ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 1. Plant Supplied from Abroad (Sub-station)

NAME OF THE BIDDER								
SL. NO.	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)	Code[1]	UNIT	Quantity for: Construction of 2x160MVA,220/132KV & 2x20 MVA, 220/33KV Grid S/S at Turumunga:220 KV Bay-7 Nos.(FDR-2,TFR-4 & B/C-1),132KV Bay-5 Nos.(FDR-2,TFR-2 & B/C-1) & 33 KV Bay-10 Nos.(FDR-7,TFR-2 & B/C-1)	TOTAL QUANTITY	Unit Price [2]		Total Price [2]
						In Foreign Currency	CIP	
					(1)	*(2)*	*(3)*	*(1) x (3)*
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS Cl & 1 0.2s Cl)		NOS	24	24			
2	**245 KV,2000A,40KA,ISOLATORS**							
2.1	S/I WITH OUT EARTH SWITCH		NOS	20	20			
2.2	S/I WITH SINGLE EARTH SWITCH		NOS	8	8			
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH		NOS	10	10			
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6			
4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	7	7			
5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III		NOS	18	18			
6	245 KV ,2 CORE,SINGLE PHASE,IVT		NOS	6	6			
7	220 KV Bus Post Insulators		NOS	46	46			
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	15			
9	145 KV,1250A,31.5KA,ISOLATORS							
9.1	S/I WITH OUT EARTH SWITCH		NOS	8	8			
9.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	2			
9.3	D/I WITHOUT EARTH SWITCH		NOS	2	2			

10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6			
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III		NOS	12	12			
12	145 KV, 2 CORE, SINGLE PHASE, IVT		NOS	3	3			
13	132 KV Bus Post Insulators		NOS	12	12			
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	5	5			
15	**36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS Cl & 1 0.2s Cl)**		NOS	6	6			
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS Cl & 1 0.2s Cl)		NOS	24	24			
17	36 KV,1250A,25KA,ISOLATORS							
17.1	S/I WITH OUT EARTH SWITCH		NOS	10	10			
17.2	D/I WITH SINGLE EARTH SWITCH		NOS	7	7			
17.3	D/I WITHOUT EARTH SWITCH		NOS	2	2			
17.4	S/I WITH BEAM MOUNTED		NOS	2	2			
18	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)		NOS	33	33			
19	36 KV ,2 CORE,SINGLE PHASE,IVT		NOS	3	3			
20	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	10	10			
21	33 KV Bus Post Insulators		NOS	28	28			
22	**BUS BAR & CIRCUIT MATERIALS**							
22.1	LONG ROD PORCELAIN INSULATORS							
22.1.1	160 KN LR INSULATOR FOR 220KV SIDE		NOS	132	132			
22.1.2	90 KN LR INSULATOR FOR 220KV SIDE		NOS	36	36			
22.1.3	120 KN LR INSULATOR FOR 132KV SIDE		NOS	78	78			
22.1.4	120 KN LR INSULATOR FOR 33KV SIDE		NOS	66	66			
22.1.5	90 KN INSULATOR FOR 132KV SIDE		NOS	27	27			
22.1.6	90 KN INSULATOR FOR 33KV SIDE		NOS	30	30			
22.2	ACSR MOOSE CONDUCTOR		KMS	10	10			
22.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.		MTRS	580	580			
23	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS							
23.1	220 KV Double Tension(160KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor(Single Anchoring Point)		NOS	48	48			
23.2	220 KV Single Tension(160KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor		NOS	36	36			
23.3	220 KV Single Suspension(90 KN)H/W fitting for twin mose ACSR conductor		NOS	12	12			
23.3.1	220 KV Single Suspension(90 KN)H/W fitting for single mose ACSR conductor		NOS	24	24			
23.4	132 KV Double Tension(120KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)		NOS	18	18			
23.5	132 KV Single Tension(120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor		NOS	42	42			

23.6	132 KV Single Suspension(90KN) H/W fitting for twin mose ACSR conductor		NOS	6	6			
23.7	132 KV Single Suspension(90KN) H/W fitting for single mose ACSR conductor		NOS	15	15			
23.8	33 KV Single Tension)120KN) H/W fitting with adjustable turn buckle forsingle moose ACSR conductor		NOS	24	24			
23.9	33 KVDouble Tension (120KN)H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)		NOS	18	18			
23.10	33 KV Single Suspension(90KN) H/W fitting for single mose ACSR		NOS	30	30			
23.11	T- clamp for ACSR ZEBRA run to ACSR MOOSE drop		NOS	22	22			
23.12	T- clamp for ACSR PANTHER run to ACSR MOOSE drop		NOS	22	22			
23.13	T-Clamp for single Moose -Single Moose ACSR		NOS	220	220			
23.14	T-Clamp for twin Moose run -Single Moose drop ACSR		NOS	84	84			
23.15	220 KV PI clamp		NOS	46	46			
23.16	132KV PI clamp		NOS	18	18			
23.17	33KV PI Clamp		NOS	28	28			
23.18	Spacer for Moose ACSR		NOS	280	280			
23.19	220 KV Isolator pad clamp		NOS	216	216			
23.20	220 KV LA Clamp		NOS	18	18			
23.21	220 KV CB Clamp		NOS	42	42			
23.22	220 KV CVT Clamp		NOS	12	12			
23.23	220 KV CT Clamp		NOS	48	48			
23.24	220 KV IVT Clamp		NOS	12	12			
23.25	132 KV Isolator pad clamp		NOS	84	84			
23.26	132 KV LA Clamp		NOS	24	24			
23.27	132 KV CVT Clamp		NOS	12	12			
23.28	132 KV CT Clamp		NOS	30	30			
23.29	132 KV IVT Clamp		NOS	6	6			
23.30	132 KV CB Clamp		NOS	30	30			
23.31	33 KV Isolator pad clamp		NOS	119	119			
23.32	33 KV LA Clamp		NOS	33	33			
23.33	33 KV CT Clamp		NOS	60	60			
23.34	33 KV IVT Clamp		NOS	3	3			
23.35	33 KV CB Clamp		NOS	60	60			
23.36	PG Clamp for ACSR Moose		NOS	48	48			
24	**EARTH WIRES & IT'S HARDWARES & FITTING**							
24.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)		NOS	47	47			
24.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)		NOS	17	17			
24.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)		NOS	22	22			
25	**SUBSTATION EARTHING SYSTEMS**							
25.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)		MT	130	130			
25.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)		MT	35	35			

25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)		Nos.	300	300			
25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)		Nos.	250	250			
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	3000	3000			
26.2	G.I Cable Trays(size: 300x75x2500mm)		MTRS	4500	4500			
26.3	G.I Cable Trays(size: 150x75x2500mm)		MTRS	3500	3500			
26.4	Support G. I angle 50x50x6 mm for cable tray		MT	6	6			
27	SUB STATION SWITCYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES							
27.1	BAY MARSHALLING KIOSK ***(04 Nos. in 220 KV Bay,03 Nos. in 132 KV Bay & 03Nos. in 33 KV Bay)***		NOS	10	10			
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING ***(02 Nos. in 220 KV bay, 01 No. in 132 KV Bay & 01 No. in 33KV Bay)***		NOS	8	8			
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION ***(01 No. near each 220/132 &220/33 KV Auto & Power Transformers)***		NOS	4	4			
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY ***(01 No. each in 220,132& 33 KV Bays)***		NOS	3	3			
27.5	CT, PT/IVT & CVT Out door console boxes (220KV=12 nos., 132KV = 8 nos., 33KV = 11nos.)		NOS	31	31			
28	**SWITCH YARD STRUCTURES (LATTICE TYPE FOR COLUMN & BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV, 132KV & 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)- **47 NOS)**		MT	211.500	211.500			
28.1.2	P2A-220 KV (NOMINAL UNIT WT- 1..5 MT) (0NOS.)		MT	0.000	0.000			
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (12NOS.)		MT	14.400	14.400			
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(5NOS.)		MT	4.750	4.750			
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (11NOS.)		MT	9.130	9.130			
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (11 NOS.)		MT	6.600	6.600			
28.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**							
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (28NOS.)		MT	42.000	42.000			
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (10 NOS.)		MT	25.000	25.000			
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (11 NOS.)		MT	9.900	9.900			
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (8 NOS)		MT	4.960	4.960			
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) (3NOS.)		MT	1.860	1.860			
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (4NOS.)		MT	3.600	3.600			
28.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)		MT	0.000	0.000			
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (3NOS.)		MT	1.590	1.590			
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (11NOS.)		MT	4.400	4.400			
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)		MT	1.040	1.040			
28.3	**TOTAL WEIGHT OF COLUMN & BEAMS**		**MT**	**340.730**	**340.730**			
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 8 Nos.)		MT	10.168	10.168			
28.4.2	ISOLATORS-220KV (SI without E/S -20Nos.)		MT	25.420	25.420			
28.4.3	ISOLATORS-132KV (SI with out E/S-8 Nos.)		MT	5.270	5.270			
28.4.4	ISOLATORS-132KV (DI with E/S-2 Nos.)		MT	2.241	2.241			
28.4.5	ISOLATORS-132KV (DI with out E/S-2 No.)		MT	1.958	1.958			
28.4.6	ISOLATORS-33 KV (SI w/o ES- 10Nos.)		MT	2.949	2.949			
28.4.7	ISOLATORS-33 KV (DI with ES -7Nos.)		MT	4.694	4.694			
28.4.8	ISOLATORS-33 KV (DI without ES-2 Nos.)		MT	1.312	1.312			
28.4.9	CTS-220 KV (24Nos.)		MT	5.400	5.400			
28.4.10	CTS-132 KV (15 Nos)		MT	3.750	3.750			
28.4.11	CTS-33 KV (30 Nos.)		MT	3.480	3.480			
28.4.12	CVTS-220 KV (6 Nos.)		MT	1.326	1.326			
28.4.13	CVTS-132 KV (6 Nos)		MT	1.344	1.344			
28.4.14	IVTS-220 KV (6 Nos.)		MT	1.723	1.723			
28.4.15	IVTS-132 KV (3 Nos.)		MT	0.426	0.426			
28.4.16	IVTS-33 KV (3 Nos.)		MT	0.355	0.355			
28.4.17	Surge Arrester-220 KV(18 Nos.)		MT	5.258	5.258			
28.4.18	Surge Arrester-132 KV(12 Nos.)		MT	3.288	3.288			
28.4.19	Surge Arrester beam mounted-33 Kv(33Nos.)		MT	0.000	0.000			
28.4.20	BPI-220 KV (46Nos.)		MT	13.469	13.469			
28.4.21	BPI-132 KV (18Nos)		MT	3.564	3.564			
28.4.22	BPI-33 KV (28 Nos.)		MT	5.776	5.776			
28.4.23	ISOLATORS-220KV (beam mounted -10Nos.)		MT	12.710	12.710			
28.4.24	ISOLATORS-33 KV (SI beam mounted 4Nos.)		MT	1.033	1.033			
28.4.25	NCTs (8Nos)		MT	0.928	0.928			
28.5	**TOTAL WEIGHT OF EQUIPMENT STRUCTURES**		**MT**	**117.842**	**117.842**			
28.6	**Total weight of GI Nuts and Bolts for Columns, Beams & Equipment Structures**		**MT**	**22.929**	**22.929**			
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	1200	1200			
29.1.2	XLPE 3.5 CX185 mm^2		MTR	1200	1200			
29.1.3	XLPE 3.5 CX120 mm^2		MTR	1000	1000			
29.1.4	PVC 3.5 CX70 mm^2		MTR	1600	1600			
29.1.5	PVC 3.5 CX35 mm^2		MTR	4800	4800			
29.1.6	PVC 4 CX 16 mm^2		MTR	2600	2600			
29.1.7	PVC 4CX 6 mm^2		MTR	7200	7200			
29.1.8	PVC 2CX 6 mm^2		MTR	6600	6600			
29.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**							
29.2.1	2 CX 2.5 mm^2		MTR	11000	11000			
29.2.2	4 CX 2.5 mm^2		MTR	19200	19200			
29.2.3	5 CX 2.5 mm^2		MTR	9000	9000			
29.2.4	7CX 2.5 mm^2		MTR	10200	10200			
29.2.5	10 CX 2.5 mm^2		MTR	18000	18000			

