

TENDER SPECIFICATION

No. BHE/PW/PUR/BORL-ELE/534

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL PACKAGES VIZ., POWER TRANSFORMERS, SEGREGATED PHASE BUS DUCT FOR GENERATOR TRANSFORMER, STATION TRANSFORMER / UNIT AUX. TRANSFORMER, ELECTROSTATIC PRECIPITATOR, GENERATOR CONTROL & PROTECTION PANELS, STATION TRANSFORMER, CONTROL & RELAY PANELS, 33KV /6.6KV / 0.415 KV SWITCHGEAR BOARDS MCC, LV 0.415 KV BUSDUCTS, SOOT BLOWER SYSTEM, DIGITAL VOTAGE REGULATOR SYSTEM, 110 VOLT BATTERY SYSTEM, ELECTRICAL HOIST & ASSOCIATED ITEMS, TRAYS & CABLING,EARTHING, LIGHTENING ARRESTOR ,ILLUMINATION PACKAGE FOR 3 X 33 MW BORL BINA UNIT 1,2&3 .

AT

BINA REFINERY PROJECT

BHARAT OMAN REFINERIES LIMITED

VILLAGE: AGASOD, BINA

DISTT: SAGAR, M.P.

PART: II

(REVISION -01 dated 14.11.2007)

PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)
POWER SECTOR - WESTERN REGION
345, KINGS WAY - NAGPUR 440 001

BHARAT HEAVY ELECTRICALS LIMITED
(A GOVERNMENT OF INDIA UNDERTAKING)
POWER SECTOR - WESTERN REGION
SHREEMOHINI COMPLEX
345-KINGSWAY, **NAGPUR**-440 001

TENDER SPECIFICATION ISSUE DETAILS

TENDER SPECIFICATION NO: BHE/PW/PUR/BORL-ELE/534

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL PACKAGES VIZ., POWER TRANSFORMERS, SEGREGATED PHASE BUS DUCT FOR GENERATOR TRANSFORMER, STATION TRANSFORMER / UNIT AUX. TRANSFORMER, ELECTROSTATIC PRECIPITATOR, GENERATOR CONTROL & PROTECTION PANELS, STATION TRANSFORMER, CONTROL & RELAY PANELS, 33KV /6.6KV / 0.415 KV SWITCHGEAR BOARDS MCC, LV 0.415 KV BUSDUCTS, SOOT BLOWER SYSTEM, DIGITAL VOTAGE REGULATOR SYSTEM, 110 VOLT BATTERY SYSTEM, ELECTRICAL HOIST & ASSOCIATED ITEMS, TRAYS & CABLING,EARTHING, LIGHTENING ARRESTOR ,ILLUMINATION PACKAGE FOR 3 X 33 MW BORL BINA UNIT 1,2&3 .

AT

BINA REFINERY PROJECT

BHARAT OMAN REFINERIES LIMITED, VILLAGE: AGASOD, BINA, DISTT: SAGAR, M.P.

PART: II
(REVISION -01 dated 14.11.2007)

PRICE BID

EARNEST MONEY DEPOSIT: Please see Special Conditions of Contract.

LAST DATE FOR TENDER SUBMISSION: Please obtain updated information from web page "<http://www.bhel.com>" → Tender Notifications → View Corrigendums.

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING PART-I (TECHNICAL BID SPECIFICATION) AND PART- II (PRICE BID), ARE ISSUED TO:

M/s.

.....

PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.
BIDDER SHALL NOTE THAT THEIR OFFER WILL BE CONSIDERED SUBJECT TO THE APPROVAL OF
BHEL'S CUSTOMER.

For Bharat Heavy Electricals Limited

Dy. General Manager (Purchase)
Place: Nagpur
Date:

