ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C LILO line from existing TTPS-DUBURI 132 KV Line to proposed Sub-station at Gondia (Approx. Line length-25.304 Km) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/…….]- Reference Identification No: [OPTCL/JICA/PKG-6]

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

NAME OF THE BIDDER								
Sl No	DESCRIPTION OF ITEMS(SCHEDULE-1-SS) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	Code[1]	UNIT	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S,Gondia (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05 FDR, 02 TRF & 01 B/C, 2nos unequipped spare bay)	Total Quantity	Unit Price [2]		Total Price [2]
						In Foreign Currency	CIP	
					(1)	*(2)*	*(3)*	*(1) x (3)*
1	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	15	15			
2	145 KV,1250A,31.5KA,ISOLATORS							
2.1	S/I WITH OUT EARTH SWITCH		NOS	9	9			
2.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	2			
2.3	D/I WITHOUT EARTH SWITCH		NOS	2	2			
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6			
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III		NOS	12	12			
5	145 KV, 2 CORE, SINGLE PHASE, IVT		NOS	3	3			
6	132 KV Bus Post Insulators		NOS	16	16			
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		SET	5	5			
8	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	18	18			
8.1	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	6	6			
9	**36 KV,1250A,25KA,ISOLATORS**							
9.1	S/I WITH OUT EARTH SWITCH		NOS	9	9			
9.2	D/I WITH SINGLE EARTH SWITCH		NOS	5	5			
9.3	D/I WITHOUT EARTH SWITCH		NOS	2	2			
9.4	S/I WITH BEAM MOUNTED		NOS	2	2			
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II		NOS	27	27			
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)		NOS	3	3			
12	36 KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	8	8			
13	33 KV Bus Post Insulators		NOS	22	22			

14	**BUS BAR & CIRCUIT MATERIALS**							
14.1	**TENSION & SUSPENSION ANTI FOG TYPE INSULATOR**							
14.1.1	120 kN Long Rod Insulator for 132kV side.		NOS	102	102			
14.1.2	90 kN Long Rod INSULATOR for 132kV side.		NOS	24	24			
14.1.3	120 kN Long Rod INSULATOR for 33kV side.		NOS	66	66			
14.1.4	90 kN Long Rod INSULATOR for 33kV side.		NOS	28	28			
14.2	ACSR MOOSE CONDUCTOR		KMS	4	4			
14.3	**HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS**							
14.3.0	132 KV Double Tension H/W fitting with adjustable turn buckle suitable for twin ACSR Moose (Single Anchoring Point)		NOS	18	18			
14.3.1	132 KV Single Tension H/W fitting with adjustable turn buckle suitable for Single ACSR Moose		NOS	42	42			
14.3.2	132 KV Single suspension H/W fitting suitable for single ACSR Moose		NOS	24	24			
14.3.3	132 KV Single suspension H/W fitting suitable for twin ACSR Moose		NOS	3	3			
14.3.5	33 KV Single Tension H/W fitting with adjustable turn buckle suitable for single ACSR Moose		NOS	30	30			
14.3.6	33 KV Single Suspension H/W fitting suitable for single ACSR Moose	p	NOS	27	27			
14.3.7	33 KV Double Tension H/W fitting with adjustable turn buckle suitable for twin ACSR Moose (Single Anchoring Point)		NOS	18	18			
14.3.8	132KT- clamp for ACSR PANTHER run to ACSR MOOSE drop		NOS	24	24			
14.3.9	132 KV 'T' Clamp for single Moose run with single Moose ACSR drop		NOS	60	60			
14.3.10	132 KV 'T' Clamp for twin Moose run with single Moose ACSR drop		NOS	15	15			
14.3.11	33 KV 'T' Clamp for single Moose run with single Moose ACSR drop		NOS	78	78			
14.3.12	33 KV 'T' Clamp for twin Moose run with single Moose ACSR drop		NOS	39	39			
14.3.13	132 KV PI Clamp		NOS	16	16			
14.3.14	Spacer for Twin Bus ACSR 132 KV Bus		NOS	54	54			
14.3.15	Spacer for Twin Bus ACSR 33 KV Bus		NOS	22	22			
14.3.16	132 KV LA Clamp		NOS	12	12			
14.3.17	132 KV CVT Clamp		NOS	12	12			
14.3.18	132 KV CT Clamp(BIMETALLIC)		NOS	36	36			
14.3.19	132 KV IVT Clamp		NOS	6	6			
14.3.20	132kKV Isolater Pad Clamp		NOS	127	127			
14.3.21	132 KV CB Clamp		NOS	36	36			
14.3.22	33 KV PI Clamp		NOS	15	15			
14.3.23	33 KV Isolator pad clamp		NOS	117	117			
14.3.24	33 KV LA Clamp		NOS	27	27			
14.3.25	33 KV CT/NCT Clamp		NOS	50	50			
14.3.26	33 KV IVT Clamp		NOS	3	3			
14.3.27	33 KV CB Clamp		NOS	48	48			
14.3.28	PG Clamp for ACSR Moose		NOS	150	150			
14.4	**EARTH SPIKES & IT'S HARDWARES & FITTING**							
14.4.1	FOR 132KV SIDE :26 NOS @ 7 MTRS LENGTH EACH		SET	26	26			
14.4.2	FOR 33 KV SIDE:23 NOS @ 5 MTRS EACH		SET	23	23			
14.5	**SUBSTATION EARTHING SYSTEMS**							

14.5.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)		MT	62	62			
14.5.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)		MT	15	15			
14.5.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)		NOS	125	125			
14.5.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)		NOS	90	90			
14.5.5	Betonite powder for earthing.							
14.5.5.1	(i)Betonite powder @50Kg per treated earth pit. (ii)Betonite powder 9Kg per meter for 75/10 GI flat burial.		MT	48	48			
14.6	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**							
14.6.1	G.I Cable Trays(size: 450x75x2500mm)		MTRS	1550	1550			
14.6.2	G.I Cable Trays(size: 300x75x2500mm)		MTRS	2200	2200			
14.6.3	G.I Cable Trays(size: 150x75x2500mm)		MTRS	1350	1350			
14.6.4	Support G. I angle 50x50x6 mm for cable tray		MT	3	3			
14.7	**SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES**							
14.7.1	BAY MARSHALLING KIOSK		NOS	7	7			
14.7.2	SWITCH YARD AC CONSOLE FOR LIGHTING		NOS	2	2			
14.7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION		NOS	1	1			
14.7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY		NOS	2	2			
14.7.5	CT, PT & CVT Out Door Console Boxes (132 KV CT-5 Nos., 33 KV CT-8 Nos., 132 KV CVT-2 No., 132 KV IVT-1 No., 33 KV IVT-1 No.)		NOS	17	17			
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**							
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**							
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 20 Sets.		MT	24.00	24			
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets		MT	5.70	5.7			
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) =9Sets.		MT	7.47	7.47			
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.		MT	8.40	8.4			
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**							
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0..62 MT) =17 Sets.		MT	9.86	9.86			
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.62 MT) = 2 Sets.		MT	1.16	1.164			
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets		MT	5.40	5.4			
15.2.4	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) =2		MT	2.50	2.5			
15.2.5	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.		MT	2.12	2.12			
15.2.6	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 09 Sets.		MT	3.60	3.6			
15.2.7	G4X - 33KV (NOMINAL UNIT WT- 0.4 MT) =2Sets.		MT	0.80	0.8			
15.3	**TOTAL WEIGHT OF COLUMN & BEAM**		MT	**71.01**	**71.01**			
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**							
15.4.1	**ISOLATORS-132KV**							
15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =9 Nos		MT	5.93	5.9283			
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.		MT	1.96	1.9582			

15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 2 Nos.		MT	2.24	2.241			
15.4.5	**ISOLATORS-33 KV**							
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =9Nos.		MT	2.65	2.6532			
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.		MT	1.31	1.3114			
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.		MT	3.35	3.3525			
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.		MT	3.22	3.2175			
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 18 Nos		MT	2.68	2.6784			
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.		MT	1.42	1.4196			
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos		MT	0.69	0.6933			
15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos		MT	0.37	0.3729			
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12 Nos		MT	2.16	2.1576			
15.4.15	BPI-132 KV (Unit Weight - 309.883 Kg) =16 Nos		MT	4.96	4.9568			
15.4.16	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos		MT	2.23	2.232			
15.4.17	NCTS (Unit Weight - 138.24 Kg) = 4 Nos		MT	0.55	0.5528			
15.4.18	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**		MT	**35.73**	**35.73**			
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & equipment structures**		MT	**7.00**	**7.00**			
16	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**							
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**							
16.1.1	XLPE 3.5 CX300 mm^2		MTRS	500	500			
16.1.2	XLPE 3.5 CX185 mm^2		MTRS	300	300			
16.1.3	XLPE 3.5 CX120 mm^2		MTRS	200	200			
16.1.4	PVC 3.5 CX70 mm^2		MTRS	600	600			
16.1.5	PVC 3.5 CX35 mm^2		MTRS	1750	1750			
16.1.6	PVC 4 CX 16 mm^2		MTRS	1000	1000			
16.1.7	PVC 4 CX 6 mm^2		MTRS	3750	3750			
16.1.8	PVC 2CX 6 mm^2		MTRS	2200	2200			
16.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**							
16.2.1	2 CX 2.5 mm2		MTRS	5500	5500			
16.2.2	4 CX 2.5 mm^2		MTRS	10500	10500			
16.2.3	5 CX 2.5 mm^2		MTRS	4500	4500			
16.2.4	7CX 2.5 mm^2		MTRS	5500	5500			
16.2.5	10 CX 2.5 mm^2		MTRS	10000	10000			
16.2.6	12 CX 2.5 mm^2		MTRS	9000	9000			
16.2.7	16 CX 2.5 mm^2		MTRS	5000	5000			
16.2.8	19 CX 2.5 mm^2		MTRS	2000	2000			
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB		MTRS	600	600			
17	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**							
17.1	48 Fibre Optic Approach cable along with HDPE Pipes		Kms	1	1			
17.2	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system		No.	1	1			
17.3	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)		No.	1	1			

17.4	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data aquisition & configuration of RTU.		No.	1	1			
17.5	48 V, 300 AH, maintenance free VRLA Battery set.		Set	1	1			
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.		No	1	1			
17.7	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)		MTRS	500	500			
17.8	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)		MTRS	500	500			
17.9	1.5 sq. mm 10 core control cable(Digital Input)		MTRS	200	200			
17.10	10 sq. mm 2 core multi strand control cable(Battery)		MTRS	100	100			
17.11	48 V DCDB		No	1	1			
17.12	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.		LS	1	1			
18	**SUPPLY OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**							
18.1	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)		NOS	2	2			
18.2	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			
18.3	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			
18.4	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)		SETS	2	2			
18.5	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			
19	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**							
19.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)		SET	46	46			

