

SCHEDULE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
A.	SUBSTATION EQUIPMENT				
1	Supply, installation, Testing and Commissioning of 11 kV, 350 MVA (18.4 kA), 630A, HT Panel Vacuum circuit breaker Switchboard, cubicle type, made out of 3mm thick sheet steel, totally enclosed, IP 4X, 50 deg. C ambient temperature, free standing, floor mounting, dust and vermin proof, indoor, compartmentalised, powder coated painting, suitable for operation on 11 kV +/-10 , 3ph, 50 Hz +/- 5% AC system with copper busbars, Vacuum circuit breaker mounted on horizontally with drawable truck including supply and installation of the following components as per Technical specifications, Technical particulars.				
	11 kV HT Panel comprising of				
i	1 No. incomer Vacuum Circuit breaker - 630 A, 3 pole, 18.4 kA/cum outgoing Panel				
ii	Breaker control switch.				
iii	24 V DC Triping Coil.				
iv	24 V DC Closing Coil.				
v	240 V AC spring charge motor.				
vi	Set of ON / OFF indicating lamps.				
vii	Set of Phase indicating lamps (RYB) .				
viii	Clear lamp for trip circuit health supply.				
ix	Digital ammeter with selector switch.				
x	Digital Voltmeter with selector switch.				
xi	Tripping & alarm relay for transformer fault in case of WTI & OTI.				
xii	Alarm and buzzer, ACK, rest, test push button for tansformer faults and electrical faults.				
xiii	Aux. relays for Anti. Pumping & indication.				
xiv	Trip circuit supervision relay.				
xv	Master Trip circuit relay.				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
xvi	3 over current and earth fault IDMT relay with instantaneous high set element range 5-2000%.				
xvii	3 no.s Cast resin CTs of dual ratio 150/300 / 5 Amps CL 0.5, 5p10, 15 VA.				
xviii	3 no.s Cast resin drawout type PTs 11 kV δ 3 / y110 3, class I, 100 VA.				
xix	SMPS based DC Power Pack, Constant Voltage Constant Voltage Constant Current type Self Powered power pack protected from Overcharging, short circuit & Fuse at Input, Input voltage 110 V AC \pm 20 % and output voltage 24V DC with suitable AH rating of sealed maintainance free (SMF) battery for control supply.				
xx	Suitable space for termination of 1 no. 3 C x 185 sq.mm XLPE cable as incoming				
	11 kV HT board complete as required.	Set	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2	TRANSFORMERS				
	11 kV / 0.433 kV Outdoor type transformer (Oil Filled Type)				
3.1	Design, manufacturing, supply, installation, testing & commissioning of indoor, copper wound, oil filled type, distributed transformer of continuous ratings, 11 kV / 0.433 kV, 630 kVA, 3 phase 50Hz having Vector group Dyn-11, ONAN non-hygroscopic with cable termination box suitable for 11 kV, 3 core 185 sq.mm HT XLPE aluminium conductor cable on HV side & 3 x 3.5 x 300 sq mm XLPE cable connection arrangement on LT side with standard fittings & accessories, complete as per specification & technical particular, onsevator, Bucholz relay, lifting lugs, earthingstuds and marshlling box, WTI & OTI (winding & oil temperature indicator) with alarm & trip including control wiring, capable to withstand high short circuit & high impulse strength complete with range of (ON load tap changer) on H.V side shall be +5 % to -15 % in steps of 1.25 % i.e. 17 no. equal steps as per technical specifications & confirming to IS 2026-1977.	No.	1		
3.2	Supply, installation, tesating and commisioning of BATTERIES -24 V - 100 AH sealed maintainance free batteries. The set comprising of 4 no.s 12V - 100 AH batteries. BATTERY CHARGER - SCR controlled Automatic float cum boost charger and D.C.distribution board in a common cubicle. the charger is suitable for 230 V +/-10 % AC input and the output is suitable to float/ boost charge 24V - 100 AH batteries. the output remains constant within +/-2 % for AC input voltage variation 230V +/-10% and load variation 0-100%. the battery charger is divided into two compartments. the upper compartment houses the battery charger with all the necessary controls. the lower compartment is suitable for housing the batteries as per specifications (LT panel).	No.	1		