TS NO BHE/PW/PUR/BORL-ELE/534					
BHARAT HEAVY ELECTRICALS LIMITED					
POWER SECTOR, WESTERN REGION					
RATE SCHEDULE (Rev 01, 14/11/2007)					
HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL PACKAGES VIZ., POWER TRANSFORMERS, BUS DUCT FOR GENERATOR TRANSFORMER, SEGREGATED PHASE BUS DUCT FOR STATION TRANSFORMER / UNIT AUX. TRANSFORMER, ELECTROSTATIC PRECIPITATOR, GENERATOR CONTROL & PROTECTION PANELS, STATION TRANSFORMER CONTROL & RELAY PANELS, 33 kv /6.6kV / 0.415 kV SWITCHGEAR BOARDS MCC, LV 0.415 KV BUSDUCTS, SOOT BLOWER SYSTEM, DIGITAL STATIC EXCITATION SYSTEM, 110 VOLT BATTERY SYSTEM, ELECTRICAL HOIST AND ASSOCIATED ITEMS, TRAYS & CABLING, EARTNING, LIGHTENING ARRESOR , ILLUMINATION PACKAGE FOR 3X33 MW UNIT #1,2&3 .					
SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A	A. POWER TRANSFORMERS				
	A.1	Transportation up to foundation, Assembly, Testing & Commissioning of Three phase 46 MVA 11/ 34.5 KV , ONAN/ ONAF, OLTC Generator Transformer including all accessories, piping, cabling etc. (Approx Weight 100 MT each T/F).	3	No.	
	A.2	Transportation from stores/ storage yard to erection site, assembly, testing & commissioning of 16/20 MVA, 3 phase 33 KV /6.9KV , ONAN/ONAF OFTC, Power Transformer, 3 PH, Oil Type , including all accessories, piping, cabling etc (Approx 40T Per Transformer) ,including Neutral Grounding Transformer & Neutral Grounding Resistor (Aprox size 3000 x 2000 x 2500 mm) Approx weight per NGR 1000 Kg).	8	No.	
	A.3	Transportation from stores/ storage yard to erection site, assembly, testing & commissioning of 2 MVA, 3 phase 6.6/0.433 KV , ONAN, Station Auxiliary Transformer 1&2, Three PH, Oil Type , including all accessories, piping, cabling etc (Approx weight 7T per Transformer) , including neutral grounding transformers and Neutral Grounding Resistance .	18	No.	
	A.4	Transportation from stores/ storage yard to erection site , assembly, testing & commissioning of Lighting T/F, 450 KVA , 3 phase 433 volts / 433 volts , 3 PH, ONAN, Dry type Transformer , including all accessories, (Approx weight 2T per Transformer, Approx Size 3500 x2000x2000mm)).	6	No.	
	A.5	Transportation from stores/ storage yard to erection site , assembly, testing & commissioning of Emergency Lighting T/F, 50 KVA , 3 phase 415 volts / 415 volts , 3 PH, ONAN, Dry type Transformer , including all accessories, (Approx weight 800 Kg per Transformer).	2	No.	

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
B	B. SEGREGATED PHASE BUS DUCT FOR GENERATOR & GENERATOR TRANSFORMER				
	B.1 Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct 11 kV Busducts- 31 x 1.3 x 0.5 mtr each(LxWxH) - 5Tons each. along with all accessories Like PTSP Cubicle (Approx Size 2000 x 1800 x 2300 mm, Approx weight 1500 Kgs) NGT cubicle (approx Size 1200 x 2000 x 1500 mm, Approx weight 1000 Kgs) and Support Structures of around 2 Tonns	3	SET		
C	C. SEGREGATED PHASE BUS DUCT FOR 33KV / 6.6 KV HT SWGR TO TRANSFORMERS				
	C.1 Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct 33kV Busducts-2 Nos. - 10 x 1.3 x 1.0 mtr each(LxWxH) - 5Tons each. along with all accessories.	2	Set		
	C.2 Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct 6.6 kV Busducts-2 Nos. - 10 x 1.3 x 1.0 mtr each(LxWxH) - 5Tons each. along with all accessories.	2	Set		
D	D. 33 & 6.6 KV INDOOR SWITCHGEAR. EACH BOARD CONSISTING OF VACUUM BREAKER TYPE VM 12, PT PANELS, AUXILIARY TRANSFORMER PANEL, BUS				
	D.1 33.0 KV Switch Board- 1: consists of 61 panels, in Approx 30 shipping sections. Dimension of EACH PANEL is approx 1.3 x 4.5 x 2.5 mtrs and Approx Weight 2T per Panel.	1	Set		
	D.2 33.0 KV Switch Board-2 : consists of 61 panels, in Approx 30 shipping sections. Dimension of EACH PANEL is approx 1.3 x 4.5 x 2.5 mtrs and Approx Weight 2T per Panel.	1	Set		
	D.3 6.6 KV Distribution Switchboard 1 : consists of 30 panels, in Approx 15 shipping sections. Dimension of EACH PANEL is approx 820 x 3000 x 2800 and Approx Weight 1.5T per Panel.	1	Set		
	D.4 6.6 KV Distribution Switchboard 2 : consists of 35 panels, in Approx 17 shipping sections. Dimension of EACH PANEL is approx 820 x 3000 x 2800 and Approx Weight 1.5T per Panel.	1	Set		
	D.5 6.6 KV Distribution Switchboard 3 : consists of 35 panels, in Approx 17 shipping sections. Dimension of EACH PANEL is approx 820 x 3000 x 2800 and Approx Weight 1.5T per Panel.	1	Set		
	D.6 6.6 KV Distribution Switchboard 4 : consists of 45 panels, in Approx 22 shipping sections. Dimension of EACH PANEL is approx 820 x 3000 x 2800 and Approx Weight 1.5T per Panel.	1	Set		
	D.7 6.6 KV CAPACITOR BANKS , 2.0 MVAR RATING (APPROXIMATE WEIGHT 4.0 T/ SET , Approx size (10000 x 6000 x 3000 mm)	8	set		