19.2	**STREET LIGHTING**: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/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							
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.		SET	25	25			
19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.		SET	25	25			
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.		NO	1	1			
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.		NO	1	1			
20	2 TR capacity 5-star rated Split Air conditioning units with remote control facility: including supply of air conditioners, 5KVA voltage stabiliser(V-Guard), control boxes etc for completing the AC scheme. (As per specification) for control room, carrier room & conference room.		SET	20	20			
21	**FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**							
21.1	FOAM TYPE-9 LTRS		NOS	4	4			
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS		NOS	4	4			
21.3	DRY POWDER TYPE -6 KGS		NOS	4	4			
21.4	CO_2 - 4.5 KGS		NOS	10	10			
21.5	CO_2 - 9.0 KGS		NOS	10	10			
21.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS		NOS	4	4			

21.7	Water type- 9 LTRS		NOS	4	4			
21.8	Foam type - 50 LTR		NOS	2	2			
21.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement		SET	5	5			
22	**POWER TRANSFORMER 132/33 KV, 20 MVA(AS PER SPECIFICATION)**		NOS	2	2			
23	**SUBSTATION AUTOMATION SYSTEM: Supply of the following 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.**							
23.1	**132KV Level**							
23.1.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) **with Air Conditioning as per the Specification;**		Nos.	2	2			
23.1.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol		Nos.	5	5			
23.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.		Nos.	2	2			
23.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol		Nos.	2	2			
23.1.5	Numerical over current , earth fault relays: IEC 61850 protocol		Nos.	5	5			
23.1.6	High Impedance REF Relay		Nos.	2	2			
23.1.7	Numerical Centralised Bus bar protection.		Nos.	1	1			
23.1.8	AUXILIARY RELAY FOR DC SUPERVISION		Nos.	10	10			
23.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4		Nos.	4	4			
23.1.10	MPG - TEST BLOCK 2		Nos.	14	14			
23.1.11	HIGH SPEED TRIP RELAY(HAND RESET)		Nos.	5	5			
23.1.12	TRIP CIRCUIT SUPERVISION RELAY 4		Nos.	10	10			
23.1.13	Line interface unit;		sets.	3	3			
23.1.14	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	6	6			
23.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.		Mtr.	1,000	1000			
23.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components		Set	5	5			
23.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	2	2			
23.2	**33 KV SIDE**							
23.2.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;		Nos.	1	1			
23.2.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards		Nos.	8	8			
23.2.3	DC Supervision Relay		Nos.	16	16			
23.2.4	TRIP Relay		Nos.	8	8			
23.2.5	Test Block		Nos.	16	16			
23.2.6	Line interface unit;		sets.	2	2			

23.2.7	Ethernet switch IEC 61850-3,IEEE1588v2		sets.	3	3			
23.2.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..		Mtr.	500	500			

23.2.9	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	4	4			
23.2.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)		No.	1	1			
23.3	**Station Level**							
23.3.1	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			
23.3.2	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			
23.3.3	Color Laser jet Printer		No.	1	1			
23.3.4	UPS , 3KVA		No.	2	2			
23.3.5	GPS System with PTP		set	1	1			
23.3.6	Gateway for SCADA		set	1	1			
23.3.7	Large vedio screen of 60 inches for display including all type of accessories		set	1	1			
23.4	**AC & DC SYSTEM**							
23.4.1	**AC SYSTEM**							
23.4.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)		SET	1	1			
23.4.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)		SET	1	1			
23.4.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)		SET	1	1			
23.4.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)		SET	1	1			
23.4.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD		SET	1	1			
23.4.1.6	INDOOR RECEPTACLE BOARD		SET	1	1			
23.4.2	**DC SYSTEM**							
23.4.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)		SET	1	1			
23.4.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD		SET	1	1			
23.4.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC		SET	1	1			
23.4.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)		SET	1	1			
24	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS		SET	1	1			
25	WALKIE TALKIE SET		SET/ PAIR	2	2			
26	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.		NOS	2	2			
27	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.		SET	1	1			
28	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.		SET	1	1			
29	WATER COOLER WITH WATER PURIFIER SYSTEM		NOS	1	1			

30	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)		SET	1	1			

31	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)		SET	1	1			
32	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.		SET	1	1			
33	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size		NOS	37	37			
TOTAL OF SUBSTATION-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)								

Name of Bidder:_____

Signature of Bidder:_____

[1] Bidders shall enter a code repres*enting 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 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C LILO line from existing TTPS-DUBURI 132 KV Line to proposed Sub-station at Gondia (Approx. Line length-25.304 Km) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/…….]- Reference Identification No[OPTCL/JICA/PKG-6]

Schedule No. 1. Plant Supplied from Abroad (Transmission Line)

NAME OF THE BIDDER							
Item	DESCRIPTION OF ITEMS(SCHEDULE-1-Line) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	Code[1]	UNITS	132kV LILO line from existing 132kV TTPS-Duburi to proposed GONDIA S/S (Approx. Line length- 25.034 km)	Unit Price[2]		Total Price[2]
					In Foreign Currency	CIP	
				(1)	*(2)*	*(3)*	*(1) x (3)*
1	SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts & Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs & bracing members). All Supply should confirm to the Technical Specification.						
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (73nos)		MT	250.390			
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (06 nos)		MT	3.666			
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (0 nos)		MT	0.000			
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (10nos)		MT	49.730			
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT) (0 Nos)		MT	0.000			
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (0 nos)		MT	0.000			
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214MT) (9 NOS.)		MT	55.926			
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (2 nos)		MT	2.238			
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (0 nos)		MT	0.000			
1.4	TEMPLATES						
1.4.1	PA (Nominal unit weight 0.665 MT)(4 Nos.)		MT	2.660			
1.4.2	PB (Nominal unit weight 0.602MT)(1 Nos.)		MT	0.602			
1.4.3	PC (Nominal unit weight 0.904MT)(1 Nos.)		MT	0.904			
1.5	**WEIGHT OF THE STRUCTURES (including Tower stubs]**		MT	**384.422**			
1.6	**Weight of different type G.I Nuts and Bolts[including 5% extra]**		MT	**29.4**			
2.0	Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.						

2.1	EARTHING DEVICE		Nos.	92			
2.2	DANGER BOARD		Nos.	92			
2.3	NUMBER PLATE		Nos.	92			
2.4	PHASE PLATE		Nos.	552			
2.5	BIRD GUARD		Nos.	438			
2.6	ANTICLIMBING DEVICE		Nos.	92			
2.7	CIRCUIT PLATE		Nos.	184			
3.0	Supply of following POWER CONDUCTORS in the proposed 132 kV lines with provision for 1.5 % sag and wastage as per the technical specification and as per the instruction of the engineer in charge.						
3.1	ACSR PANTHER		Kms.	154.10			
4.0	POWER CONDUCTOR ACESSORIES						
4.1	For ACSR PANTHER						
4.1.1	VIBRATION DAMPER		Nos.	558			
4.1.2	MID SPAN JOINT		Set	150			
4.1.3	REPAIR SLEEVE		Set	150			
4.1.4	P A ROD FOR ACSR PANTHER		Set	438			
4.1.5	PG CLAMP FOR ACSR PANTHER		Set	54			
5.0	Supply of OPGW fibre Optic Cable for speech, data & protection						
5.1	48 fiber (DWSM) OPGW fiber optic cable		kms	26			
5.2	OPGW fibre optic cable hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 24/48fibre (DWSM) OPGW joint Box		kms	26			
6.0	Supply of the following Anti fog type Pocelain longrod 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.	480			
6.2	120 KNLong Rod Insulator for 132 kV		Nos.	245			
7.0	Supply of the following hard ware fittings suitable for ACSR Panther conductors as per the technical specification.						
7.1	For ACSR PANTHER						
7.1.1	Single suspension Hard wares fittings.(AGS type) suitable for 90 KN long rod insulator.		Nos.	426			
7.1.2	Double suspension Hard wares fittings.(AGS type) suitable for 90 KN long rod insulator.		Nos.	12			
7.1.3	Single tension Hard ware fittings suitable for 120 KN long rod insulator.		Nos.	216			
7.1.4	Double tension Hard wares fittings suitable for 120 KN long rod insulator.		Nos.	12			
7.1.5	"D" Shackle		Nos.	228			
7.1.6	Hanger		Nos.	438			
7.1.7	U'-Bolt.		Nos	92			
	TOTAL OF Schedule-1 Line To Schedule-6 Grand Summary						

Name of Bidder:_____

Signature of Bidder:_____

	[1] Bidders shall enter a code repre*senting the country of origin of all* imported plant and equipment.					
	[2] Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.					
Country of Origin Declaration Form						
Item	Description	Code	Country			

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:-Design, Supply and Installation of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C LILO line from existing TTPS-DUBURI 132 KV Line to proposed Sub-station at Gondia (Approx. Line length-25.304 Km) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - **FB No: [CPC/JICA/ICB/06/17-18/…….]-** **Reference Identification No[OPTCL/JICA/PKG-6]**

Schedule No. 2. Plant Supplied from Within the Employer's Country

NAME OF THE BIDDER						
Sl No	**DESCRIPTION OF ITEMS(SCHEDULE-2-SS) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)**	**UNIT**	**QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S,Gondia (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05 FDR, 02 TRF & 01 B/C, 2nos unequipped spare bay)**	**Total Quantity**	**Unit Price [2]**	**Total Price [2]**
				(1)	*(2)*	*(1) x (2)*
1	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	15	15		
2	145 KV,1250A,31.5KA,ISOLATORS					
2.1	S/I WITH OUT EARTH SWITCH	NOS	9	9		
2.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2		
2.3	D/I WITHOUT EARTH SWITCH	NOS	2	2		
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6		
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12	12		
5	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	3		
6	132 KV Bus Post Insulators	NOS	16	16		
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	SET	5	5		
8	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	18	18		
8.1	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	6	6		
9	**36 KV,1250A,25KA,ISOLATORS**					
9.1	S/I WITH OUT EARTH SWITCH	NOS	9	9		
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	5	5		
9.3	D/I WITHOUT EARTH SWITCH	NOS	2	2		
9.4	S/I WITH BEAM MOUNTED	NOS	2	2		
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II	NOS	27	27		
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)	NOS	3	3		
12	36 KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8	8		
13	33 KV Bus Post Insulators	NOS	22	22		
14	**BUS BAR & CIRCUIT MATERIALS**					