29.2.6	12 CX 2.5 mm^2		MTR	16200	16200			
29.2.7	16 CX 2.5 mm^2		MTR	9000	9000			
29.2.8	19 CX 2.5 mm^2		MTR	3600	3600			
29.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB		MTR	1500	1500			
30	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**							
30.1	24 Fibre Optic Approach cable along with HDPE Pipes		KM	0.50	0.50			
30.2	48 Fibre Optic Approach cable along with HDPE Pipes		KM	0.50	0.50			
30.3	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			
30.4	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDHMUX		No	1	1			
30.5	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)		No	1	1			
30.6	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	1			
30.7	48 V, 300 AH, maintenance free VRLA Battery set.		Set	1	1			
30.8	SMPS based Battery Charger of 75A suitable for 48V VRLA Battery set		No	1	1			
30.9	2.5 sq. mm muti strand 2 core control cable(power supply,Transducer/MFT PT supply)		Metre	300	300			
30.10	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT supply)		Metre	300	300			
30.11	1.5 sq. mm multi strand 10 core control cable(Digital Input)		Metre	200	200			
30.12	10 sq. mm 2 core multi strand control cable(Battery)		Metre	100	100			
30.13	DCDB		Set	1	1			
30.14	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.		Set	1	1			
31	**SUPPLY OF POWER TRANSFORMER,STATION TRANSFORMER & OTHER MATERIALS AS PER TECHNICAL SPECIFICATION**							
31.1	**AUTO TRANSFORMER: 220/132KV,160 MVA (AS PER SPECIFICATION)**		NOS	2	2			
31.2	**POWER TRANSFORMER: 220/33KV, 20 MVA (AS PER SPECIFICATION)**		NOS	2	2			
31.3	**STATION TRANSFORMER 33/0.4KV,250 KVA, Energy Efficiency level-2 (AS PER SPECIFICATION & IS 1180 (pt-1):2014)**		NOS	2	2			
31.4	HDG **DP STRUCTURE**: each set shall comprise of [2X **9.0 Mtrs** (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].		SETS	2	2			
31.5	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch		SETS	2	2			

31.6	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)		SETS	2	2			
31.7	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.		SETS	2	2			
32	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**							
	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	110	110			
	STREET LIGHTING: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(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							
	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.		SET	50	50			
	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	50	50			

	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	1			
	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	1			
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	6			
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS		NOS	6	6			
34.3	DRY POWDER TYPE - 5 KGS		NOS	6	6			
34.4	CO_2 - 4.5 KGS		NOS	10	10			
34.5	CO_2 - 9 KGS		NOS	10	10			
34.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS		NOS	4	4			
34.7	9 litre Water type		Nos.	4	4			
34.8	50 Litres Mechanical Foam type		Nos.	2	2			
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND		SET	5	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.	4	4			
35.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards. IEC 61850 protocol		Nos.	7	7			
35.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.		Nos.	4	4			
35.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol		Nos.	3	3			
35.1.5	Numerical over current , earth fault relays: IEC 61850 protocol		Nos.	3	3			
35.1.6	High Impedance REF Relay		Nos.	3	3			

35.1.7	Numerical Centralised Bus bar protection.		Nos.	1	1			
35.1.8	AUXILIARY RELAY FOR DC SUPERVISION		Nos.	14	14			
35.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4		Nos.	7	7			
35.1.10	MPG - TEST BLOCK 2		Nos.	26	26			
35.1.11	HIGH SPEED TRIP RELAY(HAND RESET)		Nos.	11	11			
35.1.12	TRIP CIRCUIT SUPERVISION RELAY 4		Nos.	0	0			
35.1.13	Line interface unit;		sets.	3	3			
35.1.14	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	4	4			
35.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..		Mtr.	1200	1200			
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	7	7			
35.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	4	4			
35.1.18	TIME SYNCH EQUIPMENT		NOS	1	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.	3	3			
35.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol		Nos.	5	5			
35.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.		Nos.	2	2			
35.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol		Nos.	0	0			
35.2.5	Numerical over current , earth fault relays: IEC 61850 protocol		Nos.	5	5			
35.2.6	High Impedance REF Relay		Nos.	0	0			
35.2.7	Numerical Centralised Bus bar protection.		Nos.	0	0			
35.2.8	AUXILIARY RELAY FOR DC SUPERVISION		Nos.	10	10			
35.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4		Nos.	0	0			
35.2.10	MPG - TEST BLOCK 2		Nos.	14	14			
35.2.11	HIGH SPEED TRIP RELAY(HAND RESET)		Nos.	3	3			
35.2.12	TRIP CIRCUIT SUPERVISION RELAY 4		Nos.	10	10			
35.2.13	Line interface unit;		sets.	3	3			
35.2.14	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	6	6			
35.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.		Mtr.	500	500			
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	3	3			
35.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	3	3			
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.	3	3			
35.3.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards		Nos.	10	10			
35.3.3	DC Supervision Relay		Nos.	20	20			

35.3.4	TRIP Relay		Nos.	10	10			
35.3.5	Test Block		Nos.	20	20			
35.3.6	Line interface unit;		sets.	2	2			
35.3.7	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	3	3			
35.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..		Mtr.	1250	1250			
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	10	10			
35.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	1	1			
35.3.11	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)		Set	1	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	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	1			
35.4.3	Color Laser jet Printer		No.	1	1			
35.4.4	UPS , 3 KVA		No.	2	2			
35.4.5	GPS System with PTP		set	1	1			
35.4.6	Gateway for SCADA		set	1	1			
35.4.7	Large vedio screen of 60 inches for display including all type of accessories		set	1	1			
36	**AC & DC SYSTEM**							
36.1	**AC SYSTEM**							
36.1.1	MAIN ACDB,(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	1			
36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1, ACDB-2 WITH B/C)		SET	1	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	1			
36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)		SET	1	1			
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD		SET	1	1			
36.1.6	INDOOR RECEPTACLE BOARD		SET	1	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	1			
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD		SET	1	1			
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC		SET	2	2			
38	BATTERY CHARGER FOR 220 V, 350 AH PLANTE TYPE BATTERY (FLOAT AND FLOAT CUM BOOST)		SET	1	1			

39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS		SET	1	1			
40	WALKIE TALKIE SET		SET /PAIR	2	2			
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.		NOS	2	2			
42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.		SET	1	1			
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.		SET	1	1			
44	WATER COOLER WITH WATER PURIFIER SYSTEM		NOS	2	2			
45	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)		LOT	1	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	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	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	50	50			
	TOTAL OF SUBSTATION-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)							

Name of Bidder:_____

Signature of Bidder:_____

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

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

Country of Origin Declaration Form

Item	Description		Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 1. Plant Supplied from Abroad (Transmission line -220KV)

NAME OF THE BIDDER

SL. NO.	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)	Code[1]	UNIT	QUANTITY:Construction of 220 KV D/C line from existing PGCIL 400/220 KV Grid S/S, Keonjhar to proposed 220/132 & 220/33 KV Grid S/S at Turumunga (Approx. Line length-32Kms.)	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 4.473MT) **-79NOS.**		MT	353.367	353.367			
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT) **-13NOS.**		MT	9.724	9.724			
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) **-3NOS.**		MT	4.485	4.485			
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) **-21NOS.**		MT	142.464	142.464			
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) **-3NOS.**		MT	4.002	4.002			
1.2.2	+6 EXTENSION **(**NOMINAL UNIT WEIGHT 2.308MT**)-0NOS.**		MT	0.000	0.000			
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) **-18NOS.**		MT	171.414	171.414			
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) **-2NOS.**		MT	2.872	2.872			
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) **-2NOS.**		MT	5.200	5.200			
1.4	UR TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 13.167MT) **-0NOS.**		MT	0.000	0.000			
1.4.1	+6 EXTENSION (NOMINAL UNIT WEIGHT 4.148MT) **-0NOS.**		MT	0.000	0.000			
1.5	**TEMPLATES**							
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579MT) **-5NOS.**		MT	2.895	2.895			

1.5.2	OB (NOMINAL UNIT WEIGHT 0.794MT) **-3NOS.**		MT	2.382	2.382			
1.5.3	OC (NOMINAL UNIT WEIGHT 0.962 MT) **-3NOS.**		MT	2.886	2.886			
1.5.4	UR (NOMINAL UNIT WEIGHT 1.476 MT) **-0NOS.**		MT	0.000	0.000			
1.6	**WEIGHT OF THE STRUCTURES & Tempates including Tower stubs & cleats**		MT	**701.691**	**701.691**			
1.7	**Weight of different type G.I Nuts and Bolts for above structures**		MT	**35.085**	**35.085**			
2	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**							
2.1	EARTHING DEVICE		Nos.	118	118			
2.2	DANGER BOARD		Nos.	118	118			
2.3	NUMBER PLATE		Nos.	118	118			
2.4	PHASE PLATE		Nos.	708	708			
2.5	BIRD GUARD		Nos.	474	474			
2.6	ANTICLIMBING DEVICE		Nos.	118	118			
2.7	CIRCUIT PLATE		Nos.	236	236			
3	**Supply of following POWER CONDUCTORS in the proposed 220KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**							
3.1	ACSR ZEBRA 54/7/3.18 POWER CONDUCTOR		Kms.	194.88	194.88			
4	**POWER CONDUCTOR ACESSORIES**							
4.1	**For ACSR ZEBRA 54/7/3.18 POWER CONDUCTOR**							
4.1.1	VIBRATION DAMPER		Nos.	1416	1416			
4.1.2	MID SPAN JOINT		Nos.	200	200			
4.1.3	Repair Sleeve		Nos.	100	100			
4.1.4	PREFORMED ARMOUR ROD		Nos.	528	528			
5	**OPGW fibre Optic Cable & Hardwares**							
5.1	24 Fibre(DWSM)OPGW Fibre Optic Cable		Kms.	32	32			
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.		Kms.	32	32			
6	**Supply of the following type Long Rod Porcelain Insulators as per the technical specification and as per the instruction of the engineer in charge.**							
6.2	90 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)		SET	558	558			
6.1	160 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)		SET	516	516			
7	**Supply of the following Hard ware fittings suitable for following conductor as per the technical specification.**							
7.1	**For ACSR ZEBRA 54/7/3.18 POWER CONDUCTOR**							
'7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set	498	498			
'7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set	30	30			

'7.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.		Set	444	444			
'7.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.		Set	36	36			
'7.1.5	Hanger		Nos.	474	474			
'7.1.6	U'-Bolt.		Nos	79	79			
	TOTAL OF 220KV LINE-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)							

Name of Bidder:_____

Signature of Bidder:_____

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

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

Country of Origin Declaration Form

Item	Description	Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

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

NAME OF THE BIDDER

Sl. No.	SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)	Code[1]	UNITS	QUANTITY FOR:Construction of 132 KV LILO line from existing 132 KV Palaspanga - Karanjia S/C line to proposed 220/132KV & 220/33KV Grid S/S at Turumunga. (Approx. Line length-21 Kms.)	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 3.246MT) **-56NOS.**		MT	181.776	181.776			
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) **-2NOS.**		MT	1.218	1.218			
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) **-1NOS.**		MT	1.291	1.291			
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.949 MT) **-10NOS.**		MT	49.490	49.490			
1.2.1	+3 EXTENSION (Nominal unit weight 0.975MT) **-2NOS.**		MT	1.950	1.950			
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) **-1NOS.**		MT	2.020	2.020			
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 5.924 MT) **-12NOS.**		MT	71.088	71.088			
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) **-2NOS.**		MT	2.138	2.138			
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) **-5NOS.**		MT	11.230	11.230			

