

BoQ for substation Item (Transformer, panels, Switchgears System)

sl.#	Description of Item	Quantity	Unit	Rate	Amount
Part-I: Schedule for Supply and Delivery of substation equipment and switchgears					
1	11/0.415kV, 2 MVA copper wound oil immersed natural cool distribution transformer- Outdoor type complete with all the protection and accessories as per the IEC or IS applicable standard (Must confirm to latest standard)	2	Nos.		
2	11 kV switchgear with numerical relays, CTs, PTs, auto-synchronising relay, etc complete. 11 kV switchgear with numerical relays, CTs,				
3	630Amps, VCB (1 incomer, 2 out goings and 1 spare	5	Nos.		
3	Supply of floor mounted 11KV VCB panel (HT panel)suitable to use for 11/0.415KV substation. The panel shall complete with standard 11KV bus bar include all the switchgears under item (2i) including the protective relays and metering devices, control cables etc. complete as required	1	No.		
4	Supply of floor mounted 415V panel (LT panel) suitable for incoming & outgoing switchgers including the protective relays and metering devices etc. complete as required. The panel shall be designed as to accommodate standard 415V bus bar, the switchgears as per the panel finishing diagram attached with bid document as annexure.	2	Nos.		
5	50 KVAR capacitor bank complete with all the important parameters, control and accessories	3	Nos.		
6	LT Switchgears & Component				
1	Air Circuit Breaker (ACB) in LT panels. Breaker to be operated by PUSH BUTTON system				
i	2500A with SCBC of 60KA (1 incomer from transformer, 1 incomer from transformer 2 & 1 bus coupler)	3	Nos.		
ii	800A with SCBC of 50KA (1 for AMF panel-1 change over, 1 for AMF panel-2 change over, 1 incomer from DG-1, 1 incomer from DG-2 and 1 as bus coupler)	5	Nos.		

iii	800A with SCBC of 55KA ACB or MCCB as an outgoing for HVAC load	1	No.		
2	Moduled Case Circuit Breaker (MCCB) in LT panels. The distribution of MCCBs for LT panel-1 and panel-2 shall be as per the schematic drawing attached with the bidding document				
i	800Amps for HVAC load in departure terminal	1	No.		
ii	500 Amps	1	No.		
iii	400 Amps	4	Nos.		
iv	320 Amps	1	No.		
v	250 Amps	7	Nos.		
vi	200 Amps	3	Nos.		
vii	160 Amps	2	Nos.		
viii	125 Amps	11	Nos.		
ix	70 Amps	5	Nos.		
3	AC System				
i	AC Distribution Board	1	nos.		
ii	2 kVA Inverter with battery backup for lights inside the control room with 12 V battery, 50AH battery, 10 nos CFL lights, holders, switches & necessary wiring for emergency lighting.	1	Lots		
4	DC System				
i	Maintenance free VRLA battery 110V DC, 200 AH	1	Set		
ii	Float cum Boost charger (40A + 60A)	1	nos.		
ii	DC distribution board	1	nos.		
	Total for supply/delivery				
Part-II: Schedule for Erection, Testing & Commissioning of substation equipment & Switchgears					
1	11/0.415kV, 2 MVA copper wounded, oil immersed natural cool distribution transformer- Outdoor type	2	Nos.		
2	11 kV switchgear with numerical relays, CTs, auto-synchronising relay, etc complete. 11 kV switchgear with numerical relays, CTs, auto-synchronising relay, etc complete				
3	630Amps, VCB (1 incomer, 1 bus coupler, 2 out goings and 1 spare	5	Nos.		
4	HT panel board suitable enough to accommodate switchgears under item (2a) and all other relays and metering devices etc. complete. The panel should be firmly earthened.	1	No.		