14.1	**TENSION & SUSPENSION ANTI FOG TYPE INSULATOR**					
14.1.1	120 kN Long Rod Insulator for 132kV side.	NOS	102	102		
14.1.2	90 kN Long Rod INSULATOR for 132kV side.	NOS	24	24		
14.1.3	120 kN Long Rod INSULATOR for 33kV side.	NOS	66	66		
14.1.4	90 kN Long Rod INSULATOR for 33kV side.	NOS	28	28		
14.2	ACSR MOOSE CONDUCTOR	KMS	4	4		
14.3	**HARDWARES & FITTINGS/SPACERS/CLAMP & CONNECTORS**					
14.3.0	132 KV Double Tension H/W fitting with adjustable turn buckle suitable for twin ACSR Moose (Single Anchoring Point)	NOS	18	18		
14.3.1	132 KV Single Tension H/W fitting with adjustable turn buckle suitable for Single ACSR Moose	NOS	42	42		
14.3.2	132 KV Single suspension H/W fitting suitable for single ACSR Moose	NOS	24	24		
14.3.3	132 KV Single suspension H/W fitting suitable for twin ACSR Moose	NOS	3	3		
14.3.5	33 KV Single Tension H/W fitting with adjustable turn buckle suitable for single ACSR Moose	NOS	30	30		
14.3.6	33 KV Single Suspension H/W fitting suitable for single ACSR Moose	NOS	27	27		
14.3.7	33 KV Double Tension H/W fitting with adjustable turn buckle suitable for twin ACSR Moose (Single Anchoring Point)	NOS	18	18		
14.3.8	132KT- clamp for ACSR PANTHER run to ACSR MOOSE drop	NOS	24	24		
14.3.9	132 KV 'T' Clamp for single Moose run with single Moose ACSR drop	NOS	60	60		
14.3.10	132 KV 'T' Clamp for twin Moose run with single Moose ACSR drop	NOS	15	15		
14.3.11	33 KV 'T' Clamp for single Moose run with single Moose ACSR drop	NOS	78	78		
14.3.12	33 KV 'T' Clamp for twin Moose run with single Moose ACSR drop	NOS	39	39		
14.3.13	132 KV PI Clamp	NOS	16	16		
14.3.14	Spacer for Twin Bus ACSR 132 KV Bus	NOS	54	54		
14.3.15	Spacer for Twin Bus ACSR 33 KV Bus	NOS	22	22		
14.3.16	132 KV LA Clamp	NOS	12	12		
14.3.17	132 KV CVT Clamp	NOS	12	12		
14.3.18	132 KV CT Clamp(BIMETALLIC)	NOS	36	36		
14.3.19	132 KV IVT Clamp	NOS	6	6		
14.3.20	132kKV Isolater Pad Clamp	NOS	127	127		
14.3.21	132 KV CB Clamp	NOS	36	36		
14.3.22	33 KV PI Clamp	NOS	15	15		
14.3.23	33 KV Isolator pad clamp	NOS	117	117		
14.3.24	33 KV LA Clamp	NOS	27	27		
14.3.25	33 KV CT/NCT Clamp	NOS	50	50		
14.3.26	33 KV IVT Clamp	NOS	3	3		
14.3.27	33 KV CB Clamp	NOS	48	48		
14.3.28	PG Clamp for ACSR Moose	NOS	150	150		
14.4	**EARTH SPIKES & IT'S HARDWARES & FITTING**					
14.4.1	FOR 132KV SIDE :26 NOS @ 7 MTRS LENGTH EACH	SET	26	26		
14.4.2	FOR 33 KV SIDE:23 NOS @ 5 MTRS EACH	SET	23	23		
14.5	**SUBSTATION EARTHING SYSTEMS**					
14.5.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (*spacing maximum 5m both way*)	MT	62	62		
14.5.2	EARTHING CONDUCTOR: 50X6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure etc)	MT	15	15		
14.5.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)	NOS	125	125		
14.5.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	NOS	90	90		

14.5.5	Betonite powder for earthing.					
14.5.5.1	(i)Betonite powder @50Kg per treated earth pit. (ii)Betonite powder 9Kg per meter for 75/10 GI flat burial.	MT	48	48		
14.6	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**					
14.6.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	1550	1550		
14.6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	2200	2200		
14.6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	1350	1350		
14.6.4	Support G. I angle 50x50x6 mm for cable tray	MT	3	3		
14.7	**SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES**					
14.7.1	BAY MARSHALLING KIOSK	NOS	7	7		
14.7.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2	2		
14.7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1	1		
14.7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2	2		
14.7.5	CT, PT & CVT Out Door Console Boxes (132 KV CT-5 Nos., 33 KV CT-8 Nos., 132 KV CVT-2 No., 132 KV IVT-1 No., 33 KV IVT-1 No.)	NOS	17	17		
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**					
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**					
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 20 Sets.	MT	24.00	24		
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets	MT	5.70	5.7		
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) =9Sets.	MT	7.47	7.47		
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.	MT	8.40	8.4		
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**					
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0..62 MT) =17 Sets.	MT	9.86	9.86		
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.62 MT) = 2 Sets.	MT	1.16	1.164		
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets	MT	5.40	5.4		
15.2.4	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) =2	MT	2.50	2.5		
15.2.5	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.	MT	2.12	2.12		
15.2.6	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 09 Sets.	MT	3.60	3.6		
15.2.7	G4X - 33KV (NOMINAL UNIT WT- 0.4 MT) =2Sets.	MT	0.80	0.8		
15.3	**TOTAL WEIGHT OF COLUMN & BEAM**	MT	**71.01**	**71.01**		
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**					
15.4.1	**ISOLATORS-132KV**					
15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =9 Nos	MT	5.93	5.9283		
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.	MT	1.96	1.9582		
15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 2 Nos.	MT	2.24	2.241		
15.4.5	**ISOLATORS-33 KV**					
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =9Nos.	MT	2.65	2.6532		
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.	MT	1.31	1.3114		
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.	MT	3.35	3.3525		
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.	MT	3.22	3.2175		
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 18 Nos	MT	2.68	2.6784		
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.	MT	1.42	1.4196		
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos	MT	0.69	0.6933		

15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos	MT	0.37	0.3729		
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12 Nos	MT	2.16	2.1576		
15.4.15	BPI-132 KV (Unit Weight - 309.883 Kg) =16 Nos	MT	4.96	4.9568		
15.4.16	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos	MT	2.23	2.232		
15.4.17	NCTS (Unit Weight - 138.24 Kg) = 4 Nos	MT	0.55	0.5528		
15.4.18	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**	MT	**35.73**	**35.73**		
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & equipment structures**	MT	**7.00**	**7.00**		
16	**GENERAL EQUIPMENT & SUBSTATION ACCESSORIES**					
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**					
16.1.1	XLPE 3.5 CX300 mm^2	MTRS	500	500		
16.1.2	XLPE 3.5 CX185 mm^2	MTRS	300	300		
16.1.3	XLPE 3.5 CX120 mm^2	MTRS	200	200		
16.1.4	PVC 3.5 CX70 mm^2	MTRS	600	600		
16.1.5	PVC 3.5 CX35 mm^2	MTRS	1750	1750		
16.1.6	PVC 4 CX 16 mm^2	MTRS	1000	1000		
16.1.7	PVC 4 CX 6 mm^2	MTRS	3750	3750		
16.1.8	PVC 2CX 6 mm^2	MTRS	2200	2200		
16.2	**CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)**					
16.2.1	2 CX 2.5 mm2	MTRS	5500	5500		
16.2.2	4 CX 2.5 mm^2	MTRS	10500	10500		
16.2.3	5 CX 2.5 mm^2	MTRS	4500	4500		
16.2.4	7CX 2.5 mm^2	MTRS	5500	5500		
16.2.5	10 CX 2.5 mm^2	MTRS	10000	10000		
16.2.6	12 CX 2.5 mm^2	MTRS	9000	9000		
16.2.7	16 CX 2.5 mm^2	MTRS	5000	5000		
16.2.8	19 CX 2.5 mm^2	MTRS	2000	2000		
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	600	600		
17	**ACCESSORIES FOR PLCC SYSTEM With OPGW cable**					
17.1	48 Fibre Optic Approach cable along with HDPE Pipes	Kms	1	1		
17.2	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system	No.	1	1		
17.3	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No.	1	1		
17.4	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data aquisition & configuration of RTU.	No.	1	1		
17.5	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	1		
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	1		
17.7	2.5 sq. mm 2 core control cable(power supply,Transducer/MFT PT supply)	MTRS	500	500		
17.8	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	MTRS	500	500		
17.9	1.5 sq. mm 10 core control cable(Digital Input)	MTRS	200	200		
17.10	10 sq. mm 2 core multi strand control cable(Battery)	MTRS	100	100		
17.11	48 V DCDB	No	1	1		
17.12	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.	LS	1	1		

18	**SUPPLY OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**					
18.1	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)	NOS	2	2		
18.2	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		
18.3	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		
18.4	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SETS	2	2		
18.5	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		
19	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**					
19.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)	SET	46	46		
19.2	**STREET LIGHTING**: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/ 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					
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.	SET	25	25		
19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.	SET	25	25		
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.	NO	1	1		
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.	NO	1	1		
20	2 TR capacity 5-star rated Split Air conditioning units with remote control facility: including supply of air conditioners, 5KVA voltage stabiliser(V-Guard), control boxes etc for completing the AC scheme. (As per specification) for control room, carrier room & conference room.	SET	20	20		

21	**FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**					
21.1	FOAM TYPE-9 LTRS	NOS	4	4		
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS	NOS	4	4		
21.3	DRY POWDER TYPE -6 KGS	NOS	4	4		
21.4	CO_2 - 4.5 KGS	NOS	10	10		
21.5	CO_2 - 9.0 KGS	NOS	10	10		
21.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	4		
21.7	Water type- 9 LTRS	NOS	4	4		
21.8	Foam type - 50 LTR	NOS	2	2		
21.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement	SET	5	5		
22	**POWER TRANSFORMER 132/33 KV, 20 MVA(AS PER SPECIFICATION)**	NOS	2	2		
23	**SUBSTATION AUTOMATION SYSTEM: Supply of the following 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.**					
23.1	**132KV Level**					
23.1.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) **with Air Conditioning as per the Specification;**	Nos.	2	2		
23.1.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5	5		
23.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2	2		
23.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	2	2		
23.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5	5		
23.1.6	High Impedance REF Relay	Nos.	2	2		
23.1.7	Numerical Centralised Bus bar protection.	Nos.	1	1		
23.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10	10		
23.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	4	4		
23.1.10	MPG - TEST BLOCK 2	Nos.	14	14		
23.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	5	5		
23.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10	10		
23.1.13	Line interface unit;	sets.	3	3		
23.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6	6		
23.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	1,000	1000		
23.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	5	5		
23.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2	2		
23.2	**33 KV SIDE**					
23.2.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;	Nos.	1	1		

23.2.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	8	8		

23.2.3	DC Supervision Relay	Nos.	16	16		
23.2.4	TRIP Relay	Nos.	8	8		
23.2.5	Test Block	Nos.	16	16		
23.2.6	Line interface unit;	sets.	2	2		
23.2.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3	3		
23.2.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	500	500		
23.2.9	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	4	4		
23.2.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1	1		
23.3	**Station Level**					
23.3.1	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		
23.3.2	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		
23.3.3	Color Laser jet Printer	No.	1	1		
23.3.4	UPS , 3KVA	No.	2	2		
23.3.5	GPS System with PTP	set	1	1		
23.3.6	Gateway for SCADA	set	1	1		
23.3.7	Large vedio screen of 60 inches for display including all type of accessories	set	1	1		
23.4	**AC & DC SYSTEM**					
23.4.1	**AC SYSTEM**					
23.4.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)	SET	1	1		
23.4.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)	SET	1	1		
23.4.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)	SET	1	1		
23.4.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	1		
23.4.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	1		
23.4.1.6	INDOOR RECEPTACLE BOARD	SET	1	1		
23.4.2	**DC SYSTEM**					
23.4.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)	SET	1	1		
23.4.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	1		
23.4.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	1	1		
23.4.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1	1		
24	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	1		
25	WALKIE TALKIE SET	SET/ PAIR	2	2		
26	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	2		
27	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	1	1		
28	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	1		
29	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1	1		