1.4	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 9.806 MT) **-2NOS.**		MT	19.612	19.612			
1.4.2	+15 EXTENSION (Nominal unit weight 8.375 MT) **-2NOS.**		MT	16.750	16.750			
1.4	**TEMPLATES**							
1.4.1	PA (Nominal unit weight 0.644 MT) **-5NOS.**		MT	3.220	3.220			
1.4.2	PB (Nominal unit weight 0.592 MT) **-2NOS.**		MT	1.184	1.184			
1.4.3	PC (Nominal unit weight 0.876 MT) **-2NOS.**		MT	1.752	1.752			
1.4.4	OC+15 (Nominal unit weight 2.073 MT) **-1NOS.**		MT	2.073	2.073			
1.5	**WEIGHT OF THE STRUCTURES & Tempates including Tower Stub**		MT	**366.792**	**366.792**			
1.6	**Weight of different type G.I Nuts and Bolts**		MT	**18.340**	**18.340**			
2	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**							
2.1	EARTHING DEVICE		Nos.	82	82			
2.2	DANGER BOARD		Nos.	80	80			
2.3	NUMBER PLATE		Nos.	80	80			
2.4	PHASE PLATE		Nos.	480	480			
2.5	BIRD GUARD		Nos.	336	336			
2.6	ANTICLIMBING DEVICE		Nos.	80	80			
2.7	CIRCUIT PLATE		Nos.	160	160			
3	**Supply of following POWER CONDUCTORS in the proposed 132 KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**							
3.1	**For ACSR Panther-AS/ACSR-ZINC COATED STEEL WIRE(LOW LOSS TYPE)POWER CONDUCTOR**		Kms.	127.89	127.89			
4	**POWER CONDUCTOR ACESSORIES**							
4.1	**For ACSR Panther-AS/ACSR-ZINC COATED STEEL WIRE(LOW LOSS TYPE)POWER CONDUCTOR**							
4.1.1	VIBRATION DAMPER		Nos.	960	960			
4.1.2	MID SPAN JOINT		Set	128	128			
4.1.3	REPAIR SLEEVE		Set	50	50			
4.1.4	P A ROD		Set	366	366			
5	**OPGW Fibre Optic Cable & Hardwares**							
5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable		Kms.	21	21			
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.		Kms.	21	21			
6	**Supply of the following type Long Rod Pocelain Insulators as per the technical specification and as per the instruction of the engineer in charge.**							
6.1	90 KN Long Rod Insulator for 132KV		Nos.	402	402			
6.2	120 KN Long Rod Insulator for 132KV		Nos.	360	360			
7	**Supply of the following hard ware fittings suitable for following conductor as per the technical specification.**							
7.1	**For ACSR Panther-AS/ACSR-ZINC COATED STEEL WIRE(LOW LOSS TYPE)POWER CONDUCTOR**							

'7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Nos.	354	354			
'7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Nos.	24	24			
'7.1.3	Single tension Hard wares fittings suitable for 120 KN Long Rod insulator.		Nos.	228	228			
'7.1.4	Double tension Hard wares fittings suitable for 120 KN Long Rod insulator.		Nos.	66	66			
'7.1.5	Hanger		Nos.	210	336			
'7.1.6	U'-Bolt.		Nos	35	56			
TOTAL OF 132KV LINE-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)								

Name of Bidder:_____

Signature of Bidder:_____

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

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

Country of Origin Declaration Form

Item	Description		Code	Country

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 2. Plant Supplied from Within the Employer's Country (Sub-station)

NAME OF THE BIDDER

SL. NO.	SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)	UNIT	Quantity for: Construction of 2x100MVA,220/132KV & 2x20 MVA, 220/33KV Grid S/S at Turumunga:220 KV Bay-7 Nos.(FDR-2,TFR-4 & B/C-1),132KV Bay-5 Nos.(FDR-2,TFR-2 & B/C-1) & 33 KV Bay-10 Nos.(FDR-7,TFR-2 & B/C-1)	TOTAL QUANTITY	Unit Price[2]	Total Price[2]
				(1)	*(2)*	*(1) x (2)*
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS Cl & 1 0.2s Cl)	NOS	24	24		
2	**245 KV,2000A,40KA,ISOLATORS**					
2.1	S/I WITH OUT EARTH SWITCH	NOS	20	20		
2.2	S/I WITH SINGLE EARTH SWITCH	NOS	8	8		
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	10	10		
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6		
4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7		
5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	18	18		
6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	6		
7	220 KV Bus Post Insulators	NOS	46	46		
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	15		
9	145 KV,1250A,31.5KA,ISOLATORS					
9.1	S/I WITH OUT EARTH SWITCH	NOS	8	8		
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2		
9.3	D/I WITHOUT EARTH SWITCH	NOS	2	2		
10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6		
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	12		
12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	3		
13	132 KV Bus Post Insulators	NOS	12	12		
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	5		
15	**36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS Cl & 1 0.2s Cl)**	NOS	6	6		
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS Cl & 1 0.2s Cl)	NOS	24	24		
17	36 KV,1250A,25KA,ISOLATORS					
17.1	S/I WITH OUT EARTH SWITCH	NOS	10	10		
17.2	D/I WITH SINGLE EARTH SWITCH	NOS	7	7		
17.3	D/I WITHOUT EARTH SWITCH	NOS	2	2		
17.4	S/I WITH BEAM MOUNTED	NOS	2	2		
18	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	33	33		
19	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	3		

20	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	10	10		
21	33 KV Bus Post Insulators	NOS	28	28		
22	**BUS BAR & CIRCUIT MATERIALS**					
22.1	LONG ROD PORCELAIN INSULATORS					
22.1.1	160 KN LR INSULATOR FOR 220KV SIDE	NOS	132	132		
22.1.2	90 KN LR INSULATOR FOR 220KV SIDE	NOS	36	36		
22.1.3	120 KN LR INSULATOR FOR 132KV SIDE	NOS	78	78		
22.1.4	120 KN LR INSULATOR FOR 33KV SIDE	NOS	66	66		
22.1.5	90 KN INSULATOR FOR 132KV SIDE	NOS	27	27		
22.1.6	90 KN INSULATOR FOR 33KV SIDE	NOS	30	30		
22.2	ACSR MOOSE CONDUCTOR	KMS	10	10		
22.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.	MTRS	580	580		
23	HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS					
23.1	220 KV Double Tension(160KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor(Single Anchoring Point)	NOS	48	48		
23.2	220 KV Single Tension(160KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor	NOS	36	36		
23.3	220 KV Single Suspension(90 KN)H/W fitting for Twin mose ACSR conductor	NOS	12	12		
23.3.1	220 KV Single Suspension(90 KN)H/W fitting for single mose ACSR conductor	NOS	24	24		
23.4	132 KV Double Tension(120KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)	NOS	18	18		
23.5	132 KV Single Tension(120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor	NOS	42	42		
23.6	132 KV Single Suspension(90KN) H/W fitting for twin mose ACSR conductor	NOS	6	6		
23.7	132 KV Single Suspension(90KN) H/W fitting for single mose ACSR conductor	NOS	15	15		
23.8	33 KV Single Tension)120KN) H/W fitting with adjustable turn buckle forsingle moose ACSR conductor	NOS	24	24		
23.9	33 KVDouble Tension (120KN)H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)	NOS	18	18		
23.10	33 KV Single Suspension(90KN) H/W fitting for single mose ACSR	NOS	30	30		
23.11	T- clamp for ACSR ZEBRA run to ACSR MOOSE drop	NOS	22	22		
23.12	T- clamp for ACSR PANTHER run to ACSR MOOSE drop	NOS	22	22		
23.13	T-Clamp for single Moose -Single Moose ACSR	NOS	220	220		
23.14	T-Clamp for twin Moose run -Single Moose drop ACSR	NOS	84	84		
23.15	220 KV PI clamp	NOS	46	46		
23.16	132KV PI clamp	NOS	18	18		
23.17	33KV PI Clamp	NOS	28	28		
23.18	Spacer for Moose ACSR	NOS	280	280		
23.19	220 KV Isolator pad clamp	NOS	216	216		
23.20	220 KV LA Clamp	NOS	18	18		
23.21	220 KV CB Clamp	NOS	42	42		
23.22	220 KV CVT Clamp	NOS	12	12		
23.23	220 KV CT Clamp	NOS	48	48		
23.24	220 KV IVT Clamp	NOS	12	12		
23.25	132 KV Isolator pad clamp	NOS	84	84		
23.26	132 KV LA Clamp	NOS	24	24		
23.27	132 KV CVT Clamp	NOS	12	12		
23.28	132 KV CT Clamp	NOS	30	30		
23.29	132 KV IVT Clamp	NOS	6	6		
23.30	132 KV CB Clamp	NOS	30	30		
23.31	33 KV Isolator pad clamp	NOS	119	119		
23.32	33 KV LA Clamp	NOS	33	33		
23.33	33 KV CT Clamp	NOS	60	60		
23.34	33 KV IVT Clamp	NOS	3	3		
23.35	33 KV CB Clamp	NOS	60	60		
23.36	PG Clamp for ACSR Moose	NOS	48	48		
24	**EARTH WIRES & IT'S HARDWARES & FITTING**					
24.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)	NOS	47	47		
24.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	17	17		
24.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	22	22		
25	**SUBSTATION EARTHING SYSTEMS**					

25.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)	MT	130	130		
25.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)	MT	35	35		
25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)	Nos.	300	300		
25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	Nos.	250	250		
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	3000	3000		
26.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	4500	4500		
26.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	3500	3500		
26.4	Support G. I angle 50x50x6 mm for cable tray	MT	6	6		
27	SUB STATION SWITCYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES					
27.1	BAY MARSHALLING KIOSK ***(04 Nos. in 220 KV Bay,03 Nos. in 132 KV Bay & 03Nos. in 33 KV Bay)***	NOS	10	10		
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING ***(02 Nos. in 220 KV bay, 01 No. in 132 KV Bay & 01 No. in 33KV Bay)***	NOS	8	8		
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION ***(01 No. near each 220/132 &220/33 KV Auto & Power Transformers)***	NOS	4	4		
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY ***(01 No. each in 220,132& 33 KV Bays)***	NOS	3	3		
27.5	CT, PT/IVT & CVT Out door console boxes (220KV=12 nos., 132KV = 8 nos., 33KV = 11nos.)	NOS	31	31		
28	**SWITCH YARD STRUCTURES (LATTICE TYPE FOR COLUMN & BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV, 132KV & 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)- **47 NOS)**	MT	211.500	211.500		
28.1.2	P2A-220 KV (NOMINAL UNIT WT- 1..5 MT) (0NOS.)	MT	0.000	0.000		
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (12NOS.)	MT	14.400	14.400		
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(5NOS.)	MT	4.750	4.750		
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (11NOS.)	MT	9.130	9.130		
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (11 NOS.)	MT	6.600	6.600		
28.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**					
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (28NOS.)	MT	42.000	42.000		
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (10 NOS.)	MT	25.000	25.000		
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (11 NOS.)	MT	9.900	9.900		
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (8 NOS)	MT	4.960	4.960		
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) (3NOS.)	MT	1.860	1.860		
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (4NOS.)	MT	3.600	3.600		
28.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)	MT	0.000	0.000		
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (3NOS.)	MT	1.590	1.590		
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (11NOS.)	MT	4.400	4.400		
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)	MT	1.040	1.040		
28.3	**TOTAL WEIGHT OF COLUMN & BEAMS**	**MT**	**340.730**	**340.730**		
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 8 Nos.)	MT	10.168	10.168		
28.4.2	ISOLATORS-220KV (SI without E/S -20Nos.)	MT	25.420	25.420		
28.4.3	ISOLATORS-132KV (SI with out E/S-8 Nos.)	MT	5.270	5.270		
28.4.4	ISOLATORS-132KV (DI with E/S-2 Nos.)	MT	2.241	2.241		
28.4.5	ISOLATORS-132KV (DI with out E/S-2 No.)	MT	1.958	1.958		
28.4.6	ISOLATORS-33 KV (SI w/o ES- 10Nos.)	MT	2.949	2.949		
28.4.7	ISOLATORS-33 KV (DI with ES -7Nos.)	MT	4.694	4.694		
28.4.8	ISOLATORS-33 KV (DI without ES-2 Nos.)	MT	1.312	1.312		
28.4.9	CTS-220 KV (24Nos.)	MT	5.400	5.400		
28.4.10	CTS-132 KV (15 Nos)	MT	3.750	3.750		
28.4.11	CTS-33 KV (30 Nos.)	MT	3.480	3.480		

