

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 315 kVA TRANSFORMER, 320 kVA GENERATOR & CONNECTED ELECTRICS ALONG WITH DECOMMISSIONING AND DISPOSAL OF EXISTING 160 kVA TRANSFORMER AND 125 kVA GENERATOR AT KERALA GRAMIN BANK HEAD OFFICE, MALAPPURAM

DOCUMENT - SHEDULE FOR MODIFICATION OF ELECTRICAL INSTALLATION

SL . No	ITEM DESCRIPTION	QTY	UNIT	RATE Rs.	TOTAL AMOUNT Rs.
1	UNITISED SUBSTATION INDOOR - 11 kV - 315 kVA TRANSFORMER WITH HT TOD METERING				
	<p>Supply of indoor metering panel (Cubicle) exclusively for installing metering CT,PT &TOD Meter with sealing provision with following specifications.</p> <p>a. With double door IP43 b. 11KV Resin cast CT 20/5A,10VA CL:0.2S - 3 nos c. 3phase resin cast fixed type PT ratio 11KV/63.5V 25VA CL:0.2-3 nos. d. HT HRC fuse 2A e. Space heater 80W 230V AC f. Thermo stat 30-80 deg C g. Toggle switch h. MCB 6A 2P 230V AC i. Test terminal box, j. Aluminium Bus bar k. Cable IN/EXIT provision. l. Provision for TOD meter with approximate dimensions,2mm thick galvanised sheet with 7 tank phosphate process.</p>				
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	<p>Supply ,installation and commissioning of solid state 3 phase four wire TOD meter 63.5 Volt 5A 50Hz with 0.2S class accuracy for measuring V_{L-L}, V_{L-N} ,A, KWh, KVA, KVA at an interval of 3 minutes cumulative max demand with clapped type real time instantaneous power factor, time of day active energy in KWh LED/LCD display for number of maximum demand reset real time check display for logging 40 tamper events and must be capable of giving indication for the tamper event with time and date half hourly logging of KVA value for 35 days, facilities to indicate current reversal missing voltages. The TOD meter can be provided with difference register and shall have facilities for Data transfer and remote metering shall have auto and manual scrolling facilities of display, display of secondary voltage and current, facilities to ensure pressure of rated voltage in all the 3 phases. On the HT side the meter shall conform to IEC 687.</p>				
	<p>Testing of TOD meter in the meter testing lab of KSEB including two and fro charges, loading & unloading fees.</p>				
EMERGENCY TRIP					
	<p>Supply and providing emergency push button control for individual HT breaker including all control wiring and complete as required.</p>				
	<p>Supply, installation, testing and commissioning of 120Ah, 24V station type, sealed maintenance free lead acid batteries complete with battery stand, full wave bridge, battery charger, trickle/boost charger inclusive of control panel with 4Way DB and complete as required.</p>				

	Supply, installation testing and commissioning of 315 kVA unitized substation comprising of HT VCB and 315 kVA, 11KV/433V, 3 phase AN cooled, cast resin type transformer with off load tapping of +/-2.5% to -10% in steps of 2.5%, LV cable box suitable for 2 runs of 3.5C x 300 sq.mm XLPE cable and HV terminals connected to 11KV, 35kA, 630A, TP, VCB Unit with incoming suitable for connecting 3C x 150 sq.mm XLPE cable etc. complete.	1			
2	HT CABLE				
	Supply, laying and clamping of 1 no. 11 kV grade XLPE cable of the following sizes using clamps fabricated from 20 x 3 mm MS flat, spacing of clamps not exceeding 60cms, making good the damages, colour washing etc. as required.				
a	3 core 150 Sq.mm	25	m		
3	INDOOR END TERMINATION				
	Supplying and making indoor end termination with push-on end termination kit (earthed) for 11 KV grade XLPE cable of the following sizes including supply of end sealing kit consisting of stress-cum-semi conducting pad, sliding core, self-bonding insulating tape, boot (with 3 core kit), earth continuity connection (with 3 core kit), earthing lug (with 1 core kit), adhesive-cum-solvent, PVC (NA) tape, silicon grease, aluminium crimping lug, aluminium oxide cloth, nylon string, copper binding wire, hose clamp and bi-metallic washer etc. as required.				
a	3 core 150 Sq.mm	1	Each		
4	OUTDOOR END TERMINATION				

