

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] -

FB No: [CPC/JICA/ICB/07/16-17/]-

Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad (Sub-station & Bay extension)

NAME OF THE BIDDER

SL NO	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)	Code ¹	Units	Quantity for: Construction of 2x160MVA & 1x20 MVA, 220/132KV Sub-Station at Kiakata ,220 KV BAY 06 NOS(FDR:02, TFR:03 & B/C:01), 132KV(FDR-2, TFR:2,B/C:1) & 33 KV BAY 04NOS(TFR:1, FDR:2 NOS, B/C: 1 NOS)	2 Nos 220KV Bay Extension at KATAPALLI S/S	2 Nos 132KV Bay Extension at 132/33 KV Boudh S/S	Total Quantity	Unit Price ²		Total Price ²
								In Foreign Currency	CIP	
1	2		3	4	5	6	7=(4+5+6)	8	9	(7) x (9)
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)		NOS	21	6	0	27			
2	245 KV,2000A,40KA,ISOLATORS									
2.1	S/I WITH OUT EARTH SWITCH		NOS	17	6	0	23			
2.2	S/I WITH SINGLE EARTH SWITCH		NOS	7	2	0	9			
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH		NOS	9	2	0	11			
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6	0	12			
4	245KV,3150A,50KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	6	2	0	8			
5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III		NOS	15	6	0	21			
6	245 KV ,2 CORE,SINGLE PHASE,IVT		NOS	6	0	0	6			
7	220 KV Bus Post Insulators		NOS	75	16	0	91			

8	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	0	6	21			
9	145 KV,1250A,31.5KA,ISOLATORS									
9.1	S/I WITH OUT EARTH SWITCH		NOS	9	0	2	11			
9.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	0	2	4			
9.3	D/I WITHOUT EARTH SWITCH		NOS	2	0	0	2			
10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	0	6	12			
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III		NOS	12	0	6	18			
12	145 KV, 2 CORE, SINGLE PHASE, IVT		NOS	3	0	0	3			
13	132 KV Bus Post Insulators		NOS	12	0	4	16			
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	5	0	2	7			
15	36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI & 1 0.2s CI)		NOS	6	0	0	6			
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)		NOS	6	0	0	6			
17	36 KV CLASS NCT FOR AUTO TRANSFORMER REF PROTECTION (RATIO 1200-600-300/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 220 KV SIDE: 1 NO)		NOS	0	0	0	0	Included in 160MVA AUTO Transformer TS		
18	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 33 KV SIDE:1 NO)		NOS	0	0	0	0	Included in 20MVA Transformer TS		
19	36 KV,1250A,25KA,ISOLATORS									
19.1	S/I WITH OUT EARTH SWITCH		NOS	5	0	0	5			
19.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	0	0	2			
19.3	D/I WITHOUT EARTH SWITCH		NOS	1	0	0	1			
19.4	S/I WITH BEAM MOUNTED		NOS	2	0	0	2			
20	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)		NOS	15	0	0	15			
21	36 KV ,2 CORE,SINGLE PHASE,IVT		NOS	3	0	0	3			
22	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	4	0	0	4			
23	33 KV Bus Post Insulators		NOS	15	0	0	15			
24	BUS BAR & CIRCUIT MATERIALS									
24.1	LONG ROD TYPE PORCELAIN INSULATOR									
24.1.1	160 KN INSULATOR		NOS	144	44	0	188			
24.1.2	120 KN INSULATOR		NOS	107	0	26	133			
24.1.3	90 KN INSULATOR		NOS	81	12	12	105			
24.2	ACSR MOOSE CONDUCTOR		KMS	6.00	1.00	0.60	7.6			

24.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.		MTRS	480	0	0	480			
24.4	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS									
24.4.1	220 KV Single Tension(160KN) H/W fitting for twin moose ACSR		NOS	60	12	0	72			
24.4.2	220 KV Single Tension(160KN) H/W fitting for single moose ACSR		NOS	84	30	0	114			
24.4.3	220 KV Single Suspension(90 KN)H/W fitting for single mose ACSR		NOS	42	12	0	54			
24.4.4	132 KV Single Tension(120KN) H/W fitting for twin moose ACSR		NOS	18	0	6	24			
24.4.5	132 KV Single Tension(120KN) H/W fitting for single moose ACSR		NOS	42	0	24	66			
24.4.6	132 KV Single Suspension(90KN) H/W fitting for twin mose ACSR		NOS	12	0	0	12			
24.4.7	132 KV Single Suspension(90KN) H/W fitting for single mose ACSR		NOS	24	0	12	36			
24.4.8	33 KV Single Tension(120KN) H/W fitting for single moose ACSR		NOS	18	0	0	18			
24.4.9	33 KV Single Tension (120KN)H/W fitting for twin moose ACSR		NOS	18	0	0	18			
24.4.10	33 KV Single Suspension(90KN) H/W fitting for single mose ACSR		NOS	9	0	0	9			
24.4.11	T- clamp for ACSR ZEBRA run to ACSR MOOSE drop		NOS	22	22	0	44			
24.4.12	T- clamp for ACSR PANTHER run to ACSR MOOSE drop		NOS	22	0	22	44			
24.4.13	T-Clamp for single Moose -Single Moose ACSR		NOS	220	36	0	256			
24.4.14	T-Clamp for twin Moose run -Single Moose drop ACSR		NOS	84	12	0	96			
24.4.15	220 KV PI clamp		NOS	75	16	0	91			
24.4.16	132KV PI clamp		NOS	12	0	4	16			
24.4.17	33KV PI Clamp		NOS	2	0	0	2			
24.4.18	Spacer for Moose ACSR		NOS	280	96	0	376			
24.4.19	220 KV Isolator pad clamp		NOS	216	60	0	276			
24.4.20	220 KV LA Clamp		NOS	15	6	0	21			
24.4.21	220 KV CB Clamp		NOS	48	12	0	60			
24.4.22	220 KV CVT Clamp		NOS	12	12	0	24			
24.4.23	220 KV CT Clamp		NOS	42	12	0	54			
24.4.24	220 KV IVT Clamp		NOS	6	0	0	6			
24.4.25	132 KV Isolator pad clamp		NOS	90	0	30	120			
24.4.26	132 KV LA Clamp		NOS	12	0	6	18			
24.4.27	132 KV CVT Clamp		NOS	12	0	12	24			
24.4.28	132 KV CT Clamp		NOS	30	0	12	42			
24.4.29	132 KV IVT Clamp		NOS	3	0	0	3			
24.4.30	132 KV CB Clamp		NOS	30	0	12	42			
24.4.31	33 KV Isolator pad clamp		NOS	57	0	0	57			

24.4.32	33 KV LA Clamp		NOS	15	0	0	15		
24.4.33	33 KV CT Clamp		NOS	24	0	0	24		
24.4.34	33 KV IVT Clamp		NOS	3	0	0	3		
24.4.35	33 KV CB Clamp		NOS	24	0	0	24		
24.4.36	PG Clamp for ACSR Moose		NOS	48	12	12	72		
24.5	EARTH WIRES & IT'S HARDWARES & FITTING								
24.5.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)		NOS	36	8	0	44		
24.5.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)		NOS	25	0	5	30		
24.5.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)		NOS	16	0	0	16		
25	SUBSTATION EARTHING SYSTEMS								
25.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (<i>spacing maximum 5m both way</i>)		MT	37	8	5.2	50.2		
25.2	EARTHING CONDUCTOR: 50X6 mm GI Flat for Raiser from the burial earth mat to equipment,structure etc)		MT	13	2.5	2.26	18		
25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)		Nos.	240	50	40	330		
25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)		Nos.	190	30	25	245		
26	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.								
26.1	G.I Cable Trays(size: 450x75x2500mm)		MTRS	2000	250	200	2,450		
26.2	G.I Cable Trays(size: 300x75x2500mm)		MTRS	3500	200	180	3,880		
26.3	G.I Cable Trays(size: 150x75x2500mm)		MTRS	2500	100	80	2,680		
26.4	Support G. I angle 50x50x6 mm for cable tray		MT	4	0.5	0.5	5		
27	SUB STATION SWITCHYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES								
27.1	BAY MARSHALLING KIOSK (<i>03 nos on 220 kv bay,03 nos 132 kv bay & 01Nos 33 KV bay</i>)		NOS	7	1	1	9		
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING (<i>01 no in 220 kv bay 01 no in132 kv Bay & 01 No in 33KV bay</i>)		NOS	3	1	1	5		
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (<i>01 no. near each 220/132 &132/33 KV Auto& power Transformer</i>)		NOS	3	0	0	3		
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (<i>01 nos each on 220,132& 33 kv bay</i>)		NOS	3	1	1	5		
28	SWITCH YARD STRUCTURES (LATTICE TYPE FOR TOWER COLUMN & BEAMS & PIPE TYPE FOR ALL EQUIPMENT COLUMN) FOR 220/132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.								
28.1	DIFFERENT TYPES OF COLUMNS WITH DETAILS								

28.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.5 MT) (36 NOS +7 NOS.)		MT	162	31.5	0	194			
28.1.2	P2A-220 KV (NOMINAL UNIT WT- 1..5 MT) (8 NOS.)		MT	12	0	0	12			
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (20NOS+4NOS)		MT	24	0	5.12	29			
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(6NOS+1Nos)		MT	5.7	0	0.95	7			
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.8 MT) (5 NOS.)		MT	4	0	0	4			
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (11 NOS.)		MT	6.6	0	0	7			
28.2	DIFFERENT TYPE OF BEAMS WITH DETAILS									
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (27NOS.+8 NOS)		MT	40.5	12.00	0	53			
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (8 NOS.+2 NOS)		MT	20	5	0	25			
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (4 NOS.)		MT	3.6	0	0	4			
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (13 NOS+4 Nos.)		MT	8.06	0	2.48	11			
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) (2NOS.)		MT	1.24	0	0	1			
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (6NOS.+2NOS.)		MT	5.4	0	1.8	7			
28.2.7	G1.2 - 132KV (NOMINAL UNIT WT-1.25MT) (2 NOS.)		MT	2.5	0	0	3			
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (3NOS.)		MT	1.59	0	0	2			
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (5NOS.)		MT	2	0	0	2			
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.4 MT) (3 NOS.)		MT	1.2	0	0	1			
28.3	TOTAL WEIGHT OF COLUMN & BEAM		MT	300.39	48.5	10.35	359.24			
28.4	EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV & 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS & NUTS									
28.4.1	ISOLATORS-220KV (SI with E/S 7 No.+2 Nos)		MT	8.897	2.542	0	11.44			
28.4.2	ISOLATORS-220KV (SI without E/S -17Nos.+ 2NOS)		MT	21.607	7.626	0	29.23			
28.4.3	ISOLATORS-132KV (SI with E/S-9 No.+2 NOS)		MT	5.93	0	1.32	7.24			
28.4.4	ISOLATORS-132KV (DI with E/S-2 No.+ 2NOS)		MT	1.96	0	1.96	3.92			
28.4.5	ISOLATORS-132KV (DI with out E/S-2 No.)		MT	2.24	0	0	2.24			
28.4.6	ISOLATORS-33 KV (SI- 5 Nos.)		MT	1.2915	0	0	1.29			
28.4.7	ISOLATORS-33 KV (DI with E/S -2 Nos.)		MT	1.2888	0	0	1.29			
28.4.8	ISOLATORS-33 KV (DI without E/S-1 Nos.)		MT	0.617	0	0	0.62			
28.4.9	CTS-220 KV (21 nos.+ 6 NOS)		MT	4.725	1.35	0	6.08			
28.4.10	CTS-132 KV (15 nos + 6NOS.)		MT	3.75	0	1.5	5.25			
28.4.11	CTS-33 KV (9 nos.)		MT	1.044	0	0	1.04			
28.4.12	CVTS-220 KV (6 nos.+ 6NOS)		MT	1.326	1.326	0	2.65			
28.4.13	CVTS-132 KV (6 nos + 6NOS.)		MT	1.344	0	1.344	2.69			
28.4.14	IVTS-220 KV (6 nos.)		MT	1.7232	0	0	1.72			
28.4.15	IVTS-132 KV (3 nos.)		MT	0.426	0	0	0.43			
28.4.16	IVTS-33 KV (3 nos.)		MT	0.3546	0	0	0.35			
28.4.17	Surge Arrester-220 KV(15 nos.+ 6 Nos)		MT	4.3815	1.7526	0	6.13			
28.4.18	Surge Arrester-132 KV(12 nos.+ 6NOS)		MT	3.288	0	1.644	4.93			
28.4.19	Surge Arrester-33 Kv(0 nos.)		MT	0	0	0	0.00			
28.4.20	BPI-220 KV (75nos.+ 16 Nos)		MT	21.96	3.51468	0	25.47			
28.4.21	BPI-132 KV (12nos.+ 4 Nos)		MT	2.376	0	0.792	3.17			
28.4.22	BPI-33 KV (15 nos.)		MT	3.0945	0	0	3.09			
28.4.23	NCTs (4nos)		MT	0.464	0	0	0.46			
28.5	TOTAL WEIGHT OF EQUIPMENT STRUCTURE		MT	94.086	18.111	8.554	120.751			

28.6	Total weight of GI Nuts and bolts for Columns, Beams & Equipment Structures		MT	4.704	0.906	0.428	6.038			
29	GENERAL EQUIPMENT & SUBSTATION ACCESSORIES									
29.1	POWER CABLES,1.1KV,XLPE & PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)									
29.1.1	XLPE 3.5 CX300 mm ²		MTR	1000	0	0	1,000			
29.1.2	XLPE 3.5 CX185 mm ²		MTR	1000	0	0	1,000			
29.1.3	XLPE 3.5 CX120 mm ²		MTR	800	300	0	1,100			
29.1.4	PVC 3.5 CX70 mm ²		MTR	1300	0	0	1,300			
29.1.5	PVC 3.5 CX35 mm ²		MTR	4000	0	500	4,500			
29.1.6	PVC 4 CX 16 mm ²		MTR	2200	200	500	2,900			
29.1.7	PVC 4CX 6 sqmm		MTR	6000	600	500	7,100			
29.1.8	PVC 2CX 6 sqmm		MTR	5500	600	400	6,500			
29.2	CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)									
29.2.1	2 CX 2.5 mm ²		MTR	5400	500	1000	6,900			
29.2.2	4 CX 2.5 mm ²		MTR	10000	1000	5000	16,000			
29.2.3	5 CX 2.5 mm ²		MTR	5500	250	1000	6,750			
29.2.4	7CX 2.5 mm ²		MTR	5500	800	1000	7,300			
29.2.5	10 CX 2.5 mm ²		MTR	11000	1200	2000	14,200			
29.2.6	12 CX 2.5 mm ²		MTR	9500	900	2000	12,400			
29.2.7	16 CX 2.5 mm ²		MTR	5500	500	1000	7,000			
29.2.8	19 CX 2.5 mm ²		MTR	3000	400	1000	4,400			
29.2.9	1CX 120 mm ² BAT TO BAT CHARGER & CHARGER TO DCDB		MTR	1200	150	200	1,550			
30	ACCESSORIES FOR PLCC SYSTEM With OPGW cable									
30.1	24 Fibre Optic Approach cable along with HDPE Pipes		KM	0.50	0.50	0.00	1			
30.2	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	0	2			
30.3	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDHMUX		No	1	1	0	2			
30.4	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)		No	1		0	1			
30.5	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 acquisition & configuration of RTU.		No	1		0	1			
30.6	48 V, 300 AH, maintenance free VRLA Battery set.		Set	1		0	1			