30	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1	1		
31	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1	1		
32	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.	SET	1	1		
33	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NOS	37	37		
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 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C LILO line from existing TTPS-DUBURI 132 KV Line to proposed Sub-station at Gondia (Approx. Line length-25.304 Km) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/…….]- Reference Identification No[OPTCL/JICA/PKG-6]

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

NAME OF THE BIDDER						
Item	**DESCRIPTION OF ITEMS(SCHEDULE-2-Line) SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)**		**UNITS**	**132kV LILO line from existing 132kV TTPS-Duburi to proposed GONDIA S/S (Approx. Line length- 25.034 km)**	**Unit Price[2]**	**Total Price[2]**
				1	**2**	**(1x2)**
1	**SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts & Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs & bracing members). All Supply should confirm to the Technical Specification.**					
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (73nos)		MT	250.390		
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (06 nos)		MT	3.666		
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (0 nos)		MT	0.000		
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (10nos)		MT	49.730		
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT) (0 Nos)		MT	0.000		
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (0 nos)		MT	0.000		
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214MT) (9 NOS.)		MT	55.926		
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (2 nos)		MT	2.238		
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (0 nos)		MT	0.000		
1.4	**TEMPLATES**					
1.4.1	PA (Nominal unit weight 0.665 MT)(4 Nos.)		MT	2.660		
1.4.2	PB (Nominal unit weight 0.602MT)(1 Nos.)		MT	0.602		
1.4.3	PC (Nominal unit weight 0.904MT)(1 Nos.)		MT	0.904		
1.5	**WEIGHT OF THE STRUCTURES (including Tower stubs)**		**MT**	**384.422**		
1.6	**Weight of different type G.I Nuts and Bolts[including 5% extra]**		**MT**	**29.4**		

2.0	Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.					
2.1	EARTHING DEVICE		Nos.	92		
2.2	DANGER BOARD		Nos.	92		
2.3	NUMBER PLATE		Nos.	92		
2.4	PHASE PLATE		Nos.	552		
2.5	BIRD GUARD		Nos.	438		
2.6	ANTICLIMBING DEVICE		Nos.	92		
2.7	CIRCUIT PLATE		Nos.	184		
3.0	Supply of following POWER CONDUCTORS in the proposed 132 kV lines with provision for 1.5 % sag and wastage as per the technical specification and as per the instruction of the engineer in charge.					
3.1	ACSR PANTHER		Kms.	154.10		
4.0	POWER CONDUCTOR ACESSORIES					
4.1	For ACSR PANTHER					
4.1.1	VIBRATION DAMPER		Nos.	558		
4.1.2	MID SPAN JOINT		Set	150		
4.1.3	REPAIR SLEEVE		Set	150		
4.1.4	P A ROD FOR ACSR PANTHER		Set	438		
4.1.5	PG CLAMP FOR ACSR PANTHER		Set	54		
5.0	Supply of OPGW fibre Optic Cable for speech, data & protection					
5.1	48 fiber (DWSM) OPGW fiber optic cable		kms	26		
5.2	OPGW fibre optic cable hardware set like suspension assembly, tension assembly (dead end assembly, pass through assembly), Vibration Damper, Down lead clamp ,assemblies for 24/48fibre (DWSM) OPGW joint Box		kms	26		
6.0	Supply of the following Anti fog type longrod 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.	480		
6.2	120 KNLong Rod Insulator for 132 kV		Nos.	245		
7.0	Supply of the following hard ware fittings suitable for ACSR Panther conductors as per the technical specification.					
7.1	For ACSR PANTHER					
7.1.1	Single suspension Hard wares fittings.(AGS type) suitable for 90 KN long rod insulator.		Nos.	426		
7.1.2	Double suspension Hard wares fittings.(AGS type) suitable for 90 KN long rod insulator.		Nos.	12		
7.1.3	Single tension Hard ware fittings suitable for 120 KN long rod insulator.		Nos.	216		

7.1.4	Double tension Hard wares fittings suitable for 120 KN long rod insulator.		Nos.	12		
7.1.5	"D" Shackle		Nos.	228		
7.1.6	Hanger		Nos.	438		
7.1.7	U'-Bolt.		Nos	92		
TOTAL OF Schedule-2 Line To Schedule-6 Grand Summary						
		Name of Bidder:_____ Signature of Bidder:_____				

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C Lilo line from TTPS-DUBURI 132 KV Line (Line length-25.3040Km approximately) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - **FB No: [CPC/JICA/ICB/06/17-18/…….]-** **Reference Identification No[OPTCL/JICA/PKG-6]**

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

NAME OF THE BIDDER

Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-4-S/s) ERECTION OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)	UNIT	QUANTITY: for Construction of 2X20 MVA, 132/33 KV S/S,Gondia (132 KV Bay-05 Nos.: 02 FDR, 02 TRF , 01 B/C ,2nos unequipped spare bay) & (33 KV Bay-08 Nos.: 05FDR, 02 TRF & 01 B/C)	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	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				
2	145 KV,1250A,31.5KA,ISOLATORS						
2.1	S/I WITH&WITH OUT EARTH SWITCH	NOS	9				
2.2	D/I WITH SINGLE EARTH SWITCH	NOS	2				
2.3	D/I WITHOUT EARTH SWITCH	NOS	2				
3	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6				
4	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12				
5	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3				
6	132 KV Bus Post Insulators	NOS	16				
7	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5				
7.1	36 KV,800-400-200,25KA,3 CORE SINGLE PHASE CURRENT TRANSFORMER(2 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	18				
7.2	36 KV, 800-400-200, 25KA, 4 CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	6				
8	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4				
9	**36 KV,1250A,25KA,ISOLATORS**						
9.1	S/I WITH OUT EARTH SWITCH	NOS	9				
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	5				
9.3	D/I WITHOUT EARTH SWITCH	NOS	2				
9.4	S/I WITH BEAM MOUNTED	NOS	2				
10	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II	NOS	27				
11	36 KV ,2 CORE,SINGLE PHASE,IVT(1 core 3P & other core 0.2s)	NOS	3				
12	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8				
13	33 KV Bus Post Insulators	NOS	15				
14	**BUS BAR & CIRCUIT MATERIALS**						
14.1	Supply of labour,T&P and other necessary arrangements for stringing of bus bar conductors,hoisting of Long Rod insulator ,Single or Double Hard-wares Fittings, Clamp & connectors, as per requirements, Jumpers, connections to Equipments,testing,commissioning etc. as per the instruction of Engineer-in charge.						
14.1.1	Single conductor	KM	2.5				
14.1.2	Twin Conductor	KM	1.5				
14.2	**EARTH SPIKES & IT'S HARDWARES & FITTING**						
14.2.1	FOR 132KV SIDE : 26 NOS @ 7 MTRS LENGTH EACH	SET	26				

14.2.2	FOR 33 KV SIDE: 23 NOS @ 5 MTRS EACH	SET	23				
14.3	**SUBSTATION EARTHING SYSTEMS**						
14.3.1	**EARTHING CONDUCTOR FOR BURRIAL** : 75X10 mm GI Earth Flat for laying (*spacing maximum 5m*) (Substation earth mat): Design, engineering, supply (except the MS Rods, only erection) inclusive of corrosion protection measures if any,laying of earth mat conductors of size 75X10 mm GI Flat as per the approval of Engineer in charge, excavation, welding/jointing of ground conductors along with risers (a) up to Finished level from the mat size 75X10 mm GI Flat, filling of Bentonate powder of adequate depth and back filling with good compaction.The spacing between the earth conductor not more than 5 mtrs (both way) and to be buried at depth of 700 mm from the finished ground level as per the practice and as per specification.	MTRS	10000				
14.3.2	**EARTHING CONDUCTOR**: 50x6 mm **GI Flat** for Raiser from the burial earth mat to equipment,structure including proper welding, bending and anti corrosive painting etc from the finished ground level to the top of the structure and equipment shall be with 50X6 mm GI Flats, as per approved drawing and specification.	MTRS	3600				
14.3.3	**EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE** 3 mtrs long for treated earth pit): perforated 50 mm Heavy duty GI pipes for treated earth pits (with details of treatment as per IS) including, excavation, filling with Bentonate powder and other materials for the treated earth pit as per standard practice and as per specification.	NOS	125				
14.3.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	NOS	90				
14.4	**G.I Cable Trays including G.I. support Angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.**						
14.4.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	1550				
14.4.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	2200				
14.4.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	1350				
14.4.4	Support G. I angle 50x50x6 mm for cable tray	MT	3				
14.5	SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES						
14.5.1	BAY MARSHALLING KIOSK	NOS	7				
14.5.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2				
14.5.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1				
14.5.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2				
14.5.5	CT, PT & CVT Out Door Console Boxes	NOS	17				
15	**SWITCH YARD STRUCTURES COLUMN & BEAM (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**						
15.1	**DIFFERENT TYPES OF COLUMNS WITH DETAILS**						
15.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT) = 20 Sets.	MT	24.00				
15.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT) = 06 sets	MT	5.70				
15.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT)=09Sets.	MT	7.47				
15.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) = 14 Sets.	MT	8.40				
15.2	**DIFFERENT TYPE OF BEAMS WITH DETAILS**						
15.2.1	G1 - 132 KV(NOMINAL UNIT WT- 0.58 MT) =17 Sets.	MT	9.86				
15.2.2	G1X - 132 KV (NOMINAL UNIT WT- 0.58 MT) = 2 Sets.	MT	1.16				
15.2.3	G2 - 132 KV(NOMINAL UNIT WT- 0.9 MT) = 06 Sets	MT	5.40				
	G1,2 - 132 KV(Each two beams of G1 type) (NOMINAL UNIT WT- 1.25 MT) = 2	MT	2.50				
15.2.4	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) = 04 Sets.	MT	2.12				
15.2.5	G4 - 33KV(NOMINAL UNIT WT- 0.4MT) = 09 Sets.	MT	3.60				
15.2.6	G4X - 33KV (NOMINAL UNIT WT- 0.4 MT) =2Sets.	MT	0.80				
15.3	**TOTAL WEIGHT OF COLUMN & BEAM**	**MT**	**71.01**				
15.4	**SWITCH YARD EQUIPMENT STRUCTURES (LATTICE TYPE) FOR 132/33 KV CLASS INCLUDING FOUNDATION BOLTS & NUTS.**						
15.4.1	**ISOLATORS-132KV**						
15.4.2	S.I.WITH & WITHOUT E/S (Unit weight - 658.767 Kg) =9 Nos	MT	5.93				
15.4.3	D.I. WITHOUT E/S (Unit Weight - 979.10 Kg) = 2 Nos.	MT	1.96				
15.4.4	D.I. WITH E/S (Unit Weight - 1120.559 Kg) = 2 Nos.	MT	2.24				
15.4.5	**ISOLATORS-33 KV**						
15.4.6	S.I. WITHOUT E/S (Unit weight - 294.893 Kg) =8 Nos.	MT	2.65				
15.4.7	D.I. WITHOUT E/S (Unit weight - 655.764 Kg) = 2 Nos.	MT	1.31				
15.4.8	D.I. WITH E/S (Unit weight - 670.555 Kg) =5 Nos.	MT	3.35				
15.4.9	CTS-132 KV (Unit Weight - 214.546 Kg) = 15 Nos.	MT	3.22				
15.4.10	CTS-33 KV (Unit Weight - 148.80 Kg) = 18 Nos	MT	2.68				
15.4.11	CVTS-132 KV (Unit Weight - 236.628 Kg) = 6Nos.	MT	1.42				
15.4.12	IVTS-132 KV (Unit Weight - 231.195 Kg) = 3 Nos	MT	0.69				
15.4.13	IVTS-33 KV (Unit Weight - 124.336 Kg) = 3 Nos	MT	0.37				
15.4.14	Surge Arrester-132 kV (Unit Weight - 179.893 Kg) = 12 Nos	MT	2.16				