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
E	E. TRANSPORTATION FROM STORES/ STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION, TESTING & COMMISSIONING OF 415 V LT SWITCH GEAR BOARDS / MC, DOUBLE FRONT / SINGLE FRONT, COMPRISES OF AIR CIRCUIT BREAKERS, PT PANELS, AUX. TRANSFORMER PANEL, TRUNKING CUBICLE etc.				
	E.1 415 Volt LT STATION PMCC, Double Front, Overall dimensions 20000 x 1800 x 2450 mm, Approx weight 25.0 MT / PMCC, Panel shall be supplied in loose shipping section.	9	Nos		
	E.2 SWITCHGEAR MARSHALLING RACKS Overall dimensions 4000 x 2000 x 3000 mm, Total weight 1.0 MT /RACK,	1	Nos.		
	E.3 415 Volt STG MCC , Single / Double Front, Over all dimensions 15000 x 1400 x 2500 mm, weight 15.0 T (Approx) / MCC, Panels shall be supplied in loose shipping section.	2	Nos.		
	E.4 415 Volt BOP MCC , Single / Double Front, Over all dimensions 15000 x 1400 x 2500 mm, weight 15.0 T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	3	Nos.		
	E.5 415 Volt AC MCC , Single / Double Front, Over all dimensions 15000 x 1400 x 2500 mm, Weight 12T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	2	Nos.		
	E.6 415 Volt VENT MCC , Single / Double Front, Over all dimensions 15000 x 1400 x 2500 mm, Total weight 12T (Approx), Panels shall be supplied in loose shipping section.	3	Nos.		
	E.7 415 Volt ASB MCC , Single / Double Front, Over all dimensions 6000 x 800 x 2400 mm, Total weight 4 T (Approx), Panels shall be supplied in loose shipping section.	2	Nos.		
	E.8 415 Volt MLDB , Single / Double Front, Over all dimensions 10000 X 1000 X 2400 mm, Weight 7T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	2	Nos.		
	E.9 415 Volt AC PDB , Single / Double Front, Over all dimensions 5000 X 900 X 2500 mm, Weight 5T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	3	Nos.		
	E.10 415 Volt AC ELDB , Single / Double Front, Over all dimensions 6000 X 800 X 2400 mm, Weight 4T (Approx)/MCC, Panels shall be supplied in loose shipping section.	2	No.		
	E.11 220 Volt DC ELDB , Single / Double Front, Over all dimensions 6000 X 800 X 2500 mm, Weight 4T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	2	No.		
	E.12 110 Volt DCDB (FOR STG / BOP),Single / Double Front, Over all dimensions 8000 X 800 X 2400 mm, Weight 7T (Approx)/ MCC, Panels shall be supplied in loose shipping section.	3	No.		
	E.13 UPS DB , Single / Double Front, Over all dimensions 6000 X 800 X 2400 mm, Weight 5T (Approx)/ UPS DB, Panels shall be supplied in loose shipping section.	6	No.		

