	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	MTRS	500	0	500		
17.9	1.5 sq. mm 10 core control cable(Digital Input)	MTRS	200	0	200		
17.10	10 sq. mm 2 core multi strand control cable(Battery)	MTRS	100	0	100		
17.11	Earth Flat, Cable Tray, Telephone cable,ACDB, DCDB, Foundation rail, Junction Box,.	LS	1	1	2		
18	**SUPPLY OF POWER TRANSFORMER, STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**						
18.1	POWER TRANSFORMER 132/33KV,20MVA (AS PER SPECIFICATION)	NOS	2	0	2		
18.2	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)	NOS	2	0	2		
18.3	**Supply of materials for erection of station transformers**						

18.3.1	HDG **DP STRUCTURE**: each set shall comprise of [2X **9.0 Mtrs** (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].	SETS	2	0	2		
18.3.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SETS	2	0	2		
18.3.3	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SETS	2	0	2		
18.3.4	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.	SETS	2	0	2		
19	**Switch yard lighting:** Design, engineering, procurement of labour, material including all associated works for construction of switch yard lightings as per technical specification and approved drawings. The fixture shall be of reputed make (Philips/CGL/Bajaj) and fixtures shall be LED and proper cabling from the lighting outdoor distribution boards to the junction boxes and from junction boxes to the fixtures. The lighting fixtures are to be installed on the switch yard structures. The quantity of such fixtures are to be designed and to be ascertained.						
19.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)	SET	46	8	54		
19.2	STREET LIGHTING: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE						
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.	SET	25	0	25		
19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.	SET	25	0	25		
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.	NO	1	0	1		
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.	NO	1	0	1		
20	2 TR CAPACITY 5-STAR rated SPLIT AIR CONDITIONING UNITS WITH REMOTE CONTROL FACILITY: INCLUDING SUPPLY OF AIR CONDITIONERS,VOLTAGE STABILISER,CONTROL BOXES ETC FOR COMPLETING THE A.C SCHEME.(AS PER SPECIFICATION) FOR CONTROL ROOM, CARRIER ROOM & CONFERENCE ROOM.	SET	20	0	20		
21	**FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**						
21.1	FOAM TYPE-9 LTRS	NOS	4	0	4		
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS	NOS	4	0	4		
21.3	DRY POWDER TYPE -6 KGS	NOS	4	0	4		
21.4	CO_2 - 4.5 KGS	NOS	10	0	10		
	CO_2 - 9.0 KGS	NOS	10	0	10		
21.5	CO_2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	0	4		
21.6	Water type- 9 LTRS	NOS	4	0	4		
21.7	Foam type - 50 LTR	NOS	4	0	4		
21.8	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement	SET	6	0	6		
22	**PROTECTION,CONTROL METERING, EVENT LOGGER,BUS BAR PROTN PAN,COMM PAN, RELAY TOOL KITS AS PER TECH SPEC**						
22.1	TIME SYNCH EQUIPMENT	NOS	1	0	1		
22.3	**132 KV SIDE (SIMPLEX TYPE PANEL)**						
22.3.1	FEEDER CONTROL PANEL	NOS	2	2	4		
22.3.2	FEEDER RELAY PANEL	NOS	2	2	4		
22.3.3	TRANSFORMER CONTROL PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)	NOS	2	0	2		

22.3.4	TRANSFORMER RELAY PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)	NOS	2	0	2		
22.3.5	BUSCOUPLER CONTROL	NOS	1	0	1		
22.3.6	BUSCOUPLER RELAY PANEL	NOS	1	0	1		
22.3.7	COMMON PANEL (KP-1)	NOS	1	0	1		
22.4	**33 KV SIDE**						
22.4.1	FEEDER CONTROL & RELAY PANEL	NOS	5	0	5		
22.4.2	TRANSFORMER CONTROL & RELAY PANEL	NOS	2	0	2		
22.4.3	BUSCOUPLER CONTROL & RELAY PANEL	NOS	1	0	1		
23	**AC & DC SYSTEM**						
23.1	**AC SYSTEM**						
23.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)	SET	1	0	1		
23.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)	SET	1	0	1		
23.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)	SET	1	0	1		
23.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	0	1		
23.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	0	1		
23.1.6	INDOOR RECEPTACLE BOARD	SET	1	0	1		
23.2	**DC SYSTEM**						
23.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)	SET	1	0	1		
23.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	0	1		
23.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	1	0	1		
23.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1	0	1		
24	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	0	1		
25	WALKIE TALKIE SET	SET/ PAIR	2	0	2		
26	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	0	2		
27	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	1	0	1		
28	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	0	1		
29	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1	0	1		
30	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1	0	1		
31	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1	0	1		
32	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.	SET	1	0	1		
33	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.	NOS	37	4	37		
TOTAL OF SUBSTATION (PLANT) SUPPLY							

Mandatory Spare Parts

Item	DESCRIPTION OF ITEMS SUPPLY OF MANDATORY SPARES FOR THE FOLLOWING EQUIPMENTS. (As per Technical Specification)	UNIT	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S, Lakhanpur (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	Quantity for 2Nos 132KV Feeder Bay Extension at 132/33KV Grid Sub-Station, Brajarajnagar	Total Quantity	Unit Price [2]	Total Price [2]
1	145 KV,(800-400-200 A),31.5KA,4CORE SINGLE PHASE CURRENT TRANSFORMER INCLUDING TERMINAL CONNECTOR	NOS	2	0	**2**		
2	**145 KV,1250A,31.5KA,ISOLATORS**						
2.1	MALE & FEMALE CONTACTS	SET	1	0	**1**		
2.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.	SET	1	0	**1**		
2.3	LIMIT SWITCH	SET	2	0	**2**		
2.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.	SET	1	0	**1**		
2.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1	0	**1**		
2.6	EARTHING ROD & BLADE CONTACT SIDE	SET	1	0	**1**		
2.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD	SET	1	0	**1**		
2.8	POST INSULATOR SUPPORT	SET (3NOS. PER SET)	1	0	**1**		
3	145 KV,6600pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER INCLUDING TERMINAL CONNECTOR	NOS	1	0	**1**		
4	120 KV,METAL OXIDE 10 KA, CLASS III SURGE ARRESTOR, COMPLETING WITH INSULATING BASE & SURGE MONITOR.	NOS	2	0	**2**		
5	145 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR	NOS	1	0	**1**		
6	132 KV Bus Post Insulators	NOS	2	0	**2**		
7	**145KV,3150A,40KA,SF6,CIRCUIT BREAKER**						
7.1	COMPLETE ONE POLE ASSEMBLY OF BREAKER	NOS	1	0	**1**		
7.2	SPRING CHARGING MOTOR	NOS	1	0	**1**		
7.3	BREKER AUXILIARY CONTACTS	SET	1	0	**1**		
7.4	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.	SET	1	0	**1**		
7.5	DENSITY MONITORING SYSTEM (IF REQUIRED)	SET	1	0	**1**		
7.6	CLOSING COIL	NOS	4	0	**4**		
7.7	TRIPPING COIL	NOS	4	0	**4**		
7.8	SF6 GAS FILLING DEVICE	NOS	1	0	**1**		
7.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER	SET	1	0	**1**		
8.1	36 KV,(800-400-200 A),25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	2	0	**2**		
8.2	36 KV,(800-400-200 A),25KA,4 CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	1	0	**1**		
9	**36 KV,1250A,25KA,ISOLATORS**						
9.1	MALE & FEMALE CONTACTS	SET	1	0	**1**		
9.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.	SET	1	0	**1**		
9.3	LIMIT SWITCH	SET	2	0	**2**		
9.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.	SET	1	0	**1**		
9.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1	0	**1**		
9.6	EARTHING ROD & BLADE CONTACT SIDE	SET	1	0	**1**		
9.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD	SET	1	0	**1**		

