

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI along with 220 KV D.C Transmission Line at PURI and 02 Nos 220 KV FEEDER BAY EXTENSION AT JATANI (PGCIL) & Associated System**

**BID DOCUMENT No.: Sr.G.M-CPC-TENDER- PURI PACKAGE- 07 / 2012-13**

**NOTICE INVITING TENDER-NIT NO. 07 /2012-13**

**(Equipment/Materials Supply Price Break-up of ERECTION & CIVIL WORKS Prices against PURI PACKAGE)**

<b>PART-I, SCHEDULE-2C (FOR SUBSTATION)</b>						<b>TO BE QUOTED IN INR</b>	
SL NO	DESCRIPTION OF ITEMS  ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	Unit	Quantity for: Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI	Quantity for: Construction of 2 Nos 220 KV Feeder Bay at JATANI(PGCIL) 400/220 KV S/S for PURI S/S	TOTAL QUANTITY	Erection & Civil Works charges IN INR	
						Unit Rate	Total Price
1	2	3	4	5	6=4+5	7	8
<b>B</b>	<b>CIVIL WORKS</b>						
1	<i>Foundations : Design, engineering, supply of all labour, material (Cement-OPC-43 Grade,MS Rod(MS Rod FE 500), coarse and fine aggregates(Sand and Metal Chips) etc) for construction of RCC ( 1:1.5:3) &amp; 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 &amp; 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.</i>						
1.1	<b>Switch yard gantry/portal structure foundations</b>						
1.1.1	P1S-220 KV	Nos	22	8	30		
1.1.2	P2A-220 KV	Nos	8	3	11		
1.1.3	T1S - 132 KV	Nos	24	0	24		
1.1.4	T4S - 132KV	Nos	6	0	6		
1.1.5	T8S – 33KV	Nos	9	0	9		
1.1.6	T9S – 33KV	Nos	11	0	11		
1.2	<b>Equipment foundations :</b>						
1.2.1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	18	6	24		
1.2.2	<b>245 KV,2000A,40KA,ISOLATORS</b>						
1.2.2.1	WITH OUT EARTH SWITCH	NOS	14	2	16		
1.2.2.2	WITH SINGLE EARTH SWITCH	NOS	6	2	8		
1.2.2.3	BEAM MOUNTED WITHOUT EARTH SWITCH	NOS	4	0	4		

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1	2	3	4	5	6=4+5	7	8
1.2.2.4	TANDEM WITHOUT EARTH SWITCH	NOS	0	4	4		
1.2.3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6	12		
1.2.4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	2	7		
1.2.5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	12	6	18		
1.2.6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	0	6		
1.2.7	220 KV Bus Post Insulators	NOS	35	20	55		
1.2.8	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	27	0	27		
1.2.9	145 KV,1250A,31.5KA,ISOLATORS						
1.2.9.1	S/I WITH OUT EARTH SWITCH	NOS	12	0	12		
1.2.9.2	D/I WITH SINGLE EARTH SWITCH	NOS	4	0	4		
1.2.9.3	D/I WITHOUT EARTH SWITCH	NOS	4	0	4		
1.2.10	145 KV,6600pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	12	0	12		
1.2.11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	24	0	24		
1.2.12	145 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0	3		
1.2.13	132 KV Bus Post Insulators	NOS	26	0	26		
1.2.14	145KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	9	0	9		
1.2.15	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER	NOS	24	0	24		
1.2.16	36 KV CLASS NCT FOR AUTO TRANSFORMER REF PROTECTION (RATIO 1200-600-300 A) & HAVING TWO CORE(PS CLASS) (IN EACH AUTO TRANSFORMER 1 No. NCT)	NOS	2	0	2		
1.2.17	36 KV CLASS NCT FOR POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 132 KV SIDE: 1 NO, & 33 KV SIDE:1 NO)	NOS	4	0	4		
1.2.18	<b>36 KV,800A,25KA,ISOLATORS</b>						
1.2.18.1	S/I WITH OUT EARTH SWITCH	NOS	9	0	9		
1.2.18.2	D/I WITH SINGLE EARTH SWITCH	NOS	5	0	5		
1.2.18.3	D/I WITHOUT EARTH SWITCH	NOS	2	0	2		
1.2.19	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II	NOS	27	0	27		
1.2.20	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	0	3		
1.2.21	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	8	0	8		
1.2.22	33 KV Bus Post Insulators	NOS	28	0	28		
1.2.23	SUB STATION SWITCHYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES						
1.2.23.1	BAY MARSHALLING KIOSK (05 nos on 220 kV bay, 05 Nos 132 kv bay & 04 Nos 33 KV bay & 2 Nos for 220 KV bay extension )	NOS	14	2	16		
1.2.23.2	SWITCH YARD AC CONSOLE FOR LIGHTING (01 nos on 220 kV bay, 01 Nos 132 kv bay & 01 No in 33KV bay )	NOS	3	1	4		