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F	F. NON SEGREGATED LV 415 VOLT BUSDUCTS / NEUTRAL GROUNDING TRANSFORMER / NEUTRAL GROUNDING RESISTANCE Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of NSP BUS DUCTS for interconnection between service transformer and LT MCC.				
	F.1 415 Volt LT Interconnecting BUS DUCT between LT Power Oil Filled Transformer of (2 MVA , 6.6 KV/ 0.433 KV) rating . Loose Items Like Silica Gel Breather and Its pipe, GI channel supports and associated accessories. (LxDxH 15000 x 1000 x 1000) Approx Weight 5T / Bus Duct)	18	Set		
G	G. DIGITAL VOLTAGE REGULATOR SYSTEM:TRANSPORTATION FROM STORES / STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION, TESTING, & COMMISSIONING OF DIGITAL VOLTAGE REGULATOR SYSTEM				
	G.1 Transportation from store / storage yard to erection site, Erection, Assembly, Testing & Commissioning of Digital Excitation Equipments / System, System consist of Regulation / Thyristor / field suppression panels. (2 NOS PANELS / SET Approx size 3050 x 800 x2230 mm Approx Weight 1.5 Tons. Loose Items supplid alongwith system are to be mounted / laid as a part of work.	3	Set		
H	H. VARIABLE FREQUENCY DRIVE STAND-ALONE PANELS				
	H.1 Transportation from stores / storage yards to erection site, erection, assembly, testing & commissioning of VARIABLE FREQUENCY DRIVE for 6.6 KV , 1000 KW Motors . STAND-ALONE PANEL OF SIZE 1000 X 1000 X 2500 MM , Approx 500 kgs.	4	Nos		
I	PROTECTION & METERING/ SYNCHRONISATION CONTROL / ANNUNCIATION PANELS PANELS,: TRANSPORTATION FROM STORES / STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION,INTEGRATED ELECTRICAL TESTING, & COMMISSIONING(WHICH COMPRISES RELAY TESTING , FUNCTIONAL CHECKS OF PANELS ETC				
	I.1 ANNUNCIATOR PANEL Approximate size 4000 x 2500 x 2500 mm Approx weight 1.5 T per Panel	4	Nos		
	I.2 LOAD SHEDDING INTERFACE PANEL Approximate size 7000 x 1000 x 2300 mm Approx weight 2.0 T per Panel	2	Nos		
	I.3 SYNCHRONISATION CONTROL & ANNUNCIATION PANEL & SER / PRINTER / FURNITURE - MOSIAC TYPE. Approximate Weight 15 T Approx size (15000 x 1000 x 2400 mm)	2	Nos.		
	I.4 HT SWGR DATA CONCENTRATOR Panels(Approx Size 1000 x800 x 2300 mm Approx Weight 1000 Kg / panel) and 250 mm dia PVC Conduit (650 Mtrs), Twisted Pare / Fibre Optic / Co axial cables 1150 Meters, and 2 sets of PC/ Monitor / Printer / Furniture for above sytem :	4	Sets		
	I.5 LT SWGR DATA CONCENTRATOR Panels(Approx Size 1000 x800 x 2300 mm Approx Weight 1000 Kg / panel) and 250 mm dia PVC Conduit (650 Mtrs), Twisted Pare / Fibre Optic / Co axial cables 1150 Meters, and 2 sets of PC/ Monitor / Printer / Furniture for above sytem :	3	Sets		

SEC	SI No / DESCRIPTION		TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	I.6	GENERATOR / UAT/GT Protection & Relays Panels. Comprises of Relay Panels R1, R2 & R3 (Approx size of each Panel 800 x 800 x 2450 mm & Approx wight 500 Kg per Panel)	3	Sets		
J	J. SOOT BLOWER SYSTEM ::TRANSPORTATION FROM STORES / STORAGE YARD TO ERECTION SITE, ASSEMBLY, ERECTION, TESTING, &					
	J.1	Testing and commissioning of soot blower control panel, including mounting of mimic	3	Nos.		
	J.2	Testing & Commissioning of Wall, Long Retractable, Air Heater Soot Blower	96	Nos.		
K	ELECTROSTATIC PRECIPITATOR SYSTEM, Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing &					
	K.1	ESP PCC (LT Main Switch Boards),Double Front , Double drawout Type, Overall dimensions 6000L X (1700) W X 2450H mm, Weight of each board 5.0 MT, and supplied in loose shipping sections. One board per unit.	3	Nos		
	K.2	Auxiliary Control Panel, Overall Dimension 4000 Lx 1000 x 600W X 2450 H mm, Weight of each panel 4.0 MT and supplied in loose shipping sections. TWO boards per unit.	6	Nos		
	K.3	Electronic Control Panel, Overall dimensions 700X650X2080mm, Weight of each panel 0.3MT. BAPCON & OTHER Electronic modules / rotary switches, etc along with cables and connectors, shall be supplied loose for mounting in the panel at site(10 Panels per Unit).	30	Nos		
	K.4	RAPPER CONTROL PANEL Overall dimension 1000X650X2050 mm, Weight of each panel 0.3 MT. 4 Nos. RAPCON Electronic modules for each panel (along with cables connectors) size 250 x200x200 mm shall be supplied loose for mounting in the panel at site	3	Nos		
	K.5	IOS PC, Computer Furniture, Data Logger PC, Printer -2 Nos. PC termination box, peripheral cables etc. APPROX WEIGHT 100 KG.	3	Set		
	K.6	Junction Boxes (Power) 600x278 x515 mm approx.(10 JB /unit)	30	Nos		
	K.7	Junction Boxes (Control) 450 x150 x300 mm approx (06 JB / UNIT)	18	Nos		
	K.8	Junction Boxes (Control) 250 x150 x400 mm approx (08 JB /UNIT)	24	Nos		
	K.9	Ash Level Indicator comprising of level probe with extension lagging pipe, Electronic Unit, Interconnecting Cabling, Conduit, etc.	30	Set.		
	K.10	Thermostats including Calibration.(12 Nos. /UNIT)	36	Nos.		
L	ELECTRICAL HOIST DSL CABLE TRAILING SYSTEM Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of misc. Electrically Operated Hoist for ID, FD, PA Fans,etc.					