32.1	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	90	16	16	122			
32.2	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									
32.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.		SET	40	0	0	40			
32.2.2	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	40	0	0	40			
32.2.3	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	0	1			
32.2.4	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	0	1			
33	2 TR CAPACITY 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.(*SUPPLY OF CABLES ARE COVERED IN CABLE ITEMS AS INDICATED ABOVE)		SET	20	3	3	26			

34	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)									
34.1	FOAM TYPE-9 LTRS		NOS	6	1	1	8			
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS		NOS	6	1	1	8			
34.3	DRY POWDER TYPE - 5 KGS		NOS	6	1	1	8			
34.4	CO ₂ - 4.5 KGS		NOS	10	2	2	14			
34.5	CO ₂ - 9 KGS		NOS	10	2	2	14			
34.6	CO ₂ (TROLLY MOUNTED)- 22.5 KGS		NOS	4	1	1	6			
34.7	9 litre water type		Nos.	4	1	1	6			
34.8	50 Litres Mechanical Foam type		Nos.	2	0	0	2			
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND		SET	5	0	0	5			
35	SUBSTATION AUTOMATION SYSTEM: Supply of the following 220, 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C & E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C & E/F relay,Transformer trouble relay etc. Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System & Numerical bay control unit etc.									
35.1	220KV Level									
35.1.1	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3300mm (H) with AC, as per the Specification;		Nos.	2	0	0	2			
35.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards.IEC 61850 protocol. (The BCU for transformer panels should have provision to accommodate required Analogue Inputs).		Nos.	6	0	0	6			
35.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.		Nos.	4	0	0	4			
35.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol		Nos.	3	0	0	3			
35.1.5	Numerical over current , earth fault relays: IEC 61850 protocol		Nos.	6	0	0	6			
35.1.6	High Impedance REF Relay		Nos.	4	0	0	4			
35.1.7	Numerical Centralised Bus bar protection.		Nos.	1	0	0	1			
35.1.8	AUXILIARY RELAY FOR DC SUPERVISION		Nos.	12	0	0	12			
35.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4		Nos.	6	0	0	6			

35.1.10	MPG - TEST BLOCK 2		Nos.	26	0	0	26		
35.1.11	HIGH SPEED TRIP RELAY(HAND RESET)		Nos.	11	0	0	11		
35.1.12	TRIP CIRCUIT SUPERVISION RELAY 4		Nos.	12	0	0	12		
35.1.13	Line interface unit;		sets.	3	0	0	3		
35.1.14	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	4	0	0	4		
35.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..		Mtr.	1000	0	0	1,000		
35.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper		Set	6	0	0	6		
35.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	2	0	0	2		
35.1.18	TIME SYNCH EQUIPMENT		NOS	1	0	0	1		
35.2	132KV Level								
35.2.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification;		Nos.	2	0	0	2		
35.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol		Nos.	5	0	0	5		
35.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.		Nos.	2	0	0	2		
35.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol		Nos.	0	0	0	0		
35.2.5	Numerical over current , earth fault relays: IEC 61850 protocol		Nos.	5	0	0	5		
35.2.6	High Impedance REF Relay		Nos.	0	0	0	0		
35.2.7	Numerical Centralised Bus bar protection.		Nos.	0	0	0	0		
35.2.8	AUXILIARY RELAY FOR DC SUPERVISION		Nos.	10	0	0	10		
35.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4		Nos.	0	0	0	0		
35.2.10	MPG - TEST BLOCK 2		Nos.	14	0	0	14		
35.2.11	HIGH SPEED TRIP RELAY(HAND RESET)		Nos.	5	0	0	5		
35.2.12	TRIP CIRCUIT SUPERVISION RELAY 4		Nos.	10	0	0	10		
35.2.13	Line interface unit;		sets.	3	0	0	3		
35.2.14	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	6	0	0	6		
35.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.		Mtr.	1,000	0	0	1,000		
35.2.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components		Set	5	0	0	5		
35.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	2	0	0	2		
35.3	33KV Level								
35.3.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;		Nos.	1	0	0	1		

35.3.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	4	0	0	4			
35.3.3	DC Supervision Relay	Nos.	8	0	0	8			
35.3.4	TRIP Relay	Nos.	4	0	0	4			
35.3.5	Test Block	Nos.	8	0	0	8			
35.3.6	Line interface unit;	sets.	2	0	0	2			
35.3.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	0	0	3			
35.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	500	0	0	500			
35.3.9	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 900mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	2	0	0	2			
35.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	0	0	1			
35.4	Station Level								
35.4.1	Windows based Industrial computer with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, . Main & Back up. With automation softwares. Main	set	2	0	0	2			
35.4.2	Windows based PC with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, Disturbance recorder software. DR & work Station PC.Client	set	1	0	0	1			
35.4.3	Color Laser jet Printer	No.	1	0	0	1			
35.4.4	UPS , 3KVA	No.	2	0	0	2			
35.4.5	GPS System with PTP	set	1	0	0	1			
35.4.6	Gateway for SCADA	set	1	0	0	1			
35.5	PROTECTION,CONTROL METERING, BUS BAR PROT N PAN FOR KATAPALI & BOUDH AS PER TECH SPEC								
35.5.1	220KV FEEDER CONTROL PANEL	set	0	2	0	2			
35.5.2	220KV FEEDER RELAY PANEL	set	0	2	0	2			
35.5.3	132KV FEEDER CONTROL PANEL	set	0	0	2	2			
35.5.4	132KV FEEDER RELAY PANEL	set	0	0	2	2			
36	AC & DC SYSTEM								
36.1	AC SYSTEM								
36.1.1	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	0	1			

36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1,AC DB-2 WITH B/C)		SET	1	0	0	1			
36.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)		SET	1	0	0	1			
36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)		SET	1	0	0	1			
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD		SET	1	0	0	1			
36.1.6	INDOOR RECEPTACLE BOARD		SET	1	0	0	1			
36.2	DC SYSTEM									
36.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)		SET	1	0	0	1			
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD		SET	1	0	0	1			
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC		SET	2	0	0	2			
38	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)		SET	2	0	0	2			
39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS		SET	1	0	0	1			
40	WALKIE TALKIE SET		SET /PAIR	2	0	0	2			
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.		NOS	2	0	0	2			
42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.		SET	1	0	0	1			
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.		SET	1	0	0	1			
44	WATER COOLER WITH WATER PURIFIER SYSTEM		NOS	2	0	0	2			
45	MAINTENANCE TESTING EQUIPMENT (AS PER ANNEXURE - I ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)		LOT	1	0	0	1			
46	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER ANNEXURE - II ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)		LOT	1	0	0	1			
47	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.		LOT	1	0	0	1			
48	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size		NO	45	10	10	65			
TOTAL OF SUBSTATION(Plant)										

Mandatory Spare Parts							
Item	DESCRIPTION OF ITEMS SUPPLY OF MANDATORY SPARES FOR THE FOLLOWING EQUIPMENTS. (As per Technical Specification)	Code¹	UNITS	Quantity	Unit Price²		Total Price²
					In Foreign Currency	CIP	
				<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(1) x (3)</i>
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI) Including terminal Connector		NOS	2			
2	245 KV,2000A,40KA,ISOLATORS						
2.1	MALE & FEMALE CONTACTS		SET	1			
2.1.1	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.		SET	1			
2.1.2	LIMIT SWITCH		SET	2			
2.1.3	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.		SET	1			
2.1.4	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1			
2.1.5	EARTHING ROD & BLADE CONTACT SIDE		SET	1			
2.1.6	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD		SET	1			
2.2	145 KV,(800-400-200 A),31.5KA,4CORE SINGLE PHASE CURRENT TRANSFORMER INCLUDING TERMINAL CONNECTOR		NOS	2			
2.3	145 KV,1250A,31.5KA,ISOLATORS						
2.3.1	MALE & FEMALE CONTACTS		SET	1			
2.3.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.		SET	1			
2.3.3	LIMIT SWITCH		SET	2			
2.3.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.		SET	1			
2.3.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1			
2.3.6	EARTHING ROD & BLADE CONTACT SIDE		SET	1			
2.3.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD		SET	1			
2.3.8	POST INSULATOR		SET	1			
3	145 KV,6600pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER INCLUDING TERMINAL CONNECTOR		NOS	1			
4	120 KV,METAL OXIDE 10 KA, CLASS III SURGE ARRESTOR, COMPLETING WITH INSULATING BASE & SURGE MONITOR.		NOS	2			
5	145 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR		NOS	1			
6	132 KV Bus Post Insulators		NOS	2			

7	245KV,3150A,40KA,SF6,CIRCUIT BREAKER						
7.1	COMPLETE ONE POLE ASSEMBLY OF BREAKER		NOS	1			
7.2	SPRING CHARGING MOTOR		NOS	1			
7.3	BREAKER AUXILIARY CONTACTS		SET	1			
7.4	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.		SET	1			
7.5	DENSITY MONITORING SYSTEM		SET	1			
7.6	CLOSING COIL		NOS	4			
7.7	TRIPPING COIL		NOS	4			
7.8	SF6 GAS FILLING DEVICE		NOS	1			
7.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER		SET	1			
7.9.1	145KV,3150A,40KA,SF6,CIRCUIT BREAKER						
7.9.2	COMPLETE ONE POLE ASSEMBLY OF BREAKER		NOS	1			
7.9.3	SPRING CHARGING MOTOR		NOS	1			
7.9.4	BREKER AUXILIARY CONTACTS		SET	1			
7.9.5	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.		SET	1			
7.9.6	DENSITY MONITORING SYSTEM (IF REQUIRED)		SET	1			
7.9.7	CLOSING COIL		NOS	4			
7.9.8	TRIPPING COIL		NOS	4			
7.9.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER		SET	1			
8.1	36 KV,(800-400-200 A),25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER		NOS	0			
8.2	36 KV,(800-400-200 A),25KA,4 CORE SINGLE PHASE CURRENT TRANSFORMER		NOS	1			
9	36 KV,1250A,25KA,ISOLATORS						
9.1	MALE & FEMALE CONTACTS		SET	1			
9.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.		SET	1			
9.3	LIMIT SWITCH		SET	2			
9.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.		SET	1			
9.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1			
9.6	EARTHING ROD & BLADE CONTACT SIDE		SET	1			
9.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD		SET	1			
9.8	POST INSULATOR		SET	1			
10	30 KV,METAL OXIDE, 10 KA, CLASS II SURGE ARRESTOR COMPLETE WITH INSULATOR BASE AND SURGE MONITOR		NOS	3			

11	36 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR		NOS	1			
12	36KV, 1250A,25KA,VACUUM CIRCUIT BREAKER						
12.1	ONE COMPLETE POLE ASSEMBLY OF CIRCUIT BREAKER		SET	1			
12.2	TRIPPING COILS		NOS	4			
12.3	CLOSING COIL		NOS	4			
12.4	SPRING CHARGING MOTOR		NOS	1			
12.5	AUXILIARY SWITCH CONTACTS ASSEMBLY		SET	1			
12.6	SET OF GASKET,"O" RINGS,SEALING PER CIRCUIT BREAKER		SET	1			
12.7	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.		SET	1			
13	33 KV Bus Post Insulators		NOS	3			
14	BUS BAR & CIRCUIT MATERIALS						
14.1	160 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-220KV		SET	2			
14.1.1	160 kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-220 KV		SET	2			
14.2	120 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-132KV		SET	2			
14.2.1	120kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-132KV		SET	2			
14.2.2	120 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-33 KV		SET	2			
14.2.3	120kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-33 KV		SET	2			
14.2.4	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-220KV		SET	2			
14.3	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-132 KV		SET	2			
14.3.1	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-33 KV		SET	2			
15	ACSR MOOSE CONDUCTOR		MTRS	250			
16	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS ETC. FOR 220 KV & 33 KV		SET (EACH TYPE THREE NOS.)	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			
17.1.2	3.5 CX185 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE		PCS.	1			
17.1.3	3.5 CX120 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE		PCS.	1			
17.1.4	3.5 CX70 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC		PCS.	1			
17.1.5	3.5 CX35 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC		PCS.	1			
17.1.6	4 CX 16 mm ² -PVC		MTRS	250			
17.1.7	4 CX 6 mm ² -PVC		MTRS	250			
17.1.8	2CX 6 mm ² -PVC		MTRS	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			
17.2.2	5 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500			
17.2.3	7 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500			
17.2.4	10 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)		Mtrs	500			
17.2.5	12 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250			
17.2.6	16 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250			
17.2.7	19 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)		Mtrs	250			
17.2.8	1CX 120 mm ² BAT TO BAT CHARGER & CHARGER TO DCDB		MTRS	50			
17.3	CARRIER COMMUNICATION & OTHER MATERIALS						
17.3.1	VRLA TYPE BATTERY 300 AH,(48V) ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 48 V)		NOS	1			
17.3.2	PLANTE TYPE BATTERY 350 AH, ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 220 V)		NOS	1			
17.3.3	BATTERY CHARGER FOR 300 AH (48V) ONE COMPLETE SET OF ELECTRONIC CARDS		SET	1			
17.3.4	BATTERY CHARGER FOR 350 AH (220V) ONE COMPLETE SET OF ELECTRONIC CARDS		SET	1			
18	PROTECTION RELAYS AS PER TECH SPEC AND BOQ FOR PCM						
18.1	220 KV SIDE						
18.1.1	DISTANCE PROTECTION RELAY		NOS	1			

18.1.2	OVER CURRENT & EARTH FAULT RELAY		NOS	1			
18.1.3	MASTER TRIP RELAY		NOS	1			
18.1.4	DIFFERENTIAL PROTECTION RELAY		NOS	1			
18.1.5	TRIP SUPERVISION RELAY		NOS	2			
18.1.6	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)		SET	1			
18.2	132 KV SIDE						
18.2.1	OVER CURRENT & EARTH FAULT RELAY		NOS	1			
18.2.2	MASTER TRIP RELAY		NOS	1			
18.2.3	DIFFERENTIAL PROTECTION RELAY		NOS	1			
18.2.4	TRIP SUPERVISION RELAY		NOS	2			
18.2.5	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)		SET	1			
18.3	33 KV SIDE						
18.3.1	OVER CURRENT & EARTH FAULT RELAY		NOS	1			
18.3.2	MASTER TRIP RELAY		NOS	1			
18.3.3	OTHER AUXILIARY RELAYS (EACH 1 NO. OF DIFFERENT TYPE)		SET	1			
TOTAL OF MANDATORY SPARE PARTS							
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 representing 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-