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1	2	3	4	5	6=4+5	7	8
1.2.23.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (01 no. near 220/132 KV Auto Tfr & 1 No near 132/33 KV power Transformer)	NOS	2	0	2		
1.2.23.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 nos on 220,132 & 33 kV bay )	NOS	3	0	3		
1.2.24	EXCAVATION.:This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge.						
1.2.24.1	Norma Soil(SOFT/LOOSE)	Cum	1800	70	1870		
1.2.24.2	Hard Soil	Cum	2700	210	2910		
1.2.24.3	Soft Rock	Cum	2700	210	2910		
1.2.24.4	Hard Rock required blasting	Cum	1800	210	2010		
1.2.25	<b>Supply of all materials like cement, steel(MS Rod FE 500), all coarse aggregates, fine aggregates and making pile foundations with boring of piles (pile bore as per required depth, basing on design),preparation of cage,lowering and positioning(cutting,bending,binding of M.S.Rod including supply of binding wire) for Switch yard column foundation, Equipment foundation, Marshaling boxes foundation as indicated above and as per requirement, including supply of all materials,labours, de-watering,proper curing of the foundations and T&amp;P as per specification in the RCC :1:1.5:3 (Grade M-20.) including stabilization of bore :- Pile diameter as indicated below.</b>						
1.2.25.1	<b>-DO- required Diameter of pile boring (450 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.</b>	Mtrs	1055	0	1055		
1.2.25.2	<b>-DO- required Diameter of pile boring (375 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.</b>	Mtrs	1750	0	1750		
1.2.25.3	<b>-DO- required Diameter of pile boring (300 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.</b>	Mtrs	1350	0	1350		
1.2.25.4	<b>-DO- required Diameter of pile boring (250 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.</b>	Mtrs	4000	0	4000		
1.2.25.5	<b>Pile riser,cap,tie-beam with RCC: 1:1.5:3 (Grade M-20) ,including supply of all materials like MS Rod(MS Rod FE 500),Cement, coarse and fine aggregates,shuttering,cutting,bending,binding of M.S.Rod including supply of binding wire and supply of labours, de-watering,proper curing of the foundations/concrete and T&amp;P in line with the Specification and as per direction of Engineer in Charge.</b>	Cum	1500	0	1500		

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1	2	3	4	5	6=4+5	7	8
1.2.25.6	<i>Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in column and equipment foundation as blind layer inclusive of labour charges for concrete mixing &amp; curing. This includes supply of all labourers, T&amp;P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.</i>	Cum	150	25	175		
1.2.25.7	<i>Open cast foundation with RCC: 1:1.5:3 (Grade M-20),including supply of Labour all materials like Steel (Supply,Cutting,Bending,Binding (including supply of binding wire) and placing in position of steel rods of different size as per design in the foundation pit as required for the foundations),Cement, coarse and fine aggregates,shuttering,proper curing of the foundations/concrete and T&amp;P in line with the Specification and as per direction of Engineer in Charge.</i>	Cum	935	300	1235		
2	<p><b>Cable Trenches:</b> 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.</p> <p>(1) This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge.</p> <p>(2) Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in cable trench as blind layer inclusive of labour charges for concrete mixing &amp; curing. This includes supply of all labourers, T&amp;P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.</p> <p>(3) Open cast foundation for the cable trench with RCC: 1:1.5:3 (Grade M-20 Nominal mixing),including supply of Labour all materials like MS Rod,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&amp;P in line with the Specification and as per direction of Engineer in Charge.</p> <p>(4) Brickwork with KB brick ,plastering (1:6 Ratio) &amp; curing, wherever required including the supply of labour,material, cement, etc.</p> <p>(5)Supply,fabrication &amp; Fixing of MS Angle(G.I) for cable tray support (as per specification). The cable tray support frame shall be pre fabricated GI angle as per requirement and to be welded with the plate fixed on the trench wall for better rigidity. The plate (6mm) fixed on the wall are also to be welded with the MS rods provided for the trench wall before concreting.</p> <p>(6) Precast of RCC covers (1:1.5:3) and its fixing on the cable trench as per spec and instruction of Engg. In Charge.</p> <p>(7) CABLE TRENCHES INSIDE THE CONTROL ROOM SHALL BE COVERED WITH M.S CHEQUERED PLATE(Duly painted as per instruction of Engg in charge) INCLUDING STANDARD SUPPORT STAND (HD Galvanised (M.S JOIST ,CHANNEL,ANGLE)).</p>						
2.1	Section 1-1	Mtrs	600	100	700		