SEC	SI No / DESCRIPTION		TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	L.1	The hoist work comprises, erection, Testing Commissioning of Switch Fuse Unit, Cable Guide Trolley, Dog chain or Angle / I beam support arrangement, Real Insulators, Limit Switches , Trailing Cable, Testing of Control Panel, Motor and Final Load test as described elsewhere in Tender.	12	Nos		
M	DC BATTERY SYSTEM (220 V DC AND 24 VOLT DC SYSTEM Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of 220 VOLT BATTERY / BATTERY CHARGER, 24 VOLT BATTERY / BATTERY CHARGER FOR SG , TG&STATION C&I.FOPH,CWPH ETC.					
	M.1	110 Volt, DC Battery System, Set comprises of Battery (56 nos, 2.0 volts, LEAD ACID CELLS . Approx Overall Dimentions 11422 x 4228 x 2500mm, Approx weight 5000 kgs) and 700 AMPS DUAL FCBC Battery Float Cum Boost charger 2 NOS Panels(Approx Size PER PANEL 2450 x 1040 x 2000, Approx weight PER PANEL 2000 Kgs), Battery Shall be mounted on teak wood still age & loose accessories such as inter cell / stack connectors etc shall be supplied loose. (UNIT BATTERY SYSTEM).	2	Sets		
N	MISC. ITEMS : Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning					
	N.1	Junction Boxes (12WAY, 24WAY, 48WAY, 64WAY ETC.)	50	No.		
	N.2	Wall ounted 220 Volt DC Fuse Board of assorted size	3	No.		
	N.3	24 Volt DC Fuse Board of assorted size	3	No.		
	N.4	Wall Mounted AC Fuse Distribution Boards of assorted size	3	No.		
	N.5	LOCAL PUSH BUTTON STATIONS (START / STOP PB BOX)	495	No.		
	N.6	Structural Steel fabrication & installation (MS angle, Channel, Plate etc)	10	MT		
	N.7	6 MM THICK CHEQUERED PLATE FOR COVERING OF LEFT OVER PORTION OF CABLE TRENCHES INSIDE THE BUILDING	5	MT		
	N.8	GALVANISED MS SHEET (2 MM THICK) PLAIN / PERFORATED TYPE FOR COVERING CABLE SHAFT	40	SQ MTR		
P	ONLY TESTING & COMMISSIONING					
	P.1	Hopper Heater, Support Insulator Heater, Shaft Insulator Heaters for ESP	540	Nos.		
	P.2	High Voltage Rectifier Transformers (95 KV peak, 700 mA) including oil filtration.	30	Nos.		
	P.3	Electrically (LT) Operated Valves, Dampers and Gates with Actuators, Limit Switches etc. (Regulating & ON/OFF Type).	325	Nos.		
	P.5	Testing and commissioning of 6.6 KV HT motors including dryout	24	Nos		
	P.6	Testing of Generator Like IR/PI Value, Wdg Resistance, Rotor DC Resistance & Impedance checks / Testing of Exciter / PMG etc Assistance during Integrated Testing .	3	Sets		
	CABLING, EARTHING,LIGHTENING PROTECTION SYSTEM, : Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning					