Country of Origin Declaration Form

Item	Description	Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17]/- Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country (Sub-station & Bay extension)

NAME OF THE BIDDER

SL NO	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)	Unit	Quantity for: Construction of 2x160MVA & 1x20 MVA, 220/132KV Sub-Station at Kiakata, 220 KV BAY 06 NOS (FDR:02,TFR:03 & B/C:01), 132KV (FDR-2, TFR-2, B/C:1) & 33 KV BAY 04NOS (TFR:1, FDR:2 NOS, B/C: 1 NOS)	2 Nos 220KV Bay Extension at KATAPALLI S/S	2 Nos 132KV Bay Extension at 132/33 KV Boudh S/S	Total Quantity	Unit Price ²	Total Price ²
1	2	3	4	5	6	7=(4+5+6)	8	9=7x8
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)	NOS	21	6	0	27		
2	245 KV,2000A,40KA,ISOLATORS							
2.1	S/I WITH OUT EARTH SWITCH	NOS	17	6	0	23		
2.2	S/I WITH SINGLE EARTH SWITCH	NOS	7	2	0	9		
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	9	2	0	11		
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6	0	12		
4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	6	2	0	8		

5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	15	6	0	21		
6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	0	0	6		
7	220 KV Bus Post Insulators	NOS	75	16	0	91		
8	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	0	6	21		
9	145 KV,1250A,31.5KA,ISOLATORS							
9.1	S/I WITH OUT EARTH SWITCH	NOS	9	0	2	11		
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	0	2	4		
9.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	0	2		
10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	0	6	12		
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	0	6	18		
12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	0	0	3		
13	132 KV Bus Post Insulators	NOS	12	0	4	16		
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	0	2	7		
15	36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI & 1 0.2s CI)	NOS	6	0	0	6		
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)	NOS	6	0	0	6		
17	36 KV CLASS NCT FOR AUTO TRANSFORMER REF PROTECTION (RATIO 1200-600-300/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 220 KV SIDE: 1 NO)	NOS	0	0	0	0		Included in 160MVA AUTO Transformer TS
18	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 33 KV SIDE:1 NO)	NOS	0	0	0	0		Included in 20MVA Transformer TS
19	36 KV,1250A,25KA,ISOLATORS							
19.1	S/I WITH OUT EARTH SWITCH	NOS	5	0	0	5		
19.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	0	0	2		
19.3	D/I WITHOUT EARTH SWITCH	NOS	1	0	0	1		
19.4	S/I WITH BEAM MOUNTED	NOS	2	0	0	2		
20	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	15	0	0	15		
21	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0	0	3		
22	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	4	0	0	4		
23	33 KV Bus Post Insulators	NOS	15	0	0	15		

24	BUS BAR & CIRCUIT MATERIALS							
24.1	LONG ROD TYPE PORCILAIN INSULATOR							
24.1.1	160 KN INSULATOR	NOS	144	44	0	188		
24.1.2	120 KN INSULATOR	NOS	107	0	26	133		
24.1.3	90 KN INSULATOR	NOS	81	12	12	105		
24.2	ACSR MOOSE CONDUCTOR	KMS	6.00	1.00	0.60	7.6		
24.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.	MTRS	480	0	0	480		
24.4	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS							
24.4.1	220 KV Single Tension(160KN) H/W fitting for twin moose ACSR	NOS	60	12	0	72		
24.4.2	220 KV Single Tension(160KN) H/W fitting for single moose ACSR	NOS	84	30	0	114		
24.4.3	220 KV Single Suspension(90 KN)H/W fitting for single mose ACSR	NOS	42	12	0	54		
24.4.4	132 KV Single Tension(120KN) H/W fitting for twin moose ACSR	NOS	18	0	6	24		
24.4.5	132 KV Single Tension(120KN) H/W fitting for single moose ACSR	NOS	42	0	24	66		
24.4.6	132 KV Single Suspension(90KN) H/W fitting for twin mose ACSR	NOS	12	0	0	12		
24.4.7	132 KV Single Suspension(90KN) H/W fitting for single mose ACSR	NOS	24	0	12	36		
24.4.8	33 KV Single Tension)120KN) H/W fitting for single moose ACSR	NOS	18	0	0	18		
24.4.9	33 KV Single Tension (120KN)H/W fitting for twin moose ACSR	NOS	18	0	0	18		
24.4.10	33 KV Single Suspension(90KN) H/W fitting for single mose ACSR	NOS	9	0	0	9		
24.4.11	T- clamp for ACSR ZEBRA run to ACSR MOOSE drop	NOS	22	22	0	44		
24.4.12	T- clamp for ACSR PANTHER run to ACSR MOOSE drop	NOS	22	0	22	44		
24.4.13	T-Clamp for single Moose -Single Moose ACSR	NOS	220	36	0	256		
24.4.14	T-Clamp for twin Moose run -Single Moose drop ACSR	NOS	84	12	0	96		
24.4.15	220 KV PI clamp	NOS	75	16	0	91		
24.4.16	132KV PI clamp	NOS	12	0	4	16		
24.4.17	33KV PI Clamp	NOS	2	0	0	2		
24.4.18	Spacer for Moose ACSR	NOS	280	96	0	376		
24.4.19	220 KV Isolator pad clamp	NOS	216	60	0	276		
24.4.20	220 KV LA Clamp	NOS	15	6	0	21		
24.4.21	220 KV CB Clamp	NOS	48	12	0	60		

24.4.22	220 KV CVT Clamp	NOS	12	12	0	24		
24.4.23	220 KV CT Clamp	NOS	42	12	0	54		
24.4.24	220 KV IVT Clamp	NOS	6	0	0	6		
24.4.25	132 KV Isolator pad clamp	NOS	90	0	30	120		
24.4.26	132 KV LA Clamp	NOS	12	0	6	18		
24.4.27	132 KV CVT Clamp	NOS	12	0	12	24		
24.4.28	132 KV CT Clamp	NOS	30	0	12	42		
24.4.29	132 KV IVT Clamp	NOS	3	0	0	3		
24.4.30	132 KV CB Clamp	NOS	30	0	12	42		
24.4.31	33 KV Isolator pad clamp	NOS	57	0	0	57		
24.4.32	33 KV LA Clamp	NOS	15	0	0	15		
24.4.33	33 KV CT Clamp	NOS	24	0	0	24		
24.4.34	33 KV IVT Clamp	NOS	3	0	0	3		
24.4.35	33 KV CB Clamp	NOS	24	0	0	24		
24.4.36	PG Clamp for ACSR Moose	NOS	48	12	12	72		
24.5	EARTH WIRES & ITS HARDWARES & FITTING							
24.5.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)	NOS	36	8	0	44		
24.5.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	25	0	5	30		
24.5.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	16	0	0	16		
25	SUBSTATION EARTHING SYSTEMS							
25.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (<i>spacing maximum 5m both way</i>)	MT	37	8	5.2	50.2		
25.2	EARTHING CONDUCTOR: 50X6 mm GI Flat for Raiser from the burial earth mat to equipment,structure etc)	MT	13	2.5	2.26	18		
25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)	Nos.	240	50	40	330		
25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	Nos.	190	30	25	245		
26	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.							
26.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	2000	250	200	2,450		
26.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	3500	200	180	3,880		
26.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	2500	100	80	2,680		
26.4	Support G. I angle 50x50x6 mm for cable tray	MT	4	0.5	0.5	5		
27	SUB STATION SWITCHYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES							

27.1	BAY MARSHALLING KIOSK (03 nos on 220 kV bay,03 nos 132 kv bay & 01Nos 33 KV bay)	NOS	7	1	1	9		
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING (01 no in 220 kV bay 01 no in132 kv Bay & 01 No in 33KV bay)	NOS	3	1	1	5		
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTRATION (01 no. near each 220/132 &132/33 KV Auto& power Transformer)	NOS	3	0	0	3		
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 nos each on 220,132& 33 kV bay)	NOS	3	1	1	5		
28	SWITCH YARD STRUCTURES (LATTICE TYPE FOR TOWER COLUMN & BEAMS & PIPE TYPE FOR ALL EQUIPMENT COLUMN) FOR 220/132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.							
28.1	DIFFERENT TYPES OF COLUMNS WITH DETAILS							
28.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.5 MT) (36 NOS +7 NOS.)	MT	162	31.5	0	194		
28.1.2	P2A-220 KV (NOMINAL UNIT WT- 1..5 MT) (8 NOS.)	MT	12	0	0	12		
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (20NOS+4NOS)	MT	24	0	5.12	29		
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(6NOS+1Nos)	MT	5.7	0	0.95	7		
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.8 MT) (5 NOS.)	MT	4	0	0	4		
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (11 NOS.)	MT	6.6	0	0	7		
28.2	DIFFERENT TYPE OF BEAMS WITH DETAILS							
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (27NOS.+8 NOS)	MT	40.5	12.00	0	53		
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (8 NOS.+2 NOS)	MT	20	5	0	25		
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (4 NOS.)	MT	3.6	0	0	4		
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (13 NOS+4 Nos.)	MT	8.06	0	2.48	11		
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) (2NOS.)	MT	1.24	0	0	1		
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (6NOS.+2NOS.)	MT	5.4	0	1.8	7		
28.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (2 NOS.)	MT	2.5	0	0	3		
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (3NOS.)	MT	1.59	0	0	2		
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (5NOS.)	MT	2	0	0	2		
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.4 MT) (3 NOS.)	MT	1.2	0	0	1		
28.3	TOTAL WEIGHT OF COLUMN & BEAM	MT	300.39	48.5	10.35	359.24		
28.4	EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV & 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS & NUTS							
28.4.1	ISOLATORS-220KV (SI with E/S 7 No.+2 Nos)	MT	8.897	2.542	0	11.44		
28.4.2	ISOLATORS-220KV (SI without E/S -17Nos.+ 2NOS)	MT	21.607	7.626	0	29.23		
28.4.3	ISOLATORS-132KV (SI with E/S-9 No.+2 NOS)	MT	5.93	0	1.32	7.24		
28.4.4	ISOLATORS-132KV (DI with E/S-2 No.+ 2NOS)	MT	1.96	0	1.96	3.92		

28.4.5	ISOLATORS-132KV (DI with out E/S-2 No.)	MT	2.24	0	0	2.24		
28.4.6	ISOLATORS-33 KV (SI- 5 Nos.)	MT	1.2915	0	0	1.29		
28.4.7	ISOLATORS-33 KV (DI with E/S -2 Nos.)	MT	1.2888	0	0	1.29		
28.4.8	ISOLATORS-33 KV (DI without E/S-1 Nos.)	MT	0.617	0	0	0.62		
28.4.9	CTS-220 KV (21 nos.+ 6 NOS)	MT	4.725	1.35	0	6.08		
28.4.10	CTS-132 KV (15 nos + 6NOS.)	MT	3.75	0	1.5	5.25		
28.4.11	CTS-33 KV (9 nos.)	MT	1.044	0	0	1.04		
28.4.12	CVTS-220 KV (6 nos.+ 6NOS)	MT	1.326	1.326	0	2.65		
28.4.13	CVTS-132 KV (6 nos + 6NOS.)	MT	1.344	0	1.344	2.69		
28.4.14	IVTS-220 KV (6 nos.)	MT	1.7232	0	0	1.72		
28.4.15	IVTS-132 KV (3 nos.)	MT	0.426	0	0	0.43		
28.4.16	IVTS-33 KV (3 nos.)	MT	0.3546	0	0	0.35		
28.4.17	Surge Arrester-220 KV(15 nos.+ 6 Nos)	MT	4.3815	1.7526	0	6.13		
28.4.18	Surge Arrester-132 KV(12 nos.+ 6NOS)	MT	3.288	0	1.644	4.93		
28.4.19	Surge Arrester-33 Kv(0 nos.)	MT	0	0	0	0.00		
28.4.20	BPI-220 KV (75nos.+ 16 Nos)	MT	21.96	3.51468	0	25.47		
28.4.21	BPI-132 KV (12nos.+ 4 Nos)	MT	2.376	0	0.792	3.17		
28.4.22	BPI-33 KV (15 nos.)	MT	3.0945	0	0	3.09		
28.4.23	NCTs (4nos)	MT	0.464	0	0	0.46		
28.5	TOTAL WEIGHT OF EQUIPMENT STRUCTURE	MT	94.0856	18.11128	8.5542	120.75		
28.6	Total weight of GI Nuts and bolts for Columns, Beams & Equipment Structures	MT	4.704	0.906	0.428	6.038		
29	GENERAL EQUIPMENT & SUBSTATION ACCESSORIES							
29.1	POWER CABLES,1.1KV,XLPE & PVC ARMoured, ALUMINIUM CONDUCTOR (As per Specification)							
29.1.1	XLPE 3.5 CX300 mm ²	MTR	1000	0	0	1,000		
29.1.2	XLPE 3.5 CX185 mm ²	MTR	1000	0	0	1,000		
29.1.3	XLPE 3.5 CX120 mm ²	MTR	800	300	0	1,100		
29.1.4	PVC 3.5 CX70 mm ²	MTR	1300	0	0	1,300		
29.1.5	PVC 3.5 CX35 mm ²	MTR	4000	0	500	4,500		
29.1.6	PVC 4 CX 16 mm ²	MTR	2200	200	500	2,900		
29.1.7	PVC 4CX 6 sqmm	MTR	6000	600	500	7,100		
29.1.8	PVC 2CX 6 sqmm	MTR	5500	600	400	6,500		
29.2	CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)							
29.2.1	2 CX 2.5 mm ²	MTR	5400	500	1000	6,900		
29.2.2	4 CX 2.5 mm ²	MTR	10000	1000	5000	16,000		
29.2.3	5 CX 2.5 mm ²	MTR	5500	250	1000	6,750		
29.2.4	7CX 2.5 mm ²	MTR	5500	800	1000	7,300		
29.2.5	10 CX 2.5 mm ²	MTR	11000	1200	2000	14,200		

