LV BOARD AND POWER DISTRIBUTION

Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	Supply, install, test and commission the following ;-				
	MAIN DISTRIBUTION				
1.01	4 Ways, Wall Mounted LV board fully wired for 1 No. 160 Amps. adjustible incomer TPN MCCB, Digital Multimeter, Neutral and earth blocks, all necessary accessories, cable chamber, phase indicator lamps, selector switches, CTs and metering chamber. The board shall be powder coated, degree of protection IP20, modular type, fabricated from steel frames and 14 SWG sheet steel as SCHNEIDER or equal and approved complete with the following:	1	Item		
	i) 300 A TP+ N + E busbars				
	ii) 160 A TP+ N Adjustable MCCB Incomer				
	iii) 2 No.63 A TPN MCCB outgoing for Raw Power DB and PFC bank				
	iv) 1 No.63 A DP MCCB outgoing for Raw Power CU				
	v) 1 No.100 A TPN MCCB outgoing for Clean power Subboard				
	vi) 1 No. TPN and 3 No. SPN Blanked Spareways				
	vii) 415V three-phase surge diverter as Furse ESP 415				
	Automatic Change over Switch with bypass Switch Complete with necessary accessories. Fireman's Switch of appropriate rating and protection. 20KVAR Power Factor correction Bank Set of phase, voltage and current indicators Complete labelling for all the circuits above Any other item necessary to make the board complete, safer and functional.				
	CLEAN POWER SUB-MAIN DISTRIBUTION				
1.02	50 mm2 4 Core PVC/SWA/PVC armoured Copper cable from Main LV Board to Clean Power sub-Board	10	LM		
	i) Cable lugs and glands for the above	4	No		
1.03	4 Ways, Wall Mounted LV sub-board fully wired for 1 No. 100 Amps. adjustible incomer TPN MCCB, Neutral and earth blocks, Automatic Changeover mechanism with bypass Switch Complete with all necessary accessories, cable chamber, phase indicator lamps, selector switches. The sub-board shall be powder coated, IP 65 protected, modular type,fabricated from steel frames and 14 SWG sheet steel as SCHNEIDER or approved equivalent with the following:	1	Item		
	i) 200 A TP+ N + E busbars				
	ii) 100 A TP+ N Adjustable MCCB Incomer				
	iii) 1 No. 63 A TPN MCCB outgoing to LAB DB				
	iv) 1 No.63 A DP MCCB outgoing for clean power CU				
	v) 1 No. TPN and 3 No. SPN Blanked Spareways				
	Set of phase, voltage and current indicators Complete labelling for all the circuits above Any other item necessary to make the board complete, safer and functional.				
	SUB TOTAL CARRIED TO SUMMARY				

ELECTRICAL WORKS (AVR SYSTEM)					
Item	Description	Qty	Unit	Rate (Ksh)	Amount (Ksh)
	AUTOMATIC VOLTAGE REGULATOR (A.V.R) SYSTEM (NB: Mandatory for Bidders to provide Technical Brochures for all the items)				
	Supply, install, test and commission the following ;-				
2.1	An automatic voltage regulator with the following characteristics:-				
	i) Rating: 80KVA				
	ii)Power supply: 3 Phase, 415V/240V				
	iii) Input Voltage Tolerance: 20% i.e.				
	from 365-505 V 3 Phase				
	from 192-288 V 1 Phase				
	iv) Operation: Independent correction for each phase				
	v) Output: ± 1% of 415V/240V				
	vi) Frequency 50/60 Hz ±1%				
	vii) Rated Current: 695 Amps				
	viii) Admitted Load Variation 0 to 100%				
	ix) Admitted Load unbalance up to 100%				
	x) Correction Speed: 16ms/V				
	xi) Waveform distortion <0.2%				
	xii) Efficiency 98%				
	xiii) Cooling: Natural air cooled (free convection without fans)				
	xiv) Ambient Temperature: -10°C to + 40°C				
	xv) Storage Temperature: -20°C to +60°C				
	xvi) Relative Humidity: 90% (without condensate)				
	xvii) State Dimensions of the AVR (WXDXH)				
	xviii) Warranty Not less than 2 years				
	xix) State Weight of the AVR				
	xx) State Protection degree of the AVR				
	xxi) State Make, country of origin and model of the AVR.				
	(The AVR to be complete with 7-position selector to read input/output (PH/PH), internal trimmer to adjust output voltage ±, Pilot lamps for operating status, Input/Output terminals boards)	1	No		
2.2	80A TPN Manual by-pass system across the AVR to be completed with 1 No 80A TPN Manual changeover switches and incorporated in the main switchboard assembly.	1	No		
	SUB-TOTAL CARRIED TO SUMMARY			-	