15.4.15	BPI-132 KV (Unit Weight - 309.883 Kg) = 21Nos	MT	4.96				
15.4.16	BPI-33 KV (Unit Weight - 148.80 Kg) = 15 Nos	MT	2.23				
15.4.17	NCTS (Unit Weight - 138.24 Kg) = 4 Nos	MT	0.55				
15.4.18	**TOTAL WEIGHT OF EQUIPMENT STRUCTURE**	MT	**35.73**				
15.5	**Total weight of GI Nuts and bolts for the above Column, Beam & structures**	MT	**7.25**				
16	**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**						
16.1	**POWER CABLES,1.1KV,XLPE/PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)**						
16.1.1	XLPE 3.5 CX300 mm^2	MTRS	500				
16.1.2	XLPE 3.5 CX185 mm^2	MTRS	300				
16.1.3	XLPE 3.5 CX120 mm^2	MTRS	200				
16.1.4	PVC 3.5 CX70 mm^2	MTRS	600				
16.1.5	PVC 3.5 CX35 mm^2	MTRS	1750				
16.1.6	PVC 4 CX 16 mm^2	MTRS	1000				
16.1.7	PVC 4 CX 6 mm^2	MTRS	3750				
16.1.8	PVC 2CX 6 mm^2	MTRS	2200				
16.2	CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)						
16.2.1	2 CX 2.5 mm2	MTRS	5500				
16.2.2	4 CX 2.5 mm^2	MTRS	10500				
16.2.3	5 CX 2.5 mm^2	MTRS	4500				
16.2.4	7CX 2.5 mm^2	MTRS	5500				
16.2.5	10 CX 2.5 mm^2	MTRS	10000				
16.2.6	12 CX 2.5 mm^2	MTRS	9000				
16.2.7	16 CX 2.5 mm^2	MTRS	5000				
16.2.8	19 CX 2.5 mm^2	MTRS	2000				
16.2.9	1CX 120 mm^2 BAT TO BAT CHARGER & CHARGER TO DCDB	MTRS	600				
17	**Erection of ACCESSORIES FOR PLCC SYSTEM for OPGW System**						
17.1	Erection of 48 Fibre Optic Approach cable along with Hardware fittings	MTRS	1000				
17.2	Erection/comissioning of SDH/MUX along with termination with FODP	No	1				
17.3	Erection/commissioning of RTU along with fixing,cabling of MFMs	No	1				
17.4	Erection/commissioning of FODP	No	1				
17.5	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1				
17.6	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1				
17.7	48V DCDB	No	1				
17.8	Earth Flat, Cable Tray, Telephone cable,Foundation rail, Junction Box,.	LS	1				
18	**ERECTION OF STATION TRANSFORMER & OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB-STATION AS PER TECHNICAL SPECIFICATION**						
18.1	STATION TRANSFORMER 33KV/433V,250 KVA (AS PER SPECIFICATION)	NOS	2				
18.2	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				
19	**SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)**						
19.1	**SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj/ other approved make of OPTCL) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)**	SET	46				

19.2	**STREET LIGHTING**: IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/ 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						
19.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/ other approved make of OPTCL).(100 watt each) for Street Light.	SET	25				
19.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH	SET	25				
19.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN	NO	1				
19.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.	NO	1				
20	2 TR CAPACITY SPLIT AIR CONDITIONING UNITS WITH REMOTE CONTROL FACILITY: Erection of 5 star rated AIR CONDITIONERS, Automatic Voltage Stabiliser,CONTROL BOXES ETC FOR COMPLETING THE A.C SCHEME.(AS PER SPECIFICATION) FOR CONTROL ROOM, CARRIER ROOM & CONFERENCE ROOM.,OFFICE ROOM etc (*SUPPLY OF CABLES ARE COVERED IN CABLE ITEMS AS INDICATED ABOVE)	SET	20				
21	**Erection of FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)**						
21.1	FOAM TYPE-9 LTRS	NOS	4				
21.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 25 KGS	NOS	4				
21.3	DRY POWDER TYPE -6 KGS	NOS	4				
21.4	CO_2 - 4.5 KGS	NOS	10				
21.5	CO_2 - 9.0 KGS	NOS	10				
21.6	CO_2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4				
21.7	Water type- 9 LTRS	NOS	4				
21.8	Foam type - 50 LTR	NOS	4				
21.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND With Canopy arrangement	SET	6				
22	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. **1. 132/33 KV 20/40 MVA: 02 Nos**	Nos	2				
23	**SUBSTATION AUTOMATION SYSTEM: Supply of the following 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.**						
23.1	**132KV Level**						
23.1.1	Yard AC Kiosk :4500 mm (L)x4000mm (W)x 3500mm (H) **with Air Conditioning as per the Specification;**	Nos.	2				
23.1.2	Numerical Bay control unit :24 Digital input & 20Nos digital out put with CT / PT Input cards. IEC 61850 protocol	Nos.	5				
23.1.3	Numerical distance protection with the following functions: IEC 61850 protocol.	Nos.	2				
23.1.4	Numerical Transformer Differential/REF protection with the following functions: Over flux ,Over volt etc. IEC 61850 protocol	Nos.	2				
23.1.5	Numerical over current , earth fault relays: IEC 61850 protocol	Nos.	5				
23.1.6	High Impedance REF Relay	Nos.	2				
23.1.7	Numerical Centralised Bus bar protection.	Nos.	1				
23.1.8	AUXILIARY RELAY FOR DC SUPERVISION	Nos.	10				
23.1.9	AUXILIARY RELAY FOR TRANSFORMER TROUBLES 4	Nos.	2				
23.1.10	MPG - TEST BLOCK 2	Nos.	20				
23.1.11	HIGH SPEED TRIP RELAY(HAND RESET)	Nos.	5				
23.1.12	TRIP CIRCUIT SUPERVISION RELAY 4	Nos.	10				

23.1.13	Line interface unit;	sets.	3				
23.1.14	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	6				
23.1.15	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient.	Mtr.	1,000				
23.1.16	Simplex Cubicle type for process bus equipment , Swing frame front access (VSG), Dimension 2300mm (H) X 1000mm (D) X 1000mm (W), earth bar 25x6 Sq. mm. Copper with the following components	Set	5				
23.1.17	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	2				
23.1.18	TIME SYNCH EQUIPMENT	No.	1				
22.4	**33 KV SIDE**						
23.2.1	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification;	Nos.	1				
23.2.2	Integrated Numerical Bay control unit with protection function :16Digital input & 10Nos digital out put with CT / PT Input cards	Nos.	8				
23.2.3	DC Supervision Relay	Nos.	16				
23.2.4	TRIP Relay	Nos.	8				
23.2.5	Test Block	Nos.	16				
23.2.6	Line interface unit;	sets.	2				
23.2.7	Ethernet switch IEC 61850-3,IEEE1588v2	sets.	3				
23.2.8	Multimode glass fibre Optical cord Double jacket armoured ,rodent resilient..	Mtr.	500				
23.2.9	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	4				
23.2.10	DCDB panel; With Bus bar Switches,600(L)X 400(W)X 500(H)	No.	1				
24	Station Level						
24.1	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				
24.2	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				
24.3	Color Laser jet Printer	No.	1				
24.4	UPS , 1KVA	No.	2				
24.5	GPS System with PTP	set	1				
24.6	Gateway for SCADA	set	1				
24.7	Large vedio screen of 60 inches for display including all type of accessories	set	1				
25	**AC & DC SYSTEM**						
25.1	**AC SYSTEM**						
25.1.1	MAIN AC DB, (HAVING 800 A, 50KA, DRAWOUT TYPE ACB WITH 3 O/C, E/F, U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION. (MAIN DB-1, MAIN DB-2 WITH B/C)	SET					
25.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (AC DB-1, AC DB-2 WITH B/C)	SET	1				
25.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1, DB-2 & B/C)	SET	1				
25.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1				
25.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1				
25.1.6	INDOOR RECEPTACLE BOARD	SET	1				
25.2	**DC SYSTEM**						
25.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1)	SET					
25.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1				
25.2.3	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	1				
25.2.4	BATTERY CHARGER FOR 220 V, 350 AH BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1				
26	DISTLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1				
27	WALKIE TALKIE SET	SET/ PAIR	1				
28	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2				
29	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	2				
30	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1				
31	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	1				
32	MAINTENANCE TESTING EQUIPMENT (AS PER **ANNEXURE - I** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1				
33	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER **ANNEXURE - II** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1				
34	OFFICE FURNITURE (AS PER **ANNEXURE - III** ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM, OFFICE ROOMS, LIBRARY, TESTING LAB, etc.	SET	1				