5	LT panel board suitable enough to accommodate incoming & outgoing switchgers and all other relays and metering devices etc. complete. The panel should be firmly earthened.	2	Nos.		
6	50 KVAR capacitor bank complete with all the important parameters, control and accessories	3	Nos.		
7	Air Circuit Breaker (ACB) in LT panels				
i	2500A with SCBC of 60KA (2 incomer & 1 bus coupler)	3	Nos.		
ii	800A with SCBC of 50KA (1 for AMF panel-1 change over, 1 for AMF panel-2 change over, 1 incomer from DG-1, 1 incomer from DG-2 and 1 as bus coupler)	5	Nos.		
iii	800A MCCB or ACB with SCBC of 55KA as an outgoing for HVAC load	1	Nos.		
8	Moduled Case Circuit Breaker (MCCB) in LT panels				
i	500 Amps	1	Nos.		
ii	400 Amps	4	Nos.		
iii	320 Amps	1	No.		
iv	250 Amps	7	Nos.		
v	200 Amps	3	Nos.		
vi	160 Amps	2	Nos.		
vii	125 Amps	11	Nos.		
viii	70 Amps	5	Nos.		
9	AC System				
i	AC Distribution Board	1	nos.		
ii	2 kVA Inverter with battery backup for lights inside the control room with 12 V battery, 50AH battery, 10 nos CFL lights, holders, switches & necessary wiring for emergency lighting.	1	Lots		
10	DC System				
i	Maintenance free VRLA battery 110V DC, 200 AH	1	Set		
ii	Float cum Boost charger (40A + 60A)	1	nos.		
iii	DC distribution board	1	nos.		
11	Shifting, reinstallation, testing & commissioning of existing 500KVA diesel generator set including control panel, switchgears, internal cabling system etc complete.	2	Nos.		
	Total for Installation				
Part III: Schedule for Supply of Power Cables and accessories such as cable glands, lugs, etc.					
	Supply of HT Cable (11KV, XLPE insulated A armored Cable)				

i	3-core 300Sq.mm	315	m		
	Supply of 11KV, 3-core 300Sq.mm XLPE cable termination kit (Outdoor & Indoor heat shrinkable)	7	Set		
	Supply of LT Cables (1.1KV grade PVC Barmoured)				
i	3.5 core 400Sq.mm (6 runs)	1365	m		
ii	3.5 core 240Sq.mm (4 runs)	880	m		
iii	3.5 core 185Sq.mm (4 runs)	880	m		
iv	3.5 core 120Sq.mm (3 runs)	660	m		
v	3.5 core 70Sq.mm (2 runs)	440	m		
vi	3.5 core 35Sq.mm (2 runs)	440	m		
vii	4 core 25Sq.mm (1 run)	220	m		
viii	4 core 16Sq.mm (1 run)	220	m		
	Supply of LT cable jointing set for all the cables under the item B (I to Xi) which supplies load from existing susstation to different load users. The cable jointing to be carried as per the cable jointing standard.				
i	3.5 core 400Sq.mm (6 runs)	6	sets		
ii	3.5 core 240Sq.mm (4 runs)	4	sets		
iii	3.5 core 185Sq.mm (4 runs)	4	sets		
iv	3.5 core 120Sq.mm (3 runs)	3	sets		
v	3.5 core 70Sq.mm (2 runs)	2	sets		
vi	3.5 core 35Sq.mm (2 runs)	2	sets		
vii	4 core 25Sq.mm (1 run)	1	set		
viii	4 core 16Sq.mm (1 run)	1	set		
Part IV: Civil Work and cable laying/drawing					
1	Construction of trench for laying cables as per the drawing including necessary excavation of road and restoration of road as per the instruction of supervising Engineer	220	m		
	Supply and laying NP2 class RC pipe (600mm dia.) including collars, jointing in cement motar 1:2 including testing of Joints etc. complete	10	m		
4	Laying of one number PVC insulated and sheathed power cable aluminium, armoured 1.1KV single core to four core in the exisiting masonry open duct as required				
i	Above 6sq.mm to 25sq.mm	440.00	m		
ii	Above 25sq.mm to 70sq.mm	880.00	m		
iii	Above 70sq.mm to 150sq.mm	660.00	m		
iv	Above 150sq.mm to 300sq.mm	1,760.00	m		

v	Above 300sq.mm to 630sq.mm	1,320.00	m		
	Laying of XLPE insulated aluminium armoured HT cable 3-core 300Sq.mm direct in the ground including excavation, sand cushioning, protective covering with second class brick and refilling the trenches etc. as required	315.00	m		
	Providing and making route marker of size 600x600mm at bottom and 500x500mm at top with a thickness of 100mm including inscription as required				
	With cement concrete 1:2:4, 20mm stone aggregate	40.00	Nos.		
11	Earthing & Lightning Protection System				
	Treated earth pit with 40mm dia, 300 mm long Galvanized steel pipe (heavy gauged) salt & charcoal	12	Nos.		
	Directly buried 40mm dia, 300 mm long Galvanized steel pipe (heavy gauged) .	8	Nos.		
	50 x 6 mm MS flat Grid conductor including nuts & bolts	100	m		
	50 x 6 mm GI flat for riser including nuts & bolts	70	m		
12	Safety against fire				
	Providing CO2 type fire extinguisher (4-6 Kgs)	4	nos		
	TOTAL				