GENERATOR SET					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**RATE (KSHS)**	**AMOUNT (KSHS)**
3.1	supply, deliver to site,install,test and commisioning a new silent prime genset rated 80KVA/64KW,Standby power 88KVA/70KW ,3 phase,415V,50/60Hz diesel generation set with continous power factor of 0.8 lagging, perkins heavy duty engine, 1500rpm, maintenance free batteries and trickle charger included. The generator set is to be complete with with sound attenuated canopy and integral base/belly daily service fuel tank with an operational running capacity of atleast 6 hours	1	No		
3.2	Supply, deliver to site and install a steel exhaust pipe of not less than 14 SWG and of adequate diameter running from the generating set to the outside of the generator house	20	M		
3.3	Connect the exhaust pipe above in item 1.2 using steel pipes of adequate diameter, and flexible piping off engine exhaust manifold complete with heavy duty silencer	1	Item		
3.4	Complete earthing of generating set to electrical engineer's approval	1	Item		
3.5	Earthing mesh using copper tape and all necessry fixtures	1	item		
	SUB-TOTAL C/F TO SUMMARY				

AMF CONTROL PANEL					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**RATE (KSHS)**	**AMOUNT (KSHS)**
	Supply, deliver to site, install, test and commission the following:				
4.1	An electrical control panel complete with suitable rated incoming MCCBs and contactors for automatic change over operation and complete with all other control accessories as fully described in clauses 9.3 to 9.10 of the particular specifications	1	No		
4.2	Suitably rated manual by-pass switch with clearly labeled **NORMAL-OFF-BYPASS** positions, **and shall such be wired that when the switch is on either OFF or BYPASS position, the generator shall receive no signal to start**	1	No.		
4.3	240V AC/12V DC mains power supply trickle battery charger as specified in clause 9.6 of specifications. The trickle charger shall charge the battery when the set is on **IDLE mode**, otherwise when the set is **RUNNING**, the battery shall be charged by the **generator charger**. Wiring shall be done such that the two chargers shall not operate at the same time.	2	No.		
4.4	12 Volts battery as specified in clause 9.6 of the particular specifications	1	No		
4.5	Armoured cables complete with glands and pvc sleeves:				
	(a) 70 mm sq. 4 core PVC/SWA/PVC copper cable	30	M		
	(b) 2.5mm^2, 4 core, PVC/SWA/PVC copper cable	10	M		
4.6	300 x 75 mm 16SWG cable trays complete with row bolts for ceiling/wall mounting	30	M		
4.7	Inter-wire the control panel with the Mains L.V board	1	Item		
	SUB-TOTAL TO SUMMARY				

AUXILIARY FUEL TANK					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**RATE (KSHS)**	**AMOUNT (KSHS)**
5.1	Supply, deliver to site and install, to the approval of the project manager, and connect to the daily service base/belly fuel tank, a 5000 litres auxiliary fuel tank with level indicator and with an operational running capacity of atleast 72 hours. The tank is to be of mild steel plates of minimum thickness of 3mm complete with stand and all interconnecting G.I pipe work. The tank to be supplied complete with 5000 litres diesel. Once testing is done, the tank should be refilled with diesel to full capacity of 5000 litres	1	No		
5.2	Supply, install, test and commission a 240V AC 50Hz fuel pump complete with DOL starter. This is to pump fuel from the supply tank to the auxiliary fuel tank.	1	Item		
5.3	Any other requirement deemed necessary for completion and commissioning of the works (BIDDER TO provide details of any additional items	ITEM	ITEM		
	CONTINGENCY SUM				
5.4	Allow a Contingency Sum of Kshs. One Hundred and Thousand (Kshs. 100,000.00)			100,000	
	CIVIL/STRUCTURAL WORKS				
5.5	Allow a Provisional Sum of Kshs. One Hundred (Kshs. 100,000.00) to cover realated Civil/ Structural Works			100,000	
5.6	Allow for testing and commissioning of the entire works and one year service and warranty for all the components	1	ITEM		
	Provisional sums				
5.7	Allow a Sum of Three Hundred Thousand (Kshs. 300,000.00) for project supervision		ITEM	300,000	
5.8	Allow a Contingency Sum of Kshs. Two Hundred Thousand (Kshs. 200,000)		ITEM	200,000	
	SUB-TOTAL C/F TO PRICE SUMMARY PAGE				

PRICE SUMMARY					
Item	**Description**			**Amount (Kshs)**	
	Total for General Preliminaries				
	Total for Particular Preliminaries				
	Total for power house				
	Total for LV Board and Power distribution				
	Total for - Generator Set				
	Total for AMF Panel				
	Sub-Total for Auxiliary Fuel Tank				
	Sub-total for Provisional Sums				
	TOTAL (TAXES INCLUSIVE) CARRIED TO FORM OF TENDER				
	TOTAL AMOUNT IN WORDS				
	TENDERER'S NAME & STAMP				
	SIGNATURE ……	**DATE……**			
	P.I.N No.,……	**V.A.T CERTIFICATE**			
	WITNESS……	**ADDRESS……**			
	SIGNATURE OF WITNESS……..	**DATE…… ……**			