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	HT POWER CABLES (COPPER /ALUMINIUM, XLPE, Armoured)				
A1	33 KV / 6.6 KV HT POWER CABLE EXTRUDED XLPE INSULATED , PVC / FRLS PVC SHEATHED (CU CONDUCTOR, ARMoured)				
	A1.1	33 KV, 1C X 630 SQ MM	8400	M	
	A1.2	6.6 KV, 1C X 630 SQ MM	10000	M	
A2	6.6 KV HT POWER CABLE EXTRUDED XLPE INSULATED , PVC / FRLS PVC SHEATHED (AL CONDUCTOR, ARMoured)				
	A2.1	3C X 185 SQ MM	12000	M	
	A2.2	3C X 300 SQ MM	3100	M	
	A2.3	3C X 400 SQ MM	2000	M	
B1	LT XLPE POWER CABLES (AL CONDUCTOR, ARMoured)				
	B1.1	1C X 300 SQ MM	1100	M	
	B1.2	1C X 240 SQ MM	6000	M	
	B1.3	1C X 120 SQ MM	5100	M	
	B1.4	1C X 70 SQ MM	1100	M	
	B1.5	1C X 35 SQ MM	1100	M	
	B1.6	2C X 4 SQ MM	30000	M	
	B1.7	2C X 120 SQ MM	4500	M	
	B1.8	3CX 150 SQ MM	1000	M	
	B1.9	3C X 120 SQ MM	22000	M	
	B1.10	3C X 95 SQ MM	6000	M	
	B1.11	3C X 70 SQ MM	11250	M	
	B1.12	3C X 50 SQ MM	15250	M	
	B1.13	3C X 35 SQ MM	6000	M	
	B1.14	3C X 16 SQ MM	15500	M	
	B1.15	3C X 10 SQ MM	6750	M	
	B1.16	3C X 6 SQ MM	6000	M	
	B1.17	3C X 4 SQ MM	10500	M	
	B1.18	3.5 C X 300 SQ MM	8500	M	
	B1.19	3.5 C X 185 SQ MM	42000	M	
	B1.20	3.5CX 120 SQ MM	150	M	
	B1.21	3.5 C X 95 SQ MM	4200	M	
	B1.22	3.5C X 35 SQ MM	15700	M	
	B1.23	4C X 16 SQ MM	51000	M	
	B1.24	4C X 10 SQ MM	40500	M	
	B1.25	4C X 6 SQ MM	51000	M	
C1	LT PVC CONTROL CABLES (COPPER CONDUCTOR, ARMoured)				

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	C1.1 2C X2.5 SQ MM	5800	M		
	C1.2 3C X 2.5 SQ MM	219800	M		
	C1.3 5C X 2.5 SQ MM	127300	M		
	C1.4 7C X 2.5 SQ MM	81400	M		
	C1.5 10C X 2.5 SQ MM	109500	M		
	C1.6 12C X 2.5 SQ MM	28000	M		
	C1.7 19C X 2.5 SQ MM	20000	M		
	C1.8 24C X 2.5 SQ MM	14000	M		
	C1.9 4C X 1.5 SQ MM CU SCREENED ARMoured	2200	M		
D.1	CABLE TRAYS				
	D1.1 LADDER TYPE GALVANISED, CABLE TRAY COMPLETE WITH COUPLER PLATES & FIXING HARDWARES				
	I) 750 MM WIDE, (3 Mtrs length)	10000	Nos		
	ii) 600 MM WIDE, (3 Mtrs length)	9800	Nos		
	iii) 450 MM WIDE (2.5 Mtrs length)	150	Nos		
	Iv) 300 MM WIDE, (3 Mtrs length)	9850	Nos		
	v) 150 MM WIDE	700	Nos		
	D1.2 PERFORATED TYPE GALVANISED, CABLE TRAY COMPLETE WITH COUPLER PLATES,& FIXING HARDWARES				
	I) 600 MM WIDE, (2.5 Mtrs length)	1500	Nos.		
	ii) 300 MM WIDE, (2.5 Mtrs length)	4750	Nos.		
	iii) 150 MM WIDE, (2.5 Mtrs Length)	500	Nos.		
	Iv) 50 MM WIDE, (2.5 Mtrs Length)	100	Nos.		
E.1	CABLE TRAYS ACCESSORIES				
	E1.1 CABLE TRAY ACCESSORIES				
	E1.1.1 BENDS LADDER TYPE				
	i) 750 MM WIDE	1600	Nos		
	ii) 600 MM WIDE	2000	Nos		
	iii) 300 MM WIDE	1200	Nos		
	E1.1.2 BENDS PERFORATED TYPE				
	i) 600 MM WIDE	1300	Nos		
	ii) 300 MM WIDE	1400	Nos		
	E1.1.3 REDUCERS LADDER TYPE				
	i) 750MM WIDE	450	Nos		
	ii) 600MM WIDE	300	Nos		
	E1.1.4 REDUCERS PERDORATED TYPE				
	i) 600MM WIDE	150	Nos		
	ii) 450MM WIDE	150	Nos		
	E.1.1.5 CABLE TRAY COVERS				
	I) 750 MM WIDE LADDER TYPE	1000	Nos.		
	ii) 600 MM WIDE LADDER TYPE	950	Nos.		
	iii) 450 MM WIDE LADDER TYPE	150	Nos.		
	Iv) 300 MM WIDE LADDER TYPE	1500	Nos.		
	v) 600 MM WIDE PERFORATED TYPE	300	Nos.		
	vi) 300 MM WIDE PERFORATED TYPE	2250	Nos.		