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2.2	Section 2- 2	Mtrs	400	100	500		
2.3	Section 3-3	Mtrs	200	100	300		
2.4	Section 4-4	Mtrs	200	100	300		
3	Rain water harvesting system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	Nos	6	0	6		
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	Lot			1		
4.2	Section 2- 2	Lot			1		
4.3	Section 3-3	Lot			1		
5	Switchyard buildings: Design, engineering and construction of switchyard buildings including the piling where required, the cost of material, supply of labour, 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,backfilling,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 , and a ramp(for 220/132 KV S/S) at the backside for easy transportation of panels to the control room to be located at the first floor.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 50mtrsX25mtrs (1250sq mtrs) / Area of first floor 25mtrsX25mtrs (625 sq mtrs)						
5.1	RCC volume including MS rods(including column ,Beams and roofs etc) as per technical spec & approved drawings.	Lot	1	0	1		
5.2	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 75 as per technical spec & approved drawings.	Lot	1	0	1		
5.3	Flooring with vitrified tiles with dado in all the rooms,Bath and toilets shall be provided with anti skid ceramic tiles(wall of the same also to be provided with ceramic tiles),Acid proof industrial tiles to be provided on the floor and wall of the battery room as per technical spec & approved drawings.	Lot	1	0	1		
5.4	External and internal wall and ceiling paintings as per technical spec mentioned in the civil section.The left over portion of walls and ceiling of Battery room shall be acid proof paints as per specification & approved drawings.	Lot	1	0	1		
5.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1	0	1		
5.6	Doors and windows shall be of sliding type with locking facility and shall be of aluminium with glaze of 6mm & windows shall have aluminium grills. As per technical spec & approved drawing.	Lot	1	0	1		
5.7	Provision of PHD and other fittings 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.	Lot	1	0	1		

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5.8	Internal concealed wiring,fixing of lighting fixtures ,fans and regulators ,exhaust fan,D.C emergency lighting as per spec & approved drawing.	Lot	1	0	1		
5.9	Provision of smoke and fire detection system of the building.	Lot	1	0	1		
6	<b>Roads:</b> Design, construction of roads and walkways/ shoulders within sub-station( <i>Switch yard area,approach road, control room area, main gate to the switch yard gate etc</i> ) as 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 Engineer 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)						
6.1	3.75 mtrs Bituminus 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.	Lots			1		
6.2	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.	Lots	1	0	1		
6.3	7 mtrs wide Bituminus roads with shoulder as per specification indicated in the civil section.( for main and approach roads).Shall have drain on both side of the road.	Lots	1	0	1		
7	<b>Drainage system:Collection of rainfall data,</b> Design, construction of storm water drainage scheme, road-culverts, and drains crossing cable trenches etc. as per specification and approved drawing.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.All the switcyard bays , roads water drainage shall be connected to the mainsurface drain.As per approved drawing and specification.						
7.1	Storm water drain	Lots			1		
7.2	Road-culverts, drain crossings	Lots			1		
7.3	Cable trench crossing	Lots			1		
8	<b>Foundations for transformers :</b> 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 4.1). 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. 1. 220/132/33 KV, 160 MVA(2 Nos) 2. 132/33 KV 40 MVA Transformer (2 Nos)						
8.1	160 MVA,100 MVA, 220/ 132kV transformers a) Overall dimension of transformer(appox) Length:11500 mmX Width 7000 mmX Height 7500 mm b) Total weight with oil and tank: 195 MT (appox)	Nos	2	0	2		