29.2.6	12 CX 2.5 mm ²	MTR	9500	900	2000	12,400		
29.2.7	16 CX 2.5 mm ²	MTR	5500	500	1000	7,000		
29.2.8	19 CX 2.5 mm ²	MTR	3000	400	1000	4,400		
29.2.9	1CX 120 mm ² BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1200	150	200	1,550		
30	ACCESSORIES FOR PLCC SYSTEM With OPGW cable							
30.1	24 Fibre Optic Approach cable along with HDPE Pipes	KM	0.50	0.50	0.00	1		
30.2	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	0	2		
30.3	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDHMUX	No	1	1	0	2		
30.4	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No	1		0	1		
30.5	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		
30.6	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1		0	1		
30.7	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1		0	1		
30.8	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)	Metre	300		0	300		
30.9	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	Metre	300		0	300		
30.10	1.5 sq. mm 10 core control cable(Digital Input)	Metre	200		0	200		
30.11	10 sq. mm 2 core multi strand control cable(Battery)	Metre	100		0	100		
30.12	Earth Flat, Cable Tray, Telephone cable,ACDB, DCDB, Foundation rail, Junction Box,.	Set	1		0	1		
31	SUPPLY OF POWER TRANSFORMER,STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION							
31.1	AUTO TRANSFORMER 220/132KV,100/160 MVA (AS PER SPECIFICATION)	NOS	2	0	0	2		

31.2	POWER TRANSFORMER 220/33 KV, 20 MVA(AS PER SPECIFICATION)	NOS	1	0	0	1		
31.3	STATION TRANSFORMER 33KV/0.4 V,250 KVA (AS PER SPECIFICATION)	NOS	2	0	0	2		
31.4	Supply of materials for erection of station transformers							
31.4.1	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].	SET	2	0	0	2		
31.4.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SET	2	0	0	2		
31.4.3	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SET	2	0	0	2		
31.4.4	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.	SET	2	0	0	2		
32.0	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.							
32.1	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	90	16	16	122		

32.2	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							
32.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.	SET	40	0	0	40		
32.2.2	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	40	0	0	40		
32.2.3	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	0	1		
32.2.4	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	0	1		
33	2 TR CAPACITY 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.(*SUPPLY OF CABLES ARE COVERED IN CABLE ITEMS AS INDICATED ABOVE)	SET	20	3	3	26		

34	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)							
34.1	FOAM TYPE-9 LTRS	NOS	6	1	1	8		
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	1	1	8		
34.3	DRY POWDER TYPE - 5 KGS	NOS	6	1	1	8		
34.4	CO ₂ - 4.5 KGS	NOS	10	2	2	14		
34.5	CO ₂ - 9 KGS	NOS	10	2	2	14		
34.6	CO ₂ (TROLLY MOUNTED)- 22.5 KGS	NOS	4	1	1	6		
34.7	9 litre water type	Nos.	4	1	1	6		
34.8	50 Litres Mechanical Foam type	Nos.	2	0	0	2		
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	5	0	0	5		
35	SUBSTATION AUTOMATION SYSTEM: Supply of the following 220, 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C & E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C & E/F relay,Transformer trouble relay etc. Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System & Numerical bay control unit etc							
35.1	220KV Level							
35.1.1	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3300mm (H) with AC, as per the Specification;	Nos.	2	0	0	2		
35.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards.IEC 61850 protocol. (The BCU for transformer panels should have provision to accommodate required Analogue Inputs).	Nos.	6	0	0	6		
35.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	4	0	0	4		
35.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	3	0	0	3		
35.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	6	0	0	6		

35.1.6	High Impedance REF Relay	Nos.	4	0	0	4		
35.1.7	Numerical Centralised Bus bar protection.	Nos.	1	0	0	1		
35.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	12	0	0	12		
35.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	6	0	0	6		
35.1.10	MPG - TEST BLOCK 2	Nos.	26	0	0	26		
35.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	11	0	0	11		
35.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	12	0	0	12		
35.1.13	Line interface unit;	sets.	3	0	0	3		
35.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	4	0	0	4		
35.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1000	0	0	1,000		
35.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper	Set	6	0	0	6		
35.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2	0	0	2		
35.1.18	TIME SYNCH EQUIPMENT	NOS	1	0	0	1		
35.2	132KV Level							
35.2.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification;	Nos.	2	0	0	2		
35.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5	0	0	5		
35.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2	0	0	2		
35.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	0	0	0	0		
35.2.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5	0	0	5		
35.2.6	High Impedance REF Relay	Nos.	0	0	0	0		
35.2.7	Numerical Centralised Bus bar protection.	Nos.	0	0	0	0		
35.2.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10	0	0	10		
35.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	0	0	0	0		
35.2.10	MPG - TEST BLOCK 2	Nos.	14	0	0	14		
35.2.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	5	0	0	5		
35.2.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10	0	0	10		
35.2.13	Line interface unit;	sets.	3	0	0	3		
35.2.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6	0	0	6		

35.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	1,000	0	0	1,000		
35.2.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	5	0	0	5		
35.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2	0	0	2		
35.3	33KV Level							
35.3.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;	Nos.	1	0	0	1		
35.3.2	Integrated Numerical Bay control unit with protection function :24Digital input & 20Nos digital out put with CT / PT Input cards	Nos.	4	0	0	4		
35.3.3	DC Supervision Relay	Nos.	8	0	0	8		
35.3.4	TRIP Relay	Nos.	4	0	0	4		
35.3.5	Test Block	Nos.	8	0	0	8		
35.3.6	Line interface unit;	sets.	2	0	0	2		
35.3.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	0	0	3		
35.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	500	0	0	500		
35.3.9	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 900mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	2	0	0	2		
35.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	0	0	1		
35.4	Station Level							
35.4.1	Windows based Industrial computer with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, . Main & Back up. With automation softwares. Main	set	2	0	0	2		
35.4.2	Windows based PC with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, Disturbance recorder software. DR & work Station PC.Client	set	1	0	0	1		
35.4.3	Color Laser jet Printer	No.	1	0	0	1		
35.4.4	UPS , 3KVA	No.	2	0	0	2		
35.4.5	GPS System with PTP	set	1	0	0	1		
35.4.6	Gateway for SCADA	set	1	0	0	1		

35.5	PROTECTION,CONTROL METERING, BUS BAR PROT N PAN FOR KATAPALI & BOUDH AS PER TECH SPEC							
35.5.1	220KV FEEDER CONTROL PANEL	set	0	2	0	2		
35.5.2	220KV FEEDER RELAY PANEL	set	0	2	0	2		
35.5.3	132KV FEEDER CONTROL PANEL	set	0	0	2	2		
35.5.4	132KV FEEDER RELAY PANEL	set	0	0	2	2		
36	AC & DC SYSTEM							
36.1	AC SYSTEM							
36.1.1	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	0	1		
36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1,AC DB-2 WITH B/C)	SET	1	0	0	1		
36.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)	SET	1	0	0	1		
36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	0	0	1		
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	0	0	1		
36.1.6	INDOOR RECEPTACLE BOARD	SET	1	0	0	1		
36.2	DC SYSTEM							
36.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)	SET	1	0	0	1		
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	0	0	1		
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	2	0	0	2		
38	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	2	0	0	2		
39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	0	0	1		
40	WALKIE TALKIE SET	SET /PAIR	2	0	0	2		
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	0	0	2		

42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	1	0	0	1			
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	0	0	1			
44	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	2	0	0	2			
45	MAINTENANCE TESTING EQUIPMENT (AS PER ANNEXURE - I ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	LOT	1	0	0	1			
46	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER ANNEXURE - II ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	LOT	1	0	0	1			
47	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.	LOT	1	0	0	1			
48	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NO	45	10	10	65			
TOTAL OF SUBSTATION (Plant)									

Mandatory Spare Parts					
Item	DESCRIPTION OF ITEMS SUPPLY OF MANDATORY SPARES FOR THE FOLLOWING EQUIPMENTS. (As per Technical Specification)	UNITS	Quantity	Unit Price²	Total Price²
			(1)	(2)	(1) x (2)
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI) Including terminal Connector	NOS	2		
2	245 KV,2000A,40KA,ISOLATORS				
2.1	MALE & FEMALE CONTACTS	SET	1		
2.1.1	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.	SET	1		
2.1.2	LIMIT SWITCH	SET	2		
2.1.3	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.	SET	1		

2.1.4	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1		
2.1.5	EARTHING ROD & BLADE CONTACT SIDE	SET	1		
2.1.6	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD	SET	1		
2.2	145 KV,(800-400-200 A),31.5KA,4CORE SINGLE PHASE CURRENT TRANSFORMER INCLUDING TERMINAL CONNECTOR	NOS	2		
2.3	145 KV,1250A,31.5KA,ISOLATORS				
2.3.1	MALE & FEMALE CONTACTS	SET	1		
2.3.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.	SET	1		
2.3.3	LIMIT SWITCH	SET	2		
2.3.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.	SET	1		
2.3.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1		
2.3.6	EARTHING ROD & BLADE CONTACT SIDE	SET	1		
2.3.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD	SET	1		
2.3.8	POST INSULATOR	SET	1		
3	145 KV,6600pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER INCLUDING TERMINAL CONNECTOR	NOS	1		
4	120 KV,METAL OXIDE 10 KA, CLASS III SURGE ARRESTOR, COMPLETING WITH INSULATING BASE & SURGE MONITOR.	NOS	2		
5	145 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR	NOS	1		
6	132 KV Bus Post Insulators	NOS	2		
7	245KV,3150A,40KA,SF6,CIRCUIT BREAKER				
7.1	COMPLETE ONE POLE ASSEMBLY OF BREAKER	NOS	1		
7.2	SPRING CHARGING MOTOR	NOS	1		
7.3	BREAKER AUXILIARY CONTACTS	SET	1		
7.4	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.	SET	1		
7.5	DENSITY MONITORING SYSTEM	SET	1		
7.6	CLOSING COIL	NOS	4		
7.7	TRIPPING COIL	NOS	4		
7.8	SF6 GAS FILLING DEVICE	NOS	1		
7.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER	SET	1		
7.9.1	145KV,3150A,40KA,SF6,CIRCUIT BREAKER				

7.9.2	COMPLETE ONE POLE ASSEMBLY OF BREAKER	NOS	1		
7.9.3	SPRING CHARGING MOTOR	NOS	1		
7.9.4	BREKER AUXILIARY CONTACTS	SET	1		
7.9.5	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.	SET	1		
7.9.6	DENSITY MONITORING SYSTEM (IF REQUIRED)	SET	1		
7.9.7	CLOSING COIL	NOS	4		
7.9.8	TRIPPING COIL	NOS	4		
7.9.9	SET OF GASKETS ,"O" RINGS,SEALS PER CIRCUIT BREAKER	SET	1		
8.1	36 KV,(800-400-200 A),25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	0		
8.2	36 KV,(800-400-200 A),25KA,4 CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	1		
9	36 KV,1250A,25KA,ISOLATORS				
9.1	MALE & FEMALE CONTACTS	SET	1		
9.2	POWER CONTACTOR,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS ETC AS PER APPROVED SCHEMATIC.	SET	1		
9.3	LIMIT SWITCH	SET	2		
9.4	MOTOR WITH GEAR ASSEMBLY & BEVEL GEAR ASSEMBLY COMPLETE.	SET	1		
9.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1		
9.6	EARTHING ROD & BLADE CONTACT SIDE	SET	1		
9.7	HINGE PINS,TERMINAL CONNECTOR,TERMINAL PAD	SET	1		
9.8	POST INSULATOR	SET	1		
10	30 KV,METAL OXIDE, 10 KA, CLASS II SURGE ARRESTOR COMPLETE WITH INSULATOR BASE AND SURGE MONITOR	NOS	3		
11	36 KV ,2 CORE,SINGLE PHASE,IVT INCLUDING TERMINAL CONNECTOR	NOS	1		
12	36KV, 1250A,25KA,VACUUM CIRCUIT BREAKER				
12.1	ONE COMPLETE POLE ASSEMBLY OF CIRCUIT BREAKER	SET	1		
12.2	TRIPPING COILS	NOS	4		
12.3	CLOSING COIL	NOS	4		
12.4	SPRING CHARGING MOTOR	NOS	1		
12.5	AUXILIARY SWITCH CONTACTS ASSEMBLY	SET	1		
12.6	SET OF GASKET,"O" RINGS,SEALING PER CIRCUIT BREAKER	SET	1		

12.7	POWER CONTACTORS,RELAYS,MCBs, SWITCHES,FUSES,PUSH BUTTONS,RESISTORS,PRESSURE SWITCHES,LIMIT SWITCHES, ETC AS PER APPROVED SCHEMATIC.	SET	1		
13	33 KV Bus Post Insulators	NOS	3		
14	BUS BAR & CIRCUIT MATERIALS				
14.1	160 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-220KV	SET	2		
14.1.1	160 kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-220 KV	SET	2		
14.2.	120 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-132KV	SET	2		
14.2.1	120kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-132KV	SET	2		
14.2.2	120 kN ANTIFOG INSULATOR STRINGS <i>for Double Moose cond</i> (TENSION)-33 KV	SET	2		
14.2.3	120kN ANTIFOG INSULATOR STRINGS <i>for Single Moose cond</i> (TENSION)-33 KV	SET	2		
14.2.4	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-220KV	SET	2		
14.3	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-132 KV	SET	2		
14.3.1	90kN ANTIFOG INSULATOR STRINGS <i>for Double/ Single Moose cond</i> (SUSPENSION)-33 KV	SET	2		
15	ACSR MOOSE CONDUCTOR	MTRS	250		
16	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS ETC. FOR 220 KV & 33 KV	SET (EACH TYPE THREE NOS.)	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		
17.1.2	3.5 CX185 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE	PCS.	1		
17.1.3	3.5 CX120 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-XLPE	PCS.	1		

17.1.4	3.5 CX70 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC	PCS.	1		
17.1.5	3.5 CX35 mm ² (ONE PIECE OF MAXM. LENGTH OF CABLE USED)-PVC	PCS.	1		
17.1.6	4 CX 16 mm ² -PVC	MTRS	250		
17.1.7	4 CX 6 mm ² -PVC	MTRS	250		
17.1.8	2CX 6 mm ² -PVC	MTRS	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		
17.2.2	5 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500		
17.2.3	7 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500		
17.2.4	10 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 500 MTRS)	Mtrs	500		
17.2.5	12 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250		
17.2.6	16 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250		
17.2.7	19 CX 2.5 mm ² (ONE DRUM HAVING LENGTH OF 250 MTRS)	Mtrs	250		
17.2.8	1CX 120 mm ² BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	50		
17.3	CARRIER COMMUNICATION & OTHER MATERIALS				
17.3.1	VRLA TYPE BATTERY 300 AH,(48V) ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 48 V)	NOS	1		
17.3.2	PLANTE TYPE BATTERY 350 AH, ONE COMPLETE CELL ASSEMBLY OF BATTERY(FOR 220 V)	NOS	1		
17.3.3	BATTERY CHARGER FOR 300 AH (48V) ONE COMPLETE SET OF ELECTRONIC CARDS	SET	1		
17.3.4	BATTERY CHARGER FOR 350 AH (220V) ONE COMPLETE SET OF ELECTRONIC CARDS	SET	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	220 KV SIDE				
18.1.1	DISTANCE PROTECTION RELAY	NOS	1		
18.1.2	OVER CURRENT & EARTH FAULT RELAY	NOS	1		

18.1.3	MASTER TRIP RELAY	NOS	1		
18.1.4	DIFFERENTIAL PROTECTION RELAY	NOS	1		
18.1.5	TRIP SUPERVISION RELAY	NOS	2		
18.1.6	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)	SET	1		
18.2	132 KV SIDE				
18.2	DISTANCE PROTECTION RELAY	NOS	1		
18.2.1	OVER CURRENT & EARTH FAULT RELAY	NOS	1		
18.2.2	MASTER TRIP RELAY	NOS	1		
18.2.3	DIFFERENTIAL PROTECTION RELAY	NOS	1		
18.2.4	TRIP SUPERVISION RELAY	NOS	2		
18.2.5	OTHER AUXILIARY RELAYS(EACH 1 NO. OF DIFFERENT TYPE)	SET	1		
18.3	33 KV SIDE				
18.3.1	OVER CURRENT & EARTH FAULT RELAY	NOS	1		
18.3.2	MASTER TRIP RELAY	NOS	1		
18.3.3	OTHER AUXILIARY RELAYS (EACH 1 NO. OF DIFFERENT TYPE)	SET	1		
	TOTAL OF MANDATORY SPARE PARTS				
	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".					