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	vii) 150 MM WIDE PERFORATED TYPE	500	Nos.		
	viii) 50 MM WIDE PERFORATED TYPE	100	Nos.		
E.2	CABLE TRAYS SUPPORT SYSTEM				
	E2.1 CABLE TRAY SUPPORT (STRUCTURE STEEL)				
	E2.1.1 ISMC - 100 /150	20	TONS		
	E2.1.2 ISA - 75X 75 X 6 (FOR 750 MM &ABOVE WIDE TRAY)	25	TONS		
	E2.1.3 ISA - 65X 65 X 6 (FOR 600 MM WIDE TRAY / DUCT)	25	TONS		
	E2.1.4 ISA - 50X 50 X 6	20	TONS		
F.1	CABLE TERMINATION KITS				
	F1.1 33 KV TERMINATION KITS FOR , XLPE INSULATED COPPER CABLE				
	F1.1.1 1CX630 SQ.MM. ARMOURED	95	Nos		
	F1.1.2 1CX630 SQ.MM. ARMOURED	130	Nos		
F.2	CABLE TERMINATION KITS				
	F2.1 6.6KV TERMINATION KITS FOR 6.35/11 KV, XLPE INSULATED ALUMINIUM CABLE				
	ii) 3CX400 SQ.MM.ARMOURED	70	Nos		
	iii) 3CX300 SQ.MM. ARMOURED	68	Nos		
	iv) 3CX185 SQ.MM. ARMOURED	130	Nos		
F3	CABLE TREFOIL CLAMPS				
	F3.1 TREFOIL CLAMPS				
	i) 33 KV GRADE,1C - 630 SQ MM , XLPE CU CABLE ARMOURED	3500	Nos		
	ii) 6.6KV GRADE,1C - 630 SQ MM AL, XLPE CABLE CU ARMOURED	3700	Nos		
	iii) Multi Core Transit Blocks for entry into Control Room & Analyser Room	60	Nos.		
G1	FIRE SEALING SYSTEM				
	G1.1 FIRE SEALING SYSTEM				
	G1.1 FIRE STOP MATERIAL FOR OPENINGS BELOW PANELS, AT WALLS,AT FLOORS.	20	SQ MTR		
H1	CONDUITS (GALVANISED MS RIGID / FLEXIBLE GI / PVC)				
	H1.1 CONDUITS				
	H1.1.1 GALVANISED MS RIGID CONDUITS B63				
	i) 50 MM DIA	2000	M		
	ii) 100 MM DIA	2000	M		
	iii) 200 MM DIA	2000	M		
	H1.1.2 FLEXIBLE GI CONDUITS				
	i) 25 MM DIA	200	M		
	ii) 150 MM DIA	200	M		
	H1.1.3 G.I. HUME PIPES				
	i) 200 NB G.I. HUME PIPES	200	M		
	H1.1.4 HDPE PIPES (PVC CONDUIT)				
	i) 50/100/200 MM DIA PVC CONDUITS	1500	M		
J1	MARSHALLING BOXES				
	J1.1 MARSHALLING BOX				

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	i) 6 WAY	4	Nos		
	ii) 12 WAY	4	Nos		
	iii) 24 WAY	4	Nos		
	iv) 36 WAY	4	Nos		
	v) 48 WAY	4	Nos		
K1	ABOVE GROUND EARTHING				
	K1.1 ABOVE GROUND EARTHING & LIGHTNING PROTN SYSTEM				
	K1.1 EQUIPMENT EARTHING SYSTEM				
	i) GI FLAT 75 X 10 mm	22000	M		
	ii) GI FLAT 50 X 6 mm	13900	M		
	iv) GI FLAT 20/ 25 X 3 mm	3500	M		
	vii) GS WIRE 8 SWG	5000	M		
	viii) 3/8" G I Fine Rope Wire	1000	M		
	ix) 5/8" G I Fine Rope Wire	1000	M		
	xi) 65 DIA, 3 M LONG GS ROD FOR VERTICAL AIR TERMINATION	15	Nos		
	K1.2 1C Copper conductor PVC unarmoured cable for equipment earthing:				
	i) 70sq.mm (Approx 400 Terminations)	500	mtr		
	ii) 50 sq.mm (Approx 1800 Terminations)	2500	mtr		
	iii) 25 sq.mm (Approx 2650 Terminations)	3700	mtr		
	iv) 10 sq.mm (Approx 2500 Terminations)	3500	mtr		
	vi) 300 sq.mm (Approx 20 Terminations)	600	mtr		
	vii) 150 sq.mm (Approx 50 Terminations)	1500	mtr		
	K1.3 BELOW GROUND EARTHING (EARTH PITS / EARTHING ELECTRODES / ELCTRONIC EARTH PITS)				
	i) 4" DIA, 3MTRS LONG EARTH ELECTRODES	200	Nos.		
	ii) ELECT EARTH PIT (for T/F, Generator Neutral Earthing)	27	Nos.		
	iii) ELECTRONIC EARTH PITS	15	Nos.		
L1	ILLUMINATION PACKAGE (LIGHTING SYSTEM)				
	L1.1 ILLUMINATION FITTINGS				
	i) NXC 11/60	120	Nos.		
	ii) TKC 24/236	730	Nos.		
	iii) TMX 95/236	50	Nos.		
	iv) TBS 50/236	430	Nos.		
	v) DBD 10/75	105	Nos.		
	vi) HDL 23/HPL 125	1330	Nos.		
	vii) SNF 14/SONT 400	30	Nos.		
	viii) SRP 22/SON 150	225	Nos.		
	ix) NDC 22/60	150	Nos.		
	x) SDK 21/SON 250	40	Nos.		
	xi) SDK 21/HPLN 400	60	Nos.		
	xii) SDK 25/SON 150	30	Nos.		