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8.2	12.5/ 20 /40 MVA, 132/ 33kV transformers a) Overall dimension of transformer(appox) Length:7200 mmX Width 6000 mmX Height 6200 mm b) Total weight with oil and tank: 97.5 MT (approx)	Nos	2	0	2		
8.3	<b>OIL SUMP PIT:</b> 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 approx. a) 160 MVA,220/132/33 KV: 68000 ltrs.	Nos	1	0	1		
8.4	<b>OIL SUMP PIT:</b> 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 approx. a) 20/40 MVA,132/33 KV: 26500 ltrs.	Nos	1	0	1		
9	<b>PCC before site surfacing :</b> Providing and supplying all labour, material, equipments etc. required for proper leveling of earth after erection of structures and equipments and proper compaction by using roller of adequate capacity(minimum 3 Ton capacity) with water sprinkling of switch yard area. After proper leveling of the switch yard area (after anti-weed treatment), spreading of plain cement concrete with mixing ratio 1:4:8 (M10) and maintaining proper sloping for easy discharge of storm water having concrete thickness of 75 mm. including rolling , dressing, compacting,the area. As per technical specification and approved drawing, and as per the instruction of the <b>Engg-in-Charge</b> . This also includes excavation in all types of soil or rocks,back-filling,and disposal of excess earth as per the direction of <b>Engineer in charge</b> and approved drawing. (Switch yard area)	Lots			1		
10	<b>Metal Spreading:</b> Providing supplying and laying two layers of machine crushed metals (gravel) fill, the first layer after compaction shall make minimum 50 mm thickness coarse/ layer of 20 mm nominal size consolidated/ compacted and (by using roller as specified in the specification).A final layer of 50 mm thickness of machine crushed 20 mm nominal size of metals(gravel) above the first layer of 50 mm thickness and as per the technical specification and instruction of Engineer in charge above the PCC(1:4:8). The total compacted thickness of the metals(20 mm Nominal) 100mm above the PCC.	Lots			1		
11	<b>Boundary wall :</b> 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 bricks shall be 250mm having 1st class kiln burn having compressive strength with 75kg/cm <sup>2</sup> ). This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.(**APPROXIMATE LENGTH OF THE BOUNDARY WALL) and approved drawing. Appox. <b>(1) Area of the sub-station land in sq mtrs = 68797(17 Acres).</b>						
11.1	<b>Approximate Length of the boundary wall in mtrs.</b>	RM	1,800	0	1800		

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12	<b>LEVELLING OF S/S AREA:</b> Providing, neatly dressing up and leveling of substation area including switch yard 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.						
12.1	<b>Contour survey of the entire sub-station area including Supply of all labour &amp; T&amp;P by contractor.</b>	SQM	5000	3,500	53500		
12.2	<b>Cutting of sub-station area of the as per the direction of Engineer in Charge.</b>	Cum	10000	350	10350		
12.3	<b>Filling with borrowed earth beyond 30 mtrs lead as per the direction of Engineer in Charge.</b>	Cum	10000	1,500	11500		
13	<b>PROVISION OF PLANTATIONS:</b> Provision of plantation of 100 nos fruit bearing plants and 100 nos decorative plants at different locations, a garden in front of the control room including supply of plants,soil treatment and its plantation including materials,labour and T&P.As per the instruction of Engineer in Charge and specification.	Lot	1	0	1		
14	<b>STONE PITCHING &amp; TOE WALL:</b> 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,backfilling,and disposal of excess earth and supply of materials and labour as per the direction of Engineer In charge and as per approved drawing and specification.	Lot	1	0	1		
15	<b>SWITCH YARD FENCING:</b> 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.	Lots			1		
16	<b>Fire wall:</b> 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 Incharge.	Nos	2	0	2		
14	<b>Any other civil work</b> 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. )						
14.1	Excavation This also includes excavation in all types of soil or rocks, back filling,and disposal of excess earth as per the direction of Engineer In charge.	Cu.m.			1		
14.2	PCC: M10(1: 3 : 6)	Cu.m.			1		