2.1	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.								
2.1.1	CUTTING & FILLING of substation area								
2.1.1.1	[i]Soft/loose soil	CUM	3000	0	0	3,000			
2.1.1.2	[iii]Dense/ Compact soil	CUM	2500	0	0	2,500			
2.1.2	FILLING of substation area with borrowed earth with supply of all labour,T & P.								
2.1.2.1	Beyond 100mtr lead	CUM	500	0	0	500			
3	Anti-Weed Treatment								
3.1	Supply of labour,T&P,Chemicals and other necessary arrangements for anti-weed treatment of the switch-yard areas,controlroom etc. as per the instruction of Engineer-in-Charge.	Sq.Mtrs	16000	3400	2000	21,400			
4	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 LENGTH OF THE BOUNDARY WALL) and approved drawing. Appox.								
4.1	Appox length of the boundary walls(Brick works rested on RCC Beam and RCC Column & footings as per TS) in mtrs	Mtrs.	1250	0	0	1,250			
5	Excavation for OPEN CAST foundation and back filling of columns, Equipments foundations, including supply of all labours,T&P,and materials and as per the direction of the Engineer-in-Charge.								
5.1.2	Soft Soil/Loose Soil.	CUM	8400	650	550	9,600			
6	OPEN CAST/SHALLOW FOUNDATION CONCRETE WORKS								
6.1	Foundations : Design, engineering, supply of all labour, material and construction(open cast foundation) of PCC, RCC footings of any depth, pedestal including the cost of soil investigation, concreting, cement, reinforcement steel, shuttering, grouting, underpinning and back filling of foundations etc complete for the switchyard gantry/ portal /column structures and equipment support as per the technical specification and approved drawings & disposal of excess earth as per the direction of Engineer In charge.								
6.2	PCC(1:3:6)	CUM	275	24	20	319			
6.3	(RCC) MIX 1:1.5:3 (of grade M20)	CUM	3068	250	220	3,538			
7	FOUNDATIONS FOR TRANSFORMERS								

7.1	Design, engineering, supply of labour, material, equipments and construction of Auto-transformer/Power 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 and this foundation should be connected with Main concrete road of the switch-yard . (Rate shall be inclusive of cement, reinforcement steel, angles,RS joists,Channels ,Rails ,flats and form work etc.)(all cement concrete shall have RCC ratio 1:1.5:3).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.								
7.1.1	40 MVA, 220/ 33kV Power transformer) Overall dimension of transformer(appox) Length:7200 mmX Width 6000 mmX Height 6200 mm) Total weight with oil and tank: 97.5 MT (appox) As Per Technical Specification	Nos	1	0	0	1			
7.1.2	160 MVA Auto transformer Overall dimension of Transformer with Radiator(approx) 14800mm lengthx12300mmWidth.Total weight of Transformer As mentioned in Technical specification	Nos	2	0	0	2			
8	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) 160 MVA,220/132 KV: 68000 ltrs.	Nos	1	0	0	1			
9	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. b) 40 MVA,220/33 KV: 36000 ltrs.	Nos	1	0	0	1			
10	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,backfilling,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	Nos	1	0	0	1			
11	NCT FOUNDATION: Design, engineering, procurement of labour, material including all associated works for construction of foundation NCT(also refer clause 1,1.1.&1.2) near Transformers and as per approved drawing and requirement and also as per the instruction of Engineer in charge. 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.	Nos	4	0	0	4			

12	<p>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</p> <p>STN TRANSFORMER as per approved drawing and specification.33 KV AB Switch(600A),HG Fuse, DP Structure & Angles (duly painted),Channels, 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.</p>	Nos	2	0	0	2					
13	<p>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 including supply of all labour, T&P, materials.</p> <p>(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.</p> <p>(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 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.</p> <p>(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(FE 500),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.</p> <p>(4) Fly ash brickwork with Fly ash brick ,plastering (!:6 Ratio) & curing, wherever required including the supply of labour,material, cement, etc.</p> <p>(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.</p> <p>(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.</p> <p>(7) CABLE TRENCHES INSIDE THE CONTROL ROOM SHALL BE COVERED WITH M.S CHEQUERED PLATE(Duly painted as per instruction of Engg in charge) INCLUDING STANDARD SUPPORT STAND {HD Galvanised (M.S JOIST ,CHANNEL,ANGLE)}.</p>										
13.1	Cable trench with covers										
13.1.1	Section 1-1	Mtrs	450	50	50	550					
13.1.2	Section 2- 2	Mtrs	400	50	50	500					
13.1.3	Section 3-3	Mtrs	350	50	50	450					
13.1.4	Section 4-4	Mtrs	300	50	50	400					

13.2	Cable trench crossing:Design,engineering,construction including supply of labour, materials, cement, reinforcement steel, form box etc,and all associated works for construction of trench crossing as per technical specification and approved drawing.								
13.2.1	Road crossing for								
13.2.2	Section 1-1	Nos	2	0	0	2			
13.2.3	Section 2- 2	Nos	1	0	0	1			
13.2.4	Section 3-3	Nos	1	0	0	1			
14	PCC before site surfacing :Providing and supplying all labour, material, equipments etc. required for proper levelling 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 levelling of the switch yard area (after anti-weed treatment), spreading of plain cement concert with mixing ratio 1:3:6 (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,backfilling,and disposal of excess earth as per the direction of Engineer In charge and approved drawing.	CUM	700	260	200	1,160			
15	METAL SPREADING IN THE SWITCH-YARD								
15.1	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	900	340	150	1,390			
16	Roads: Design, construction of roads and walkways/ shoulders within sub station as per specification, layout and approved drawings complete. 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 drains on both the side of the roads for easy discharge of rain water.								
16.1	3.75 mtrs Concrete road with shoulder at both the side & shall have drain on both side of the road as per technical specification indicated in the civil section(Periphery roads outside switch yard fencing and colony roads)	MTRS	350	100	30	480			
16.2	7 mtrs concrete road with shoulder at both the side as per technical specification indicated in the civil section(from the switch yard main gate to all internal roads of the switch yard).Shall have drain on both side of the road.	MTRS	170	50	20	240			
16.3	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	750	0	0	750			

17	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 Engineer In charge. All the switchyard bays , roads water drainage shall be connected to the main surface drains. As per approved drawing and specification.									
17.1	Storm water drain	MTRS	1,000	200	150	1,350				
17.2	Road-culverts, drain crossings	MTRS	250	100	80	430				
17.3	Cable trench crossing	MTRS	100	50	30	180				
18	Rain water harvesting system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	Nos	2	0	0	2				
19	Switchyard fencing: Providing and fixing of G.I chain link(2.5mm dia) fencing(the posts and links shall be of HD Galvanised) 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 RR masonry work with ratio 1:5 and cement pointing of the joints, for the fencing upto a height of 350mm from the finished ground level) .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. The earthing of the fencing as per specification.	MTRS	600	100	80	780				
20	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 LED lamp , LV XLPE cables, switchgear etc required to complete works as per specification and approved drawings									
20.1	MAIN GATE	NOS	1	0	0	1				
20.2	WICKET GATE NEAR MAIN GATE	NOS	1	0	0	1				
20.3	SWITCH YARD GATE(ON BOTH SIDES OF 7MTRS. CONCRETE ROAD OF SWITCHYARD)	NOS	2	0	0	2				
20.4	WICKET GATE NEAR SWITCHYARD	NOS	1	0	0	1				

21	<p>SECURITY SHED & CUM VISITOR ROOM: Design, engineering, procurement of labour, material including all associated works for construction of Security shed 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. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply)</p>									
21.1	<p>SECURITY SHED:The size of the security shed shall be 3.5 mtrsX5mtrs and height of 3.5mtrs RCC roof, Fly ash Brick masonry works, plastering and painting and fixing of MS doors and windows. 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 switchgear etc), fixing of lighting fixtures with lamps(LED Type) & 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)</p>	Nos	1	0	0	1				
22	<p>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 Fly ash Brick masonry and plastering and painting with MS door having locking arrangement & Internal concealed wiring and lighting (including supply of flexible copper FRP 1.1 KV PVC wire, conduits & its accessories, modular type switches & switch board, fixing of lighting fixtures with lamps(LED Type)). 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 sq mm 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.</p>	NOS	2	0	0	2				

23	PLATFORM FOR STORING EQUIPMENTS: 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,backfilling,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 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.	NOS	1	0	0	1				
24	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,backfilling,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.	NOS	1	0	0	1				
25	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.	NOS	120	0	0	120				
26	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.)									
26.1	PCC 1: 4 : 8	PER CUM	1							
26.2	RCC M 15 excluding cost of steel	PER CUM	1							
26.3	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 150KG/SQ.MTR.	PER CUM	1							
26.4	12 mm thick plaster in cement sand mortar (1: 6).	PER SQ. MTRS.	1							
26.5	Cutting,bending and fixing of reinforcement Including cost of steel	PER MT	1							
27	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 & T&P as per the direction of Engineer In charge and as per approved drawing and specification.									
27.1	Excavation in Soft & Loose Soil	Cum	375	100	80	555				
27.2	P.C.C (1:3:6): Lean Concrete Grade M-10	Cum	90	20	8	118				
27.3	RR Masonry (1:5)	Cum	585	100	80	765				
27.4	P.C.C (1:2:4): Lean Concrete Grade M-15	Cum	20	10	8	38				

28	<p>STORE SHED:Design, engineering, procurement of labour, 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)</p>	Lot	1	0	0	1				
29	<p>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 facility meant for ladies staff is to be included in ground floor of the Control room building.</p>									
29.1	RCC volume including MS rods(including column ,Beams and roofs etc) as per technical spec & approved drawings.	Lot	1	0	0	1				
29.2	Fly ash brick masonry work in cement sand mortar 1: 6 with Fly ash bricks of class designation 75 as per technical spec & approved drawings.	Lot	1	0	0	1				
29.3	Flooring with double charged 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	0	1				
29.4	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	0	1				

29.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1	0	0	1			
29.6	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	0	1			
29.7	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	0	1			
29.8	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), supply and 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 technical specification and approved drawing and direction of Engineer In charge.	Lot	1	0	0	1			
29.9	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	0	1			
29.10	Provision of smoke and fire detection system of the building.	Lot	1	0	0	1			

30	Construction of township/colony (residential quarters) for staff and employees of the employer. Layout, design, survey, levelling, site dressing and clearing of the area, soil investigation, excavation, PCC, RCC, Fly ash Brick work, plastering ,flooring(flooring shall be with vitrified tiles of reputed make with a dado of minimum6 inches),fixing of doors windows and window grills, including all labour, T&P, material like cement ,sand aggregate, Fly ash 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,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. (RCC column structure frame and the Fly ash Bricks to be used shall be fly ash Fly ash Brick, all the door and window frame & panels shall be aluminium with adequate size as indicated in the TS and also as per the National Building Code adopted.									
30.1	"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.MTRS	120	0	0	120				
30.2	"E" type Quarter As per technical specification (Two nos. 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) Total Two Nos Flats with 8 No Quarters to be constructed.									
30.2.1	"E" type Quarter As per technical specification: 4 nos quarters on ground floor (Each quarter size plinth area shall be 73 Sq Mtrs(appox)	SQ.MTRS	292	0	0	292				
30.2.2	"E" type Quarter As per technical specification: 4 nos quarters on first floor(Each quarter size plinth area shall be 73 Sq Mtrs(appox)	SQ.MTRS	292	0	0	292				
TOTAL OF ERECTION SUBSTATION (PART-A-Civil Work)										
PART B	ELECTRICAL WORKS									
1	ERECTION OF SUPERSTRUCTURE :									
1.1	Supply of labour,T&P and other necessary arrangements for erection of Columns,Beams,Equipments supporting structures & Nuts and Bolts	MT	399.180	67.517	19.332	486.029				

2	ERECTION OF EQUIPMENTS:Supply of all labour ,T&P and Transportation from the site store,erections as per specification and testing commissioning etc as per the instruction of the Engineer-in-charge.								
2.1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)	NOS	21	6	0	27			
2.2	245 KV,2000A,40KA,ISOLATORS								
2.2.1	S/I WITH OUT EARTH SWITCH	NOS	17	6	0	23			
2.2.2	S/I WITH SINGLE EARTH SWITCH	NOS	7	2	0	9			
2.2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	9	2	0	11			
2.3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6	0	12			
2.4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	6	2	0	8			
2.5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	15	6	0	21			
2.6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	0	0	6			
2.7	220 KV Bus Post Insulators	NOS	75	16	0	91			
2.8	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	0	6	21			
2.9	145 KV,1250A,31.5KA,ISOLATORS								
2.9.1	S/I WITH OUT EARTH SWITCH	NOS	9	0	2	11			
2.9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	0	2	4			
2.9.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	0	2			
2.10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	0	6	12			
2.11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	0	6	18			
2.12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	0	0	3			
2.13	132 KV Bus Post Insulators	NOS	12	0	4	16			
2.14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	0	2	7			
2.15	36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI & 1 0.2s CI)	NOS	6	0	0	6			
2.16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)	NOS	6	0	0	6			
2.17	36 KV,1250A,25KA,ISOLATORS								
2.17.1	S/I WITH OUT EARTH SWITCH	NOS	5	0	0	5			
2.17.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	0	0	2			
2.17.3	D/I WITHOUT EARTH SWITCH	NOS	1	0	0	1			
2.17.4	S/I WITH BEAM MOUNTED	NOS	2	0	0	2			
2.18	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	15	0	0	15			
2.19	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0	0	3			
2.20	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	4	0	0	4			
2.21	33 KV Bus Post Insulators	NOS	15	0	0	15			
3	BUS-BAR STRINGING								