3.3	Supply and fixing in position the approved "shock treatment charts" written in English and Local Language. These charts shall be framed in teak wood frame and covered with glass.	No.	1		
3.4	Supply and fixing of in position the fire extinguishers dry chemical power (ABC) 5 kg capacity.	No.	4		
3.5	Supply and fixing in position the best quality danger boards of approved shape and size as specified by local electricity authorize written in english and local language.	No.	4		
3.6	Supply and fixing in position 1000 mm X 2000 mm wide rubber matting of 11 KV grade as per IS 15652-2006. Thickness of rubber mat shall be not less than 2.5 mm.	RM	30		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.7	Supply and fixing in position 1000 mm X 2000 mm wide rubber matting of 1.1 KV grade as per IS 15652-2006. Thickness of rubber mat shall be not less than 2.5 mm.	RM	30		
3.8	Supply of fire buckets 5 no. in each set duly filled with fine sand and fixed on an angle iron frame as per requirement of local authorities. Fire buckets shall be painted red from outside and white from inside with additional handle at the bottom.	Set	1		
3.9	Supply and fixing position the approved single line diagram framed in 1000 mm X 800 mm size glass frame and installed in main switch room.	NO.	1		
3.10	Supply of First Aid box of approved make	NO.	1		
3.11	Supply of tool kit with 1 pair 11 KV rubber hand gloves of approved make	Set	1		
	TOTAL CARRIED OVER TO SUMMARY				
B.	HT CABLES & LT CONTROL CABLES				
	The rates under this section shall also include the following.				
1	Providing and Fixing approved cable supports and grouting the same as required.				
2	Effecting proper connections at terminations.				
3	Ensuring that provision is left in buildings and trenches as the work proceeds, for incorporating of cable supports at a later date.				
4	providing all, fixing accessories such as clamping devices, nuts and bolts etc.				
5	Clamping to supports where laid in trenches.				
6	Providing proper supports for cable terminals as called for.				
7	Wherever cables cross walls provide proper sleeves at the time of civil work.				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B.	HT CABLES & LT CONTROL CABLES				
1	Supplying and laying following size 11 KV grade XLPE aluminium conductor armoured cables laid in ground including excavation of earth, 1000 mm deep and all around the cable, brick protection refilling, watering and ramming or providing to earth etc. complete.				
1.1	3 C x 185 sq.mm 11 KV XLPE (E) cable	RM	110		
2	Supplying and making outdoor cable end terminations for the following size of 11 KV grade, XLPE (E) aluminium conductor armoured cable including termination kit complete heat shrinkable sleeve etc.				
2.1	3 C x 185 sq.mm 11 KV XLPE (E) cable	NO	5		
3	Supply and installation of following RCC (NP-2 class) hume pipe under paved areas including providing 75 mm thick cement concrete all around pipe 1:3:6 (1 cement, 3 coarse sand and 6 crushed stone aggregate).				
3.1	250 mm dia ID (DSR- 19.6.3)	RM	100		
4	Providing and fixing of the following size medium class GI pipe sleeves.				
4.1	150 mm dia	RM	25		
5	Supplying and laying of following 1100 volts grade PVC installed sheathed copper conductor armoured control cables in existing trenches cables trays, clamped on wall with suitable saddles, fixing bolts, including testing and commissioning.				
5.1	7 core 2.5 sq.mm PVC insulated copper conducted armoured control cables.	RM	100		
6	Cable end termination of the following PVC insulated sheathed aluminium conductor armoured cables of 1100 volt grade including supplying and fixing of crimping lugs. Double compression glands, cable sockets etc as required.				