35	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NOS	37				
	TOTAL OF ELECTRICAL WORKS (PART-A)						
PART-B	**CIVIL WORKS**						
1	**Foundations :** Design, engineering, supply of all labour, material (Cement-OPC-43 Grade,MS Rod, coarse and fine aggregates(Sand and Metal Chips) etc) for construction of RCC (1:1.5:3) & PCC (1:3:6), RCC footings of any depth, pedestal and piling as per requirement including soil investigation, excavation, concreting, shuttering, grouting, underpinning and back filling of foundations etc complete for the following switch yard gantry/ portal structures and equipment support & others as per the technical specification and approved drawings.(RCC RATIO 1:1.5:3). This also includes excavation in all types of soil or rocks,back filling and disposal of excess earth as per the direction of Engineer In charge.							
1.1	**Switch yard gantry/portal structure foundations**						
1.1.1	T1S - 132 KV(NOMINAL UNIT WT- 1.2 MT)	NOS	20				
1.1.2	T4S - 132KV (NOMINAL UNIT WT- 0.95 MT)	NOS	6				
1.1.3	T8S - 33KV(NOMINAL UNIT WT- 0.8 MT)	NOS	9				
1.1.4	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT)	NOS	14				
1.2	**Equipment foundations :**						
1.2.1	145 KV, 800-400-200 A, 31.5 KA, 4CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	15				
1.3	145 KV,1200A, 31.5KA, ISOLATORS						
1.3.1	S/I WITH OUT EARTH SWITCH	NOS	9				
1.3.2	D/I WITH SINGLE EARTH SWITCH	NOS	2				
1.3.3	D/I WITHOUT EARTH SWITCH	NOS	2				
1.4	145 KV, 6600pF, 3CORE, SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6				
1.5	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	12				
1.6	145 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3				
1.7	132 KV Bus Post Insulators	NOS	16				
1.8	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5				
1.9	36 KV, 800-400-200, 25KA, 3CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	18				
1.10	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4				
1.11	**36 KV,800A,25KA,ISOLATORS**						
1.11.1	S/I WITH OUT EARTH SWITCH	NOS	9				
1.11.2	D/I WITH SINGLE EARTH SWITCH	NOS	5				
1.11.3	D/I WITHOUT EARTH SWITCH	NOS	2				
1.13	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3				
1.14	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8				
1.15	33 KV Bus Post Insulators	NOS	15				
1.16	SUB STATION SWITCYARD BMK, AC CONSOLE & OTHER MARSHALLING BOXES						
1.16.1	BAY MARSHALLING KIOSK ***(03 Nos 132 kv bay & 04 Nos 33 KV bay)***	NOS	7				
1.16.2	SWITCH YARD AC CONSOLE FOR LIGHTING	NOS	2				
1.16.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION	NOS	1				
1.16.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY	NOS	2				
1.16.5	CT, PT & CVT Out Door Console Boxes	NOS	17				
1.16.6	Erection of Apex meter panel.	NOS	1				
1.17	**EXCAVATION (Open Cast).:This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Enginer In charge.**						
1.17.1	Normal Soil(SOFT/LOOSE)	Cum	850				
1.17.2	Hard Soil	Cum	1150				
1.17.3	Soft Rock	Cum	1900				
1.17.4	Hard Rock(Requiring Blasting/Using breaker machinery)	Cum	348				
1.17.5	Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in for the above column/equipment/marshalling box foundations { Sl No. 1.1 & 1.2} column and equipment foundation as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	Cum	148				
1.17.6	Open cast foundation for the above column/equipment/marshalling box foundations { Sl No. 1.1 & 1.2} with RCC: 1:1.5:3 (Grade M-20) ,including supply of Labour all materials like cement, coarse and fine aggregates,shuttering,proper curing of the foundations/concrete and T&P in line with the Techinical Specification and as per direction of Engineer in Charge. (without cost of steel)	Cum	1656				
1.17.7	Cutting, Bending, Binding Placing in position of steel rod for foundation including cost of binding wire with supply all size of rod (TATA/ RAIL/ Sail Make)	MT	60				

1.17.8	Fabrication (Cutting and different sizes angles/ flats, driling of holes) including cost of GI angle, consumable, labour, T&P and other anccillary item.	MT	5				
2	**Cable Trenches:** Design, engineering, and construction of RCC cable trenches and all associated works for cable trench and cable trench crossings as per technical specifications and approved drawings and as per direction of the Engineer in Charge. (1) This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. (2) Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in cable trench as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge. (3) Open cast foundation for the cable trench with RCC: 1:1.5:3 (Grade M-20 Nominal mixing),including supply of Labour all materials like MS Rod,Cement, coarse and fine aggregates,shuttering,cutting,bending,binding of M.S.Rod including supply of binding wire proper curing of the foundations/concrete and T&P in line with the Specification and as per direction of Engineer in Charge. (4) Fly ash Brickwork with fly ash Brick ,plastering (1:6 Ratio) & curing, wherever required including the supply of labour,material, cement, etc. (5)Supply,fabrication & Fixing of MS Angle(G.I) for cable tray support (as per specification). The cable tray support frame shall be pre fabricated GI angle as per requirement and to be welded with the plate fixed on the trench wall for better rigidity. The plate (6mm) fixed on the wall are also to be welded with the MS rods provided for the trench wall before concreting. (6) Precast of RCC covers (1:1.5:3) and its fixing on the cable trench as per spec and instruction of Engg. In Charge. (7) CABLE TRENCHES INSIDE THE CONTROL ROOM SHALL BE COVERED WITH M.S CHEQUERED PLATE(Duly painted as per instruction of Engg in charge) INCLUDING STANDARD SUPPORT STAND {HD Galvanised (M.S JOIST ,CHANNEL,ANGLE)}.						
2.1	Section 1-1	Mtrs	330				
2.2	Section 2- 2	Mtrs	230				
2.3	Section 3-3	Mtrs	330				
2.4	Section 4-4	Mtrs	530				
3	**Rain water harvesting** system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	Nos	4				
4	**Cable trench crossing**:Design,engineering,construction including supply of labour,materials,cement,reinforcement steel,formwork etc,and all associated works for construction of trench crossing as per technical specification and approved drawing.(Road crossing)						
4.1	Section 1-1	Nos	1				
4.2	Section 2- 2	Nos	1				
4.3	Section 3-3	Nos	3				
5	**Boundary wall** : Soil investigation,Design, engineering, procurement of material, labour including all associated works for construction of boundary-wall along the property line of the sub-station as per technical specification and instruction of the Engineer in Charge.(the size of the Fly ash Bricks shall be 250mm using fly ash Fly ash Brick & having compressive strength with 75kg/cm2). This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.(**APPROXIMATE LENGHTH OF THE BOUNDARY WALL) and approved drawing. Appox.						
5.1	Appox length of the boundary walls(Brick works rested on RCC Beam and RCC Column & footings as per TS) in mtrs	RM	1100				
5.2	**Appox length of the Boundary wall rested on pile foundation**:. size of the pile shall be 375mm dia & depth of 5000mm minimum at an interval of 3000mm having 300x300 Grade beam on the pile & Brick works rested on RCC Beam and RCC Columns & footings as per TS	RM	100				
6	**Contour Survey & Leveling, Back Filling:**						
6.1	**Contour survey** and furnishing contour map including supply of all materials, Labour and T&P	Sq. Mtr	**20692**				
6.2	Soil investigation : Supply of labour,T&Pand other necessary arrangements for Soil investigation/testing of the Switchyard,control Room, transformer, Quarters area etc.as per the site requirement,Technical specification & instruction of Engineer-in-Charge.	Per point	5				
7	**Cutting, Filling and Leveling** of Sub-station area including supply of labour and T&P						

7.1	LEVELLING OF S/S AREA:Providing, neatly dressing up and levelling of substation area including switchyard area to a required level as decided by the Engineer in Charge, the work includes removal, clearing of the entire area from vegetation, trees, bushes, uprooting of plants and disposal of surplus earth and unusable material from the site by means of any mechanical transport, if required as per direction of the Project In charge, with all labours, tools, tackles and plants complete as per approved drawing and specification. This also includes excavation in all type of soils or rocks, back filling and disposal of excess earth or rocks to make the area to a level for construction as per scope and as per approved drawing and specification.						
7.1.1	**CUTTING** of substation area						
7.1.1.1	[i]Soft/loose soil	Cum	9320				
7.1.1.2	[ii]Dense/ Compact soil	Cum	8300				
7.1.2	**FILLING** of substation area with borrowed earth with supply of all labour,T & P.						
7.1.2.1	Beyond 100mtr lead	Cum	10000				
8	**CONTROL ROOM BUILDING**: Design, engineering and construction of switch yard buildings including the piling , the cost of material, supply of all labour, T&P, cement, reinforcement- steel, form work and excavation as per the approved drawing and technical specification (The RCC structure frame should be in the ratio 1:1.5:3).This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawings and specification. CONTROL ROOM BUILDING:(one building): A) Area of the Ground floor with portico at front side, stair case to first floor and top of the building. The details of rooms to be provided are as per the Tech spec. B) Area of the first floor. The details of rooms to be provided are as per the Tech spec. Size of Ground floor. Nos./ area of ground floor/area of first floor . 01 No/ Area of **Ground Floor : 42 mtrsX13 mtrs (546 sq mtrs)** & Area of **first floor 21 mtrsX13mtrs (273 sq mtrs)**, Only Fly ash brick is to used for brick work. One no. room shall be used for ladies rest room & should have attached toilet facilty meant for ladies staff is to be included in ground floor of the Control room building.						
8.1	RCC volume including MS rods(including column ,Beams and roofs etc) as per technical spec & approved drawings.	Lot	1				
8.2	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				
8.3	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				
8.4	External and internal wall (External (18mm thk) and internal (12 mm thk) wall and ceiling plastering as per technical spec mentioned in the civil section) and Building internal & external & ceiling paintings as per technical spec mentioned in the civil section. The left over portion of walls and ceiling of Battery room shall be acid proof paints as per specification & approved drawings.	Lot	1				
8.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1				
8.6	Doors and windows shall be of sliding type with locking facility and shall be of aluminium with glaze of 6mm & windows shall have aluminium grills. As per technical spec & approved drawing.	Lot	1				
8.7	Provision of PHD and other fittings(in Toilets,wash room,overhead water tank of adequate capacity etc) of reputed make,provision of rain water discharge pipes at different locations and etc as per requirement and approved drawing. There shall be septic tank and soak pit of required capacity including complete sewage system as per approved drawing & technical specification & as per instruction of Engg- in-Charge. It includes supply of all types of materials of reputed make, labour etc to complete the work. Toilets for Gents & Ladies to be provided including all good quality reputed fittings as per technoical specification. The toilets & wash room shall have antiskid floor tiles & wall tiles of seramic upto height of 8 feet.	Lot	1				
8.8	Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire,conduits & its accessories,modular type switches & switch board,Junction boxes with required MCB & Earth leakage detector switcghear etc),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				
8.9	Supply, fitting and fixing of stainless steel pf 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mmx32mmx32mm @0.90mtr C/C and stainless square pipe bracing of size 32mmx32mmx32mm in three rows in staircase as per approved design and specification, buffing,polishing etc with cost, conveyance, taxes of all materials, labour, T&P etc required for the complete in all respect	Lot	1				
8.10	Provision of smoke and fire detection system of the building.	Lot	1				
9	**Roads:** Design, construction of roads and walkways/ shoulders within sub-station***(Switch yard area,approach road, control room area, main gate to the switch yard gate etc) a***s per specification, layout and approved drawings complete. This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Enginer In charge. Provision of drains on both the side of the roads for easy discharge of rain water.(Refer the indicative drawing of s/s layout)						
9.1	3.75 mtrs Concrete road with shoulder at both the side as per technical specification indicated in the civil section & shall have drain on both side of the road.	MTRS	600				