3.1	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, Aluminium Tubes, connections to Equipments,testing,commissioning etc. as per the instruction of Engineer-in charge.								
3.1.1	Single conductor/Phase/Mtr.	KM	3.5	0.6	0.4	4.5			
3.1.2	Twin Conductor /Phase/Mtr.	KM	2.5	0.4	0.2	3.1			
3.1.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side including all clamps and connectors.	MTRS	480	0	0	480			
4	EARTH WIRES & IT'S HARDWARES & FITTING								
4.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)	NOS	36	8	0	44			
4.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	25	0	5	30			
4.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	16	0	0	16			
5	SUB-STATION EARTH-MAT								
5.1	Substation earth-mat Design, engineering, supply inclusive of corrosion protection measures if any,laying of earth-mat conductors of Hot dip galvanized flats of size 75X10mm to the approval of Project Manager, excavation, welding/jointing ,application of two coats of bituminous Paint,wrapping of HT Tape etc of ground conductors along with risers (of size 50X6 mm GI flats) etc back filling and good compaction,grounding driven rods(40 mm MS solid rod),perforated GI pipes for treated earth pits(with details of treatment as per IS). The spacing between the earth conductor not more than 5 mtrs(both way) and to be buried at depth of 700mm from the finished ground level. For provision of treated earth-pit and untreated earth pit, refer the specification for designing. Provision of water taps inside the switch yard areas and peripheral treated and untreated earth pit are required to be provided for watering the treated earth pits. The no. of treated and un treated earth pits are to be done as per the practice and as indicated in the drawing for different equipments. This is as per approved drawing and specification.								
5.1.1	(i)75x10 MM GI FLAT	MTRS	6500	1575	1250	9,325			
5.1.2	(ii)50x6 MM GI FLAT	MTRS	5400	1050	1000	7,450			
5.1.3	(iii)40 MM MS ROD FOR NON-TREATED EARTH PIT ELECTORDE	NOS	190	30	25	245			
5.1.4	50MM GI PIPE FOR TREATED EARTH PIT ELECTORDE WITH CHAMBER AND COVER	NOS	240	50	40	330			
5.1.5	Providing and supplying all labour, material, equipments etc. required for PIPE TYPE earthing by using Pipe-in-Pipe earthing electrode in order to minimize the earth resistance OF THE SWITCH-YARD below 0.5 OHM.	NOS	4	0	0	4			
6	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.								
6.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	2000	250	200	2,450			
6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	3500	200	180	3,880			
6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	2500	100	80	2,680			

6.4	Support G. I angle 50x50x6 mm for cable tray	MT	4	0.5	0.5	5			
7	SUB STATION SWITCHYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES								
7.1	BAY MARSHALLING KIOSK (03 nos on 220 kV bay 03 nos on 132 kV bay & 01Nos 33 KV bay)	NOS	7	1	1	9			
7.2	SWITCH YARD AC CONSOLE FOR LIGHTING (01 nos on 220 kV bay 01 no on 132 bay & 01 No in 33KV bay)	NOS	3	1	1	5			
7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (01 no. near 220/33 KV power Transformer &01 no near 100/160 MVA Auto Transformer)	NOS	3	0	0	3			
7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 nos on 220 & 132 kV bay&01 no near 220/33 KV Bays)	NOS	3	1	1	5			
8	Laying of Power and Control Cable including fixing of cable with terminal connections both at equipments and control panels with supply of and fixing of lugs,Ferrules,clamps,connectors,glands,fixing of cable trays, including supply of N&B,Link plates,Cable Markers,PVC pipes Bends,Plaster of Paris, M-Seal compounds etc for sealing purpose and all necessary arrangements,laying of Earthing Flats,earthing ,laying of Cable trench slabs and chequered plate etc for the cable trench,Cable scheduled and cable diagram to be prepared by the contractor								
8.1	POWER CABLES,1.1KV,XLPE & PVC ARMoured, ALUMINIUM CONDUCTOR (As per Specification)								
8.1.1	XLPE 3.5 CX300 mm ²	MTR	1000	0	0	1,000			
8.1.2	XLPE 3.5 CX185 mm ²	MTR	1000	0	0	1,000			
8.1.3	XLPE 3.5 CX120 mm ²	MTR	800	300	0	1,100			
8.1.4	PVC 3.5 CX70 mm ²	MTR	1300	0	0	1,300			
8.1.5	PVC 3.5 CX35 mm ²	MTR	4000	0	500	4,500			
8.1.6	PVC 4 CX 16 mm ²	MTR	2200	200	500	2,900			
8.1.7	PVC 4CX 6 sqmm	MTR	6000	600	500	7,100			
8.1.8	PVC 2CX 6 sqmm	MTR	5500	600	400	6,500			
8.2	CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)								
8.2.1	2 CX 2.5 mm ²	MTR	5400	500	1000	6,900			
8.2.2	4 CX 2.5 mm ²	MTR	10000	1000	5000	16,000			
8.2.3	5 CX 2.5 mm ²	MTR	5500	250	1000	6,750			
8.2.4	7CX 2.5 mm ²	MTR	5500	800	1000	7,300			
8.2.5	10 CX 2.5 mm ²	MTR	11000	1200	2000	14,200			
8.2.6	12 CX 2.5 mm ²	MTR	9500	900	2000	12,400			
8.2.7	16 CX 2.5 mm ²	MTR	5500	500	1000	7,000			
8.2.8	19 CX 2.5 mm ²	MTR	3000	400	1000	4,400			
8.2.9	1CX 120 mm ² BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1200	150	200	1,550			
9	ERECTION FOR OPGW System								
9.1	Erection/comissioning of SDH/MUX along with termination with FODP	No	1	1	0	2			
9.2	Erection/commissioning of RTU along with fixing,cablng of MFMs	No	1	0	0	1			
9.3	Erection/commissioning of digital tele-protection coupler	No	1	1	0	2			
9.4	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	0	0	1			
9.5	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	0	0	1			

10	ERECTION,FILTRATION,TESTING & COMMISSIONING OF POWER TRANSFORMER & ITS OTHER RELATED ACCESSORIES								
10.1	ERECTION OF TRANSFORMER & 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 ERECTION INCLUDING T&P's.	Nos	1	0	0	1			
11.0	ERECTION,FILTRATION,TESTING & COMMISSIONING OF AUTO TRANSFORMER & ITS OTHER RELATED ACCESSORIES								
11.1	ERECTION OF TRANSFORMER & 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 ERECTION INCLUDING T&P's.	Nos	2	0	0	2			
12.00	ERECTION,TESTING & COMMISSIONING OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION								
12.1	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)	NOS	2	0	0	2			
12.2	Erection of other materials for commissioning of station transformers								
12.2.1	H/DG 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].	SET	2	0	0	2			
12.2.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SET	2	0	0	2			
12.2.3	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SET	2	0	0	2			

13.0	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.									
13.1	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	90	16	16	122				
13.2	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									
13.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj).(100 watt each) for Street Light.	SET	40	0	0	40				
13.2.2	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	40	0	0	40				
13.2.3	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	0	1				
13.2.4	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	0	1				
13.5	2 TR CAPACITY SPLIT AIR CONDITIONING UNITS WITH REMOTE CONTROL FACILITY: INCLUDING SUPPLY OF 5 star rated AIR CONDITIONERS, Automatic Voltage Stabiliser,CONTROL BOXES ETC FOR COMPLETING THE A.C SCHEME.(AS PER SPECIFICATION) FOR CONTROL ROOM, CARRIER ROOM & CONFERENCE ROOM.,OFFICE ROOM etc (*SUPPLY OF CABLES ARE COVERED IN CABLE ITEMS AS INDICATED ABOVE)	SET	20	3	3	26				

14.0	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)									
14.1	FOAM TYPE-9 LTRS	NOS	6	1	1	8				
14.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	1	1	8				
14.3	DRY POWDER TYPE - 5 KGS	NOS	6	1	1	8				
14.4	CO2 - 4.5 KGS	NOS	10	2	2	14				
14.5	CO2 - 9 KGS	NOS	10	2	2	14				
14.6	CO2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	1	1	6				
14.7	9 litre water type	Nos.	4	1	1	6				
14.8	50 Litres Mechanical Foam type	Nos.	2	0	0	2				
14.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	5	0	0	5				
15	SUBSTATION AUTOMATION SYSTEM: Erection of the following equipments in 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C & E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C & E/F relay,Transformer trouble relay etc. & Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System & Numerical bay control unit etc. Civil works & weilding works, supply and installation of HDPE pipe for Optical fibre cable routing, and all other equipments as listed below as per the direction of the engineer in charge. This includes design ,drawing, supervision, installation , testing & commissioning. Supply of documentation, manuals, drawing, software & training.									
15.1	220KV Level									
15.1.1	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3300mm (H) with AC, as per the Specification;	Nos.	2	0	0	2				
15.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards.IEC 61850 protocol. (The BCU for transformer panels should have provision to accommodate required Analogue Inputs).	Nos.	6	0	0	6				
15.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	4	0	0	4				
15.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	3	0	0	3				
15.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	6	0	0	6				
15.1.6	High Impedance REF Relay	Nos.	4	0	0	4				
15.1.7	Numerical Centralised Bus bar protection.	Nos.	1	0	0	1				
15.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	12	0	0	12				
15.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	6	0	0	6				
15.1.10	MPG - TEST BLOCK 2	Nos.	26	0	0	26				
15.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	11	0	0	11				
15.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	12	0	0	12				
15.1.13	Line interface unit;	sets.	3	0	0	3				
15.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	4	0	0	4				
15.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1000	0	0	1,000				

15.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper	Set	6	0	0	6
15.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2	0	0	2
15.1.18	TIME SYNCH EQUIPMENT	NOS	1	0	0	1
15.2	132KV Level					
15.2.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification;	Nos.	2	0	0	2
15.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5	0	0	5
15.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2	0	0	2
15.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	0	0	0	0
15.2.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5	0	0	5
15.2.6	High Impedance REF Relay	Nos.	0	0	0	0
15.2.7	Numerical Centralised Bus bar protection.	Nos.	0	0	0	0
15.2.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10	0	0	10
15.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	0	0	0	0
15.2.10	MPG - TEST BLOCK 2	Nos.	14	0	0	14
15.2.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	5	0	0	5
15.2.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10	0	0	10
15.2.13	Line interface unit;	sets.	3	0	0	3
15.2.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6	0	0	6
15.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	1,000	0	0	1,000
15.2.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	5	0	0	5
15.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2	0	0	2
15.3	33KV Level					
15.3.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;	Nos.	1	0	0	1
15.3.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	4	0	0	4
15.3.3	DC Supervision Relay	Nos.	8	0	0	8
15.3.4	TRIP Relay	Nos.	4	0	0	4
15.3.5	Test Block	Nos.	8	0	0	8
15.3.6	Line interface unit;	sets.	2	0	0	2
15.3.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	0	0	3
15.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	500	0	0	500
15.3.9	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 900mm (D) X 900mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	2	0	0	2
15.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	0	0	1
15.4	Station Level					
15.4.1	Windows based Industrial computer with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, . Main & Back up. With automation softwares. Main	set	2	0	0	2

15.4.2	Windows based PC with standard accessories – Keyboard, mouse, monitor with operating software window 10 or 8, IED configuration, substation automation, Disturbance recorder software. DR & work Station PC.Client	set	1	0	0	1			
15.4.3	Color Laser jet Printer	No.	1	0	0	1			
15.4.4	UPS , 3KVA	No.	2	0	0	2			
15.4.5	GPS System with PTP	set	1	0	0	1			
15.4.6	Gateway for SCADA	set	1	0	0	1			
15.5	PROTECTION,CONTROL METERING, BUS BAR PROT N PAN FOR KATAPALI & BOUDH AS PER TECH SPEC								
15.5.1	220KV FEEDER CONTROL PANEL	set	0	2	0	2			
15.5.2	220KV FEEDER RELAY PANEL	set	0	2	0	2			
15.5.3	132KV FEEDER CONTROL PANEL	set	0	0	2	2			
15.5.4	132KV FEEDER RELAY PANEL	set	0	0	2	2			
16	AC & DC SYSTEM								
16.1	AC SYSTEM								
16.1.1	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	0	1			
16.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1,AC DB-2 WITH B/C)	SET	1	0	0	1			
16.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)	SET	1	0	0	1			
16.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	0	0	1			
16.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	0	0	1			
16.1.6	INDOOR RECEPTACLE BOARD	SET	1	0	0	1			
16.2	DC SYSTEM								
16.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)	SET	1	0	0	1			
16.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	0	0	1			
16.3	BATTERY (350 AH PLANTE TYPE) for 220 V DC	SET	2	0	0	2			
16.4	BATTERY CHARGER FOR 220 V, 350 AH (Float and Float cum Boost)	SET	2	0	0	2			
16.5	DISTILLED WATER PLANT of 10 L/Hr FOR BATTERY BANKS	NOS	1	0	0	1			

17	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.	SET	1	0.5	0.5	2				
18	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	NOS	1	0	0	1				
19	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1	0	0	1				
20	MAINTENANCE TESTING EQUIPMENT (AS PER ANNEXURE - I, INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1	0	0	1				
21	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER ANNEXURE - II, INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OTHER T&P's)	SET	1	0	0	1				
22	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	0	1				
23	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NOS	45	10	10	65				
24	WALKIE TALKIE SET	SET/PAIR	2	0	0	2				
25	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	0	0	2				
	TOTAL OF ERECTION SUBSTATION (PART-B-Electrical Work)									
	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:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] -

FB No: [CPC/JICA/ICB/07/16-17/-]

Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad (Transmission Line-220KV)

NAME OF THE BIDDER

Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-2A-LINE) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	Code ¹	UNITS	QUANTITY: Construction of 220 KV D/C line from existing 220/132 KV grid S/S at Katapali, Burla to proposed 220/132/33 KV grid S/S at KIAKATA. (Line length-125 Kms approximately).	TOTAL QUANTITY	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	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.35 MT)		MT	327	1422.45			
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.725MT)		MT	149	108.025			
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.448 MT)		MT	65	94.12			
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.575 MT)		MT	45	295.875			
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.242 MT)		MT	18	22.356			
1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.132 MT)		MT	11	23.452			
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.8398MT)		MT	42	413.2716			
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.474MT)		MT	9	13.266			