28.4.12	CVTS-220 KV (6 Nos.)	MT	1.326	1.326		
28.4.13	CVTS-132 KV (6 Nos)	MT	1.344	1.344		
28.4.14	IVTS-220 KV (6 Nos.)	MT	1.723	1.723		
28.4.15	IVTS-132 KV (3 Nos.)	MT	0.426	0.426		
28.4.16	IVTS-33 KV (3 Nos.)	MT	0.355	0.355		
28.4.17	Surge Arrester-220 KV(18 Nos.)	MT	5.258	5.258		
28.4.18	Surge Arrester-132 KV(12 Nos.)	MT	3.288	3.288		
28.4.19	Surge Arrester beam mounted-33 Kv(33Nos.)	MT	0.000	0.000		
28.4.20	BPI-220 KV (46Nos.)	MT	13.469	13.469		
28.4.21	BPI-132 KV (18Nos)	MT	3.564	3.564		
28.4.22	BPI-33 KV (28 Nos.)	MT	5.776	5.776		
28.4.23	ISOLATORS-220KV (beam mounted -10Nos.)	MT	12.710	12.710		
28.4.24	ISOLATORS-33 KV (SI beam mounted 4Nos.)	MT	1.033	1.033		
28.4.25	NCTs (8Nos)	MT	0.928	0.928		
28.5	**TOTAL WEIGHT OF EQUIPMENT STRUCTURES**	**MT**	**117.842**	**117.842**		
28.6	**Total weight of GI Nuts and Bolts for Columns, Beams & Equipment Structures**	**MT**	**22.929**	**22.929**		
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	1200	1200		
29.1.2	XLPE 3.5 CX185 mm^2	MTR	1200	1200		
29.1.3	XLPE 3.5 CX120 mm^2	MTR	1000	1000		
29.1.4	PVC 3.5 CX70 mm^2	MTR	1600	1600		
29.1.5	PVC 3.5 CX35 mm^2	MTR	4800	4800		
29.1.6	PVC 4 CX 16 mm^2	MTR	2600	2600		
29.1.7	PVC 4CX 6 mm^2	MTR	7200	7200		
29.1.8	PVC 2CX 6 mm^2	MTR	6600	6600		
29.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**					
29.2.1	2 CX 2.5 mm^2	MTR	11000	11000		
29.2.2	4 CX 2.5 mm^2	MTR	19200	19200		
29.2.3	5 CX 2.5 mm^2	MTR	9000	9000		
29.2.4	7CX 2.5 mm^2	MTR	10200	10200		
29.2.5	10 CX 2.5 mm^2	MTR	18000	18000		
29.2.6	12 CX 2.5 mm^2	MTR	16200	16200		
29.2.7	16 CX 2.5 mm^2	MTR	9000	9000		
29.2.8	19 CX 2.5 mm^2	MTR	3600	3600		
29.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1500	1500		
30	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**					
30.1	24 Fibre Optic Approach cable along with HDPE Pipes	KM	0.50	0.50		
30.2	48 Fibre Optic Approach cable along with HDPE Pipes	KM	0.50	0.50		
30.3	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	No	1	1		
30.4	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDHMUX	No	1	1		
30.5	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No	1	1		
30.6	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	1		
30.7	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	1		
30.8	SMPS based Battery Charger of 75A suitable for 48V VRLA Battery set	No	1	1		
30.9	2.5 sq. mm muti strand 2 core control cable(power supply,Transducer/MFT PT supply)	Metre	300	300		
30.10	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT supply)	Metre	300	300		
30.11	1.5 sq. mm multi strand 10 core control cable(Digital Input)	Metre	200	200		
30.12	10 sq. mm 2 core multi strand control cable(Battery)	Metre	100	100		
30.13	DCDB	Set	1	1		
30.14	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.	Set	1	1		
31	**SUPPLY OF POWER TRANSFORMER,STATION TRANSFORMER & OTHER MATERIALS AS PER TECHNICAL SPECIFICATION**					

31.1	**AUTO TRANSFORMER: 220/132KV,160 MVA (AS PER SPECIFICATION)**	NOS	2	2		
31.2	**POWER TRANSFORMER: 220/33KV, 20 MVA (AS PER SPECIFICATION)**	NOS	2	2		
31.3	**STATION TRANSFORMER 33/0.4KV,250 KVA, Energy Efficiency level-2 (AS PER SPECIFICATION & IS 1180 (pt-1):2014)**	NOS	2	2		
31.4	HDG **DP STRUCTURE**: each set shall comprise of [2X **9.0 Mtrs** (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].	SETS	2	2		
31.5	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SETS	2	2		
31.6	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SETS	2	2		
31.7	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.	SETS	2	2		
32	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**					
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	110	110		
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/other approved make of OPTCL).(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/other approved make of OPTCL).(100 watt each) for Street Light.	SET	50	50		
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	50	50		
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	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	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	SET	20	20		
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	6		
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	6		

34.3	DRY POWDER TYPE - 5 KGS	NOS	6	6		
34.4	CO_2 - 4.5 KGS	NOS	10	10		
34.5	CO_2 - 9 KGS	NOS	10	10		
34.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	4		
34.7	9 litre Water type	Nos.	4	4		
34.8	50 Litres Mechanical Foam type	Nos.	2	2		
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	5	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.	4	4		
35.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	7	7		
35.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	4	4		
35.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	3	3		
35.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	3	3		
35.1.6	High Impedance REF Relay	Nos.	3	3		
35.1.7	Numerical Centralised Bus bar protection.	Nos.	1	1		
35.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	14	14		
35.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	7	7		
35.1.10	MPG - TEST BLOCK 2	Nos.	26	26		
35.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	11	11		
35.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	0	0		
35.1.13	Line interface unit;	sets.	3	3		
35.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	4	4		
35.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1200	1200		
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	7	7		
35.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	4	4		
35.1.18	TIME SYNCH EQUIPMENT	NOS	1	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.	3	3		
35.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5	5		
35.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2	2		
35.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	0	0		
35.2.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5	5		
35.2.6	High Impedance REF Relay	Nos.	0	0		
35.2.7	Numerical Centralised Bus bar protection.	Nos.	0	0		
35.2.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10	10		
35.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	0	0		
35.2.10	MPG - TEST BLOCK 2	Nos.	14	14		
35.2.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	3	3		
35.2.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10	10		
35.2.13	Line interface unit;	sets.	3	3		
35.2.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6	6		
35.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	500	500		
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	3	3		
35.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	3	3		
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.	3	3		

35.3.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	10	10		
35.3.3	DC Supervision Relay	Nos.	20	20		
35.3.4	TRIP Relay	Nos.	10	10		
35.3.5	Test Block	Nos.	20	20		
35.3.6	Line interface unit;	sets.	2	2		
35.3.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	3		
35.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1250	1250		
35.3.9	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm	Set	10	10		
35.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	1		
35.3.11	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)	Set	1	1		
35.4	**Station Level**					
35.4.1	Windows based Industrial computer with standard accessories – Keyboard, mouse, monitor with operating	set	2	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	1		
35.4.3	Color Laser jet Printer	No.	1	1		
35.4.4	UPS , 3 KVA	No.	2	2		
35.4.5	GPS System with PTP	set	1	1		
35.4.6	Gateway for SCADA	set	1	1		
35.4.7	Large vedio screen of 60 inches for display including all type of accessories	set	1	1		
36	**AC & DC SYSTEM**					
36.1	**AC SYSTEM**					
36.1.1	MAIN ACDB,(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	1		
36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1, ACDB-2 WITH B/C)	SET	1	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	1		
36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	1		
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	1		
36.1.6	INDOOR RECEPTACLE BOARD	SET	1	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	1		
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	1		
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	2	2		
38	BATTERY CHARGER FOR 220 V, 350 AH PLANTE TYPE BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1	1		
39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	1		
40	WALKIE TALKIE SET	SET /PAIR	2	2		
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	2		
42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	1	1		
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	1		
44	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	2	2		
45	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	LOT	1	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	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	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	50	50		
	TOTAL OF SUBSTATION-SCHEDULE-2 -Plant (To Schedule 6 Grand Summary)					
		Name of Bidder:_____ Signature of Bidder:_____				

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 4. Installation and Other Services (Sub-station)

NAME OF THE BIDDER

SL. NO.	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNIT	Quantity for: Construction of 2x100MVA,220/132KV & 2x20 MVA, 220/33KV Grid S/S at Turumunga:220 KV Bay-7 Nos.(FDR-2,TFR-4 & B/C-1),132KV Bay-5 Nos.(FDR-2,TFR-2 & B/C-1) & 33 KV Bay-10 Nos.(FDR-7,TFR-2 & B/C-1)	TOTAL QUANTITY	Unit Price [1]		Total Price [1]	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				1	2	3	(1x2)	(1x3)
PART A	**CIVIL WORKS**							
1	**CONTOUR SURVEY,AND LEVELING, BACK FILLING**							
1.1	**Contour survey** and furnishing contour map including supply of all materials,	SQ.MTRS.	100000	100000				
1.2	Soil investigation : Supply of labour,T&Pand other necessary arrangements for Soil investigation/testing of the Switchyard,control Room, Quarters area etc.as per the site requirement,Technical specification & instruction of Engineer-in-Charge.	PER POINT	8	8				
2	**Cutting, Filling and Leveling of Sub-station area including supply of labour and T&P**							
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** of substation area							
2.1.1.1	[i]Soft/loose soil	CUM	2000	2000				
2.1.1.2	[ii]Dense/ Compact soil	CUM	2000	2000				
2.1.1.3	[iii]Soft/Disintegrated rock[not requiring blasting]	CUM	750	750				
2.1.1.4	[iv]Hard rock[requiring blasting or by using concrete breaker machinery]	CUM	250	250				
2.2	**FILLING** of substation area with borrowed earth with supply of all labour,T & P.							
2.2.1	(i) Beyond 30 mtr & up to 100mtr lead	CUM	5000	5000				

2.2.2	(ii) Beyond 100mtr lead	CUM	15000	15000				
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	20000	20000				
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 LENGHTH OF THE BOUNDARY WALL) and approved drawing.							
4.1	Appox length of the boundary walls(Brick works rested on RCC Beam and RCC Column & footings as per TS) in mtrs	Mtrs.	2000	2000				
5	**Foundations : Design, engineering, supply of all labour, material (Cement-OPC-43 Grade,MS Rod, coarse and fine aggregates(Sand and Metal Chips) etc) for construction of RCC (1:1.5:3) & PCC (1:3:6), RCC footings of any depth, pedestal and piling as per requirement including soil investigation, excavation, concreting, shuttering, grouting, underpinning and back filling of foundations etc complete for the following switch yard gantry/ portal structures and equipment support & others as per the technical specification and approved drawings.(RCC RATIO 1:1.5:3). This also includes excavation in all types of soil or rocks,back filling and disposal of excess earth as per the direction of Engineer In charge.**							
5.1	**EXCAVATION (Open Cast).:This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Enginer In charge.**							
5.1.1	Soft Soil/Loose Soil.	CUM	3000	3000				
5.1.2	Hard Soil.	CUM	3000	3000				
5.1.3	Wet/Muddy Soil.	CUM	1000	1000				
5.1.4	Soft/Disintegrated Rock(not Requiring Blasting)	CUM	2000	2000				
5.1.5	Hard Rock (Requiring Blasting/Using Rock Breaker Machinery)	CUM	1000	1000				
5.2	**OPEN CAST/SHALLOW FOUNDATION CONCRETE WORKS**							
5.2.1	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.							
5.2.1.1	PCC(1:3:6)	CUM	325	325				
5.2.1.2	PCC(1:4:8)	CUM	75	75				
5.2.1.3	(RCC) MIX 1:1.5:3 (of grade M20)	CUM	3650	3650				
6	**FOUNDATIONS FOR TRANSFORMERS**							