9.8	POST INSULATOR SUPPORT	SET (3NOS. PER SET)	1	0	**1**		
10	30 KV,METAL OXIDE, 10 KA, CLASS II SURGE ARRESTOR COMPLETE WITH INSULATOR BASE AND SURGE MONITOR	NOS	3	0	**3**		
11	36 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR	NOS	1	0	**1**		
12	**36KV, 1250A,25KA,VACUUM CIRCUIT BREAKER**						
12.1	ONE COMPLETE POLE ASSEMBLY OF CIRCUIT BREAKER	SET	1	0	**1**		
12.2	TRIPPING CIOLS	NOS	4	0	**4**		
12.3	CLOSING COIL	NOS	4	0	**4**		
12.4	SPRING CHARGING MOTOR	NOS	1	0	**1**		
12.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1	0	**1**		
12.6	SET OF GASKET,"O" RINGS,SEALING PER CIRCUIT BREAKER	SET	1	0	**1**		
12.7	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.	SET	1	0	**1**		
13	33 KV Bus Post Insulators	NOS	3	0	**3**		
14	**BUS BAR & CIRCUIT MATERIALS**						
14.1	120 kN ANTIFOG INSULATOR STRINGS ***for Double Moose cond*** (TENSION)-132 KV	SET	2	0	**2**		
14.2	120 kN ANTIFOG INSULATOR STRINGS ***for Single Moose cond*** (TENSION)-132 KV	SET	2	0	**2**		
14.3	120 kN ANTIFOG INSULATOR STRINGS ***for Double Moose cond*** (TENSION)-33 KV	SET	2	0	**2**		
14.4	120 kN ANTIFOG INSULATOR STRINGS ***for Single Moose cond*** (TENSION)-33 KV	SET	2	0	**2**		
14.5	90 kN ANTIFOG INSULATOR STRINGS ***for Double/ Single Moose cond*** (SUSPENSION)-132 KV	SET	2	0	**2**		
14.6	90 kN ANTIFOG INSULATOR STRINGS ***for Double/ Single Moose cond*** (SUSPENSION)-33 KV	SET	2	0	**2**		
15	ACSR MOOSE CONDUCTOR	MTRS	250	0	**250**		
16	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS ETC. FOR 132 KV & 33 KV	SET (EACH TYPE THREE NOS.)	1	0	**1**		
17	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**						
17.1	**POWER CABLES,1.1KV,XLPE & PVC,ARMOURED, ALUMINIUM CONDUCTOR(As per Specification)**						
17.1.1	3.5 CX300 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE	PCS.	1	0	**1**		
17.1.2	3.5 CX185 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE	PCS.	1	0	**1**		
17.1.3	3.5 CX120 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE	PCS.	1	0	**1**		
17.1.4	3.5 CX70 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC	PCS.	1	0	**1**		
17.1.5	3.5 CX35 mm^2 (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC	PCS.	1	0	**1**		
17.1.6	4 CX 16 mm^{2-} -PVC	MTRS	250	0	**250**		
17.1.7	4 CX 6 mm^2 -PVC	MTRS	250	0	**250**		
17.1.8	2CX 6 mm^2 -PVC	MTRS	250	0	**250**		
17.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**						
17.2.1	4 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500	0	**500**		
17.2.2	5 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500	0	**500**		
17.2.3	7 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500	0	**500**		
17.2.4	10 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500	0	**500**		
17.2.5	12 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250	0	**250**		
17.2.6	16 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250	0	**250**		
17.2.7	19 CX 2.5 mm^2 (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250	0	**250**		
17.2.8	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	50	0	**50**		
17.3	**CARRIER COMMUNICATION & OTHER MATERIALS**						
17.3.1	ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 48 V VRLA TYPE BATTERY 300 AH,)	NO	2	0	**2**		
17.3.2	ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 220 V PLANTE TYPE BATTERY 350 AH,)	NO	2	0	**2**		
17.3.3	ONE COMPLETE SET OF ELECTRONIC CARDS FOR BATTERY CHARGER FOR 300 AH (48V)	SET	1	0	**1**		
17.3.4	ONE COMPLETE SET OF ELECTRONIC CARDS FOR BATTERY CHARGER FOR 350 AH (220V)	SET	1	0	**1**		
18	**PROTECTION, CONTROL METERING, EVENT LOGGER, BUS BAR PROTN PAN, COMM PAN, RELAY TOOL KITS AS PER TECH SPEC AND BOQ FOR PCM**						
18.1	**132 KV SIDE**						

18.1.1	DISTANCE PROTECTION RELAY	NOS	1	0	**1**		
18.1.2	OVER CURRENT & EARTH FAULT RELAY	NOS	1	0	**1**		
18.1.3	MASTER TRIP RELAY	NOS	2	0	**2**		
18.1.4	DIFFERENTIAL PROTECTION RELAY	NOS	1	0	**1**		
18.1.5	TRIP SUPERVISION RELAY	NOS	3	0	**3**		
18.1.6	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)	SET	1	0	**1**		
18.1.7	ANNUNCIATOR	NOS	1	0	**1**		
18.1.8	DISCREPANCY CONTROL SWITCH						
	a) FOR CIRCUIT BREAKER	NOS	2	0	**2**		
	b) FOR ISOLATOR	NOS	2	0	**2**		
18.1.9	PROTECTION TRANSFER SWITCH	NOS	1	0	**1**		
18.1.10	AMMETER SELECTOR SWITCH	NOS	1	0	**1**		
18.1.11	VOLTMETER SELECTOR SWITCH	NOS	1	0	**1**		
18.1.12	AMMETER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.1.13	VOLTMETER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.1.14	MW METER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.1.15	MVAR METER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.2	**33 KV SIDE**						
18.2.1	OVER CURRENT & EARTH FAULT RELAY	NOS	1	0	**1**		
18.2.2	MASTER TRIP RELAY	NOS	2	0	**2**		
18.2.3	OTHER AUXILIARY RELAYS (EACH 1 NO. OF DIFFERENT TYPE)	SET	1	0	**1**		
18.2.4	ANNUNCIATOR	NOS	1	0	**1**		
18.2.5	CONTROL SWITCHES FOR						
	a) CIRCUIT BREAKER	NOS	2	0	**2**		
	b) ISOLATOR	NOS	2	0	**2**		
18.2.6	PROTECTION TRANSFER SWITCH	NOS	1	0	**1**		
18.2.7	AMMETER SELECTOR SWITCH	NOS	1	0	**1**		
18.2.8	VOLTMETER SELECTOR SWITCH	NOS	1	0	**1**		
18.2.9	AMMETER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.2.10	VOLTMETER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.2.11	MW METER ALONG WITH TRANSDUCER	SET	1	0	**1**		
18.2.12	MVAR METER ALONG WITH TRANSDUCER	SET	1	0	**1**		
	TOTAL OF MANDATORY SPARE PARTS SUPPLY						
TOTAL OF SUBSTATION-SCHEDULE-2 -Plant and Mandatory Spare Parts (to Schedule No. 6 Grand Summary)							

Name of Bidder:_____

Signature of Bidder:_____

[1] Prices of Items quoted in Schedule No.1 shall not be quoted again in Schedule No. 2 and shall have a remark against the said row "Quoted in Schedule No.-1".

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/.....]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country

NAME OF THE BIDDER

Item	DESCRIPTION OF ITEMS(SCHEDULE-2-Line) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	UNITS	Quantity for 132 KV D/C line from Brajrajnagar to Lakhanpur	Unit Price[2]	Total Price[2]
			(1)	*(2)*	*(1) x (2)*
1	**SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts & Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs & bracing members). All Supply should confirm to the Technical Specification.**				
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (43 nos)	MT	147.490		
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (14 nos)	MT	8.554		
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (2 nos)	MT	2.698		
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (12nos)	MT	59.676		
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT) (2 Nos)	MT	2.036		
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (1 nos)	MT	2.104		
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214 MT) (9nos)	MT	55.926		
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (0 nos)	MT	0.000		
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (4 nos)	MT	9.368		
	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.125 MT) (2 nos)	MT	26.250		
	+6 EXTENSION (Nominal unit weight 4.161 MT) (2 nos)	MT	8.322		
	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 9.014 MT) (2 nos)	MT	18.028		
	+15 EXTENSION (Nominal unit weight 18.622 MT) (2 nos)	MT	37.244		
	T1S COLUMN- 132 KV(NOMINAL UNIT WT- 1.2 MT) = 6 Sets.	MT	7.200		
	G1 BEAM - 132 KV (NOMINAL UNIT WT- 0.62 MT) =4 Sets.	MT	2.480		
1.4	**TEMPLATES**				
1.4.1	PA (Nominal unit weight 0.665 MT)(4 Nos.)	MT	2.660		
1.4.2	PB (Nominal unit weight 0.602 MT)(1 Nos.)	MT	0.602		
1.4.3	PC (Nominal unit weight 0.904 MT)(1 Nos.)	MT	0.904		
	UR (Nominal unit weight 1.475 MT)(1 Nos.)	MT	1.475		
	OC+15 (Nominal unit weight 2.074 MT)(1 Nos.)	MT	2.074		
1.5	**WEIGHT OF THE STRUCTURES (including Tower stubs, & Foundation Nut and Bolts)**	**MT**	**395.091**		
1.7	**Weight of different type G.I Nuts and Bolts**	**MT**	**19.071**		

2.0	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**				
2.1	EARTHING DEVICE	Nos.	68		
2.2	DANGER BOARD	Nos.	68		
2.3	NUMBER PLATE	Nos.	68		
2.4	PHASE PLATE	Nos.	450		
2.5	BIRD GUARD	Nos.	258		
2.6	ANTICLIMBING DEVICE	Nos.	68		
2.7	CIRCUIT PLATE	Nos.	136		
2.8	COUNTERPOISE EARTHING	Nos.	0		
3.0	**Supply of following POWER CONDUCTORS in the proposed 132 kV lines with provision for 1.5 % sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**				
3.1	ACSR PANTHER	Kms.	117.04		
4.0	**POWER CONDUCTOR ACESSORIES**				
4.1	For ACSR PANTHER				
4.1.1	VIBRATION DAMPER	Nos.	906		
4.1.2	MID SPAN JOINT	Set	70		
4.1.3	REPAIR SLEEVE	Set	25		
4.1.4	P A ROD FOR ACSR PANTHER	Set	0		
4.1.5	PG CLAMP FOR ACSR PANTHER	Set	24		
5.0	**Supply of OPGW fibre Optic Cable for speech, data & protection**				
5.1	24Fibre(DWSM)OPGW fibre Optic Cable	Kms.	24		
5.2	OPGW hardware set like suspension Asembly,Tensin Assembly(Dead end assembly, Pass through assembly) ,Vibration Damper,Down Lead Clamp Assemblies for 24	Kms.	24		
6.0	**Supply of the following Anti fog type disc insulators as per the technical specification and as per the instruction of the Engineer in charge.**				
6.1	90 KN Disc Insulator	Nos.	2609		
6.2	120 KN Disc Insulator	Nos.	4379		
7.0	**Supply of the following hard ware fittings suitable for ACSR Panther conductors as per the technical specification.**				
7.1	For ACSR PANTHER				
7.1.1	Single suspension Hard wares fittings.(AGS type) suitable for 90 KN insulator.	Nos.	276		
7.1.2	Double suspension Hard wares fittings.(AGS type) suitable for 90 KN insulator.	Nos.	0		
7.1.3	Single tension Hard wares fittings suitable for 120 KN insulator.	Nos.	297		
7.1.4	Double tension Hard wares fittings suitable for 120 KN insulator.	Nos.	60		
7.1.5	"D" Shackle	Nos.	100		
7.1.6	Hanger	Nos.	258		
7.1.7	U'-Bolt.	Nos	43		
TOTAL OF Schedule-2 Line To Schedule-6 Grand Summary					

Name of Bidder:_____

Signature of Bidder:_____

[1] Prices of Items quoted in Schedule No.1 shall not be quoted again in Schedule No. 2 and shall have a remark against the said row "Quoted in Schedule No.-1".