1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.597 MT)		MT	7	18.179			
1.3.3	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.555 MT)		MT	4	34.22			
1.3.4	+24 EXTENSION (NOMINAL UNIT WEIGHT 15.459 MT)			2	30.918			
1.4	UR TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 13.585 MT)		MT	4	54.34			
1.4.1	+6 EXTENSION (NOMINAL UNIT WEIGHT 4.249 MT)		MT	4	16.996			
1.5	TEMPLATES							
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579 MT)		MT	6	3.474			
1.5.2	OB (NOMINAL UNIT WEIGHT 0.815 MT)		MT	4	3.26			
1.5.3	OC (NOMINAL UNIT WEIGHT 0.984 MT)		MT	4	3.936			
1.5.4	OC+15 (NOMINAL UNIT WEIGHT 2.073 MT)			1	2.073			
1.5.5	UR (NOMINAL UNIT WEIGHT 1.507 MT)		MT	1	1.507			
1.6	WEIGHT OF THE STRUCTURES & Tempates including Tower Stub		MT		2561.72			
1.6.1	Weight of different type G.I Nuts and Bolts		MT		129			
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.		418			
2.2	DANGER BOARD		Nos.		418			
2.3	NUMBER PLATE		Nos.		418			
2.4	PHASE PLATE		Nos.		2508			
2.5	BIRD GUARD		Nos.		1308			
2.6	ANTICLIMBING DEVICE		Nos.		418			
2.7	CIRCUIT PLATE		Nos.		836			
2.8	COUNTERPOISE EARTHING		Nos.		6			
3.0	Supply of following POWER CONDUCTORS in the proposed 220kV lines including provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.							
3.1	ACSR Zebra (54/7/3.18mm)		Kms.		785.23			
4.0	POWER CONDUCTOR ACESSORIES							
4.1	For ACSR ZEBRA							
4.1.1	VIBRATION DAMPER		Nos.		5028			
4.1.2	MID SPAN JOINT		Nos.		750			
4.1.3	Repair Sleeve		Nos.		750			
4.1.4	PREFORMED ARMOUR ROD		Nos.		1962			
5.0	Supply of the following Type Long Rod PORCILAIN insulators as per the technical specification and as per the instruction of the Engineer in charge.							
5.1	220 KV LONG ROD 160 KN PORCILAIN INSULATOR (2 Nos in 1 SET)		SET		1386			
5.2	220 KV LONG ROD 90 KN PORCILAIN INSULATOR		Nos		2241			
6.0	Supply of the following hard ware fittings suitable for following conductors as per the technical specification.							
6.1	For ACSR ZEBRA							
6.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set		1861			

6.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set		190		
6.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.		Set		882		
6.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.		Set		252		
7.0	"D" Shackle		Nos.		50		
8.0	Hanger		Nos.		1962		
9.0	U'-Bolt.		Nos		327		
10.0	OPGW fibre Optic Cable & Hardwares						
10.1	24 Fibre(DWSM)OPGW fibre Optic Cable		Kmtr		125		
10.2	OPGW hardware set like suspension Asembly,Tension Assembly(Dead end assembly, Pass through assembly) ,Vibration Damper,Down Lead Clamp Assembliesfor 24 Fibre(DWSM) OPGW,Joint Box		Kmtr		125		
TOTAL OF Schedule-1 Line-220KV To Schedule-6 Grand Summary							

Name of Bidder: _____

Signature of Bidder: _____

¹ Bidders shall enter a code representing 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:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17]- Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 4. Installation and Other Services (TRANSMISSION LINE 220KV)

NAME OF THE BIDDER

Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-2C-LINE) ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNIT	QUANTITY: Construction of 220 KV D/C line from existing 220/132 KV grid S/S at Katapali, Burla to proposed 220/132/33 KV grid S/S at KIAKATA. (Line length-125 Kms approximately).	Unit Price ¹		Total Price ¹		
				Total Quantity	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							
1.0	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	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.35 MT)	MT	327	327				
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.725MT)	MT	149	149				
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.448 MT)	MT	65	65				
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.575 MT)	MT	45	45				

1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.242 MT)	MT	18	18				
1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.132 MT)	MT	11	11				
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.8398MT)	MT	42	42				
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.474MT)	MT	9	9				
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.597 MT)	MT	7	7				
1.3.3	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.555 MT)	MT	4	4				
1.3.4	+24 EXTENSION (NOMINAL UNIT WEIGHT 15.459 MT)		2	2				
1.4	UR TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 13.585 MT)	MT	4	4				
1.4.1	+6 EXTENSION (NOMINAL UNIT WEIGHT 4.249 MT)	MT	4	4				
1.5	WEIGHT OF THE STRUCTURES (including Tower stubs, Templates & Foundation Nut and Bolts)	MT		2676.470				
1.7	Fixing of of Templates & setting of stubs							
1.7.1	OA Type	MT	327	189.333				
1.7.2	OB Type	MT	45	36.675				
1.7.3	OC Type	MT	36	36.984				
1.7.4	OC +15 Type	MT	4	8.292				
1.7.5	OC +24 Type	MT	2	4.146				
1.7.6	UR Type	MT	4	6.028				
2.0	Erection of the following tower accessories as per technical specification and as directed by the engineer in charge.							
2.1	DANGER BOARD	Nos.		418				
2.2	NUMBER PLATE	Nos.		418				
2.3	PHASE PLATE	Nos.		2508				
2.4	BIRD GUARD	Nos.		1308				
2.5	ANTICLIMBING DEVICE	Nos.		418				
2.6	CIRCUIT PLATE	Nos.		836				
3	Hoisting and fixing of insulators with required accessories, paying out of conductor ,jointing, stringing, sagging & Jumpering etc. of power conductor with G.I. Earth wire in the proposed lines and without earth wire 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.							
3.1	DOUBLE CIRCUIT(ACSR ZEBRA, SIX POWER CONDUCTOR)	RKM		124.64				
4	Erection of OPGW cables & hardware sets	Kms.		125				
5	WELDING OF TOWER MEMBERS							
5.1	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.		164470				
6	EARTHING OF TOWER							
6.1	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.		418				

6.2	COUNTER POISE EARTHING	Nos.		6				
	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.		124.64				
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.		124.64				
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 220 KV line. Final route to be plotted on 1:50000 topo sheet for approval.	KM.		124.64				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.		173				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 45 Mtrs.	Per Loc.		2				
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							
2.1.1	Soft/Loose soil	CUM		500				
2.1.2	Dense/Compact soil	CUM		5000				
2.1.3	Wet soil	CUM		6000				
2.1.4	Partial Submerged soil	CUM		200				
2.1.5	Fully submerged soil	CUM		20000				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM		9500				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM		10000				
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	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 tower 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		450				
3.2	Design, Engineering and laying of reinforced cement concrete (RCC1:1.5:3) of grade M20 for open cast foundation with supply of approved quality coarse aggregates(Nominal size 12mm to 20mm), fine aggregates, cement and inclusive of labour charges for concrete mixing, supply and fixing of form boxes, curing, shoring, shuttering, testing of sample cement concrete cubes as per IS. The height of the coping shall be 350mm above the finished concrete level. The surrounding area shall be clear from materials. Damage of land if any by the contractor shall be repaired before measurement. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	CUM		8475				
3.3	Supply and Cutting bending hooking ,fixing and binding in poision of MS bars for rainforcement of foundation concrete of towers including supply of wire for binding (With supply of steel rod(TATA/RINL/SAIL Make).	MT		160				
3.4	PILE FOUNDATION (UNDER-REAMED)							
3.4.1	Boring for under reamed cast in situ piling with betonite showing for stabilisation of bore pile diameter (500mm) & approximate length of the bore is 10 Mtrs with under reamed	Mtr		400				
3.4.2	Supply of all materials like cement ,all coarse aggregates,labours , T&P & making pile foundation as per specification in R.C.C: 1:1.5:3(Grade M20) (Without cost of steel)	CUM		131.25				
3.4.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (Under reem Pile) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT		10				
3.4.4	Pile riser (if required) ,cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	CUM		37.5				
3.4.5	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (pile riser &capping) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT		2.5				
3.5	PileFOUNDATION IN THE RIVER BED							

3.5.1	Supply of all materials like cement , steel, all coarse aggregates, fine aggregates and making 1000 mm dia pile foundations (after pile boring as per required depth, basing on design by DMC method or motor driven machinery etc.) of the required above mentioned type towers and as per requirement including supply of all equipments with labours, proper curing of the foundations and T&P as per specification in the concrete grade M-25 including supply of Bentonite required for stabilization bore of required diameter bore holes applicable for piles upto the required depth.						
3.5.1.1	Boring for river bed cast in situ piling	Mtrs.		250			
3.5.1.2	Concrete ratio 1:1:2 (Grade M-25) without supply of Steel for river bed piling	Cum		312.5			
3.5.1.3	Cutting , bending, hooking, fixing and binding in position of MS bar for reinforcement of foundation concrete of towers including supply of steel and binding wire	MT		30			
3.5.1.4	Fixing charges of MS Liner including the supply of materials like MS Sheet of adequate thickness, fabrication, cutting, bending, binding, putting the liner in appropriate position and other related works	MT		61.25			
3.5.2	PILE RISER, CAPPING, PEDESTAL & TIE BEAM CONCRTE WORKS OF RIVER BED PILE						
3.5.2.1	PCC (Lean Concrete) in the ratio 1:3:6 (Grade M-10)	Cum		16.25			
3.5.2.2	Pile riser (if required),cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	Cum		297.5			
3.5.2.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (pile riser &capping) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT		15			
4	DE-WATERING(FOR OPEN CAST LOCATION)						
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour		8000			
5	Supply of borrowed earth/morrum for back filling for foundation/revertment works						
5.1	Beyond 30 mtr lead	CUM		2000			
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.		8500			
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		70000			
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.		164470				
9	REVTMENT: (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		7594.68				
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM		1073.64				
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM		133.58				
9.4	RR Massonary work in the ratio 1:5.	CUM		8347.32				
10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. Way-Leave blockade charges and any other charges are to be borne by the bidders. 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 Civil Work-PART-B								
TOTAL OF ERECTION LINE-220KV (Electrical Work) & (Civil Work) -To Schedule-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:- Construction of 220/132 KV Sub-station with 2X160 MVA, 220/132KV &1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17/-] Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Abroad (Transmission Line-220KV)

NAME OF THE BIDDER

Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-2A-LINE) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	UNITS	QUANTITY:Construction of 220 KV D/C line from existing 220/132 KV grid S/S at Katapali, Burla to proposed 220/132/33 KV grid S/S at KIAKATA.(Line length-125 Kms approximately).	TOTAL QUANTITY	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	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.35 MT)	MT	327	1422.45		
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.725MT)	MT	149	108.025		
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.448 MT)	MT	65	94.12		
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.575 MT)	MT	45	295.875		
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.242 MT)	MT	18	22.356		

1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.132 MT)	MT	11	23.452		
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.8398MT)	MT	42	413.2716		
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.474MT)	MT	9	13.266		
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.597 MT)	MT	7	18.179		
1.3.3	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.555 MT)	MT	4	34.22		
1.3.4	+24 EXTENSION (NOMINAL UNIT WEIGHT 15.459 MT)		2	30.918		
1.4	UR TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 13.585 MT)	MT	4	54.34		
1.4.1	+6 EXTENSION (NOMINAL UNIT WEIGHT 4.249 MT)	MT	4	16.996		
1.5	TEMPLATES					
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579 MT)	MT	6	3.474		
1.5.2	OB (NOMINAL UNIT WEIGHT 0.815 MT)	MT	4	3.26		
1.5.3	OC (NOMINAL UNIT WEIGHT 0.984 MT)	MT	4	3.936		
1.5.4	OC+15 (NOMINAL UNIT WEIGHT 2.073 MT)		1	2.073		
1.5.5	UR (NOMINAL UNIT WEIGHT 1.507 MT)	MT	1	1.507		
1.6	WEIGHT OF THE STRUCTURES & Tempates including Tower Stub	MT		2561.72		
1.6.1	Weight of different type G.I Nuts and Bolts	MT		129		
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.		418		
2.2	DANGER BOARD	Nos.		418		
2.3	NUMBER PLATE	Nos.		418		
2.4	PHASE PLATE	Nos.		2508		
2.5	BIRD GUARD	Nos.		1308		
2.6	ANTICLIMBING DEVICE	Nos.		418		
2.7	CIRCUIT PLATE	Nos.		836		
2.8	COUNTERPOISE EARTHING	Nos.		6		
3.0	Supply of following POWER CONDUCTORS in the proposed 220kV lines including provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.					
3.1	ACSR Zebra (54/7/3.18mm)	Kms.		785.23		
4.0	POWER CONDUCTOR ACESSORIES					
4.1	For ACSR ZEBRA					
4.1.1	VIBRATION DAMPER	Nos.		5028		
4.1.2	MID SPAN JOINT	Nos.		750		
4.1.3	Repair Sleeve	Nos.		750		
4.1.4	PREFORMED ARMOUR ROD	Nos.		1962		
5.0	Supply of the following Type Long Rod Porcelain insulators as per the technical specification and as per the instruction of the Engineer in charge.					
5.1	220 KV LONG ROD 160 KN PORCILAIN INSULATOR (2 Nos in 1 SET)	SET		1386		
5.2	220 KV LONG ROD 90 KN PORCILAIN INSULATOR	Nos		2241		

6.0	Supply of the following hard ware fittings suitable for following conductors as per the technical specification.					
6.1	For ACSR ZEBRA					
6.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set		1861		
6.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set		190		
6.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.	Set		882		
6.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.	Set		252		
7	"D" Shackle	Nos.		50		
8	Hanger	Nos.		1962		
9	U'-Bolt.	Nos		327		
10	OPGW fibre Optic Cable & Hardwares					
10.1	24 Fibre(DWSM)OPGW fibre Optic Cable	Kmtr		125		
10.2	OPGW hardware set like suspension Asembly,Tension Assembly(Dead end assembly, Pass through assembly) ,Vibration Damper,Down Lead Clamp Assembliesfor 24 Fibre(DWSM) OPGW,Joint Box	Kmtr		125		
TOTAL OF Schedule-2 Line-220KV 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:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17/]- Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad (Transmission Line-132KV)

NAME OF THE BIDDER

Sl. No.	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	Code ¹	UNITS	QUANTITY FOR: Construction of proposed 132 KV DC line from existing 132/33 KV grid S/S at Boudh to proposed 200/132 KV grid S/S at KIAKATA. (Line length-20 Kms approximately).	TOTAL QUANTITY	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)		MT	45	154.35			
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT)		MT	18	11.00			
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT)		MT	0	0.00			
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT)		MT	15	74.60			
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT)		MT	3	3.05			
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT)		MT	0	0.00			
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 6.214 MT)		MT	12	74.57			
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT)		MT	4	4.48			
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT)		MT	0	0.00			