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	L1.2 Lighting poles				
	i) 3.75 MT Lighting Pole	20	Nos.		
	ii) 11 MT Lighting Pole	11	Nos.		
	iii) 30 M High Lighting Mast	6	Nos.		
	iv) 2 MT Lighting Pole	600	Nos.		
	v) 9.5 MT Lighting Pole	75	Nos.		
	L1.3 GI Conduits / Hume pipes (Including erection of Inspection Bends & 90 Degree Bends, Saddles& Conduit Plugs)				
	i) 25mm dia conduits & locknuts (Each Conduit Length = 3.0 Mtrs)	11000	Nos.		
	ii) 50 mm dia conduits (Length of Each conduit 3.0 Mtrs)	200	Nos.		
	iii) 19 mm dia down rod (Length of Each conduit = 3.0 Mtrs)	1350	Nos.		
	iv) 25 mm dia conduit coupler	Lot	Nos.		
	v) 25 mm dia Flexible conduit	1300	Mtr		
	g) PVC CONDUIT				
	i) 25mm PVC CONDUIT (Length of each conduit 3.0 Mtrs)	750	Nos.		
	ii) 25mm PVC 90 degree bend	Lot	Nos.		
	iii) 3 pin sockets				
	iv) 3 pin sockets(15A,240V) - Flush mounting type	45	Nos.		
	v) 3 pin sockets(15A,240V) - Surface mounting type	75	Nos.		
	vi) 3 pin sockets(20A,240V) - Industrial type	45	Nos.		
	vii) 24V sockets in hazardous area:- Socket with 240/24V transformer in the plug	15	Nos.		
	L1.4 Surface mounted Switchboards				
	i) Surface mounted Switchboards consisting of 1 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	ii) Surface mounted Switchboards consisting of 2 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	iii) Surface mounted Switchboards consisting of 3 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	iv) Surface mounted Switchboards consisting of 5 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	v) Flash mounted Switchboards consisting of 3 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	vi) Flash mounted Switchboards consisting of 5 no. 5A paino type switche & 5A receptacle with switch	30	Nos.		
	L1.5 Lighting panels				
	i) 6 ways	91	Nos.		
	ii) 12 ways	29	Nos.		
	iii) 18 ways	36	Nos.		

SEC	SI No / DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
	L1.6 Industrial Receptacles				
	i) 63A, 415V, TP Industrial receptacle with scraping earth	60	Nos.		
	L1.7 JBs				
	i) 88 mm dia Weatherproof JB	225	Nos.		
	ii) 4 way conduit branching JB for 25 mm dia conduit	150	Nos.		
	iii) 3 way conduit branching JB for 25 mm dia conduit	750	Nos.		
	iv) Junction box with flat cover	1600	Nos.		
	v) Junction box with dome cover	2000	Nos.		
	L1.8 Steel Chain to support fixture in false ceiling area	3500	Mtr		
	L1.9 Anchor Fasteners				
	i) Anchor fastener 1/2 inch	200	Nos.		
	ii) Anchor fastener with hooks - 6 mm dia	1550	Nos.		
	L1.10 Fan with regulator	15	Nos.		
	L1.11 Metsec Channel (Each Length 4 Mtrs)	165	Nos.		
	L1.12 Flexible Cables (Wire) -1C x 2.5 sq. mm	126000	Mtr		
	TOTAL AMOUNT IN FIGURES:			Rs.	
	TOTAL AMOUNT IN WORDS:				
	Place:	for M/s			
	Date :				