6.1	**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.**							
6.1.1	160MVA 220/132 kV Auto transformer a) Overall dimension of transformer(appox) Length:8000 mmX Width 6500 mmX Height 6200 mm b) Total weight with oil and tank: 160 MT (appox)	Nos	2	2				
6.1.2	20/40 MVA,220/ 33KV Power transformer: Overall dimension of transformer(approx.) Length:7200 mmX Width 6000 mmX Height 6200 mm) Total weight with oil and tank: 97.5 MT (appox.) as per Technical Specification.	Nos	2	2				
7	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: 80000 ltrs.	Nos	1	1				
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) 40 MVA,220/33 KV: 30000 ltrs.	Nos	1	1				
9	**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							
9.1	**160MVA 220/132 kV Auto transformer**	Nos	1	1				
9.2	**20 MVA,220/ 33KV Power transformer**	Nos	1	1				
10	**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	4				

11	**STATION TRANSFORMER**:Design, engineering, procurement of labour,material including all associated works for construction of foundation and DP structure for station transformers 33/0.415 KV,250 KVA STN TRANSFORMER as per approved drawing and specification.33 KV AB Switch(600A),HG Fuse, DP Structure & Angles (duly painted),Chanels, Plinth for erection of the transformer, including fixing and laying of (insulators,surge arresters,XLPE armoured power cables3.5 core 300 sq mm,LT out door kiosk near transformers and other accessories for complete installation of transformer as per standard) and instruction of Engineer In charge. As per the specification and approved drawing.	Nos	2	2				
12	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. (1) This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. (2) Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in 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. (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. (4) Fly ash brickwork with Fly ash brick ,plastering (!:6 Ratio) & curing, wherever required including the supply of labour,material, cement, etc. (5)Supply,fabrication & Fixing of MS Angle(G.I) for cable tray support (as per specification). The cable tray support frame shall be pre fabricated GI angle as per requirement and to be welded with the plate fixed on the trench wall for better rigidity. The plate (6mm) fixed on the wall are also to be welded with the MS rods provided for the trench wall before concreting. (6) Precast of RCC covers (1:1.5:3) and its fixing on the cable trench as per spec and instruction of Engg. In Charge. (7) CABLE TRENCHES INSIDE THE CONTROL ROOM SHALL BE COVERED WITH M.S CHEQUERED PLATE(Duly painted as per instruction of Engg in charge) INCLUDING STANDARD SUPPORT STAND {HD Galvanised (M.S JOIST ,CHANNEL,ANGLE)}.							
12.1	Cable trench with covers							
12.1.1	Section 1-1	Mtrs	500	500				
12.1.2	Section 2- 2	Mtrs	450	450				
12.1.3	Section 3-3	Mtrs	400	400				
12.1.4	Section 4-4	Mtrs	350	350				
12.2	**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.**							
12.2.1	Road crossing for							
12.2.2	Section 1-1	Nos	2	2				
12.2.3	Section 2- 2	Nos	1	1				
12.2.4	Section 3-3	Nos	1	1				

13	**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	1125	1125				
14	**METAL SPREADING IN THE SWITCH-YARD**							
14.1	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	1600	1600				
15	**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.							
15.1	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	600	600				
15.2	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	300	300				
15.3	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	400	400				
16	**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 switcyard bays , roads water drainage shall be connected to the main surface drain. As per approved drawing and specification.							
16.1	Storm water drain	MTRS	1200	1200				
16.2	Road-culverts, drain crossings	MTRS	300	300				
16.3	Cable trench crossing	MTRS	125	125				
17	**Rain water harvesting** system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	Nos	2	2				

18	**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 masonary 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	850	850				
19	**MAIN & SWITCH YARD GATES**:Design, engineering, procurement of labour, material including all associated works for construction and fixing of of a main gate and one no. switch yard gates with men gates as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. Provision of gate lights (Post top lantern type) on each pillar of the gate. it includes supply & fixing of light fixtures including CFL lamp, LV XLPE cables, switchgear etc required to complete works as per specification and approved drawings							
19.1	**MAIN GATE**	NOS	1	1				
19.2	**WICKET GATE NEAR MAIN GATE**	NOS	1	1				
19.3	**SWITCH YARD GATE(ON BOTH SIDES OF 7MTRS. CONCRETE ROAD OF SWITCHYARD)**	NOS	2	2				
19.4	**WICKET GATE NEAR SWITCHYARD**	NOS	3	3				
20	**SECURITY SHED & CUM VISITOR ROOM AND VEHICLE PARKING SHED**: 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)}							
20.1	SECURITY SHED:The size of the security shed shall be 3.5 mtrsX5mtrs and height of 3.5mtrs RCC roof,Fly ash Brick masonary 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 switcghear 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)}	Nos	1	1				

21	**BORE WELL & PUMP HOUSE**:Design, engineering, procurement of labour, material including all associated works for construction of two nos. borewells for control room building including switch yard and colony quarters as per specification and approved drawing and instruction of Engineer in charge.This includes supply and fixing and commissioning of two nos 5 HP submersible water pump with starter and other protection. Construction of two nos pump house at ideal location for fixing of the electrical starter units. The pump house be of RCC roof and having walls of Brick masonary and plastering and painting with MS door having locking arrangement. The size of the room shall be 2.5mtrsX2.5 mtrs having height of 3 mtrs. as per approved drawing and specification. There shall be approach road to the pump house. This includes supply of materials,labours and T&P & excavation of all type of soils including rock and disposal of excess materials as per instruction of Engineer Incharge. Supply & laying of LV XLPE 3.5CX.35 sqmm cable from ACDB to pump house, control gear & earthing of the system etc to complete the scheme as per approved drawing & instruction of Engineer-in charge.	NOS	2	2				
22	**PLATFORM FOR STORING EQUIMENTS**:Design, engineering, procurement of labour, material including all associated works for construction of a platform for storing of bushings,Instrument transformers etc, as per specification and approved drawing.This also includes excavation in all types of soil or rocks,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	1				
23	**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	1				
24	**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	200	200				
25	**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.)							
25.1	PCC 1: 4 : 8	PER CUM	1	1				
25.2	RCC M 15 excluding cost of steel	PER CUM	1	1				
25.3	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 150KG/SQ.MTR.	PER CUM	1	1				
25.4	Cement plastering with cement sand mortar of 1: 6 ratio.	PER SQ. MTRS	1	1				
25.5	Cutting,bending and fixing of reinforcement Including cost of steel	PER MT	1	1				

26	**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.**							
26.1	**Excavation in Soft & Loose Soil**	Cum	450	450				
26.2	**P.C.C (1:3:6): Lean Concrete Grade M-10**	Cum	110	110				
26.3	**RR Masonry (1:5)**	Cum	700	700				
26.4	**P.C.C (1:2:4): Lean Concrete Grade M-15**	Cum	25	25				
27	**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)}	Lot	1	1				
28	**CONTROL ROOM BUILDING: Design, engineering and construction of switch yard buildings including the piling where required, the cost of material, supply of all labour, T&P, cement, reinforcement- steel, form work and excavation as per the approved drawing and technical specification (The RCC structure frame should be in the ratio 1:1.5:3).This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawings and specification. CONTROL ROOM BUILDING:(one building): A) Area of the Ground floor with portico at front side, stair case to first floor and top of the building. The details of rooms to be provided are as per the Tech spec. B) Area of the first floor. The details of rooms to be provided are as per the Tech spec. Size of Ground floor. Nos./ area of ground floor/area of first floor . 01 No/ Area of Ground Floor : 42 mtrsX13 mtrs (546 sq mtrs) & Area of first floor 21 mtrsX13mtrs (273 sq mtrs), Only Fly ash brick is to used for brick work. One no. room shall be used for ladies rest room & should have attached toilet facilty meant for ladies staff is to be included in ground floor of the Control room building.**							
28.1	RCC volume including MS rods(including column ,Beams and roofs etc) as per technical spec & approved drawings.	Lot	1	1				
28.2	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	1				

28.3	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	1				
28.4	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	1				
28.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1	1				
28.6	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	1				
28.7	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	1				
28.8	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 & 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	1				
28.9	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	1				
28.10	Provision of smoke and fire detection system of the building.	Lot	1	1				

29	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.							
29.1	"D" type Quarter As per technical specification (one no. two storied flat. Each flat shall be with 1 no quarters on ground floor & 1 No quarters on 1st floor).							
29.1.1	"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 Mtr	120					
29.1.2	"D" type Quarter As per technical specification: 1 no quarter on first floor & the size of quarter plinth area shall be 120 Sq Mtrs(appox)	SQ Mtr	120					
29.2	"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)							
29.2.1	"E" type Quarter As per technical specification:4 nos quarters on ground floor. The quarters to be accommodated in ground floor E1 & E2 in ecah FLAT (Each quarter size plinth area shall be 73 Sq Mtrs(appox)	SQ Mtr	292					
29.2.2	"E" type Quarter As per technical specification: 4 nos quarters on first floor. The quarters to be accommodated in First floor E3 & E4 in ecah FLAT (Each quarter size shall be 73 Sq Mtrs(appox)	SQ Mtr	292					
	TOTAL OF CIVIL WORKS (PART-A)							
PART B	**ELECTRICAL WORKS**							
1	**ERECTION OF SWITCH YARD STRUCTURES (LATTICE TYPE FOR TOWER COLUMN & BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV,132KV & 33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**							
1.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**							
1.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.5 MT)- **47 NOS)**	MT	211.500	211.500				
1.1.2	P2A-220 KV (NOMINAL UNIT WT- 1..5 MT) (0NOS.)	MT	0.000	0.000				
1.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (12NOS.)	MT	14.400	14.400				
1.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(5NOS.)	MT	4.750	4.750				
1.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (11NOS.)	MT	9.130	9.130				
1.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (11 NOS.)	MT	6.600	6.600				
1.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**							