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 4. Installation and Other Services

NAME OF THE BIDDER									
Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-4-S/s) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	UNIT	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S,Lakhanpur (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	Quantity for 2Nos 132KV Feeder Bay Extension at 132/33KV Grid Sub-Station, Brajarajnagar	Total Quantity	Unit Price[1]		Total Price[1]	
						Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
					(1)	*(2)*	*(3)*	*(1) x (2)*	*(1) x (3)*
PART-A	**ELECTRICAL WORKS**								
1	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	15	6	**21**				
2	145 KV,1250A,31.5KA,ISOLATORS								
2.1	S/I WITH&WITH OUT EARTH SWITCH	NOS	9	2	**11**				
2.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2	**4**				
2.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	**2**				
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6	**12**				
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	6	**18**				
5	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	0	**3**				
6	132 KV Bus Post Insulators	NOS	18	4	**22**				
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	2	**7**				
7.1	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	18	0	**18**				
7.2	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	6	0	**6**				
8	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4	0	**4**				
9	**36 KV,1250A,25KA,ISOLATORS**								
9.1	S/I WITH OUT EARTH SWITCH	NOS	9	0	**9**				
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	5	0	**5**				
9.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	**2**				
9.4	S/I WITH BEAM MOUNTED	NOS	2	0	**2**				
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II	NOS	27	0	**27**				
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)	NOS	3	0	**3**				

12	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8	0	**8**				
13	33 KV Bus Post Insulators	NOS	27	0	**27**				
14	**BUS BAR & CIRCUIT MATERIALS**								
14.2	Supply of labour,T&P and other necessary arrangements for stringing of bus bar conductors, hoisting of single or double insulator strings,Single or Double Hard-wares Fittings, Clamp & connectors, as per requirements, Jumpers, connections to Equipments, testing, commissioning etc. as per the instruction of Engineer-in charge.								
14.2.1	Single conductor	Per Mtr.	1000	500	**1500**				
14.2.2	Twin Conductor	Per Mtr.	2500	0	**2500**				
14.4	**EARTH SPIKES & IT'S HARDWARES & FITTING**								
14.4.1	FOR 132KV SIDE : 26+4 NOS @ 7 MTRS LENGTH EACH	SET	26	4	**30**				
14.4.2	FOR 33 KV SIDE: 19 NOS @ 5 MTRS EACH	SET	25	0	**25**				
14.5	**SUBSTATION EARTHING SYSTEMS**								
14.5.1	**EARTHING CONDUCTOR FOR BURRIAL** : 75X10 mm GI Earth Flat for laying (*spacing maximum 5m*) (Substation earth mat): Design, engineering, supply (except the MS Rods, only erection) inclusive of corrosion protection measures if any,laying of earth mat conductors of size 75X10 mm GI Flat as per the approval of Engineer in charge, excavation, welding/jointing of ground conductors along with risers (a) up to Finished level from the mat size 75X10 mm GI Flat with back filling and good compaction,The spacing between the earth conductor not more than 5 mtrs (both way) and to be buried at depth of 700 mm from the finished ground level as per the practice and as per specification.	MTRS	4000	450	**4450**				
14.5.2	**EARTHING CONDUCTOR**: 50x6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure including proper welding, bending and anti corrosive painting etc from the finished ground level to the top of the structure and equipment shall be with 50X6 mm GI Flats, as per approved drawing and specification.	MTRS	3600	200	**3800**				
14.5.3	**EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE** 3 mtrs long for treated earth pit): perforated 50 mm Heavy duty GI pipes for treated earth pits (with details of treatment as per IS) including, excavation,supply of Bentonate powder and other materials for the treated earth pit as per standard practice and as per specification.	NOS	120	20	**140**				
14.5.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	NOS	165	20	**185**				
14.6	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**								
14.6.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	1850	200	**2050**				
14.6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	2200	180	**2380**				
14.6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	1350	150	**1500**				
14.6.4	Support G. I angle 50x50x6 mm for cable tray	MT	3	0.4	**3.4**				
14.7	SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES								
14.7.1	BAY MARSHALLING KIOSK	NOS	7	1	**8**				
14.7.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2	0	**2**				
14.7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1	0	**1**				
14.7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2	0	**2**				
14.7.5	CT, PT & CVT Out Door Console Boxes	NOS	17	4	**21**				
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**								
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**								
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 24 Sets.	MT	24.00	4.80	**28.8**				
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets	MT	5.70	1.90	**7.6**				
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) =11Sets.	MT	9.13	0.00	**9.13**				
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.	MT	8.40	0.00	**8.4**				
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**								
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0.62 MT) =13 Sets.	MT	8.06	1.24	**9.3**				
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.62 MT) = 2 Sets.	MT	1.24	0.00	**1.24**				
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets	MT	5.40	0.00	**5.4**				
15.2.4	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) =2	MT	2.50	0.00	**2.5**				
15.2.5	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.	MT	2.12	0.00	**2.12**				
15.2.6	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 12 Sets.	MT	3.60	0.00	**3.6**				
15.2.7	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) =5Sets.	MT	2.60	0.00	**2.6**				

15.3	**TOTAL WEIGHT OF COLUMN & BEAM**	**MT**	**72.75**	**7.94**	**80.69**				
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**								
15.4.1	ISOLATORS-132KV								
15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =11 Nos	MT	5.93	1.32	**7.2457**				
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.	MT	1.96	0.00	**1.9582**				
15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 4 Nos.	MT	2.24	2.24	**4.482**				
15.4.5	ISOLATORS-33 KV								
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =9 Nos.	MT	2.65	0.00	**2.6532**				
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.	MT	1.31	0.00	**1.3114**				
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.	MT	3.35	0.00	**3.3525**				
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.	MT	3.22	1.29	**4.5045**				
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 18 Nos	MT	2.68	0.00	**2.6784**				
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.	MT	1.42	1.42	**2.8392**				
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos	MT	0.69	0.00	**0.6933**				
15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos	MT	0.37	0.00	**0.3729**				
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12+6 Nos	MT	2.16	1.08	**3.2364**				
15.4.16	BPI-132 KV (Unit Weight - 309.883 Kg) = 18+4Nos	MT	5.58	1.24	**6.8156**				
15.4.17	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos	MT	2.23	0.00	**2.232**				
15.4.18	NCTS (Unit Weight - 138.24 Kg) = 4 Nos	MT	0.55	0.00	**0.5528**				
15.4.19	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**	**MT**	**36.35**	**8.58**	**44.9281**				
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & structures**	**MT**	**7.25**	**1.40**	**8.65**				
16	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**								
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**								
16.1.1	XLPE 3.5 CX300 mm^2	MTRS	500	0	**500**				
16.1.2	XLPE 3.5 CX185 mm^2	MTRS	300	0	**300**				
16.1.3	XLPE 3.5 CX120 mm^2	MTRS	200	0	**200**				
16.1.4	PVC 3.5 CX70 mm^2	MTRS	600	400	**1000**				
16.1.5	PVC 3.5 CX35 mm^2	MTRS	1750	200	**1950**				
16.1.6	PVC 4 CX 16 mm^2	MTRS	1000	500	**1500**				
16.1.7	PVC 4 CX 6 mm^2	MTRS	3750	300	**4050**				
16.1.8	PVC 2CX 6 mm^2	MTRS	2200	0	**2200**				
16.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**								
16.2.1	2 CX 2.5 mm2	MTRS	5500	500	**6000**				
16.2.2	4 CX 2.5 mm^2	MTRS	10500	1500	**12000**				
16.2.3	5 CX 2.5 mm^2	MTRS	4500	300	**4800**				
16.2.4	7CX 2.5 mm^2	MTRS	5500	600	**6100**				
16.2.5	10 CX 2.5 mm^2	MTRS	10000	500	**10500**				
16.2.6	12 CX 2.5 mm^2	MTRS	9000	500	**9500**				
16.2.7	16 CX 2.5 mm^2	MTRS	5000	400	**5400**				
16.2.8	19 CX 2.5 mm^2	MTRS	2000	500	**2500**				
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	600	0	**600**				
17	**Erection for OPGW System**								
17.1	24 Fibre Optic Approach cable along with HDPE Pipes	Kms	0.5	0.5	1				
17.2	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system	No.	1	1	2				
17.3	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No.	1	1	2				
17.4	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data aquisition & configuration of RTU.	No.	1	0	1				
17.5	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	0	1				
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	0	1				
17.7	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)	MTRS	500	0	500				
17.8	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	MTRS	500	0	500				