	Supplying and making outdoor end termination with push-on end termination kit (earthed) for 11 KV grade XLPE cable of the following sizes including supply of end sealing kit consisting of stress-cum-semi conducting pad, cap, rain shield, self-bonding insulating case, leakage current collector, protective corrugated hose pipe, boot, earth continuity connection (with 3 core kit only), earthing lug (with 1 core kit), adhesive-cum-solvent, PVC (NA) tape, silicon grease, aluminium crimping lug, aluminium oxide cloth, nylon string, copper binding wire, hose clamp and bi-metallic washer etc. as required.				
a	3 Core 150 Sq.mm	1	Each		
5	320 kVA DIESEL GENERATOR				
	Supply, installation, testing and commissioning of 320 kVA, 3phase, 415V, D.G set consisting of the following.				
	a) Alternator: 320 kVA, 415V, 3 phase alternator with Automatic voltage regulator.				
	b) Diesel Engine: 386bhp, 6 cylinder diesel engine with base frame made of channel suitable for coupling with alternator.				
	c) Control Panel: 500A 36kA 4P MCCB set at 450A ,1 Set volt meter, 3 Nos. ammeters with CT etc.				
	d) Fuel tank				
	e) Miscellaneous materials like Battery, Anti-vibration mountings, residential silencer, Necessary flanges, flexible couplings, fuel connectors, valves etc.	1	Each		

	f) Two numbers of Reverse Power Relays (In 320 kVA DG set GCP - 1no & In 82.5 kVA DG set GCP - 1no) with necessary control wirings, terminations & accessories connected to the 250A FP Contactor in MSB outgoing.				
	Note: (Generator Engine - V Type & Generator maintenance service dealer office will be available within 25km radius)				
6	EXHAUST PIPE EXTENSION				
a	Supply and installation of exhaust pipe extension of suitable diameter from DG with one inch increase in diameter with every 10 meter rise until the top or diameter of exhaust pipe starts from 4 inch to 16 inch with flexible, including bends, flanges, nut bolt, gasket and heat resistant al paint with supporting MS materials etc. for 320 KVA.	50	m		
b	Thermal insulation of exhaust pipe with glass wool/mineral wool/rock wool and Al cladding.	50	m		
c	Al cladding for 320 KVA DG SET Silencer.	1	Each		
7	MV PANELS				

	<p>Fabrication, supply, erection, testing and commissioning of cubicle type, dust and vermin proof, floor mounted, front operated MV panel board (provision for future expansion) made out of 14 SWG thick CRCA sheet, powder coated after 7 tank process, fully compartmentalised complete with hinges and earthed front doors with name plate, danger notice board, heavy duty rubber gaskets, removable gland plates made out of 3mm thick sheet steel with all necessary meters, indications, CTs etc. as shown in the electrical drawing or as per the latest Electrical Inspectorate requirement complete with all connections and interconnections for the following panels.</p>			
	Special note:			
	All breaker releases shall be set as per the ratings shown in the drawings			
	Bus bar sizes shall be taken either as shown in the drawing or as design parameter of 0.8A/Sqmm for AL and 1.2A/Sqmm for Cu whichever is higher.			
	Cable Camber shall be provided for incoming & outgoing cables. Earth bus shall be full length of the panel and all Switches/breakers shall be earthed. GA drawings for all the panels before manufacturing shall submit to the Electrical Consultants to get approval before manufacturing.			
a	MAIN SWITCH BOARD (MSB) WITH AMF	1	Each	

Supply, installation, testing and commissioning of 500A, LT, floor mounted type, dust and vermin proof, free standing, cubical type construction, made out 16SWG CRCA sheet painted with approved colour after degreasing prickling, phosphating etc. consisting of the following:

Panel shall be with automatic(AMF) with auto start for DG set on power failure and on regaining power, power shall be suitable to KSEB and DG set shall run for another 5 minutes and switch off facility.