<b>PART-I, SCHEDULE-2C (FOR SUBSTATION)</b>						<b>TO BE QUOTED IN INR</b>	
SL NO	DESCRIPTION OF ITEMS	Unit	Quantity for: Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI	Quantity for: Construction of 2 Nos 220 KV Feeder Bay at JATANI(PGCIL) 400/220 KV S/S for PURI S/S	TOTAL QUANTITY	Erection & Civil Works charges IN INR	
	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)					Unit Rate	Total Price
1	2	3	4	5	6=4+5	7	8
14.3	RCC M 15(1:2:4)	Cu.m.			1		
14.4	RCC: M 20(1:1.5:3)	Cu.m.			1		
14.5	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 75.	Cu.m.			1		
14.6	12 mm thick plaster in cement sand mortar (1: 6).	Sq.m.			1		
14.7	Cutting,bending,binding(supply of binding wires) and fixing of reinforcement(including supply of reinforcement).	M.T.			1		
15	<b>Construction of township/colony</b> (residential quarters) for staff and employees of the employer. Layout, design, survey, leveling, site dressing and clearing of the area, soil investigation, excavation, PCC, RCC, brick work, plastering ,flooring(flooring shall be with vitrified tiles of reputed make with a dado of minimum6 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,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.						
15.1	<b>"D" type AS PER TECHNICAL SPECIFICATION</b>	Nos.	1	0	1		
15.2	<b>"E" type AS PER TECHNICAL SPECIFICATION (one no. two storied flat with 2 nos "E" type quarters each on ground floor &amp; 1st floor.</b>	Nos.	4	0	4		
16	<b>MAIN &amp; SWITCH YARD GATES:</b> 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,back filling,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 Gate lamp, LV XLPE cables, switchgear etc required to complete works as per specification and approved drawings.	Lot	1	0	1		
17	COLOUR CODING, BAY MARKING Etc:Design, engineering, procurement of labour, material including all associated works for the followings. This should be as per direction of site In charge. a)Color coding (red,Yellow & Blue) for equipments,Bus gantry &column of entire switch yard. Good quality weather proof sticker may be used for identification. b)Each bay should be identified with the help of bay marker sign board, suitably grouted. MS sign board with stand to be installed. Proper painting and lettering to be done of the entire switch yard area.	Lot			1		

<b>PART-I, SCHEDULE-2C (FOR SUBSTATION)</b>						<b>TO BE QUOTED IN INR</b>	
<b>SL NO</b>	<b>DESCRIPTION OF ITEMS</b>	<b>Unit</b>	<b>Quantity for: Construction of 2x160 MVA, 220/132/33 KV &amp; 2x40 MVA 132/33 KV Sub-Station at PURI</b>	<b>Quantity for: Construction of 2 Nos 220 KV Feeder Bay at JATANI(PGCIL) 400/220 KV S/S for PURI S/S</b>	<b>TOTAL QUANTITY</b>	<b>Erection &amp; Civil Works charges IN INR</b>	
	<b>ERECTION,TESTING &amp; COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)</b>					<b>Unit Rate</b>	<b>Total Price</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6=4+5</b>	<b>7</b>	<b>8</b>
<b>18</b>	<b>STATION TRANSFORMER:</b> Design, engineering, procurement of labour, material including all associated works for construction of foundation and DP structure for station transformers 33/0.415 KV,315 KVA STN TRANSFORMER as per approved drawing and specification.(33 KV AB Switch (600A),HG Fuse,DP Structure & Angles (duly painted),Channels,Plinth for erection of the transformer, including fixing and laying of (insulators,surge arresters, XLPE armoured power cables 3.5 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. (* <b>REMARKS : FOR SUPPLY OF ALL THE CABLES ,AB Switch etc AS INDICATED ARE COVERED IN THE supply</b> )	Lot	1	0	1		
<b>19</b>	<b>SECURITY SHED &amp; CUM VISITOR ROOM:</b> 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.						
<b>19.1</b>	<b>SECURITY SHED:</b> The size of the security shed shall be 3.5 mtrsX5mtrs and height of 3.5mtrs RCC roof,brick masonry works,plastering and painting and fixing of MS doors and windows.	Nos	1	0	1		
<b>20</b>	<b>BORE WELL &amp; PUMP HOUSE:</b> Design, engineering, procurement of labour, material including all associated works for construction of two nos. bore wells for control room building including switch yard and colony quarters as per specification and approved drawing and instruction of Engineer in charge. This includes supply and fixing and commissioning of two nos 5 HP submersible water pump with starter and other protection. Construction of two nos pump house at ideal location for fixing of the electrical starter units. The pump house be of RCC roof and having walls of Brick masonry and plastering and painting with MS door having locking arrangement. The size of the room shall be 2.5mtrsX2.5 mtrs having height of 3 mtrs. as per approved drawing and specification. There shall be approach road to the pump house. This includes supply of materials,labours and T&P & excavation of all type of soils including rock and disposal of excess materials as per instruction of Engineer In charge Supply & laying of LV XLPE 3.5CX.35 sqmm cable from ACDB to pump house, control gear & earthing of the system etc to complete the scheme as per approved drawing & instruction of Engineer-in charge.	Lot	1	0	1		