17.9	1.5 sq. mm 10 core control cable(Digital Input)	MTRS	200	0	200				
17.10	10 sq. mm 2 core multi strand control cable(Battery)	MTRS	100	0	100				
17.11	Earth Flat, Cable Tray, Telephone cable,ACDB, DCDB, Foundation rail, Junction Box,.	LS	1	1	2				
18	**ERECTION,FILTERATION,TESTING & COMMISSIONING OF POWER TRANSFORMER & ITS OTHER RELATED ACCESSORIES**								
18.1	RECEIVING THE TRANSFORMERS AND ITS ACCESSORIES FROM NEAREST OPTCL STORES,DRAGGING AND INSTALLING ON THE PLINTH AND PLACING IN POSITION, ERECTION OF ACCESSORIES OF THE TRANSFORMERS, EART-HING AS PER STANDARD(INCLUDING SUPPLY OF MATERIALS),VACUUM TREATMENT OF THE TANK AND WINDING,OIL FILTRATION(INCLUDING SUPPLY OF VACUUM CUM OIL FILTER MACHINE),SUPPLY & LAYING OF ALL TYPES OF CONTROL & POWER CABLES PERTAINING TO TRANSFORMERS ,TESTING AND COMMISSIONING INCLUDING ALL TESTS OF THE OILS AS PER STIPULATION IN THE STANDARD APPROVED TESTING LABORATORY AND AS PER THE INSTRUCTION OF THE ENGINEER IN CHARGE.THIS INCLUDE ALL RELATED WORKS FOR ERECTION,TESTING AND COMMISSIONING OF THE POWER TRANSFORMERS.(CONTRACTOR TO ARRANGE POWER SUPPLY FOR FILTRATION AND VACUUM TREATMENT WORKS).IT ALSO INCLUDES SUPPLY OF ALL MATERIALS FOR ERECTTION INCLUDING T&P's.	Nos	2	0	**2**				
18.2	**ERECTION OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**								
18.2.1	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)	NOS	2	0	**2**				
18.3	**Supply of materials for erection of station transformers**								
18.3.1	HDG **DP STRUCTURE**: each set shall comprise of [2X **9.0 Mtrs** (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].	SETS	2	0	**2**				
18.3.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SETS	2	0	**2**				
18.3.3	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SETS	2	0	**2**				
18.3.4	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.	SETS	2	0	**2**				
19	**Switch yard lighting: Design, engineering, procurement of labour, material including all associated works for construction of switch yard lightings as per technical specification and approved drawings. The fixture shall be of reputed make (Philips/CGL/Bajaj) and fixtures shall be LED and proper cabling from the lighting outdoor distribution boards to the junction boxes and from junction boxes to the fixtures. The lighting fixtures are to be installed on the switch yard structures. The quantity of such fixtures are to be designed and to be ascertained.**								
19.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)	SET	46	8	**54**				
19.2	STREET LIGHTING: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE								
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.	SET	25	0	**25**				

19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.	SET	25	0	**25**				
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.	NO	1	0	**1**				
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.	NO	1	0	**1**				
20	Erection of 2 TR CAPACITY 5-STAR rated SPLIT AIR CONDITIONING UNITS WITH REMOTE CONTROL FACILITY: INCLUDING SUPPLY OF AIR CONDITIONERS,VOLTAGE STABILISER,CONTROL BOXES ETC FOR COMPLETING THE A.C SCHEME.(AS PER SPECIFICATION) FOR CONTROL ROOM, CARRIER ROOM & CONFERENCE ROOM ALONG WITH STABILIZER (5KVA, 130-270 V)	SET	20	0	**20**				
21	**Erection of FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**								
21.1	FOAM TYPE-9 LTRS	NOS	4	0	**4**				
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS	NOS	4	0	**4**				
21.3	DRY POWDER TYPE -6 KGS	NOS	4	0	**4**				
21.4	CO_2 - 4.5 KGS	NOS	10	0	**10**				
21.5	CO_2 - 9.0 KGS	NOS	10	0	**10**				
21.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	0	**4**				
21.7	Water type- 9 LTRS	NOS	4	0	**4**				
21.8	Foam type - 50 LTR	NOS	4	0	**4**				
21.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement	SET	6	0	**6**				
22	**PROTECTION,CONTROL METERING, EVENT LOGGER,BUS BAR PROTN PAN,COMM PAN, RELAY TOOL KITS AS PER TECH SPEC**								
22.1	TIME SYNCH EQUIPMENT	NOS	1	0	**1**				
22.3	**132 KV SIDE (SIMPLEX TYPE PANEL)**								
22.3.1	FEEDER CONTROL PANEL	NOS	2	2	**4**				
22.3.2	FEEDER RELAY PANEL	NOS	2	2	**4**				
22.3.3	TRANSFORMER CONTROL PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)	NOS	2	0	**2**				
22.3.4	TRANSFORMER RELAY PANEL(FOR 132 KV SIDE OF 132/33 KV POWER TRANSFORMER)	NOS	2	0	**2**				
22.3.5	BUSCOUPLER CONTROL	NOS	1	0	**1**				
22.3.6	BUSCOUPLER RELAY PANEL	NOS	1	0	**1**				
22.3.7	COMMON PANEL (KP-1)	NOS	1	0	**1**				
22.4	**33 KV SIDE**								
22.4.1	FEEDER CONTROL & RELAY PANEL	NOS	5	0	**5**				
22.4.2	TRANSFORMER CONTROL & RELAY PANEL	NOS	2	0	**2**				
22.4.3	BUSCOUPLER CONTROL & RELAY PANEL	NOS	1	0	**1**				
23	**AC & DC SYSTEM**								
23.1	**AC SYSTEM**								
23.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)	SET	1	0	**1**				
23.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)	SET	1	0	**1**				
23.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)	SET	1	0	**1**				
23.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	0	**1**				

23.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	0	**1**				
23.1.6	INDOOR RECEPTACLE BOARD	SET	1	0	**1**				
23.2	**DC SYSTEM**								
23.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)	SET	1	0	**1**				
23.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	0	**1**				
23.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	1	0	**1**				
23.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1	0	**1**				
24	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	0	**1**				
25	WALKIE TALKIE SET	SET/ PAIR	2	0	**2**				
26	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	0	**2**				
27	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY	SET	1	0	**1**				
28	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	0	**1**				
29	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1	0	**1**				
30	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1	0	**1**				
31	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.	SET	1	0	**1**				
32	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.	NOS	37	4	**41**				
33	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1	0	**1**				
	TOTAL OF ELECTRICAL WORKS (PART-A)								
PART-B	**CIVIL WORKS**								
1	**Foundations :** Design, engineering, supply of all labour, material (Cement-OPC-43 Grade,MS Rod, coarse and fine aggregates(Sand and Metal Chips) etc) for construction of RCC (1:1.5:3) & PCC (1:3:6), RCC footings of any depth, pedestal and piling as per requirement including soil investigation, excavation, concreting, shuttering, grouting, underpinning and back filling of foundations etc complete for the following switch yard gantry/ portal structures and equipment support & others as per the technical specification and approved drawings.(RCC RATIO 1:1.5:3). This also includes excavation in all types of soil or rocks,back filling and disposal of excess earth as per the direction of Engineer In charge.								
1.1	**Switch yard gantry/portal structure foundations**								
1.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT)	NOS	20	0					
1.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT)	NOS	6	0					
1.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.8 MT)	NOS	9	0					
1.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT)	NOS	14	0					
1.2	**Equipment foundations :**								
1.2.1	145 KV, 800-400-200 A, 31.5 KA, 4CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	15	6					
1.3	145 KV,1200A, 31.5KA, ISOLATORS								
1.3.1	S/I WITH OUT EARTH SWITCH	NOS	9	2					
1.3.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2					
1.3.3	D/I WITHOUT EARTH SWITCH	NOS	2	0					
1.4	145 KV, 6600pF, 3CORE, SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6					
1.5	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	6					
1.6	145 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0					
1.7	132 KV Bus Post Insulators	NOS	18	4					
1.8	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	2					
1.9	36 KV, 800-400-200, 25KA, 3CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	18	0					
1.10	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4	0					
1.11	**36 KV,800A,25KA,ISOLATORS**								
1.11.1	S/I WITH OUT EARTH SWITCH	NOS	9	0					
1.11.2	D/I WITH SINGLE EARTH SWITCH	NOS	5	0					
1.11.3	D/I WITHOUT EARTH SWITCH	NOS	2	0					
1.13	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0					
1.14	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8	0					
1.15	33 KV Bus Post Insulators	NOS	15	0					