1.4	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.585 MT)		Nos	4	54.34			
1.4.1	+3 EXTENSION (Nominal unit weight 2.538 MT)		Nos	1	2.54			
1.4.2	+6 EXTENSION (Nominal unit weight 4.249 MT)		Nos	2	8.50			
1.4	TEMPLATES							
1.4.1	PA (Nominal unit weight 0.665 MT)		MT	3	2.00			
1.4.2	PB (Nominal unit weight 0.602 MT)		MT	2	1.20			
1.4.3	PC (Nominal unit weight 0.904 MT)		MT	1	0.90			
1.4.4	UR (Nominal unit weight 1.476 MT)		MT	1	1.48			
1.5	WEIGHT OF THE STRUCTURES & Tempates including Tower Stub		MT		392.996			
1.6	Weight of different type G.I Nuts and Bolts		MT		20.24			
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.		76			
2.2	DANGER BOARD		Nos.		76			
2.3	NUMBER PLATE		Nos.		76			
2.4	PHASE PLATE		Nos.		456			
2.5	BIRD GUARD		Nos.		180			
2.6	ANTICLIMBING DEVICE		Nos.		76			
2.7	CIRCUIT PLATE		Nos.		152			
2.8	COPER EARTH BOND		Nos.		108			
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.		122			
4.0	POWER CONDUCTOR ACESSORIES							
4.1	For ACSR PANTHER							
4.1.1	VIBRATION DAMPER		Nos.		924			
4.1.2	MID SPAN JOINT		Nos.		120			
4.1.3	REPAIR SLEEVE		Nos.		120			
4.1.4	P A ROD FOR ACSR PANTHER		Nos.		270			
5.0	Supply of OPGW fibre Optic Cable for speech, data & protection							
5.1	24 fibre (DWSM) OPGW fibre optic cable along with hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 24fibre (DWSM) OPGW joint Box		Kms.		10			
5.2	48 fibre (DWSM) OPGW fibre optic cable along with hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 48fibre (DWSM) OPGW joint Box		Kms.		14			
6.0	Supply of the following Long Rod type Porcelain insulators as per the technical specification and as per the instruction of the Engineer in charge.							
6.1	90 KN Long Rod Porcelain Insulator		Nos.		317			
6.2	120 KNLong Rod Porcelain Insulator		Nos.		430			

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 suitable for 90 KN Long Rod insulator.		SET		245		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		SET		31		
7.1.3	Single tension Hard wares fittings suitable for 120 KN Long Rod insulator.		SET		343		
7.1.4	Double tension Hard wares fittings suitable for 120 KN Long Rod insulator.		SET		37		
7.1.5	"D" Shackle		Nos.		50		
7.1.6	Hanger		Nos.		270		
7.1.7	U'-Bolt.		Nos		45		
	TOTAL OF Schedule-1 -132KV Line To Schedule-6 Grand Summary						

Name of Bidder: _____

Signature of Bidder: _____

¹ Bidders shall enter a code representing 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:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17/-] Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Abroad (Transmission Line-132KV)

NAME OF THE BIDDER

Sl. No.	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	QUANTITY FOR: Construction of proposed 132 KV DC line from existing 132/33 KV grid S/S at Boudh to proposed 200/13/32 KV grid S/S at KIAKATA. (Line length-20 Kms approximately).	TOTAL QUANTITY	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)	MT	45	154.35		
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT)	MT	18	11.00		
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT)	MT	0	0.00		
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT)	MT	15	74.60		
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT)	MT	3	3.05		
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT)	MT	0	0.00		

1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214 MT)	MT	12	74.57		
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT)	MT	4	4.48		
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT)	MT	0	0.00		
1.4	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.585 MT)	Nos	4	54.34		
1.4.1	+3 EXTENSION (Nominal unit weight 2.538 MT)	Nos	1	2.54		
1.4.2	+6 EXTENSION (Nominal unit weight 4.249 MT)	Nos	2	8.50		
1.4	TEMPLATES					
1.4.1	PA (Nominal unit weight 0.665 MT)	MT	3	2.00		
1.4.2	PB (Nominal unit weight 0.602 MT)	MT	2	1.20		
1.4.3	PC (Nominal unit weight 0.904 MT)	MT	1	0.90		
1.4.4	UR (Nominal unit weight 1.476 MT)	MT	1	1.48		
1.5	WEIGHT OF THE STRUCTURES & Tempates including Tower Stub	MT		392.996		
1.6	Weight of different type G.I Nuts and Bolts	MT		20.24		
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.		76		
2.2	DANGER BOARD	Nos.		76		
2.3	NUMBER PLATE	Nos.		76		
2.4	PHASE PLATE	Nos.		456		
2.5	BIRD GUARD	Nos.		180		
2.6	ANTICLIMBING DEVICE	Nos.		76		
2.7	CIRCUIT PLATE	Nos.		152		
2.8	COPER EARTH BOND	Nos		108		
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.		122		
4.0	POWER CONDUCTOR ACESSORIES					
4.1	For ACSR PANTHER					
4.1.1	VIBRATION DAMPER	Nos.		924		
4.1.2	MID SPAN JOINT	Nos.		120		
4.1.3	REPAIR SLEEVE	Nos.		120		
4.1.4	P A ROD FOR ACSR PANTHER	Nos.		270		
5.0	Supply of OPGW fibre Optic Cable for speech, data & protection					
5.1	24 fibre (DWSM) OPGW fibre optic cable along with hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 24fibre (DWSM) OPGW joint Box	Kms.		10		
5.2	48 fibre (DWSM) OPGW fibre optic cable along with hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 48fibre (DWSM) OPGW joint Box	Kms.		14		

6.0	Supply of the following Long Rod type Porcelain insulators as per the technical specification and as per the instruction of the Engineer in charge.					
6.1	90 KN Long Rod Porcelain Insulator	Nos.		317		
6.2	120 KN Long Rod Porcelain Insulator	Nos.		430		
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 suitable for 90 KN Long Rod insulator.	SET		245		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	SET		31		
7.1.3	Single tension Hard wares fittings suitable for 120 KN Long Rod insulator.	SET		343		
7.1.4	Double tension Hard wares fittings suitable for 120 KN Long Rod insulator.	SET		37		
7.1.5	"D" Shackle	Nos		50		
7.1.6	Hanger	Nos		270		
7.1.7	U'-Bolt.	Nos		45		
TOTAL OF Schedule-2 Line-132KV 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.-						

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV &1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - **FB No:** [CPC/JICA/ICB/07/16-17/]- **Reference Identification No:** [OPTCL/JICA/PKG-7]

Schedule No. 4. Installation and Other Services (TRANSMISSION LINE 132KV)

NAME OF THE BIDDER

SI. No.	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	QUANTITY FOR: Construction of proposed 132 KV DC line from existing 132/33 KV grid S/S at Boudh to proposed 200/13/32 KV grid S/S at KIAKATA. (Line length-20 Kms approximately).	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	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)	MT	45	154.35				

1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT)	MT	18	10.998				
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT)	MT	0	0				
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT)	MT	15	74.595				
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT)	MT	3	3.054				
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT)	MT	0	0				
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214 MT)	MT	12	74.568				
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT)	MT	4	4.476				
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT)	MT	0	0				
1.4	UR TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 13.585 MT)	Nos	4	54.34				
1.4.1	+3 EXTENSION (Nominal unit weight 2.538 MT)	Nos	1	2.538				
1.4.2	+6 EXTENSION (Nominal unit weight 4.249 MT)	Nos	2	8.498				
1.3.3	WEIGHT OF THE STRUCTURES & Tempates including Tower Stub	MT		387.417				
1.4	Weight of different type G.I Nuts and Bolts	MT		20.24				
1.5	Fixing of of Templates & Setting of Stub							
1.5.1	PA (Nominal unit weight 0.915 MT)	MT	45	41.175				
1.5.2	PB (Nominal unit weight 1.0468 MT)	MT	15	15.702				
1.5.3	PC (Nominal unit weight 2.563 MT)	MT	12	30.756				
1.5.4	UR (Nominal unit weight 2.209 MT)	MT	4	8.836				
2	Erection of the following tower accessories as per technical specification and as directed by the engineer-in charge.							
2.1	DANGER BOARD	Nos.		76				
2.2	NUMBER PLATE	Nos.		76				
2.3	PHASE PLATE	Sets		456				
2.4	BIRD GUARD	Sets		180				
2.5	ANTICLIMBING DEVICE	Sets		76				
2.6	CIRCUIT PLATE	Nos.		152				
2.7	COPER EARTH BOND	Nos		108				
3	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.							
3.1	DOUBLE CIRCUIT (ACSR/AAAC,SIX POWER CONDCTOR)	Route (Km)		20				
4	Erection of OPGW cables & hardware sets	Kms.		125				
5	WELDING OF TOWER MEMBERS							

5.1	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.		49,738				
6	EARTHING OF TOWER							
6.1	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.		76				
	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.	20	20				
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.	20	20				
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.	20	20				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.	42	42				
1.5	Soil Testing in complete shape along with submission of report etc. upto the depth of 45 mtrs for River bed pile.	Per Loc.	5	5				
2	EXCAVATION WORKS FOR OPEN CAST/SALLOW 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	200	200				
2.1.2	Dense/Compact soil	CUM	1200	1200				
2.1.3	Partial Submerged soil	CUM	500	500				
2.1.4	Fully submerged soil	CUM	2000	2000				
2.1.5	Soft/Disintegrated rock(Not requiring Blasting)	CUM	2200	2200				
2.1.6	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	1500	1500				
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	380	380				
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.) (Without Cost of Steel)	CUM	1773.5	1773.5				
3.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (open cast) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	25	25				
3.4	PILE FOUNDATION (UNDER-REAMED)							
3.4.1	Boring for under reamed cast in situ piling with betonite showing for stabilisation of bore pile diameter (500mm) & approximate length of the bore is 10 Mtrs with under reamed	Mtr	560	560				
3.4.2	Supply of all materials like cement all coarse aggregates,labours , T&P & making pile foundation as per specification in R.C.C: 1:1.5:3(Grade M20) (Without cost of steel)	CUM	183.75	183.75				

3.4.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (Under reem Pile) including supply of binding wire. (Steel rod of TATA/RINL/SAIL make)	MT	14	14				
3.4.4	Pile riser (if required) ,cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	CUM	52.5	52.5				
3.4.5	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (pile riser &capping) including supply of binding wire. (Steel rod of TATA/RINL/SAIL make)	MT	3.5	3.5				
3.5	PileFOUNDATION IN THE RIVER BED							
3.5.1	Supply of all materials like cement ,steel, all coarse aggregates, fine aggregates and making 1000 mm dia pile foundations (after pile boring as per required depth, basing on design by DMC method or motor driven machinery etc.) of the required above mentioned type towers and as per requirement including supply of all equipments with labours, proper curing of the foundations and T&P as per specification in the concrete grade M-25 including supply of Bentonite required for stabilization bore of required diameter bore holes applicable for piles upto the required depth.							
3.5.1.1	Boring for river bed cast in situ piling	Mtrs.	350	350				
3.5.1.2	Concrete ratio 1:1:2 (Grade M-25) without supply of Steel for river bed piling	Cum	437.5	437.5				
3.5.1.3	Cutting , bending, hooking, fixing and binding in position of MS bar for reinforcement of foundation concrete of towers including supply of steel and binding wire	MT	42	42				
3.5.1.4	Fixing charges of MS Liner including the supply of materials like MS Sheet of adequate thickness, fabrication, cutting, bending, binding, putting the liner in appropriate position and other related works	MT	85.75	85.75				
3.5.2	PILE RISER, CAPPING, PEDESTAL & TIE BEAM CONCRTE WORKS OF RIVER BED PILE							
3.5.2.1	PCC (Lean Concrete) in the ratio 1:3:6 (Grade M-10)	Cum	22.75	22.75				
3.5.2.2	Pile riser (if required),cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	Cum	416.5	416.5				

3.5.2.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concret of towers (pile riser &capping) including supply of binding wire (Steel rod of TATA/RINL/SAIL make)	MT	21	21				
4.0	DE-WATERING(FOR OPEN CAST LOCATION)							
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	920	920				
5.0	Supply of borrowed earth/morrum for back filling for foundation/revertment works							
5.1	(i) Beyond 30 mtr lead	CUM	450	450				
5.2	(ii) beyond 100 mtr lead	CUM	1057	1057				
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	2880	2880				
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	40000	40000				
8	REVTMENT: (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.							
8.1	Excavation in all type of soil including rock & back filling including supply of sand with back filling.	CUM	1470	1470				
8.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	285	285				
8.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	31	31				
8.4	RR Massonary work in the ratio 1:5.	CUM	1525	1525				
9	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. Way-Leave blockade charges and any other charges are to be borne by the bidders. 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	1				
TOTAL OF SUBSTATION (Civil Work) (PART-B)								

	TOTAL OF ERECTION LINE 132KV (Electrical Work) & (Civil Work) -To Schedule-6 Grand Summary			
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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:- Construction of 220/132 KV Sub-station with 2x160 MVA, 220/132KV &1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/07/16-17/-] - Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 6. Grand Summary

NAME OF THE BIDDER

Item	Description	Total Price ¹	
		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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Construction of 220/132 KV Sub-station with 2X160 MVA, 220/132KV & 1x20 MVA, 220/33KV Transformers at KIAKATA & associated 220KV DC line from 220/132 KV Grid S/S at KATAPALLI, Burla to KIAKATA (Approx. Line length-125 Kms) & 132KV Line from 132/33KV Grid S/S BOUDH to KIAKATA (Approx. Line length-20 Kms.) in Odisha State of India under PACKAGE-7 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - IFB No: [CPC/JICA/ICB/07/16-17/- Reference Identification No: [OPTCL/JICA/PKG-7]

Schedule No. 8. Details of Taxes & Duties

NAME OF THE BIDDER				
Sl No	Description of Applicable Tax/Levy	Item /Component Sl. No. of Bid price on which Applicable	Tax @ __%	Total Amount of Taxes /Duty/ Levies
1	Details of Taxes and levies on the direct transactions between Bidder and ODISHA POWER TRANSMISSION CORPORATION LTD included in the Bid Price above but as may be payable by ODISHA POWER TRANSMISSION CORPORATION LTD			
(i)	Excise Duty [as per Schedule-2]			
(ii)	CST [as per Schedule-2]			
(III)	VAT/Sales Tax [as per Schedule-2]			

(iv)	Entry Tax [as per Schedule-2]			
(v)	Any other Levies: [as per Schedule-2] (please specify): Central :-			
(a)				
(b)				
	TOTAL OF TAXES AND DUTIES [Sum (i) to (v)]			0
2	Service Tax [as per Schedule-4]			
3	F. Total Bid Price: (including Taxes & Duties and other levies, if the contract is awarded to us)			

Name of Bidder: _____

Signature of Bidder: _____

NOTE:- Lumpsum prices quoted by the Bidder shall include cost of total scope of work and any other supplies/work(s) not specifically mentioned in the Bidding Document but necessary for the efficient, trouble free operation of the system and to make this package work complete in all respects.

i) Excise Duty/VAT/Sales Tax/Service Tax/ Entry Tax/ any other taxes shall be inclusive in the bid price and shall not be paid/reimbursed separately.