6.1	7 core 2.5 sq.mm control cables.	No.	10		
	TOTAL CARRIED OVER TO SUMMARY				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C.	EARTHING SYSTEM				
	Rates shall also include the following :				
1	All fixing accessories such as brass saddles, brass screws rawl plugs etc.				
2	Jointing by rivetting and brazing after rivetting in case of copper and welding / bolting in case of GI earthing.				
3	Cutting chases holes and making good the same wherever required.				
4	Effecting adequate and proper interconnentions.				
5	Use of copper thimbles.				
6	Earthing system shall comply to IS : 3043-1987				
7	All earthing pits shall be interconnected.				
C.	EARTHING SYSTEM				
1	Providing and fixing of following sizes of GI strip.				
1.1	50 x 5 mm strip	RM	220		
2	Copper Earthing Strip / Wires.				
2.1	Providing and fixing of following sizes of Cu. strip.				
2.1.1	32 x 6 mm strip	RM	105		
3	Earthing with GI earth plate 600 mm x 600 mm x 6 mm thick including accessories and providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal or coke and salt complete as required. (DSR internal 5.4)	Set	8		
3.1	Earthing with copper earth plate 600 mm x 600 mm x 3 mm thick including accessories and providing masonary enclosure with cover plate having locking arrangement and watering pipe 2.7 metre long etc. with charcoal or coke and salt complete as required. (DSR internal 5.6)	Set	4		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.2	Supplying, laying of following G.I "B" class pipe forearthing strips (The rate shall include the excavation and refilling the mud.)				
3.2.1	100 mm dia.	RM	30		
3.2.2	150 mm dia.	RM	20		
D.	LT ISOLATOR PANELS				
	Design, fabrication, assembling, wiring, supply, testing at works, pakging, forwarding to site, installation, testing & commissioning of LT isolator panel fabricated out of 14 gauge CRCA sheet steel in cubicle formation, compartmentalized, from 3B construction, free standing floor mounted, dust and vermin proof with reinforcement of suitable size angle iron, channel, 'T' sections and / or flats wherever necessary 3 mm thick cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before powder coating as per specifications and final approved shade. 2 no.earthing terminals shall be provided for all distribution panels. Panels shall be suitable for 415 V , 3 phase, 4 wire, 50HZ supply system. lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel in the form of shop drawings defore fabrication. Galvinised hardwares with zinc passivation shall be used in fabrication of panels.				
1	LT ISOLATOR PANEL- 1 & 2 (for 630 kVA Transformer) outdoor				
	1000 amps 4 pole, 50 kA, electrically operated manually draw out type air circuit breaker with microprocessor release unit with communication port RS- 485 / 232 having over load line - phase, over load (L) - NEUTRAL, Short Circuit (S), Instantaneous S/C (I), ground fault (G). maximum demand, fault history records, Event records facilities, LED display, % loading with adjustable setting as per spscification and with following protection / accessories :				
i	Phase indicating light shall be protected by 2 amps MCB's - set	3			
ii	Breaker ON / OFF / TRIP indicating lights with control MCB's - 1 set				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
iii	24 V DC shunt trip coil. - 1 Set				
iv	230 V AC under voltage release - 1 set				
v	Auto- manual / test selector / switch - 1 set				
vi	Breaker control switch - 1 set				
vii	LT Isolator Panel as described above.	set	1		
2	LT ISOLATOR PANEL- 1 & 2 (for 500 kVA DG set) outdoor				
	800 amps 4 pole, 50 kA, electrically operated manually draw out type air circuit breaker with micro processor release unit with communication port RS- 485 / 232 having over load line - phase, over load (L)- Neutral, short circuit (S), instantaneous S/C (I), ground fault (G), maximum demand, fault history records, Event records facilities, LED display, % loading with adjustable setting as per spscification and with following protection / accessories :				
i	Phase indicating light shall be protected by 2 amps MCB's - set	3			
ii	Breaker ON / OFF / TRIP indicating lights with control MCB's - 1 set				
iii	24 V DC shunt trip coil. - 1 Set				
iv	230 V AC under voltage release - 1 set				
v	Auto- manual / test selector / switch - 1 set				
vi	Breaker control switch - 1 set				
	LT Isolator Panel as described above.	set	1		
	TOTAL CARRIED OVER TO SUMMARY				
E.	SUPPLY, INSTALATION, TESTING AND COMMISSIONING OF DG SET INCLUDING ALL ACCESSORIES				