1.16	SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES								
1.16.1	BAY MARSHALLING KIOSK ***(03 Nos 132 kv bay & 04 Nos 33 KV bay)***	NOS	7	1					
1.16.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2	0					
1.16.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1	0					
1.16.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2	0					
1.16.5	CT, PT & CVT Out Door Console Boxes	NOS	17	4					
1.17	**EXCAVATION (Open Cast).:This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.**								
1.17.1	Normal Soil(SOFT/LOOSE)	Cum	950	93.677	**1043.677**				
1.17.2	Hard Soil	Cum	1250	142.026	**1392.026**				
1.17.3	Soft Rock	Cum	1970	36.262	**2006.262**				
1.17.4	Hard Rock(Requiring Blasting/Using breaker machinery)	Cum	430	30.218	**460.218**				
1.17.5	Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in for the above column/equipment/marshalling box foundations { Sl No. 1.1 & 1.2} column and equipment foundation as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	Cum	170	9.712	**179.712**				
1.17.6	Open cast foundation for the above column/equipment/marshalling box foundations { Sl No. 1.1 & 1.2} with RCC: 1:1.5:3 (Grade M-20) ,including supply of Labour all materials like cement, coarse and fine aggregates,shuttering,proper curing of the foundations/concrete and T&P in line with the Techinical Specification and as per direction of Engineer in Charge. (without cost of steel)	Cum	1780	57.082	**1837.082**				
1.17.7	Supply of steel different sizes(TATA/RINL/SAIL make) (as per the design)with cutting,bending, binding and placing in position of steel rods for foundation concreting including cost of binding wire.	MT	20	3.07	**23.07**				
2	**Cable Trenches:** Design, engineering, and construction of RCC cable trenches and all associated works for cable trench and cable trench crossings as per technical specifications and approved drawings and as per direction of the Engineer in Charge. (1) This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. (2) Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in cable trench as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge. (3) Open cast foundation for the cable trench with RCC: 1:1.5:3 (Grade M-20 Nominal mixing),including supply of Labour all materials like MS Rod,Cement, coarse and fine aggregates,shuttering,cutting,bending,binding of M.S.Rod including supply of binding wire proper curing of the foundations/concrete and T&P in line with the Specification and as per direction of Engineer in Charge. (4) Fly ash Brickwork with fly ash Brick ,plastering (1:6 Ratio) & curing, wherever required including the supply of labour,material, cement, etc. (5)Supply,fabrication & Fixing of MS Angle(G.I) for cable tray support (as per specification). The cable tray support frame shall be pre fabricated GI angle as per requirement and to be welded with the plate fixed on the trench wall for better rigidity. The plate (6mm) fixed on the wall are also to be welded with the MS rods provided for the trench wall before concreting. (6) Precast of RCC covers (1:1.5:3) and its fixing on the cable trench as per spec and instruction of Engg. In Charge. (7) CABLE TRENCHES INSIDE THE CONTROL ROOM SHALL BE COVERED WITH M.S CHEQUERED PLATE(Duly painted as per instruction of Engg in charge)								
2.1	Section 1-1	Mtrs	330	30	**360**				
2.2	Section 2- 2	Mtrs	230	50	**280**				
2.3	Section 3-3	Mtrs	330	150	**480**				
2.4	Section 4-4	Mtrs	530	100	**630**				
3	**Rain water harvesting** system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	Nos	4	0	**4**				
4	**Cable trench crossing**:Design,engineering,construction including supply of labour,materials,cement,reinforcement steel,formwork etc,and all associated works for construction of trench crossing as per technical specification and approved drawing.(Road crossing)								
4.1	Section 1-1	Nos	1	0	**1**				

4.2	Section 2- 2	Nos	1	0	**1**				
4.3	Section 3-3	Nos	3	0	**3**				
5	**Boundary wall** : Soil investigation,Design, engineering, procurement of material, labour including all associated works for construction of boundary-wall along the property line of the sub-station as per technical specification and instruction of the Engineer in Charge.(the size of the Fly ash Bricks shall be 250mm using fly ash Fly ash Brick & having compressive strength with 75kg/cm2). This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.(**APPROXIMATE LENGHTH OF THE BOUNDARY WALL) and approved drawing. Appox.								
5.1	Appox length of the boundary walls(Brick works rested on RCC Beam and RCC Column & footings as per TS) in mtrs	RM	1100	0	**1,100**				
6	**Contour Survey & Leveling, Back Filling:**								
6.1	**Contour survey** and furnishing contour map including supply of all materials, Labour and T&P	Sq. Mtr	57870	500	**58370**				
6.2	Soil investigation : Supply of labour,T&Pand other necessary arrangements for Soil investigation/testing of the Switchyard,control Room, transformer, Quarters area etc.as per the site requirement,Technical specification & instruction of Engineer-in-Charge.	Per point	5	0	**5**				
7	**Cutting, Filling and Leveling** of Sub-station area including supply of labour and T&P								
7.1	LEVELLING OF S/S AREA:Providing, neatly dressing up and levelling of substation area including switchyard area to a required level as decided by the Engineer in Charge, the work includes removal, clearing of the entire area from vegetation, trees, bushes, uprooting of plants and disposal of surplus earth and unusable material from the site by means of any mechanical transport, if required as per direction of the Project In charge, with all labours, tools, tackles and plants complete as per approved drawing and specification. This also includes excavation in all type of soils or rocks, back filling and disposal of excess earth or rocks to make the area to a level for construction as per scope and as per approved drawing and specification.								
7.1.1	**CUTTING** of substation area								
7.1.1.1	[i]Soft/loose soil	Cum	9320	30	**9350**				
7.1.1.2	[ii]Dense/ Compact soil	Cum	8300	20	**8320**				
7.1.2	**FILLING** of substation area with borrowed earth with supply of all labour,T & P.								
7.1.2.1	(ii) Beyond 30 mtr & up to 100mtr lead	Cum	3100	350	**3450**				
8	**CONTROL ROOM BUILDING**: Design, engineering and construction of switch yard buildings including the piling where required, the cost of material, supply of all labour, T&P, cement, reinforcement- steel, form work and excavation as per the approved drawing and technical specification (The RCC structure frame should be in the ratio 1:1.5:3).This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawings and specification. CONTROL ROOM BUILDING:(one building): A) Area of the Ground floor with portico at front side, stair case to first floor and top of the building. The details of rooms to be provided are as per the Tech spec. B) Area of the first floor. The details of rooms to be provided are as per the Tech spec. Size of Ground floor. Nos./ area of ground floor/area of first floor . 01 No/ Area of **Ground Floor : 42 mtrsX13 mtrs (546 sq mtrs)** & Area of **first floor 21 mtrsX13mtrs (273 sq mtrs)**, Only Fly ash brick is to used for brick work. One no. room shall be used for ladies rest room & should have attached toilet facilty meant for ladies staff is to be included in ground floor of the Control room building.								
8.1	RCC volume including MS rods(including column ,Beams and roofs etc) as per technical spec & approved drawings.	Lot	1	0	**1**				

8.2	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 75 as per technical spec & approved drawings.	Lot	1	0	**1**				
8.3	Flooring with vitrified tiles with dado in all the rooms,Bath and toilets shall be provided with anti skid ceramic tiles(wall of the same also to be provided with ceramic tiles),Acid proof industrial tiles to be provided on the floor and wall of the battery room as per technical spec & approved drawings.	Lot	1	0	**1**				
8.4	External and internal wall (External (18mm thk) and internal (12 mm thk) wall and ceiling plastering as per technical spec mentioned in the civil section) and Building internal & external & ceiling paintings as per technical spec mentioned in the civil section. The left over portion of walls and ceiling of Battery room shall be acid proof paints as per specification & approved drawings.	Lot	1	0	**1**				
8.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1	0	**1**				
8.6	Doors and windows shall be of sliding type with locking facility and shall be of aluminium with glaze of 6mm & windows shall have aluminium grills. As per technical spec & approved drawing.	Lot	1	0	**1**				
8.7	Provision of PHD and other fittings(in Toilets,wash room,overhead water tank of adequate capacity etc) of reputed make,provision of rain water discharge pipes at different locations and etc as per requirement and approved drawing. There shall be septic tank and soak pit of required capacity including complete sewage system as per approved drawing & technical specification & as per instruction of Engg- in-Charge. It includes supply of all types of materials of reputed make, labour etc to complete the work. Toilets for Gents & Ladies to be provided including all good quality reputed fittings as per technoical specification. The toilets & wash room shall have antiskid floor tiles & wall tiles of seramic upto height of 8 feet.	Lot	1	0	**1**				
8.8	Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire,conduits & its accessories,modular type switches & switch board,Junction boxes with required MCB & Earth leakage detector switcghear etc),fixing of lighting fixtures & switchgear ,ceiling fans of 1400 sweep and regulators(including supply) ,exhaust fan (including supply), Erection of all Lighting FIXTURES & LAMPS (LED), D.C emergency lighting (including supply) as per approved drawing and direction of Engineer In charge.	Lot	1	0	**1**				
8.9	Supply, fitting and fixing of stainless steel pf 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mmx32mmx32mm @0.90mtr C/C and stainless square pipe bracing of size 32mmx32mmx32mm in three rows in staircase as per approved design and specification, buffing,polishing etc with cost, conveyance, taxes of all materials, labour, T&P etc required for the complete in all respect	Lot	1	0	**1**				
8.10	Provision of smoke and fire detection system of the building.	Lot							