<b>PART-I, SCHEDULE-2C (FOR SUBSTATION)</b>						<b>TO BE QUOTED IN INR</b>	
SL NO	DESCRIPTION OF ITEMS	Unit	Quantity for: Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI	Quantity for: Construction of 2 Nos 220 KV Feeder Bay at JATANI(PGCIL) 400/220 KV S/S for PURI S/S	TOTAL QUANTITY	Erection & Civil Works charges IN INR	
	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)					Unit Rate	Total Price
1	2	3	4	5	6=4+5	7	8
21	Substation earth mat Design, engineering, supply((except the GI Flats,GI Pipe,M.S Rod)(only erection)) inclusive of corrosion protection measures if any,laying of earth mat conductors of Hot dip galvanised flats of size 75X10mm to the approval of Project Manager, excavation, welding/jointing of ground conductors along with risers (a) upto Finished level from the mat size 75X10 mm GI flats & b) from the finished ground level to the top of the structure and equipment shall be with 50X6 mm GI Flats, with back filling and good compaction,grounding driven rods(40 mm MS solid rod for untreated earth pit ,perforated 50 mm Mid GI pipes for treated earth pits(with details of treatment as per IS). The spacing between the earth conductor not more than 5 mtrs (both way) and to be buried at depth of 700mm from the finished ground level. For provision of treated earth pit and untreated earth pit, refer the specification for designing. Provision of water taps inside the switch yard areas and peripheral treated and nu-treated earth pit are required to be provided for watering the treated earth pits. The no. of treated and un-treated earth pits are to be done as per the practice and as indicated in the drawing for different equipments. This is as per approved drawing and specification.						
21.1	Excavation for laying of EARTHING CONDUCTOR (75x10mm for laying (spacing maximum 5m) (GI FLAT)	Lot	1	0	1		
21.2	Excavation for laying of EARTHING CONDUCTOR (40 mm MS ROD for laying (spacing maximum 5m).	Lot	0	1	1		
21.3	Excavation for putting the EARTHING DEVICE INCLUDING ITS ASSOCI-ATED ACCESSORIES(50 mm heavy duty GI PIPE 3.0 mtrs long for treated earth pit)	Lot			1		
22	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 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.	Lot	1	0	1		
23	PLATFORM FOR STORING EQUIPMENTS:Design, engineering, procurement of labour, material including all associated works for construction of a platform for storing of bushings,Instrument transformers etc, as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the specification,approved drawing and direction of Engineer In charge. One no platform outside the store shed RR masonry (compacted) with PCC at the top for storing the transformer bushings, Instrument transformers, transformer oil drums etc. The floor size of the platform shall be 15mtrX10 mtr with Galvanised Corrugated Sheet (Tata Make) top cover and associated MS supporting structure duly painted.	Lot	1	0	1		
24	<b>PROVISION OF RAMP:</b> Design, engineering, procurement of labour, material including all associated works for construction and fixing of Ramp as per specification and approved drawing. This also includes excavation in all types of soil or rocks,back filling,and disposal of excess earth as per the direction of Engineer In charge. Provision of a ramp of adequate size and capable of for loading and unloading of the materials of 5 Ton capacity from the lorry or to the lorry near the store shed. Adequate size of MS frames and RCC (1:1.5:3) based ramps to be used for the said purpose.	Lot	1	0	1		