EB Incomer

500A 36kA 4P Microprocessor Type MCCB-1no.

500A 4P Contactor -1no.

Bus bar:75 X 10 MM Aluminium bus bar. (500A Aluminium bus bar)

Metering: Multi-Function meter (A,V,F,PF)-1set and metering CTs 500/5A, Class 0.2S, 10VA-3set and 2A Cut out fuses-1set

R,Y,B and Indication Lamps[LED Type] with control fuses -1Set

DG Incomer 1

500A 36kA 4P Microprocessor Type MCCB-1no.

500A 4P Contactor -1 no.

Bus bar: 75 x10 MM Aluminium bus bar.(500A Aluminium bus bar)

Metering: Multi-Function meter (A,V,F,PF)-1set and metering CTs 500/5A, Class 0.2S, 10VA-3set and 2A Cut out fuses-1set

R, Y, B and Indication Lamps[LED Type] with control fuses -1Set.

DG Incomer 2

160A 36kA 4P Microprocessor Type MCCB-1no.

160A 4P Contactor -1 no.

Bus bar: 75 x10 MM Aluminium bus bar.(500A Aluminium bus bar)

Metering: Multi-Function meter (A,V,F,PF)-1set and metering CTs 500/5A, Class 0.2S, 10VA-3set and 2A Cut out fuses-1set

R, Y, B and Indication Lamps [LED Type] with control fuses -1Set.

Bus Coupler: 500A FP Contactor - 1No

	<p>AMF System consist of the following Aux Contactors, MCBs, Control terminals, Control Fuses, indication [LED type] lamps, Push buttons, Control cabling from AMF panel to Diesel Engine and elsewhere if required, Auto/Manual/Test/Off selector switch, ON/OFF control circuit switch with indicator, Complete as required as per standards, Battery charger complete with DC Voltmeter, Ammeter and all standard accessories Complete as required as per standards.</p>				
	Outgoings				
	320A,25kA, TP, MCCB - 2nos.				
	250A,25kA, TP, MCCB - 2nos.				
	250A, FP, CONTACTOR- 1no.				
	Phase indication lamps in the incoming, earth bus of adequate capacity and double earth connection to all switches, internal rigid connection. The board shall be fabricated out of 16SWG CRCA sheet and power coated with simens grey after phosphating.				
8	MV CABLES				
	Supply and laying of the following sizes of 1.1 kV grade XLPE insulated armoured and sheathed Aluminium cable as per standards and specifications in built up trenches, steel members, roof, walls directly in ground, floors, including fixing identification tags, chipping of floors or walls making good the surface with all accessories and materials etc. complete, excluding supply of steel racks, ladders and trays.				
a	3.5 Core 300 Sq.mm	160	m		
b	3.5 Core 240 Sq.mm	60	m		

9	CABLE END TERMINATION				
	Supply and making end termination of the above cables including gland earthing, supply of chromium plated brass compression type heavy duty glands, tinned Aluminium lugs, copper earth clamps, all materials, crimping etc. complete.				
a	300 sq. mm	4	Each		
b	240 sq. mm	2	Each		
c	70 sq. mm (Solar AC Cable)	2	Each		
10	EARTHING- as per IS 3043				
a	Supply and providing plate earthing as per I.S 3043 with 1200x1200x12 mm CI earth plate with required length of 38.1 mm dia. 'B' class G.I watering pipe extending to the middle of the plate and clamped to the plate with minimum 2 Nos. GI clamps of size 50x6 mm flat with 50x10 mm, SS bolt and nuts including drilling necessary holes, providing G.I funnel with weld mesh, fixing GI strip of size 50 x 6mm with minimum length of 30 cm clamped with 50x6 mm GI flat using 50x10 mm SS bolt and nut as test joint to the watering pipe, fixing 2 Nos. Cu strip of size 25x3 mm from test joint to earth plate, filling with homogeneous mixture of charcoal, common salt and river sand around the earth plate, up to a distance of 15 cm on either side, filling the rest of the portion with excavated soil including watering and ramming, providing brick work (20cm masonry) at the top in 1:6 cement mortar, plastering inside and top of the man hole with 12mm thick 1:6 cement mortar and providing 45 cm x 45 cm 1:2:4 RCC slab 50 mm thick as covering at the top. (For Transformer & DG)	6	Each		