9	**Roads:** Design, construction of roads and walkways/ shoulders within sub-station***(Switch yard area,approach road, control room area, main gate to the switch yard gate etc) a***s per specification, layout and approved drawings complete. This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Enginer In charge. Provision of drains on both the side of the roads for easy discharge of rain water.(Refer the indicative drawing of s/s layout)								
9.1	3.75 mtrs Concrete road with shoulder at both the side as per technical specification indicated in the civil section & shall have drain on both side of the road.	MTRS	600	30	**630**				
9.2	7 mtrs wide Concrete roads with shoulder as per specification indicated in the civil section. & shall have drain on both side of the road. 7 Mtrs wide road inside the switchyard to be connected to switch yard main gate.	MTRS	170	0	**170**				
9.3	7 mtrs wide Concrete roads with shoulder as per specification indicated in the civil section.(for main and approach roads).Shall have drain on both side of the road.	MTRS	850	0	**850**				
10	**Drainage system:Collection of rainfall data,** Design, construction of storm water drainage scheme, road-culverts, and drains crossing cable trenches etc. as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Enginer In charge.All the switcyard bays , roads water drainage shall be connected to the mainsurface drain.As per approved drawing and specification.								
10.1	Storm water drain	LOT	1	1	**2**				
10.2	Road-culverts, drain crossings	LOT	1	0	**1**				
10.3	Cable trench crossing	LOT	1	0	**1**				
11	**Foundations for transformers** :Design, engineering, supply of labour, material, equipments and construction of Auto-transformer/Transformer foundation including piling if any, all associated works, rail tracks, jacking pads,anchor block RCC and PCC, miscellaneous structural steel including oil collection pits, MS grating(if required), gravel filling, and other items etc. not mentioned herein, but specifically required for the completion of the work as per technical specification and approved drawing. (Rate shall be inclusive of cement, reinforcement steel, angles,flats and form work etc.)(all cement concrete shall have RCC ratio 1:1.5:3). Transformer RCC foundation and Rail Track should be extended upto the approaching road (However,the height of RCC foundation beyond transformer main plinth area should be same as height of concrete road as per item under 7 mtrs concrete road). This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. **1. 132/33 KV 20/40 MVA Transformer (2 Nos)**								
11.1	20 /40 MVA, 132/ 33kV transformers a) Overall dimension of transformer(appox) Length:7200 mmX Width 6000 mmX Height 6200 mm b) Total weight with oil and tank: 97.5 MT (appox)	Nos	2	0	**2**				
11.2	**OIL SUMP PIT**:Oil collection (from transformers)sump pit with provision of pump(5 HP, with auto level control , including cabling, fixing of control gear)as per CIGRE. As per spec and approved drawing. >Oil capacity of each Transformer in ltrs appox. a) 20/40 MVA,132/33 KV: 26500 ltrs.	Nos	1	0	**1**				

12	**PCC before site surfacing :**Providing and supplying all labour, material, equipments etc. required for proper leveling of earth after erection of structures and equipments and proper compaction by using roller of adequate capacity(minimum 3 Ton capacity) with water sprinkling of switch yard area. After proper leveling of the switch yard area (after anti-weed treatment), spreading of plain cement concrete with mixing ratio 1:4:8 (M10) and maintaining proper sloping for easy discharge of storm water having concrete thickness of 75 mm. including rolling , dressing, compacting,the area. As per technical specification and approved drawing, and as per the instruction of the Engg-in-Charge. This also includes excavation in all types of soil or rocks,back-filling,and disposal of excess earth as per the direction of Engineer in charge and approved drawing. (Switch yard area)	CUM	312	45	**357**				
13	**Metal Spreading:** Providing supplying and laying two layers of machine crushed metals (gravel) fill, the first layer after compaction shall make minimum 50 mm thickness coarse/ layer of 20 mm nominal size consolidated/ compacted and (by using roller as specified in the specification).A final layer of 50 mm thickness of machine crushed 20 mm nominal size of metals(gravel) above the first layer of 50 mm thickness and as per the technical specification and instruction of Engineer in charge above the PCC(1:4:8). The total compacted thickness of the metals(20 mm Nominal) 100mm above the PCC.	CUM	410	50	**460**				
14	**PROVISION OF PLANTATIONS**:Provision of plantation of 100 nos fruit bearing plants and 100 nos decorative plants at different locations, a garden in front of the control room including supply of plants,soil treatment and its plantation including materials,labour and T&P.As per the instruction of Engineer in Charge and specification.	LOT	1	0	**1**				
15	**STONE PITCHING & TOE WALL**:Stone pitching including making of toe walls both at top and bottom, including surface drain both at top and bottom and partition wall in every 10 mtrs by using boulders and RR masonry walls respectively. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth and supply of materials and labour as per the direction of Engineer In charge and as per approved drawing and specification.	LOT	1	0	**1**				
16	**RETAINING WALL:** Construction of RCC retaining wall below the FGL and from NSL as per the site condition to sustain the earth pressure. The depth and length of RCC wall shall be designed as per site requirement. This includes excavation in all type of soil, PCC(1:3:6), & RCC (1:1.5:3) with supply of steel(Fe-500), cement ,sand etc. including cutting, bending, binding, backfilling in layers after concreting for soil compaction and also supply of other required materials and labour . The work shall be executed as per the approved design , drawing as per direction of Engineer In charge	CUM	100	50	**150**				
17	**Switch yard fencing**: Providing and fixing of G.I Goat mesh (2.5 mm dia) fencing(the posts and links shall be of HD Galvanized) in switch yard and other areas of the substation with a total fence height complete as per specification and approved drawings, and as required under the safety regulation of local, state and central government bodies and as per instruction of the Engineer-in-Charge.(The PCC work for grouting the post shall be 1:2:4 and a continuous Brick masonry work with ratio 1:5 and cement pointing of the joints, for the fencing up to a height from the finished ground level) .This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Engineer In charge. The earthing of the fencing as per specification.	MTR-RUN	335	50	**385**				
18	**Fire wall:** Design, engineering, procurement of labour, material including all associated works for construction of fire-walls as per technical specification and approved drawings(column shall be RCC ratio1:1.5:3 and the walls are of fire resistant bricks).This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawing and specification. Painting of the walls as per direction of the Site In charge	NO.	1	0	**1**				
19	**Any other civil work** to be included in the schedule by the Bidder if required essential for successful completion of project, including supply of labour, material, cement reinforcement steel, form work etc. Bidder shall also quote the unit rate for the following items of works.(Rate shall be inclusive of supply of labour, material, cement, reinforcement steel, form work etc.)								

19.1	Excavation This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Engineer In charge.	Cu.m.	1	1	**2**				
19.2	PCC: M10(1: 3 : 6)	Cu.m.	1	1	**2**				
19.3	RCC M 15(1:2:4)	Cu.m.	1	1	**2**				
19.4	RCC: M 20(1:1.5:3)	Cu.m.	1	1	**2**				
19.5	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 75.	Cu.m.	1	1	**2**				
19.6	12 mm thick plaster in cement sand mortar (1: 6).	Sq.m.	1	1	**2**				
19.7	Cutting,bending,binding(supply of binding wires) and fixing of reinforcement(including supply of reinforcement).	M.T.	1	1	**2**				
19.8	Fabrication and welding (if any): Fabrication (cutting of different size angles flats drilling of holes including cost of consumable labour T& P and steel	M.T.	1	1	**2**				
20	**Construction of township/colony** (residential quarters) for staff and employees of the employer. Layout, design, survey, leveling, site dressing and clearing of the area, soil investigation, excavation, PCC, RCC, brick work, plastering ,flooring(flooring shall be with vitrified tiles of reputed make with a dado of minimum 6 inches),fixing of doors windows and window grills, including all labour material like cement ,sand aggregate, bricks, reinforcements etc with all bought items required for completion of the quarters as per approved construction drawings with all facilities for supply of drinking water. The outer paint shall be applied with weather coat synthetic enamel paint as per the standard practice of application and the inner paint shall be applied with distemper of approved quality as per the instruction and approval of the same by OPTCL. This also includes excavation in all types of soil or rocks,(piling if required),back filling,and disposal of excess earth as per the direction of Engineer In charge. Internal electrical wiring with fixing of light fixtures and fans with electronic regulators and exhaust fans as per technical specification and approved drawing. Construction of over head RCC tank(1000 ltrs capacity one for each quarters), sewerage disposal and connection with main sewerage/ septic tank and soak pit, storm water and surface drainage, culverts, roads, with suitable radius on the curves and its connection with main road the substation, street lighting, internal lighting, internal plumbing and sanitation including internal/external finishing of quarters etc. required for completion of the town ship.								
20.1	"D" type Quarter As per technical specification(01 Nos Quarter, of size 120 SQ Mtrs)								
20.2	"D" type Quarter As per technical specification: 1 no quarter on ground floor & the size of quarter plinth area shall be 120 Sq Mtrs(appox)	SQ Mtr	120	0	**120**				
20.4	"E" type Quarter As per technical specification (one no. two storied flat. Each flat shall be with 2 nos quarters on ground floor & 2 Nos quarters on 1st floor).(There shall be 4 Nos quarters to be accommodated in one flat as E1,E2,E3 & E4)								
20.5	"E" type Quarter As per technical specification: 2 nos quarters on ground floor & the quarters to be accommodated in ground floor E1 & E2 (Each quarter size plinth area shall be 73 Sq Mtrs(appox)	SQ Mtr	146	0	**146**				
20.6	"E" type Quarter As per technical specification: 2 nos quarters on first floor & the quarters to be accommodated in ground floor E3 & E4(Each quarter size shall be 73 Sq Mtrs(appox)	SQ Mtr	146	0	**146**				
21	**MAIN & SWITCH YARD GATES**:Design, engineering, procurement of labour, material including all associated works for construction and fixing of of a main gate and one no. switch yard gates with men gates as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. Provision of gate lights (Post top lantern type) on each pillar of the gate. it includes supply & fixing of light fixtures including CFL lamp, LV XLPE cables, switchgear etc required to complete works as per specification and approved drawings								
21.1	MAIN GATE	Nos.	1	0	**1**				
21.2	WICKET GATE NEAR MAIN GATE	Nos.	1	0	**1**				