PART-I, SCHEDULE-2C (FOR SUBSTATION)					TO BE QUOTED IN INR		
SL NO	DESCRIPTION OF ITEMS	Unit	Quantity for: Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI	Quantity for: Construction of 2 Nos 220 KV Feeder Bay at JATANI(PGCIL) 400/220 KV S/S for PURI S/S	TOTAL QUANTITY	Erection & Civil Works charges IN INR	
	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)					Unit Rate	Total Price
1	2	3	4	5	6=4+5	7	8
<b>TOTAL of Part-I (B) (Evaluated)</b>							
<b>GRAND TOTAL ( ELECTRICAL WORKS + CIVIL WORKS) (A+B)</b>							

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- 4 Kindly enclose soft copy of the duly filled schedule in a CD with the priced copy of Bid.
- 5 Bidder has to quote rates **excluding** service tax (if any), service tax shall be paid/reimbursed as per conditions of Bid Document.

Date :  
Place :

(Signature) .....  
( Name ) .....  
( Designation ) .....  
(Common Seal) .....

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**Construction of 2x160 MVA, 220/132/33 KV & 2x40 MVA 132/33 KV Sub-Station at PURI along with 220 KV D.C Transmission Line at PURI and 02 Nos  
220 KV FEEDER BAY EXTENSION AT JATANI (PGCIL) & Associated System**

**BID DOCUMENT No.: Sr.G.M-CPC-TENDER- PURI PACKAGE- 07 / 2012-13**

**NOTICE INVITING TENDER-NIT NO. 07 /2012-13**

**(Equipment/Materials Supply Price Break-up of ERECTION & CIVIL WORKS Prices against PURI PACKAGE)**

<b>PART-II, SCHEDULE-2C (FOR LINE)</b>					
<b>S. No.</b>	<b>DESCRIPTION OF ITEMS ERECTION, TESTING &amp; COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)</b>	<b>UNITS</b>	<b>LINE</b>	<b>TO BE QUOTED IN INR</b>	
			<b>Quantity for Construction of 220 KV DC LINE FROM PROPOSED 400/220/132 KV SUB-STATION AT JATANI(PGCIL) TO PROPOSED 220/132/33 KV GRID SUB-STATION AT PURI (Line length-53 Kms(APPOX))</b>	<b>UNIT ERECTION CHARGES</b>	<b>TOTAL ERECTION CHARGES</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6=5X4</b>
<b>B</b>	<b>CIVIL WORKS</b>				
1.0	<b>FOUNDATION MATERIALS: Supply of all materials like cement, steel(MS Rod FE 500), 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</b>				
1.1	<b>Excavation in all type 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), &amp; if required for filling the foundation, borrowed earth/murum/sand shall be brought for filling and compaction, including supply of sand, all T&amp;P, labour as required.</b>				
1.1.1	Normal soil	CUM	2800		
1.1.2	Semi-submerged soil	CUM	1000		
1.1.3	Dense/Compact soil	CUM	3800		
1.1.4	Soft disintegrated rock not required blasting	CUM	5600		
1.1.5	Hard Rock required blasting	CUM	6500		
1.1.6	Soil Investigation	LOC	30		