1.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (28NOS.)	MT	42.000	42.000				
1.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (10 NOS.)	MT	25.000	25.000				
1.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (11 NOS.)	MT	9.900	9.900				
1.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (8 NOS)	MT	4.960	4.960				
1.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) (3NOS.)	MT	1.860	1.860				
1.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (4NOS.)	MT	3.600	3.600				
1.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)	MT	0.000	0.000				
1.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (3NOS.)	MT	1.590	1.590				
1.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (11NOS.)	MT	4.400	4.400				
1.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)	MT	1.040	1.040				
1.3	**TOTAL WEIGHT OF COLUMN & BEAMS**	**MT**	**340.730**	**340.730**				
1.4	**EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV & 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS & NUTS**							
1.4.1	ISOLATORS-220KV (SI with E/S 8 Nos.)	MT	10.168	10.168				
1.4.2	ISOLATORS-220KV (SI without E/S -20Nos.)	MT	25.420	25.420				
1.4.3	ISOLATORS-132KV (SI with out E/S-8 Nos.)	MT	5.270	5.270				
1.4.4	ISOLATORS-132KV (DI with E/S-2 Nos.)	MT	2.241	2.241				
1.4.5	ISOLATORS-132KV (DI with out E/S-2 No.)	MT	1.958	1.958				
1.4.6	ISOLATORS-33 KV (SI w/o ES- 10Nos.)	MT	2.949	2.949				
1.4.7	ISOLATORS-33 KV (DI with ES -7Nos.)	MT	4.694	4.694				
1.4.8	ISOLATORS-33 KV (DI without ES-2 Nos.)	MT	1.312	1.312				
1.4.9	CTS-220 KV (24Nos.)	MT	5.400	5.400				
1.4.10	CTS-132 KV (15 Nos)	MT	3.750	3.750				
1.4.11	CTS-33 KV (30 Nos.)	MT	3.480	3.480				
1.4.12	CVTS-220 KV (6 Nos.)	MT	1.326	1.326				
1.4.13	CVTS-132 KV (6 Nos)	MT	1.344	1.344				
1.4.14	IVTS-220 KV (6 Nos.)	MT	1.723	1.723				
1.4.15	IVTS-132 KV (3 Nos.)	MT	0.426	0.426				
1.4.16	IVTS-33 KV (3 Nos.)	MT	0.355	0.355				
1.4.17	Surge Arrester-220 KV(18 Nos.)	MT	5.258	5.258				
1.4.18	Surge Arrester-132 KV(12 Nos.)	MT	3.288	3.288				
1.4.19	Surge Arrester beam mounted-33 Kv(33Nos.)	MT	0.000	0.000				
1.4.20	BPI-220 KV (46Nos.)	MT	13.469	13.469				
1.4.21	BPI-132 KV (18Nos)	MT	3.564	3.564				
1.4.22	BPI-33 KV (28 Nos.)	MT	5.776	5.776				
1.4.23	ISOLATORS-220KV (beam mounted -10Nos.)	MT	12.710	12.710				
1.4.24	ISOLATORS-33 KV (SI beam mounted 4Nos.)	MT	1.033	1.033				
1.4.25	NCTs (8Nos)	MT	0.928	0.928				
1.5	**TOTAL WEIGHT OF EQUIPMENT STRUCTURES**	**MT**	**117.842**	**117.842**				
1.6	**Total weight of GI Nuts and Bolts for Columns, Beams & Equipment Structures**	**MT**	**22.929**	**22.929**				
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 Cl & 1 0.2s Cl)	NOS	24	24				
2.2	**245 KV,2000A,40KA,ISOLATORS**							
2.2.1	S/I WITH OUT EARTH SWITCH	NOS	20	20				
2.2.2	S/I WITH SINGLE EARTH SWITCH	NOS	8	8				
2.2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	10	10				
2.3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6				
2.4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7				

2.5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	18	18				
2.6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	6				
2.7	220 KV Bus Post Insulators	NOS	46	46				
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	15				
2.9	**145 KV,1250A,31.5KA,ISOLATORS**							
2.9.1	S/I WITH OUT EARTH SWITCH	NOS	8	8				
2.9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2				
2.9.3	D/I WITHOUT EARTH SWITCH	NOS	2	2				
2.10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6				
2.11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	12				
2.12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	3				
2.13	132 KV Bus Post Insulators	NOS	12	12				
2.14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	5				
2.15	36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS Cl & 1 0.2s Cl)	NOS	6	6				
2.16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS Cl & 1 0.2s Cl)	NOS	24	24				
2.17	36 KV CLASS NCT FOR AUTO & POWER 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	3	3				
2.18	36 KV CLASS NCT FORAUTO & 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	2	2				
2.19	**36 KV,1250A,25KA,ISOLATORS**							
2.19.1	S/I WITH OUT EARTH SWITCH	NOS	10	10				
2.19.2	D/I WITH SINGLE EARTH SWITCH	NOS	7	7				
2.19.3	D/I WITHOUT EARTH SWITCH	NOS	2	2				
2.19.4	S/I WITH BEAM MOUNTED	NOS	2	2				
2.20	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	33	33				
2.21	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	3				
2.22	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	10	10				
2.24	33 KV Bus Post Insulators	NOS	28	28				
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. (ACSR Moose)	MTRS	6000	6000				
3.1.2	Twin Conductor /Phase/Mtr. (ACSR Moose)	MTRS	4000	4000				
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	580	580				
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	47	47				
4.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	17	17				

4.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	22	22				
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, filling of Bentonate powder of adequate depth 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 un-treated 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	18400	18400				
5.1.2	(ii)50x6 MM GI FLAT	MTRS	14590	14590				
5.1.3	(iii)40 MM MS ROD FOR NON-TREATED EARTH PIT ELECTORDE	NOS	250	250				
5.1.4	50MM GI PIPE FOR TREATED EARTH PIT ELECTRORDE WITH CHAMBER AND COVER	NOS	300	300				
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	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	3000	3000				
6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	4500	4500				
6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	3500	3500				
6.4	Support G. I angle 50x50x6 mm for cable tray	MT	6	6				
7	SUB STATION SWITCYARD BMK,AC CONSOLE & OTHER MARSHALLING							
7.1	BAY MARSHALLING KIOSK ***(03 nos on 220 kV bay 03 nos on 132 kv bay & 01Nos 33 KV bay)***	NOS	10	10				
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	8	8				
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***	NOS	4	4				
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	3				
7.5	CT, PT/IVT & CVT Out door console boxes (220KV=12 nos., 132KV = 8 nos., 33KV = 11nos.)	NOS	31	31				
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	1200	1200				

8.1.2	XLPE 3.5 CX185 mm^2	MTR	1200	1200				
8.1.3	XLPE 3.5 CX120 mm^2	MTR	1000	1000				
8.1.4	PVC 3.5 CX70 mm^2	MTR	1600	1600				
8.1.5	PVC 3.5 CX35 mm^2	MTR	4800	4800				
8.1.6	PVC 4 CX 16 mm^2	MTR	2600	2600				
8.1.7	PVC 4CX 6 sqmm	MTR	7200	7200				
8.1.8	PVC 2CX 6 sqmm	MTR	6600	6600				
8.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**							
8.2.1	2 CX 2.5 mm^2	MTR	11000	11000				
8.2.2	4 CX 2.5 mm^2	MTR	19200	19200				
8.2.3	5 CX 2.5 mm^2	MTR	9000	9000				
8.2.4	7CX 2.5 mm^2	MTR	10200	10200				
8.2.5	10 CX 2.5 mm^2	MTR	18000	18000				
8.2.6	12 CX 2.5 mm^2	MTR	16200	16200				
8.2.7	16 CX 2.5 mm^2	MTR	9000	9000				
8.2.8	19 CX 2.5 mm^2	MTR	3600	3600				
8.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1500	1500				
9	**ERECTION FOR OPGW System**							
9.1	Erection/comissioning of SDH/MUX along with termination with FODP	No	1	1				
9.2	Erection/commissioning of RTU along with fixing,cabling of MFMs	No	1	1				
9.3	Erection/commissioning of digital tele-protection coupler	No	1	1				
9.4	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	1				
9.5	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	1				
9.6	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)	Metre	300	300				
9.7	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	Metre	300	300				
9.8	1.5 sq. mm 10 core control cable(Digital Input)	Metre	200	200				
9.9	10 sq. mm 2 core multi strand control cable(Battery)	Metre	100	100				
9.10	DCDB	Set	1	1				
9.11	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.	Set	1	1				
10	**ERECTION,FILTERATION,TESTING & COMMISSIONING OF POWER TRANSFORMER(220/33KV, 20MVA & ITS OTHER RELATED ACCESSORIES**							
10.1	ERECTION OF THE TRANSFORMERS AND ITS ACCESSORIES ON THE PLINTH AND PLACING IN POSITION, ERECTION OF ACCESSORIES OF THE TRANSFORMERS, EART-HING AS PER STANDARD(INCLUDING SUPPLY OF MATERIALS),VACUUM TREATMENT OF THE TANK AND WINDING,OIL FILTRATION(INCLUDING SUPPLY OF VACUUM CUM OIL FILTER MACHINE),SUPPLY & LAYING OF ALL TYPES OF CONTROL & POWER CABLES PERTAINING TO TRANSFORMERS ,TESTING AND COMMISSIONING INCLUDING ALL TESTS OF THE OILS AS PER STIPULATION IN THE STANDARD APPROVED TESTING LABORATORY AND AS PER THE INSTRUCTION OF THE ENGINEER IN CHARGE.THIS INCLUDE ALL RELATED WORKS FOR ERECTION(Transformer and its accessories,RTCC Panel etc),TESTING AND COMMISSIONING OF THE POWER TRANSFORMERS.(CONTRACTOR TO ARRANGE POWER SUPPLY FOR FILTRATION AND VACUUM TREATMENT WORKS).IT ALSO INCLUDES SUPPLY OF ALL MATERIALS FOR ERECTTION INCLUDING T&P's	Nos	2	2				
11	**ERECTION,FILTERATION,TESTING & COMMISSIONING OF AUTO TRANSFORMER(220/132KV, 160MVA) & ITS OTHER RELATED ACCESSORIES**							

11.1	ERECTION OF THE TRANSFORMERS AND ITS ACCESSORIES ON THE PLINTH AND PLACING IN POSITION, ERECTION OF ACCESSORIES OF THE TRANSFORMERS, EART-HING AS PER STANDARD(INCLUDING SUPPLY OF MATERIALS),VACUUM TREATMENT OF THE TANK AND WINDING,OIL FILTRATION(INCLUDING SUPPLY OF VACUUM CUM OIL FILTER MACHINE),SUPPLY & LAYING OF ALL TYPES OF CONTROL & POWER CABLES PERTAINING TO TRANSFORMERS ,TESTING AND COMMISSIONING INCLUDING ALL TESTS OF THE OILS AS PER STIPULATION IN THE STANDARD APPROVED TESTING LABORATORY AND AS PER THE INSTRUCTION OF THE ENGINEER IN CHARGE.THIS INCLUDE ALL RELATED WORKS FOR ERECTION(Transformer and its accessories,RTCC Panel etc),TESTING AND COMMISSIONING OF THE POWER TRANSFORMERS.(CONTRACTOR TO ARRANGE POWER SUPPLY FOR FILTRATION AND VACUUM TREATMENT WORKS).IT ALSO INCLUDES SUPPLY OF ALL MATERIALS FOR ERECTTION INCLUDING T&P's	Nos	2	2				
12	**ERECTION,TESTING & COMMISSIONING OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION**							
12.1	STATION TRANSFORMER 33/0.4KV,250 KVA (AS PER SPECIFICATION)	NOS	2	2				
12.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP), HG FUSE, DP STRUCTURE, ANGLE FOR BRACING OF DP STRUCTURE,POWER CABLES, CHANEL, INCLUDING INSULATORS, CONDUCTOR, CLAMPS & CONNECTOR, JUMPERING AND OTHER ACCESSORIES REQUIRED FOR ERECTION ,TESTING, COMMISIONING OF STATION TRANSFORMER. ERECTION OF LT OUTDOOR KIOSK AND REQUIRED CABLE TERMINATION. THE NON-GALVANIZED STRUCTURES SHALL BE PAINTED WITH TWO COATS OF EPOXY BASED ALUMINIUM PAINT.	SETS	2	2				
13	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**							
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	110	110				
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/other approved make of OPTCL).(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/other approved make of OPTCL).(100 watt each) for Street Light.	SET	50	50				
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	50	50				
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	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	1				
13.5	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	SET	20	20				
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	6				
14.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	6				
14.3	DRY POWDER TYPE - 5 KGS	NOS	6	6				
14.4	CO2 - 4.5 KGS	NOS	10	10				
14.5	CO2 - 9 KGS	NOS	10	10				
14.6	CO2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	4				
14.7	9 litre water type	Nos.	4	4				
14.8	50 Litres Mechanical Foam type	Nos.	2	2				
14.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	5	5				
15	**SUBSTATION AUTOMATION SYSTEM: Erection of the following equipemnts in 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. 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 Air Conditioning as	Nos.	4	4				
15.1.2	Numerical Bay control unit :32 Digital input & 24Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	7	7				
15.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	4	4				
15.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	3	3				
15.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	3	3				
15.1.6	High Impedance REF Relay	Nos.	3	3				
15.1.7	Numerical Centralised Bus bar protection.	Nos.	1	1				
15.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	14	12				
15.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	7	6				
15.1.10	MPG - TEST BLOCK 2	Nos.	26	26				
15.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	11	11				
15.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	0	0				
15.1.13	Line interface unit;	sets.	3	3				
15.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	4	4				
15.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1200	1200				