21.3	SWITCH YARD GATE(ON BOTH SIDES OF 7MTRS. CONCRETE ROAD OF SWITCHYARD)	Nos.	2	0	**2**				
21.4	WICKET GATE NEAR SWITCHYARD	Nos.	1	0	**1**				
22	**COLOUR CODING, BAY MARKING** Etc:Design, engineering, procurement of labour, material including all associated works for the followings. This should be as per direction of site In charge. a)Color coding (red,Yellow & Blue) for equipments,Bus gantry &column of entire switch yard. Good quality weather proof sticker may be used for identification. b)Each bay should be identified with the help of bay marker sign board, suitably grouted. MS sign board with stand to be installed. Proper painting and lettering to be done of the entire switch yard area.	Lot	1	1	**2**				
23	**STATION TRANSFORMER**:Design, engineering, procurement of labour,material including all associated works for construction of foundation and DP structure for station transformers 33/0.415 KV,250 KVA STN TRANSFORMER as per approved drawing and specification.33 KV AB Switch(600A),HG Fuse, DP Structure & Angles (duly painted),Chanels, Plinth for erection of the transformer, including fixing and laying of (insulators,surge arresters,XLPE armoured power cables3.5 core 300 sq mm,LT out door kiosk near transformers and other accessories for complete installation of transformer as per standard) and instruction of Engineer In charge. As per the specification and approved drawing.	NOS	2	0	**2**				
24	**SECURITY SHED CUM VISITOR ROOM AND VEHICLE PARKING SHED: Design, engineering, procurement of labour, material including all associated works for construction of Security shed with a Toilet near main gate,watch tower shed at the corners of switch yard as per the approved drawing and instruction of Engineer in charge. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. Internal electrification including supply of lighting fixtures,fan with regulators and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification.**								
24.1	**SECURITY SHED**:The size of the security shed shall be 3.5 mtrsX6.5mtrs and height of 3.5mtrs RCC roof,brick masonary works,plastering and painting and fixing of MS doors and windows with attached Toilet. Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire,conduits & its accessories,modular type switches & switch board,Junction boxes with required MCB & Earth leakage detector switcghear etc),fixing of lighting fixtures & switchgear ,ceiling fans of 1400 sweep and regulators(including supply) and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply)}	Nos	1	0	**1**				
24.2	**VEHICLE PARKING SHED:** The size of the parking area shall be 15mtrs X 15 mtrs, out of the entire area there shall be provision of shed for 5 mtrs X 15 mtrs and rest of the area shall be without shed. Roof of the parking place shall be RCC & Parking shed shall be as per TS-E6-Civil & as per the direction of Engineer in Charge.	Nos	1	0	**1**				
25	**BORE WELL & PUMP HOUSE:**Design, engineering, procurement of labour, material including all associated works for construction of two nos. bore wells for control room building including switch yard and colony quarters as per specification and approved drawing and instruction of Engineer in charge. This includes supply and fixing and commissioning of two nos 5 HP submersible water pump with starter and other protection. Construction of two nos pump house at ideal location for fixing of the electrical starter units. The pump house be of RCC roof and having walls of Brick masonry and plastering and painting with MS door having locking arrangement. The size of the room shall be 2.5mtrsX2.5 mtrs having height of 3 mtrs. as per approved drawing and specification. There shall be approach road to the pump house. This includes supply of materials,labours and T&P & excavation of all type of soils including rock and disposal of excess materials as per instruction of Engineer In charge. Supply & laying of LV XLPE 3.5CX.35 sqmm cable from ACDB to pump house, control gear & earthing of the system etc to complete the scheme as per approved drawing & instruction of Engineer-in charge.	NOS	2	0	**2**				

26	**STORE SHED**:Design, engineering, supply of all labour, T&P, material including all associated works for construction of store shed as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the specification,approved drawing and direction of Engineer In charge. One no store shed of floor size 10X10 mtr having Fly ash brick walls and plastering with RCC roof. The flooring shall be of 75 mm thickness PCC (mix ratio1:2:4) over RR masonry works (as per standard practice of flooring). Provision of adequate nos of MS racks (proper paintings also to be done as per the direction of site in charge) for keeping the spare materials. The height of the shed shall be 4mtrs above the plinth. Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire,conduits & its accessories,modular type switches & switch board,Junction boxes with required MCB & Earth leakage detector switcghear etc),fixing of lighting fixtures & switchgear ,ceiling fans of 1400 sweep and regulators(including supply) and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply)}	Lot	1	0	**1**				
27	**PLATFORM FOR STORING EQUIMENTS**:Design, engineering, procurement of labour, material including all associated works for construction of a platform for storing of bushings,Instrument transformers etc, as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the specification,approved drawing and direction of Engineer In charge. One no platform outside the store shed RR masonry (compacted) with PCC (1:2:4) at the top for storing the transformer bushings, Instrument transformers, transformer oil drums etc. The floor size of the platform shall be 15mtrX10 mtr with Galvanised Corrugated Sheet (Tata Make) top cover and associated MS supporting structure duly painted.	Lot	1	0	**1**				
28	**PROVISION OF RAMP**:Design, engineering, procurement of labour, material including all associated works for construction and fixing of Ramp as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. Provision of a ramp of adequate size and capable of for loading and unloading of the materials of 5 Ton capacity from the lorry or to the lorry near the store shed. Adequate size of MS frames and RCC (1:1.5:3) based ramps to be used for the said purpose.	Lot	1	0	**1**				
29	**Anti-Weed Treatment**								
29.1	Supply of labour,T&P,Chemicals and other necessary arrangements for anti-weed treat of the switch-yard areas,controlroom etc. as per the instruction of Engineer-in-Charge.	Sq.Mtrs	5000	400	**5400**				
30	Dismantalling of existing structures & shifting of LT/HT lines (if any as per site requirement) at proposed Gondia S/s	LOT	0	1	**1**				
	TOTAL OF SUBSTATION (Civil Work)(PART-B)								
	TOTAL OF ERECTION OF SUBSTATION (Electrical Work) & (Civil Work) -Schedule-4-ss (to Schedule No. 6 Grand Summary)								

Name of Bidder:_____

Signature of Bidder:_____

1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 4. Installation and Other Services

NAME OF THE BIDDER							
Sl. No.	**DESCRIPTION OF ITEMS(SCHEDULE-4-line) ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)**	UNIT	132 KV D/C line from Brajrajnagar to Lakhanpur	**Unit Price[1]**		**Total Price[1]**	
				Foreign Currency Portion	**Local Currency Portion**	**Foreign Currency Portion**	**Local Currency Portion**
			(1)	***(2)***	***(3)***	***(1) x (2)***	***(1) x (3)***
PART A							
1.0	**ERECTION,TESTING & COMMISSIONING** of Following tested Lattice type Galvanized steel tangent / Angle tower without stubs and cleats including different type of G.I HT Nuts & Bolts, washer, spring washer for the above type towers ,hanger and all accessories, tower super structure complete with tightening, punching of bolts including step bolts. All other left out portion of the bolts above bottom cross arm shall be riveted by using suitable hammer. Painting of black bituminous paints three coats shall be provided up to a height of 500mm above the cooping legs & bracing members. All Erection should confirm to the Technical Specification laid there in the Tender Specification.						
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (43 NOS)	MT	147.49				
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (14 NOS.)	MT	8.554				
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (2 NO)	MT	2.698				
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (12 NOS)	MT	59.676				
1.2.1	+3 EXTENSION (Nominal unit weight1.018 MT)(2nos)	MT	2.036				
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (1 NO)	MT	2.104				
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214MT) (9 NOS.)	MT	55.926				
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (0NOS.)	MT	0				
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (4 NOS.)	MT	9.368				
	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.125 MT) (2 nos)	MT	26.250				
	+6 EXTENSION (Nominal unit weight 4.161 MT) (2 nos)	MT	8.322				