S. No.	DESCRIPTION OF ITEMS ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	LINE	TO BE QUOTED IN INR	
			Quantity for Construction of 220 KV DC LINE FROM PROPOSED 400/220/132 KV SUB-STATION AT JATANI(PGCIL) TO PROPOSED 220/132/33 KV GRID SUB-STATION AT PURI (Line length-53 Kms(APPOX))	UNIT ERECTION CHARGES	TOTAL ERECTION CHARGES
1	2	3	4	5	6=5X4
1.2	PILING WORKS: Supply of all materials like cement, steel(MS Rod FE 500), all coarse aggregates, fine aggregates and making pile foundations with boring of piles (pile bore as per required depth, basing on design) ,preparation of cage,lowering and positioning(cutting,bending,binding of M.S.Rod including supply of binding wire) of the required above mentioned Tower foundation as indicated above and as per requirement, including supply of all materials,labours, de-watering,proper curing of the foundations and T&P as per specification and instruction of Engineer in charge in the RCC :1:1.5:3 (Grade M-20.) including stabilization of bore :- Pile diameter as indicated below.				
1.2.1	-DO- required Diameter of pile boring (375 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.	Mtr	2700		
1.2.2	-DO- required Diameter of pile boring (250 MM) bore holes for piles(Appox length of the bore is 10 Mtrs.	Mtr	3024		
1.2.3	Pile riser,cap,tie-beam with RCC: 1:1.5:3 (Grade M-20) ,including supply of all materials like MS Rod(MS Rod FE 500) ( <b>cutting,bending,binding of M.S.Rod including supply of binding wire</b> ),Cement, coarse and fine aggregates,shuttering and supply of labours, de-watering,proper curing of the foundations/concrete and T&P in line with the Specification and as per direction of Engineer in Charge.	CUM	1200		
1.3	Design, Engineering and laying of reinforced cement concrete (RCC 1:1.5:3) of grade M20 for open cast foundation with supply of approved quality coarse aggregates(Nominal size 12mm to 20mm) ,fine aggregates, cement and steel(MS Rod FE 500) of different size(as per design) with <b>cutting,bending,binding of M.S.Rod including supply of binding wire</b> in tower foundation and inclusive of labour charges for concrete mixing, supply and fixing of form boxes, curing,shoring, shuttering, testing of sample cement concrete cubes as per IS. The height of the coping shall be 350mm above the finished concrete level. The surrounding area shall be clear from materials. Damage of land if any by the contractor shall be repaired before measurement. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	CUM	1035		
1.4	Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in tower foundation as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	CUM	250		

S. No.	DESCRIPTION OF ITEMS ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	LINE	TO BE QUOTED IN INR	
			Quantity for Construction of 220 KV DC LINE FROM PROPOSED 400/220/132 KV SUB-STATION AT JATANI(PGCIL) TO PROPOSED 220/132/33 KV GRID SUB-STATION AT PURI (Line length-53 Kms)(APPOX)	UNIT ERECTION CHARGES	TOTAL ERECTION CHARGES
1	2	3	4	5	6=5X4
1.5	<b>REVTMENT:(including Benching)Supply of all materials like cement,Late-rite stone ( stone masonry) all type aggregates, labours, &amp; T&amp;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 .</b>				
1.5.1	Excavation in all type of soil including rock & back filling (including supply of sand for back filling).	CUM	1500		
1.5.2	PCC in the ratio1:3:6 .	CUM	225		
1.5.3	PCC in the ratio 1:2:4 .	CUM	225		
1.5.4	Laterite Stone Masonary work in the ratio 1:5.	CUM	500		
1.6	Supply & painting of black bituminous paints three coats shall be provided up to a height of 500mm above the cooping(both leg & bracing members)	LOC	186		
1.7	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 optd.), application of required zinc rich paints around the welding portion (two coats),fuel,lubricants,T&P and labours.	Nos.	260000		
2.0	<b>SURVEY OF LINE &amp; PREPARATION LAND SCHEDULE: Supply of required T&amp;P's, Technical personnel's, labours for conducting.</b>				
2.1	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.	Kms.	53		
2.2	Check survey including supply of all labour, T&P as per instruction of Engineer in Charge and as per the approved profile.	Kms.	53		
2.3	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.	LS	1		

S. No.	DESCRIPTION OF ITEMS ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENTS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	LINE	TO BE QUOTED IN INR	
			Quantity for Construction of 220 KV DC LINE FROM PROPOSED 400/220/132 KV SUB-STATION AT JATANI(PGCIL) TO PROPOSED 220/132/33 KV GRID SUB-STATION AT PURI (Line length-53 Kms)(APPOX)	UNIT ERECTION CHARGES	TOTAL ERECTION CHARGES
1	2	3	4	5	6=5X4
2.4	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. Way-Leave blockade charges and any other charges are to be borne by the bidders. The documents for PTCC clearance & Railway clearance including required drawings etc has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	LS	1		
<b>Total CIVIL Works (Part-B)-LINE-2C</b>					
<b>TOTAL OF LINE-2C (PART-II)(Part A + Part B)</b>					

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Date :

Place :

(Signature) .....

( Name) .....

( Designation ) .....

(Common Seal) .....