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	7	7				
15.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	4	4				
15.1.18	TIME SYNCH EQUIPMENT	NOS	1	1				
15.2	**132KV Level**							
15.2.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as	Nos.	3	3				
15.2.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5	5				
15.2.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2	2				
15.2.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	0	0				
15.2.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5	5				
15.2.6	High Impedance REF Relay	Nos.	0	0				
15.2.7	Numerical Centralised Bus bar protection.	Nos.	0	0				
15.2.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10	10				
15.2.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	0	0				
15.2.10	MPG - TEST BLOCK 2	Nos.	14	14				
15.2.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	3	3				
15.2.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10	10				
15.2.13	Line interface unit;	sets.	3	3				
15.2.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6	6				
15.2.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	500	500				
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	3	3				
15.2.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	3	3				
15.3	**33KV Level**							
15.3.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as	Nos.	3	3				
15.3.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	10	10				
15.3.3	DC Supervision Relay	Nos.	20	20				
15.3.4	TRIP Relay	Nos.	10	10				
15.3.5	Test Block	Nos.	20	20				
15.3.6	Line interface unit;	sets.	2	2				
15.3.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	3				
15.3.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	1250	1250				
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	10	10				
15.3.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	1				
15.3.11	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)	Set	1	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	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	1				
15.4.3	Color Laser jet Printer	No.	1	1				
15.4.4	UPS , 3 KVA	No.	2	2				
15.4.5	GPS System with PTP	set	1	1				
15.4.6	Gateway for SCADA	set	1	1				
15.4.7	Large vedio screen of 60 inches for display including all type of accessories	set	1	1				
16	**AC & DC SYSTEM**							

16.1	**AC SYSTEM**							
16.1.1	MAIN ACDB (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	1				
16.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1,AC DB-2 WITH B/C)	SET	1	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	1				
16.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	1				
16.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	1				
16.1.6	INDOOR RECEPTACLE BOARD	SET	1	1				
16.2	**DC SYSTEM**							
16.2.1	220 V DCDB (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 &	SET	1	1				
16.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	1				
16.3	**BATTERY (350 AH PLANTE TYPE) for 220 V DC**	SET	2	2				
16.4	BATTERY CHARGER FOR 220 V, 350 AH (Float and Float cum Boost)	SET	1	1				
16.5	DISTILLED WATER PLANT of 10 Ltr./Hr. FOR BATTERY BANKS	NOS	1	1				
17	WALKIE TALKIE SET	SET/PAIR	2	2				
18	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH	NOS	2	2				
19	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	NOS	1	1				
20	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1	1				
21	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE	SET	1	1				
22	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1	1				
23	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	SET	1	1				
24	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NOS	50	50				

25	**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	1				
	TOTAL OF ELECTRICAL WORKS (PART-B)							
	TOTAL OF ERECTION OF SUBSTATION (Electrical Work) & (Civil Work) - Schedule-4-ss (to Schedule No. 6 Grand Summary)							
				Name of Bidder:_____ Signature of Bidder:_____				
1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.								

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 2. Plant Supplied from Within the Employer's Country (Transmission Line-220KV)

NAME OF THE BIDDER

Sl. No.	SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)	UNITS	QUANTITY:Construction of 220 KV D/C line from existing PGCIL 400/220 KV Grid S/S, Keonjhar to proposed 220/132 & 220/33 KV Grid S/S at Turumunga (Line length-32Kms. approx.)	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 4.473MT) -**79NOS.**	MT	353.367	353.367		
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT) **-13NOS.**	MT	9.724	9.724		
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) **-3NOS.**	MT	4.485	4.485		
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) **-21NOS.**	MT	142.464	142.464		
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) **-3NOS.**	MT	4.002	4.002		
1.2.2	+6 EXTENSION **(**NOMINAL UNIT WEIGHT 2.308MT**)-0NOS.**	MT	0.000	0.000		
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) **-18NOS.**	MT	171.414	171.414		
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) **-2NOS.**	MT	2.872	2.872		
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) **-2NOS.**	MT	5.200	5.200		
1.4	UR TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 13.167MT) **-0NOS.**	MT	0.000	0.000		
1.4.1	+6 EXTENSION (NOMINAL UNIT WEIGHT 4.148MT) **-0NOS.**	MT	0.000	0.000		
1.5	**TEMPLATES**					
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579MT) **-5NOS.**	MT	2.895	2.895		
1.5.2	OB (NOMINAL UNIT WEIGHT 0.794MT) **-3NOS.**	MT	2.382	2.382		
1.5.3	OC (NOMINAL UNIT WEIGHT 0.962 MT) **-3NOS.**	MT	2.886	2.886		
1.5.4	UR (NOMINAL UNIT WEIGHT 1.476 MT) **-0NOS.**	MT	0.000	0.000		
1.6	**WEIGHT OF THE STRUCTURES & Tempates including Tower stubs & cleats**	**MT**	**701.691**	**701.691**		
1.7	**Weight of different type G.I Nuts and Bolts for above structures**	**MT**	**35.085**	**35.085**		
2	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**					
2.1	EARTHING DEVICE	Nos.	118	118		
2.2	DANGER BOARD	Nos.	118	118		
2.3	NUMBER PLATE	Nos.	118	118		
2.4	PHASE PLATE	Nos.	708	708		
2.5	BIRD GUARD	Nos.	474	474		
2.6	ANTICLIMBING DEVICE	Nos.	118	118		
2.7	CIRCUIT PLATE	Nos.	236	236		
3	**Supply of following POWER CONDUCTORS in the proposed 220KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**					

3.1	ACSR ZEBRA 54/7/3.18 POWER CONDUCTOR	Kms.	194.88	195		
4	**POWER CONDUCTOR ACESSORIES**					
4.1	**ForACSR ZEBRA 54/7/3.18 POWER CONDUCTOR**					
4.1.1	VIBRATION DAMPER	Nos.	1416	1416		
4.1.2	MID SPAN JOINT	Nos.	200	200		
4.1.3	Repair Sleeve	Nos.	100	100		
4.1.4	PREFORMED ARMOUR ROD	Nos.	528	528		
5	**OPGW fibre Optic Cable & Hardwares**					
5.1	24 Fibre(DWSM)OPGW Fibre Optic Cable	Kms.	32	32		
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.	Kms.	32	32		
6	**Supply of the following type Long Rod Porcelain Insulators as per the technical specification and as per the instruction of the engineer in charge.**					
6.2	90 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)	SET	558	558		
6.1	160 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)	SET	516	516		
7	**Supply of the following Hard ware fittings suitable for following conductor as per the technical specification.**					
7.1	FOR ACSR ZEBRA 54/7/3.18 POWER CONDUCTOR					
7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set	498	498		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set	30	30		
7.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.	Set	444	444		
7.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.	Set	36	36		
'7.1.5	Hanger	Nos.	474	474		
'7.1.6	U'-Bolt.	Nos	79	79		
	TOTAL OF 220KV LINE-SCHEDULE-2 -Plant (to Schedule No. 6 Grand Summary)					

Name of Bidder:_____

Signature of Bidder:_____

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 4. Installation and Other Services (Transmission Line-220KV)

NAME OF THE BIDDER

Sl. No.	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)		QUANTITY:Construction of 220 KV D/C line from existing PGCIL 400/220 KV Grid S/S, Keonjhar to proposed 220/132 & 220/33 KV Grid S/S at Turumunga (Line length-32Kms. approx.)	TOTAL QUANTITY	Unit Price [1]		Total Price [1]	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				1	2	3	(1x2)	(1x3)
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	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.473MT) -**79NOS.**	MT	353.367	353.367				
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT) **-13NOS.**	MT	9.724	9.724				
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) **-3NOS.**	MT	4.485	4.485				
1.2	OB TYPE (30 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) **-21NOS.**	MT	142.464	142.464				
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) **-3NOS.**	MT	4.002	4.002				
1.2.2	+6 EXTENSION **(**NOMINAL UNIT WEIGHT 2.308MT**)-0NOS.**	MT	0.000	0.000				
1.3	OC TYPE (60 deg ANGLE) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) **-18NOS.**	MT	171.414	171.414				
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) **-2NOS.**	MT	2.872	2.872				
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) **-2NOS.**	MT	5.200	5.200				

1.4	**WEIGHT OF THE STRUCTURES**	**MT**	**693.528**	**693.528**				
1.4.1	**Weight of different type G.I Nuts and Bolts for above structures**	**MT**	**34.676**	**34.676**				
1.7	**Fixing of of Templates & setting of Stubs including G.I Nuts & Bolts**							
1.7.1	OA (NOMINAL UNIT WEIGHT 0.830 MT) **-79NOS.**	MT	65.570	65.570				
1.7.2	OB (NOMINAL UNIT WEIGHT 1.276 MT) **-21NOS.**	MT	26.796	26.796				
1.7.3	OC (NOMINAL UNIT WEIGHT 1.764 MT) **-18NOS.**	MT	31.752	31.752				
2	**Erection of the following tower accessories as per technical specification and as directed by the engineer in charge.**							
2.1	EARTHING DEVICE	Nos.	118	118				
2.2	DANGER BOARD	Nos.	118	118				
2.3	NUMBER PLATE	Nos.	118	118				
2.4	PHASE PLATE	Nos.	708	708				
2.5	BIRD GUARD	Nos.	474	474				
2.6	ANTICLIMBING DEVICE	Nos.	118	118				
2.7	CIRCUIT PLATE	Nos.	236	236				
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 54/7/3.18 POWER CONDUCTOR	RKM	32	32				
4	**Erection of OPGW fibre Optic Cable for speech, data & protection**							
4.1	Erection of 24Fibre(DWSM) OPGW fibre Optic along with hardwares and approach cables	Kms.	32	32				
	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.	Route KM	32	32				
1.2	Check survey including supply of all labour, T&P as per instruction of Engineer in Charge and as per the approved profile.	Route KM	32	32				
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.	Route KM	32	32				

1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.	39	39				
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	1100	1100				
2.1.2	Dense/Compact soil	CUM	2200	2200				
2.1.3	Wet soil	CUM	2750	2750				
2.1.4	Partial Submerged soil	CUM	950	950				
2.1.5	Fully submerged soil	CUM	200	200				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	2750	2750				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	1100	1100				
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	316	316				
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	3000	3000				
3.3	Supply and Cutting bending hooking ,fixing and binding in poisition 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	35	35				
4	**DE-WATERING(FOR OPEN CAST LOCATION)**							
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	4320	4320				

5	**Supply of borrowed earth/morrum for back filling for foundation/revertment works**							
5.1	beyond 100 mtr lead	CUM	2500	2500				
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.	11760	11760				
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.	140000	140000				
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.	170000	170000				
9	**REVETMENT: (including Benching) Supply of all materials like cement, Late-rite stone (stone masonry) all type aggregates, labours, & T&P for construction of revetment walls as per requirement to protect the towers, where felt unsafe and as per approved drawing and the direction of Engineer in charge.**							
9.1	Excavation in all type of soil including rock & back filling including supply	CUM	3000	3000				
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	125	125				
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	60	60				
9.4	RR Massonary work in the ratio 1:5.	CUM	2500	2500				
10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	Set	1	1				
	TOTAL OF CIVIL WORKS (PART-B)							
TOTAL OF ERECTION OF 220KV LINE (Electrical Work) & (Civil Work) -Schedule-4-ss (to Schedule No. 6 Grand Summary)								
				Name of Bidder:_____ Signature of Bidder:_____				
1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.								