	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 9.014 MT) (2 nos)	MT	18.028				
	+15 EXTENSION (Nominal unit weight 18.622 MT) (2 nos)	MT	37.244				
	T1S COLUMN- 132 KV(NOMINAL UNIT WT- 1.2 MT) = 6 Sets.	MT	7.200				
	G1 BEAM - 132 KV (NOMINAL UNIT WT- 0.62 MT) =4 Sets.	MT	2.480				
1.3.3	**WEIGHT OF THE STRUCTURES (including Tower stubs, & Foundation Nut and Bolts)**	**MT**	**387.376**				
1.4	**Weight of different type G.I Nuts and Bolts**	**MT**	**19.071**				
1.5	**Fixing of of Templates**						
1.5.1	PA Type(43 Nos.)	MT	28.595				
1.5.2	PB Type (12 Nos.)	MT	7.224				
1.5.3	PC Type (9 Nos.)	MT	8.136				
1.5.4	UR (Nominal unit weight 1.475 MT)(2 Nos.)	MT	2.950				
1.5.5	OC+15 (Nominal unit weight 2.074 MT)(2 Nos.)	MT	4.148				
1.6	**Erection of the following tower accessories as per technical specification and as directed by the engineer-in charge.**						
1.6.1	DANGER BOARD	Nos.	68				
1.6.2	NUMBER PLATE	Nos.	68				
1.6.3	PHASE PLATE (R,Y,B)	Sets	408				
1.6.4	BIRD GUARD	Sets	258				
1.6.5	ANTICLIMBING DEVICE	Sets	68				
1.6.6	CIRCUIT PLATE (Phase-I,II)	Nos.	136				
1.6.7	**EARTHING OF TOWER including supply of all materials except Earthing Device**						
1.6.7.1	Pipe Type earthing including cost of charcoal,salt/coke and good borrowed earth and Bentonite where necessary in accordance with IS:3043 and with supply of all T&P and Labour.	Nos.	68				
2	Hoisting and fixing of insulators with required accessories, paying out of conductor ,jointing, stringing, sagging & Jumpering etc. of power conductor in the proposed lines with all required accessories including scaffolding for 33 KV,11 KV, LT , P&T lines, roads and using own required T&P and compression jointing machines etc. with 1.5% provision for Sag & Wastage and as per the direction of Engineer in charge.						
2.1	DOUBLE CIRCUIT (ACSR PANTHER,SIX POWER CONDCTOR)	Route (Km)	15.810				
2.2	SINGLE CIRCUIT (ACSR PANTHER, THREE POWER CONDCTOR)	Route (Km)	0.082				
2.3	DOUBLE CIRCUIT (ACSR PANTHER,SIX POWER CONDCTOR), ADDITIONAL CHARGES FOR STRINGING NATIONAL HIGHWAY CROSSING	Route (Km)	0.320				
2.4	DOUBLE CIRCUIT (ACSR PANTHER,SIX POWER CONDCTOR), ADDITIONAL CHARGES FOR STRINGING IN SPECIAL TOWERS BEYOND +6 MTR EXTENSION AND MULTICIRCUIT TOWERS	Route (Km)	2.856				
2.5	DOUBLE CIRCUIT (ACSR PANTHER,SIX POWER CONDCTOR), ADDITIONAL CHARGES FOR STRINGING RAILWAY CROSSING	Route (Km)	0.150				
3.0	**Erection of OPGW fibre Optic Cable for speech, data & protection**						
1	Erection of 24Fibre(DWSM)OPGW fibre Optic along with hardwares and approach cables	Kmtr	24.000				

	TOTAL of ELECTRICAL WORKS Part- (A)						
PART B	**CIVIL WORKS**						
1	**SURVEY OF LINE & PREPARATION LAND SCHEDULE: Supply of required T&P's, Technical personnel's, labours for conducting**						
1.1	Preliminary survey, Detail survey and resurvey (required for avoiding ROW problem) including but not limited to taking of levels, profile plotting, tower spotting ,marking of towers locations at site including showing P&T line, power line, Railway line, river crossing, roads and submission of route map and survey report etc. The P&T lines and railway lines for a minimum distance of 8 kms on either side of alignment shall be clearly indicated.	KM.	19.218				
1.2	Check survey including supply of all labour, T&P as per instruction of Engineer in Charge and as per the approved profile.	KM.	19.218				
1.3	Preparation of land schedule on revenue (if required)maps indicating alignment therein duly authenticated by Revenue Inspector & Tahasildar, enumeration of trees with the help of Forest officer and other prominent features required for alignment of the proposed 132 KV line. Final route to be plotted on 1:50000 topo sheet for approval.Detail GIS (Geographical Information System) of towers to be included.	KM.	19.218				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 7.0 Mtrs.	Per Loc.	15				
2	**EXCAVATION WORKS FOR OPEN CAST/SHALLOW TYPE FOUNDATIONS**						
2.1	**Excavation for following type of soil and rocks and back filling (back filling shall be done in layers of 500mm sprinkling of water and compaction thereafter and disposed of excess quantity of excavated soil at suitable place after back filling), & if required for filling the foundation, borrowed earth/morrum/sand shall be brought for filling and compaction, including supply of sand, all T&P, labour as required for foundation**						
2.1.1	Soft/Loose soil	CUM	1354.986				
2.1.2	Wet soil	CUM	1896.98				
2.1.3	Dense/Compact soil	CUM	1445.318				
2.1.4	Partial Submerged soil	CUM	2348.642				
2.1.5	Fully submerged soil	CUM	0				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	1083.989				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	903.324				
3	**FOUNDATION MATERIALS**: Supply of all materials like cement, steel, all coarse aggregates, fine aggregates and making foundations of the required above mentioned type towers as per the direction laid down in the technical specification and the direction of the site- in charge						
3.1	**PCC**(Lean Concrete) in the ratio 1:3:6(Grade M-10)	CUM	195.8				

3.2	**(i) FOR OPENCAST FOUNDATION**:Providing & laying of **RCC** work of ratio **1:1.5:3 (Grade M-20)** with approved quality stone chips of nominal size 12mm to 20mm in tower foundation and cooping inclusive of cost of mixing, supply of form boxes Chimney & fixing, curing, testing of sample cement concrete cubes & cost of all materials like cement,etc. as per IS.456 (ii) The cooping height shall be 350mm above the ground level. The surrounding area shall be clear from materials and damage of land if any shall be repaired before measurement and as per requirement, including labours and T&P as per specification in the concrete ratio 1:1.5:3 (Grade M-20.)	CUM	1447.946				
3.2.1	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (open cast) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	27.626				
4.0	**DE-WATERING(FOR OPEN CAST LOCATION)**						
4.1	(ii) With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	214				
5.0	**Supply of borrowed earth/morrum for back filling for foundation/revertment works**						
5.1	beyond 100 mtr lead	CUM	650				
6	**SHORING & SHUTTERING-**Required in wet/submerged or special locations of open cast/shallow type foundations with supply of all materials,T&P and Labour.	SQ.MTR.	2900				
7	**Head-Loading** of all types of foundation-materials, towers, structures, conductors, Insulators, Hard-wares for inaccessible Locations beyond 400 mtrs from the nearest approach road as per the recommendation of site Engineer-In- Charge and approval of the General Manager of Concerned circle.	Per MT/ Per Mtr	12000				
8	**WELDING OF TOWER MEMBERS**						
8.1	Supply of all materials for continuous welding of bolts & nuts (around the bolts) up to top of tower without cross arm, including welding rods, welding generator machine (diesel engine operator.), application of required zinc rich paints around the welding portion after welding (two coats),fuel,lubricants,T&P and labours and other arrangements etc.	Nos.	69,121				
9	**REVETMENT: (including Benching) Supply of all materials like cement, Late-rite stone (stone masonry) all type aggregates, labours, & T&P for construction of revetment walls as per requirement to protect the towers, where felt unsafe and as per approved drawing and the direction of Engineer in charge.**						
9.1	Excavation in all type of soil including rock & back filling including supply of sand with back filling.	CUM	1150				
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	190				
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	40				
9.4	RR Massonary work in the ratio 1:5.	CUM	860				

10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	LS	1				
	TOTAL OF Line (Civil Work)						
	TOTAL OF ERECTION LINE (Electrical Work) & (Civil Work) -Schedule-4-line						

Name of Bidder:_____
Signature of Bidder:_____

1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - IFB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 6. Grand Summary

	NAME OF THE BIDDER		
		Total Price[1]	
Item	Description	Foreign	Local
1	Total Schedule No. 1. Plant, and Mandatory Spare Parts Supplied from Abroad (Substation+Line)		
2	Total Schedule No. 2. Plant, and Mandatory Spare, Parts Supplied from Within the Employer's Country (substation+Line)		
3	Total Schedule No. 3. Design Services (Not Applicable)		
4	Total Schedule No. 4. Installation and Other Services (substation+Line)		
5	Total Schedule No. 5. Provisional Sums (Not to be considered for Evaluation)		
Total(to Bid Form)			

Name of Bidder:_____

Signature of Bidder:_____

[1] Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bidding, or ITB 34.1 in Two-Stage Bidding. Create and use as many columns for Foreign

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Lakhanpur with 2Nos 132KV Feeder Bay Extension at Brajarajnagar and associated 132 KV D/C line from 132/33 KV Grid Sub-Station at Brajrajnagar to Lakhanpur (Line length- 19.218Km approximately) in Odisha State of India under PACKAGE-8 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - IFB No: [CPC/JICA/ICB/08/15-16/…….]- Reference Identification No: [OPTCL/JICA/PKG-8]

Schedule No. 7. Recommended Spare Parts

NAME OF THE BIDDER						
Sl. No.	**DESCRIPTION OF ITEMS SUPPLY OF SPARES FOR THE FOLLOWING EQUIPMENTS.**	**Unit**	**Quantity**	**Unit Price** CIP (foreign parts)	Ex-Works Price Local Parts	**Total Price in INR**
			(1)	*(2)*	*(3)*	*(1) x (2) or (3)*

	TOTAL					
			Name of Bidder:_____			
			Signature of Bidder:_____			
Note: Recommended Spares shall not be taken in to consideration for evaluation purpose.						