	Supply and laying strips of the following sizes along with wiring/ cables and giving connection as required.				
b	25 x 3 mm copper strip tinned at the points of contacts	200	m		
	Supply and laying the following sizes of strips laid 0.60 m below ground level including excavating trench of suitable size and refilling etc. as required. (in hard soil)				
c	25 x 3 mm copper strip tinned at the points of contacts.	60	m		
11	MISCELLANEOUS ITEMS				
a	Supply & laying of 11 kV grade Synthetic mat of size 2 m x 1 m x 2.5 mm as per IS 5424.	12	Sq.m		
b	Supply & laying of 1100 V grade Synthetic mat of size 2 m x 1m x 2 mm in front of MSB, SSBs & panels as per IS 5424.	25	Sq.m		
c	Supply of one set of first aid box with required medicines and first aid items.	1	Each		
d	Supply and fixing of laminated artificial respiration chart & instructions both in English & Malayalam in the Sub-station.	1	Each		
e	Supply of 11kv grade Hand Gloves (pair).	1	Each		
f	Supply of Shock Treatment Chart.	1	Each		
g	Caution Boards.	5	Each		
h	11kV/440V cable route marker with angle support including concreting.	16	Each		
i	Supply and fixing of 5 kg Dry Chemical Powder type fire extinguisher. The fire extinguisher shall confirm to IS 13849, IS: 4308 & IS: 2171 for Class A, B & C fires.	8	Each		
j	Supply and fixing of suitably painted, round bottom type, 9 litre capacity G.I fire bucket with clamps.	8	Each		

13	Supplying and installation including all manner of supports/ suspenders, anchor bolts etc. for cable trays made out of suitable size channel sections, slotted angles, flats, MS/GI plates etc. as required including painting with 2 coats of synthetic enamel paint over a coat of zinc chromate primer, making good the damages, colour washing etc. as required.	250	Kg		
14	Dismantling of all HT/LT Panels, Existing 160 kVA Transformer & 125 kVA Generator with connected electrics including conveyance of panel within the premises and making necessary temporary connection as required. The above work should be carried out without causing power interruption. The contractor must dispose of the existing 160 kVA Transformer and 125 kVA Generator in the market place at a reasonable price and handing over to the client with the necessary documents.	1	LS		
15	APFC PANEL 100 kVAr				
	Supply & Installation of Eights stage APFC panel consisting of 250A 4 pole 25kA MCCB as incomer, 250A Bus bar, 3 number of 5kVAr, Two number of 10kVAr, one number of 15 kVAr & Two number of 25kVAr, with contactors, protections as per the standards and all the necessary accessories.	1	Each		
16	KSEB & KSEI CHARGES				
a	Collecting details from site, preparing drawings and related documents for submitting and giving necessary follow-ups for obtaining approval from E.I excluding statutory charges.	1	LS		

b	Preparing of completion Report: - Collecting load and equipment details from site for the preparation of completion Report, as built dwgs, submitting to EI arranging inspection, obtaining energization order from E.I/Dy.C.E.I excluding statutory charges.	1	LS		
c	Preparation of application for obtaining KSEB booklet, preparation of completion report, arranging inspection by KSEB official and giving assistance in obtaining service connection from EB excluding statutory charges.	1	LS		
d	Preparation of necessary application for obtaining sanction under section 44 of India Electricity (Supply) Act 1948 , arranging inspection by KSEB officials up to the level of Assistant Executive Engineer excluding statutory charges.	1	LS		
e	Preparation of Application and obtain the Energization from KSEB.	1	LS		
				Sub Total	
				GST (18%)	
				Grand Total	
Amount in Words-Total Amount Say :					