9.2	7 mtrs wide Concrete roads with shoulder as per specification indicated in the civil section. & shall have drain on both side of the road. 7 Mtrs wide road inside the switchyard to be connected to switch yard main gate.	MTRS	370				
10	**Drainage system:Collection of rainfall data,** Design, construction of storm water drainage scheme, road-culverts, and drains crossing cable trenches etc. as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Enginer In charge.All the switcyard bays , roads water drainage shall be connected to the mainsurface drain.As per approved drawing and specification.						
10.1	Storm water drain	MTRS	**1**				
10.2	Road-culverts, drain crossings	MTRS	**1**				
10.3	Cable trench crossing	MTRS	**1**				
11	**Foundations for transformers** :Design, engineering, supply of labour, material, equipments and construction of Auto-transformer/Transformer foundation including piling if any, all associated works, rail tracks, jacking pads,anchor block RCC and PCC, miscellaneous structural steel including oil collection pits, MS grating(if required), gravel filling, and other items etc. not mentioned herein, but specifically required for the completion of the work as per technical specification and approved drawing. (Rate shall be inclusive of cement, reinforcement steel, angles,flats and form work etc.)(all cement concrete shall have RCC ratio 1:1.5:3). Transformer RCC foundation and Rail Track should be extended upto the approaching road (However,the height of RCC foundation beyond transformer main plinth area should be same as height of concrete road as per item under 7 mtrs concrete road). This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. **1. 132/33 KV 40 MVA Transformer (2 Nos)**						
11.1	40 MVA, 132/ 33kV transformers a) Overall dimension of transformer(appox) Length:7200 mmX Width 6000 mmX Height 6200 mm b) Total weight with oil and tank: 97.5 MT (appox)	Nos	2				
11.2	**OIL SUMP PIT**:Oil collection (from transformers)sump pit with provision of pump(5 HP, with auto level control , including cabling, fixing of control gear)as per CIGRE. As per spec and approved drawing. >Oil capacity of each Transformer in ltrs appox. a) 40 MVA,132/33 KV: 26500 ltrs.	Nos	1				
12	**PCC before site surfacing :**Providing and supplying all labour, material, equipments etc. required for proper leveling of earth after erection of structures and equipments and proper compaction by using roller of adequate capacity(minimum 3 Ton capacity) with water sprinkling of switch yard area. After proper leveling of the switch yard area (after anti-weed treatment), spreading of plain cement concrete with mixing ratio 1:3:6 (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,back-filling,and disposal of excess earth as per the direction of Engineer in charge and approved drawing. (Switch yard area)	CUM	312				
13	**Metal Spreading:** Providing supplying and laying two layers of machine crushed metals (gravel) fill, the first layer after compaction shall make minimum 50 mm thickness coarse/ layer of 20 mm nominal size consolidated/ compacted and (by using roller as specified in the specification).A final layer of 50 mm thickness of machine crushed 20 mm nominal size of metals(gravel) above the first layer of 50 mm thickness and as per the technical specification and instruction of Engineer in charge above the PCC. The total compacted thickness of the metals(20 mm Nominal) 100mm above the PCC.	CUM	410				
14	**PROVISION OF PLANTATIONS**:Provision of plantation of 100 nos fruit bearing plants and 100 nos decorative plants at different locations, a garden in front of the control room including supply of plants,soil treatment and its plantation including materials,labour and T&P.As per the instruction of Engineer in Charge and specification.	LOT	1				
15	**STONE PITCHING & TOE WALL**:Stone pitching including making of toe walls both at top and bottom, including surface drain both at top and bottom and partition wall in every 10 mtrs by using boulders and RR masonry walls respectively. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth and supply of materials and labour as per the direction of Engineer In charge and as per approved drawing and specification.	LOT	1				
16	**RETAINING WALL:** Construction of RCC retaining wall below the FGL and from NSL as per the site condition to sustain the earth pressure. The depth and length of RCC wall shall be designed as per site requirement. This includes excavation in all type of soil, PCC(1:3:6), & RCC (1:1.5:3) with supply of steel(Fe-500), cement ,sand etc. including cutting, bending, binding, backfilling in layers after concreting for soil compaction and also supply of other required materials and labour . The work shall be executed as per the approved design , drawing as per direction of Engineer In charge .	CUM	100				

17	**Switch yard fencing**: Providing and fixing of G.I Goat mesh (2.5 mm dia) fencing(the posts and links shall be of HD Galvanized) in switch yard and other areas of the substation with a total fence height complete as per specification and approved drawings, and as required under the safety regulation of local, state and central government bodies and as per instruction of the Engineer-in-Charge.(The PCC work for grouting the post shall be 1:2:4 and a continuous Brick masonry work with ratio 1:5 and cement pointing of the joints, for the fencing up to a height from the finished ground level) .This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Engineer In charge. The earthing of the fencing as per specification.	MTR-RUN	335				
18	**Fire wall:** Design, engineering, procurement of labour, material including all associated works for construction of fire-walls as per technical specification and approved drawings(column shall be RCC ratio1:1.5:3 and the walls are of fire resistant bricks).This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawing and specification. Painting of the walls as per direction of the Site In charge.(If Transformers are adjacent).	NO.	1				
19	**Any other civil work** to be included in the schedule by the Bidder if required essential for successful completion of project, including supply of labour, material, cement reinforcement steel, form work etc. Bidder shall also quote the unit rate for the following items of works.(Rate shall be inclusive of supply of labour, material, cement, reinforcement steel, form work etc.)						
19.1	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 75.	Cu.m.	1				
19.2	12 mm thick plaster in cement sand mortar (1: 6).	Sq.m.	1				
19.3	Cutting,bending,binding(supply of binding wires) and fixing of reinforcement(including supply of reinforcement).	M.T.	1				
19.4	Fabrication and welding (if any): Fabrication (cutting of different size angles flats drilling of holes including cost of consumable labour T& P and steel	M.T.	1				
20	**Construction of township/colony** (residential quarters) for staff and employees of the employer. Layout, design, survey, leveling, site dressing and clearing of the area, soil investigation, excavation,piling, PCC, RCC, brick work, plastering ,flooring(flooring shall be with vitrified tiles of reputed make with a dado of minimum 6 inches),fixing of doors windows and window grills, including all labour material like cement ,sand aggregate, bricks, reinforcements etc with all bought items required for completion of the quarters as per approved construction drawings with all facilities for supply of drinking water. The outer paint shall be applied with weather coat synthetic enamel paint as per the standard practice of application and the inner paint shall be applied with distemper of approved quality as per the instruction and approval of the same by OPTCL. This also includes excavation in all types of soil or rocks,(piling if required),back filling,and disposal of excess earth as per the direction of Engineer In charge. Internal electrical wiring with fixing of light fixtures and fans with electronic regulators and exhaust fans as per technical specification and approved drawing. Construction of over head RCC tank(1000 ltrs capacity one for each quarters), sewerage disposal and connection with main sewerage/ septic tank and soak pit, storm water and surface drainage, culverts, roads, with suitable radius on the curves and its connection with main road the substation, street lighting, internal lighting, internal plumbing and sanitation including internal/external finishing of quarters etc. required for completion of the town ship.						

20.1	"D" type Quarter As per technical specification (one no. two storied flat. Each flat shall be with 1 no quarters on ground floor & 1 No quarters on 1st floor).						
20.1.1	"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				
20.1.2	"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				
20.2	"E" type Quarter As per technical specification (one no. two storied flat. Each flat shall be with 2 nos quarters on ground floor & 2 Nos quarters on 1st floor).(There shall be 4 Nos quarters to be accommodated in one flat as E1,E2,E3 & E4)						
20.2.1	"E" type Quarter As per technical specification: 2 nos quarters on ground floor & the quarters to be accommodated in ground floor E1 & E2 (Each quarter size plinth area shall be 73 Sq Mtrs(appox)	SQ Mtr	146				
20.2.2	"E" type Quarter As per technical specification: 2 nos quarters on first floor & the quarters to be accommodated in First floor E3 & E4(Each quarter size shall be 73 Sq Mtrs(appox)	SQ Mtr	146				
21	**MAIN & SWITCH YARD GATES**:Design, engineering, procurement of labour, material including all associated works for construction and fixing of of a main gate and one no. switch yard gates with men gates as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. Provision of gate lights (Post top lantern type) on each pillar of the gate. it includes supply & fixing of light fixtures including LED lamp, LV XLPE cables, switchgear etc required to complete works as per specification and approved drawings						
21.1	MAIN GATE	Nos.	1				
21.2	WICKET GATE NEAR MAIN GATE	Nos.	1				
21.3	SWITCH YARD GATE(ON BOTH SIDES OF 7MTRS. CONCRETE ROAD OF SWITCHYARD)	Nos.	2				
21.4	WICKET GATE NEAR SWITCHYARD	Nos.	1				
22	**COLOUR CODING, BAY MARKING** Etc:Design, engineering, procurement of labour, material including all associated works for the followings. This should be as per direction of site In charge. a)Color coding (red,Yellow & Blue) for equipments,Bus gantry &column of entire switch yard. Good quality weather proof sticker may be used for identification. b)Each bay should be identified with the help of bay marker sign board, suitably grouted. MS sign board with stand to be installed. Proper painting and lettering to be done of the entire switch yard area.	Lot	1				
23	**STATION TRANSFORMER**:Design, engineering, procurement of labour,material including all associated works for construction of foundation and DP structure for station transformers 33/0.415 KV,250 KVA STN TRANSFORMER as per approved drawing and specification.33 KV AB Switch(600A),HG Fuse, DP Structure & Angles (duly painted),Chanels, Plinth for erection of the transformer, including fixing and laying of (insulators,surge arresters,XLPE armoured power cables3.5 core 300 sq mm,LT out door kiosk near transformers and other accessories for complete installation of transformer as per standard) and instruction of Engineer In charge. As per the specification and approved drawing.	NOS	2				
24	**SECURITY SHED & CUM VISITOR ROOM AND VEHICLE PARKING SHED**: Design, engineering, procurement of labour, material including all associated works for construction of Security shed 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)}						
24.1	**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				
24.2	**VEHICLE PARKING SHED:** The size of the parking area shall be 15mtrs X 15 mtrs, out of the entire area there shall be provision of shed for 5 mtrs X 15 mtrs and rest of the area shall be without shed. Roof of the parking place shall be RCC & Parking shed shall be as per TS-E6-Civil & as per the direction of Engineer in Charge.	Nos	1				