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country (Transmission Line-132KV)

NAME OF THE BIDDER					
Sl. No.	**SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)**	**UNITS**	**QUANTITY FOR:Construction of 132 KV LILO line from existing 132 KV Palaspanga - Karanjia S/C line to proposed 220/132KV & 220/33KV Grid S/S at Turumunga. (Line length-21 Kms. approx.)**	**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 3.246MT) **-56NOS.**	MT	181.776		
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) **-2NOS.**	MT	1.218		
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) **-1NOS.**	MT	1.291		
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.949 MT) **-10NOS.**	MT	49.490		
1.2.1	+3 EXTENSION (Nominal unit weight 0.975MT) **-2NOS.**	MT	1.950		
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) **-1NOS.**	MT	2.020		
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 5.924 MT) **-12NOS.**	MT	71.088		
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) **-2NOS.**	MT	2.138		
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) **-5NOS.**	MT	11.230		
1.4	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 9.806 MT) **-2NOS.**	MT	19.612		
1.4.2	+15 EXTENSION (Nominal unit weight 8.375 MT) **-2NOS.**	MT	16.750		
1.4	**TEMPLATES**				
1.4.1	PA (Nominal unit weight 0.644 MT) **-5NOS.**	MT	3.220		
1.4.2	PB (Nominal unit weight 0.592 MT) **-2NOS.**	MT	1.184		
1.4.3	PC (Nominal unit weight 0.876 MT) **-2NOS.**	MT	1.752		
1.4.4	OC+15 (Nominal unit weight 2.073 MT) **-1NOS.**	MT	2.073		
1.5	**WEIGHT OF THE STRUCTURES & Tempates including Tower Stub**	MT	**366.792**		
1.6	**Weight of different type G.I Nuts and Bolts**	MT	**18.340**		
2	**Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.**				
2.1	EARTHING DEVICE	Nos.	82		
2.2	DANGER BOARD	Nos.	80		
2.3	NUMBER PLATE	Nos.	80		
2.4	PHASE PLATE	Nos.	480		
2.5	BIRD GUARD	Nos.	336		
2.6	ANTICLIMBING DEVICE	Nos.	80		
2.7	CIRCUIT PLATE	Nos.	160		

3	**Supply of following POWER CONDUCTORS in the proposed 132 KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.**				
3.1	**LL-ACSR 240mm2 (LOW LOSS TYPE) POWER CONDUCTOR equivalent Panther**	Kms.	127.89		
4	**POWER CONDUCTOR ACESSORIES**				
4.1	**For LL-ACSR 240mm2 (LOW LOSS TYPE) POWER CONDUCTOR equivalent Panther**				
4.1.1	VIBRATION DAMPER	Nos.	960		
4.1.2	MID SPAN JOINT	Set	128		
4.1.3	REPAIR SLEEVE	Set	50		
4.1.4	P A ROD	Set	366		
5	**OPGW Fibre Optic Cable & Hardwares**				
5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable	Kms.	21		
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.	Kms.	21		
6	**Supply of the following type Long Rod Porcelain Insulators as per the technical specification and as per the instruction of the engineer in charge.**				
6.1	90 KN Long Rod Insulator for 132KV	Nos.	402		
6.2	120 KN Long Rod Insulator for 132KV	Nos.	360		
7	**Supply of the following hard ware fittings suitable for following conductor as per the technical specification.**				
7.1	**For ACSR Panther-AS/ACSR-ZINC COATED STEEL WIRE(LOW LOSS TYPE)POWER CONDUCTOR**				
7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Nos.	354		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Nos.	24		
7.1.3	Single tension Hard ware fittings suitable for 120 KN Long Rod insulator.	Nos.	228		
7.1.4	Double tension Hard ware fittings suitable for 120 KN Long Rod insulator.	Nos.	66		
'7.1.5	Hanger	Nos.	336		
'7.1.6	U'-Bolt.	Nos	56		
	TOTAL OF 132KV LINE-SCHEDULE-2 -Plant (to Schedule No. 6 Grand Summary)				

Name of Bidder:_____

Signature of Bidder:_____

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 4. Installation and Other Services (Transmission Line-132KV)

NAME OF THE BIDDER

Sl. No.	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	QUANTITY FOR:Construction of 132 KV LILO line from existing 132 KV Palaspanga - Karanjia S/C line to proposed 220/132KV & 220/33KV Grid S/S at Turumunga. (Line length-21 Kms. approx.)	TOTAL QUANTITY	Unit Price [1]		Total Price [1]	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				1	2	3	(1x2)	(1x3)
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 2.994MT) **-56NOS.**	MT	167.664	167.664				
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) **-2NOS.**	MT	1.218	1.218				
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) **-1NOS.**	MT	1.291	1.291				
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.517 MT) **-10NOS.**	MT	45.170	45.170				
1.2.1	+3 EXTENSION (Nominal unit weight .975MT) **-2NOS.**	MT	1.950	1.950				
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) **-1NOS.**	MT	2.020	2.020				
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 5.315 MT) **-12NOS.**	MT	63.780	63.780				
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) **-2NOS.**	MT	2.138	2.138				
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) **-5NOS.**	MT	11.230	11.230				
1.4	OC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight 8.739 MT) **-2NOS.**	MT	17.478	17.478				
1.4.2	+15 EXTENSION (Nominal unit weight 8.375 MT) – **2NOS.**	MT	16.750	16.750				
1.3.3	**WEIGHT OF THE STRUCTURES**	MT	**330.689**	**330.689**				
1.4	**Weight of different type G.I Nuts and Bolts**	MT	**16.534**	**16.534**				
1.5	**Fixing of of Templates & setting of Stubs including G.I Nuts & Bolts**							
1.5.1	PA (Nominal unit weight 0.919 MT) **-56NOS.**	MT	51.464	51.464				

1.5.2	PB (Nominal unit weight 1.047 MT) **-10NOS.**	MT	10.470	10.470				
1.5.3	PC (Nominal unit weight 1.513 MT) **-12NOS.**	MT	18.156	18.156				
1.5.4	OC+15 (Nominal unit weight 3.14 MT) **-2NOS.**	MT	6.280	6.280				
2	**Erection of the following tower accessories as per technical specification and as directed by the engineer-in charge.**							
2.1	EARTHING DEVICE	Nos.	82	82				
2.2	DANGER BOARD	Nos.	80	80				
2.3	NUMBER PLATE	Nos.	80	80				
2.4	PHASE PLATE	Nos.	480	480				
2.5	BIRD GUARD	Nos.	336	336				
2.6	ANTICLIMBING DEVICE	Nos.	80	80				
2.7	CIRCUIT PLATE	Nos.	160	160				
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 -AS/ACSR-ZINC COATED STEEL WIRE(LOW LOSS TYPE) SIX POWER CONDUCTOR)	Route (Km)	21.00	21				
4	**Erection of OPGW fibre Optic Cable for speech, data & protection**							
4.1	Erection of 24/48Fibre(DWSM) OPGW fibre Optic along with hardwares and approach cables	Kms	21	21				
	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.	21	21				
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.	21	21				
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	KM.	21	21				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.	24	24				
2	**EXCAVATION WORKS FOR OPEN CAST/SHALLOW TYPE FOUNDATIONS**							
2.1	**Excavation for following type of soil and rocks and back filling (back filling shall be done in layers of 500mm sprinkling of water and compaction thereafter and disposed of excess quantity of excavated soil at suitable place after back filling), & if required for filling the foundation, borrowed earth/morrum/sand shall be brought for filling and compaction, including supply of sand, all T&P, labour as required for foundation**							
2.1.1	Soft/Loose soil	CUM	800	800				
2.1.2	Dense/Compact soil	CUM	800	800				
2.1.3	Wet soil	CUM	2300	2300				

2.1.4	Partial Submerged soil	CUM	2300	2300				
2.1.5	Fully submerged soil	CUM	800	800				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	1000	1000				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	1000	1000				
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	205	205				
3.2	**(i) FOR OPENCAST FOUNDATION**:Providing & laying of **RCC** work of ratio **1:1.5:3 (Grade M-20)** with approved quality stone chips of nominal size 12mm to 20mm in tower foundation and cooping inclusive of cost of mixing, supply of form boxes Chimney & fixing, curing, testing of sample cement concrete cubes & cost of all materials like cement,etc. as per IS.456 (ii) The cooping height shall be 350mm above the ground level. The surrounding area shall be clear from materials and damage of land if any shall be repaired before measurement and as per requirement, including labours and T&P as per specification in the concrete ratio 1:1.5:3 (Grade M-20.)	CUM	1750	1750				
3.2.1	Supply of Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (open cast) including supply of binding wire (With supply of steel rod - TATA/RINL/SAIL make)	MT	25	25				
4	**DE-WATERING(FOR OPEN CAST LOCATION)**							
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	2430	2430				
5	**Supply of borrowed earth/morrum for back filling for foundation/revertment works**							
5.1	beyond 100 mtr lead	CUM	1960	1960				
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.	7000	7000				
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.	60000	60000				
8	**WELDING OF TOWERNUTS &BOLTS**							
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.	95,000	95000				
9	**REVETMENT: (including Benching) Supply of all materials like cement, Late-rite stone (stone masonry) all type aggregates, labours, & T&P for construction of revetment walls as per requirement to protect the towers, where felt unsafe and as per approved drawing and the direction of Engineer in charge.**							
9.1	Excavation in all type of soil including rock & back filling including supply of sand with back filling.	CUM	1800	1800				
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	75	75				
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	35	35				
9.4	RR Massonary work in the ratio 1:5.	CUM	1500	1500				

10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	LS	1	1				
	TOTAL OF CIVIL WORKS (PART-B)							
	TOTAL OF ERECTION OF 312KV LINE (Electrical Work) & (Civil Work) - Schedule-4-ss (to Schedule No. 6 Grand Summary)							
				Name of Bidder:_____ Signature of Bidder:_____				
1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.								

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 6. Grand Summary

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

Name of Bidder:_____

Signature of Bidder:_____

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 7. Recommended Spare Parts

NAME OF THE BIDDER

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

Name of Bidder:_____

Signature of Bidder:_____

Note: Recommended Spares shall not be taken in to consideration for evaluation purpose.

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X160 MVA,220/132 KV and 2x20 MVA,220/33 KV Grid Sub-station at Turumunga with associated 220KV D/C line from PGCIL 400/220 KV Grid Sub- station, Keonjhar to Turumunga (Approx. Line length-32 Kms.) & 132KV LILO line from 132 KV Palaspanga - Karanjia S/C line to Turumunga. (Approx. Line length-21 Kms.) in Odisha State of India under PACKAGE-4 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/04/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-4]

Schedule No. 8. Details of Taxes & Duties

NAME OF THE BIDDER				
Sl No	Description of Applicable Tax/Levy		Tax @ __%	Total Amount of Taxes /Duty/ Levies
1	Details of Taxes and levies on the direct / bought out 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 (Schedue-1 & 2)			
(i)	TOTAL IGST			
(ii)	TOTAL CGST			
(III)	TOTAL OGST			
(iv)	TOTAL Any other tax			
	TOTAL OF TAXES AND DUTIES [Sum (i) to (iv)			
2	Details of Taxes and levies on the direct / bought out 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 (Schedue- 4)			
(i)	TOTAL IGST			
(ii)	TOTAL CGST			
(III)	TOTAL OGST			
(iv)	TOTAL Any other tax			
	TOTAL OF TAXES AND DUTIES [Sum (i) to (iv)			
4	F. Total Bid Price: (including Taxes & Duties and other levies)			

Name of Bidder:_____

Signature of Bidder:_____