25	**BORE WELL & PUMP HOUSE:Design, engineering, procurement of labour, material including all associated works for construction of two nos. bore wells for control room building including switch yard and colony quarters as per specification and approved drawing and instruction of Engineer in charge. This includes supply and fixing and commissioning of two nos 5 HP submersible water pump with starter and other protection. Construction of two nos pump house at ideal location for fixing of the electrical starter units. The pump house be of RCC roof and having walls of Fly ash Brick masonry and plastering and painting with MS door having locking arrangement & Internal concealed wiring and lighting (including supply of flexible copper FRP 1.1 KV PVC wire,conduits & its accessories,modular type switches & switch board, fixing of lighting fixtures with lamps(LED Type)). The size of the room shall be 2.5mtrsX2.5 mtrs having height of 3 mtrs. as per approved drawing and specification. There shall be approach road to the pump house. This includes supply of materials,labours and T&P & excavation of all type of soils including rock and disposal of excess materials as per instruction of Engineer In charge Supply & laying of LV XLPE 3.5CX 35 sq mm cable from ACDB to pump house, control gear & earthing of the system etc to complete the scheme as per approved drawing & instruction of Engineer-in charge.**	NOS	2				
26	**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				
27	**PLATFORM FOR STORING EQUIMENTS:Design, engineering, procurement of labour, material including all associated works for construction of a platform for storing of bushings,Instrument transformers etc, as per specification and approved drawing.This also includes excavation in all types of soil or rocks,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.**	Lot	1				
28	**PROVISION OF RAMP**:Design, engineering, procurement of labour, material including all associated works for construction and fixing of Ramp as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. Provision of a ramp of adequate size and capable of for loading and unloading of the materials of 5 Ton capacity from the lorry or to the lorry near the store shed. Adequate size of MS frames and RCC (1:1.5:3) based ramps to be used for the said purpose.	Lot	1				
29	**Anti-Weed Treatment**						
29.1	Supply of labour,T&P,Chemicals and other necessary arrangements for anti-weed treat of the switch-yard areas,controlroom etc. as per the instruction of Engineer-in-Charge.	Sq.Mtrs	5000				
	TOTAL OF SUBSTATION (Civil Work)(PART-B)						
	TOTAL OF ERECTION OF SUBSTATION (Electrical Work) & (Civil Work) -Schedule-4-ss (to Schedule No. 6 Grand Summary)						

Name of Bidder:_____

Signature of Bidder:_____

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:- Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C Lilo line from TTPS-DUBURI 132 KV Line (Line length-25.304 Km approximately) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - **FB No: [CPC/JICA/ICB/06/17-18/…….]-** **Reference Identification No[OPTCL/JICA/PKG-6]**

Schedule No. 4. Installation and Other Services

NAME OF THE BIDDER

Sl. No.	DESCRIPTION OF ITEMS(SCHEDULE-4-line) ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNIT	132kV LILO line from existing 132kV TTPS-Duburi to proposed GONDIA S/S (Approx. Line length- 25.034 km)	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						9	
1.0	**ERECTION,TESTING & COMMISSIONING** of Following tested Lattice type Galvanized steel tangent / Angle tower without stubs and cleats including different type of G.I HT Nuts & Bolts, washer, spring washer for the above type towers ,hanger and all accessories, tower super structure complete with tightening, punching of bolts including step bolts. All other left out portion of the bolts above bottom cross arm shall be riveted by using suitable hammer. Painting of black bituminous paints three coats shall be provided up to a height of 500mm above the cooping legs & bracing members. All Erection should confirm to the Technical Specification laid there in the Tender Specification.						
1.1	PA TYPE (SUSPENSION) TOWERS (Nominal unit weight 3.430 MT) (73nos)	MT	250.390				
1.1.1	+3 EXTENSION (Nominal unit weight 0.611 MT) (06 nos)	MT	3.666				
1.1.2	+6 EXTENSION (Nominal unit weight 1.349 MT) (0 nos)	MT	0.000				
1.2	PB TYPE (30 deg ANGLE) TOWERS (Nominal unit weight 4.973 MT) (10nos)	MT	49.730				
1.2.1	+3 EXTENSION (Nominal unit weight 1.018 MT) (0 Nos)	MT	0.000				
1.2.2	+6 EXTENSION (Nominal unit weight 2.104 MT) (0 nos)	MT	0.000				
1.3	PC TYPE (60 deg ANGLE) TOWERS (Nominal unit weight6.214MT) (9 NOS.)	MT	55.926				
1.3.1	+3 EXTENSION (Nominal unit weight 1.119 MT) (2 nos)	MT	2.238				
1.3.2	+6 EXTENSION (Nominal unit weight 2.342 MT) (0 nos)	MT	0.000				
1.4	**WEIGHT OF THE STRUCTURES**	MT	361.950				
1.5	**Weight of different type G.I Nuts and Bolts[including 5% extra]**	MT	29.400				
1.3.3	**Fixing of Templates**						
1.4	PA (Nominal unit weight 0.665 MT)(73 Nos.)	MT	48.545				
1.5	PB (Nominal unit weight 0.602MT)(10 Nos.)	MT	6.020				

1.5.1	PC (Nominal unit weight 0.904MT)(9 Nos.)	MT	8.136				
1.6	**Erection of the following tower accessories as per technical specification and as directed by the engineer-in charge.**						
1.6.1	EARTHING DEVICE	Nos.	92				
1.6.2	DANGER BOARD	Nos.	92				
1.6.3	NUMBER PLATE	Sets	92				
1.6.4	PHASE PLATE	Sets	552				
1.6.5	BIRD GUARD	Sets	438				
1.6.6	ANTICLIMBING DEVICE	Nos.	92				
1.6.7	CIRCUIT PLATE	Nos.	184				
2	Hoisting and fixing of insulators with required accessories, paying out of conductor ,jointing, stringing, sagging & Jumpering etc. of power conductor in the proposed lines with all required accessories including scaffolding for 33 KV,11 KV, LT , P&T lines, roads and using own required T&P and compression jointing machines etc. with 1.5% provision for Sag & Wastage and as per the direction of Engineer in charge.						
2.1	DOUBLE CIRCUIT (ACSR PANTHER,SIX POWER CONDCTOR)	Route (Km)	25.304				
3.0	**Erection of OPGW fibre Optic Cable for speech, data & protection**						
3.1	Erection of 48Fibre(DWSM)OPGW fibre Optic along with hardwares sand approach cables	Kmtr	26				
	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.	25.304				
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.	25.304				
1.3	Preparation of land schedule on revenue (if required)maps indicating alignment therein duly authenticated by Revenue Inspector & Tahasildar, enumeration of trees with the help of Forest officer and other prominent features required for alignment of the proposed 132 KV line. Final route to be plotted on 1:50000 topo sheet for approval.Detail GIS (Geographical Information System) of towers to be included.	KM.	25.304				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 7.0 Mtrs.	Per Loc.	40				
1.5	Soil Testing in complete shape along with submission of report etc. upto the depth of 45 mtrs for River bed pile.	Per Loc.	4				
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	500				
2.1.2	Wet soil	CUM	0				
2.1.3	Dense/Compact soil	CUM	1200				
2.1.4	Partial Submerged soil	CUM	2500				
2.1.5	Fully submerged soil	CUM	0				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	2200				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	500				
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	75				
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	970				
3.2.1	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (open cast) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	20				
3.2	**PILE FOUNDATION (UNDER-REAMED)**						
3.2.1	Boring for under reemed cast in situ piling with betonite showing for stabilisation of bore pile diameter **(375mm)** & approximate length of the bore is 10 Mtrs with under reemed	Mtr	320				
3.2.2	Supply of all materials like cement ,steel, all coarse aggregates,labours , T&P & making pile foundation as per specification in R.C.C: 1:1.5:3(Grade M20) (Without cost of steel)	CUM	105				
3.2.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (Under reem Pile) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	8				
3.2.4	Pile riser (if required) ,cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	CUM	30				

3.2.5	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (pile riser &capping) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	2				
3.4	**PileFOUNDATION IN THE RIVER BED**						
3.4.1	Supply of all materials like cement , steel, all coarse aggregrates, fine aggregrates and making 1000 mm dia pile foundations (after pile boring as per required depth, basing on design by DMC method or motor driven machinery etc.) of the required above mentioned type towers and as per requirement including supply of all equipments with labours, proper curing of the foundations and T&P as per specification in the concrete grade M-25 including supply of Bentonite required for stabilization bore of required diameter bore holes applicable for piles upto the required depth.						
3.4.1.1	Boring for river bed cast in situ piling	Mtrs.	200				
3.4.1.2	Concrete ratio 1:1:2 (Grade M-25) without supply of Steel for river bed piling	Cum	250				
3.4.1.3	Cutting , bending, hooking, fixing and binding in position of MS bar for reinforcement of foundation concrete of towers including supply of steel and binding wire	MT	24				
3.4.2	Fixing charges of MS Liner including the supply of materials like MS Sheet of adequate thickness, fabrication, cutting, bending, binding, putting the liner in appropriate position and other related works	MT	49				
3.4.3	PILE RISER, CAPPING, PEDESTAL & TIE BEAM CONCRTE WORKS OF RIVER BED PILE						
3.4.3.1	PCC (Lean Concrete) in the ratio 1:3:6 (Grade M-10)	Cum	13				
3.4.3.2	Pile riser (if required),cap ,tie beam with R.C.C:1:1.5:3(Grade M-20), including supply of all materials like cement ,coarse, fine aggregates ,shuttering t&p, labours,dewatering ,proper curing of the foundation /concrete as per technical specification (Without cost of steel)	Cum	238				
3.4.3.3	Steel of different size (as per design) with cutting,bending ,binding in position of M.S.Rod for reinfocement of foundation concret of towers (pile riser &capping) including supply of binding wire (With supply of steel rod (TATA/RINL/SAIL make)	MT	12				
4.0	**DE-WATERING(FOR OPEN CAST LOCATION)**						
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	1250				
5.0	**Supply of borrowed earth/morrum for back filling for foundation/revertment works**						
5.1	Beyond 30 mtr and upto 100 mtr lead	CUM	450				
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.	2400				
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	20000				
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.	51,902				
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	2200				
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	300				
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	50				
9.4	RR Massonary work in the ratio 1:5.	CUM	2200				
10	Supply & painting of black bituminous paint three coats shall be provided up to a height of 500mm above the cooping (Both leg & bracing members)	LOC	92				
11	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	LS	1				
	TOTAL of CIVIL WORKS Part- (B)						
	TOTAL OF ERECTION LINE (Electrical Work) & (Civil Work) -Schedule-4-line						

Name of Bidder:_____
Signature of Bidder:_____

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

ODISHA POWER TRANSMISSION CORPORATION LIMITED

NAME OF THE WORK:-Design, Supply and Installation of Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C Lilo line from TTPS-DUBURI 132 KV Line (Line length-25.304 Km approximately) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/…….]- Reference Identification No[OPTCL/JICA/PKG-6]

Schedule No. 6. Grand Summary

NAME OF THE BIDDER

Item	Description	Total Price[1]	
		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 Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C Lilo line from TTPS-DUBURI 132 KV Line (Line length-25.304 Km approximately) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/…….]- Reference Identification No[OPTCL/JICA/PKG-6]

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)	*(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 Sub-Stations & Transmission Lines for Construction of 2X20 MVA-132/33 KV Sub-station at Gondia and associated 132 KV D/C Lilo line from TTPS-DUBURI 132 KV Line (Line length-25.304 Km approximately) in Odisha State of India under PACKAGE-6 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/06/17-18/]- Reference Identification No[OPTCL/JICA/PKG-6]

NOTICE

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:_____