

BILL OF QUANTITIES (BOQ)

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SUPPLY OF 20 KVA D. G. SET FOR STATE LIFE KHANSPUR AYUBIA.

Sr. No	Description	Unit	Qty.	Unit Rate (PKR)	Total Amount (PKR)
1	(2)	(3)	(4)	(5)	(6)
	Supply, Installation, Testing and Commissioning of the following items of work (unless specifically stated otherwise), including all material, labour, tools, plant accessories, etc. required for proper completion of each item as per specifications and locations. General/ Specification, for Electrical Works shall be applicable to all BOQ items. The contractor may visit both the sites, inspect the existing condition of the works and nature to balance works before quoting the price in Tender. In 'the result of such inspection and check of the works, if Contractor finds any rectification or remedial works necessary to be executed for balance works, the Contractor shall accommodate the cost of such works in the quoted rates.		01		
1.	DIESEL GENERATOR SET (20 kVA) Supply, installation, testing, and commissioning of a 20 kVA DIESEL GENERATOR SET of make Perkins, Cummins, Caterpillar, or equivalent internationally recognized brand, for installation at State Life REEST house Khanspur Ayubia. The generator set shall be complete with an inbuilt AMF control panel/instruments (to be connected with the ATS panel), including all control wiring, interlocks between the DG set panel and utility supply, piping works, exhaust system, skid-mounted fuel tank, ducting, control panels, foundation pads, and all associated civil, electrical, and mechanical works, complete in all respects. a. DIESEL GENERATOR SET Rating • Prime Rating: 20 kVA • Standby Rating: 22 kVA (or manufacturer's standard standby rating for a 20 kVA prime-rated generator) Technical Specifications: • Voltage: 400/230 V • Frequency: 50 Hz • Phase: 3 Phase • Speed: 1500 RPM (or 1800 RPM, if specified by the manufacturer) • Complete with: • Key-start control panel • AMF-compatible control module • 45°C tropical radiator • Maintenance-free battery with battery tray • Industrial silencer • Solid steel base frame • Integrated/base-mounted fuel tank • Anti-vibration mountings	Job	01		

	• All standard accessories required for safe and reliable operation The DG set shall be supplied complete in all respects and ready for operation. b. RCC Foundation Provide a 1-foot-high reinforced cement concrete (RCC) foundation comprising brick masonry, cement-sand mortar, PCC/RCC (1:2:4 mix), damp-proof course (DPC), plaster, anchor bolts, and all associated civil works, complete in all respects and to the satisfaction of the Engineer-in-Charge. c. Exhaust System Supply and install a complete exhaust system comprising heavy-duty exhaust piping, industrial silencer, flexible connections, rain cap, supports, insulation (where required), and all accessories necessary for proper discharge of exhaust gases in accordance with the manufacturer's recommendations. d. Fuel System Provide a complete fuel system comprising an overhead or underground fuel storage tank with a minimum capacity of 500 liters, manufactured in accordance with DIN 6608, ASME, or equivalent international standards, complete with: • Manhole cover • Fuel level indicator • Vent pipe • Drain valve • Fuel transfer and return piping • Isolation valves • Flexible hose connections • All fittings and accessories required to supply fuel to the 20 kVA DIESEL GENERATOR SET, complete in all respects.				
2.	<u>AMF/ ATS PANNEL</u>				
	Supply & installation of AMF (Automatic Mains Failure)/TP ATS (Automatic Load Transfer Switches) Panel with all imported components of adequate ratings/ specifications along with the single core/ multi core PVC/PVC copper conductor cable connected with the Panels of the electric substation coupled with Electric Supply Company's electric supply as auto change over switching having necessary inter locking with Electric Supply Company's electric supply, (by visiting the site to observe the site condition).	Job	01		
3.	<u>CANOPY</u>				
	Providing & fixing weather proof & sound proof canopy for 20KVA DG Set, made with appropriate size M.S. angle iron frame & 12 SWG M.S Sheet and foundation pad duly painted with red oxide & weather proof colour. The canopy sound level should not exceed 85db at a distance of one (1) meter from the Generator with necessary doors for inspection/ repairs duly earthed body as per approved design & instructions of the Engineers.	Job	01		

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(1)	(2)	(3)	(4)	(5)	(6)
5	<u>CHANGE OVER SWITCH:</u>				
	_Providing, fixing, connection with cable, installation and commissioning of (Change Over for main L.T Panel Room) 63 Ampere. Adjustable T.P MCCB 3 Pole Terrasaki/Equivalent with 16 SWG sheet steel Clad with hinged door cover, weather proof, water with, anti-rust treated and powder coated painted, floor mounting types factory assembled for 3 phase and neutral bus bar, 410 Volt 50 C/s, Cable glands, earth terminal block, etc, complete job in all respects. <u>Incoming:</u> 63 Ampere 36 KA TP MCCB Adjustable (Terrasaki) Volt Meter (Digital) with Selector. Ampere Meter (Digital) with Selector. Current Transformer 100/5Ampere 4Ampere SP Type Fuse (Legend) Quantity=? <u>Outgoing:</u> Bas Bar 10mm X 30mm		01		
6	<u>EARTHING</u>				
	Supply of necessary material, cables (Make Pakistan Cables or equivalent) of recommendable sizes for earthing systems, Rod type earth electrode including earthing lead, inspection chamber all accessories etc., complete in all respect by mentioning the specifications of adequate system recommendable for the supplied D.G Set of 20KVA along with connections		01		
7	<u>L.V CABLE 35 mm 4 CORE:</u>				
	supply and installation, termination, testing and commissioning of PVC/PVC Multi Core Copper conductor Power cables 600/1000 volts of make Pakistan/Pioneer/ Universal or Equivalent. Already run on cable tray or through PVC conduits. The cable should be terminated at both ends with in coated copper lugs, brass glands and properly tagged and cable should be properly clamped or tie on cable trays, complete in all respect.(meter^2=?) 1 X 35mm 4 Core PVC/PVC for Gen Set 20 KVA Outgoing to change over Panel incoming L.T Panel room/DB. As per the site requirements	Job Rft	01 Depend upon location of DG Set		

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8	<u>COST OF SPARE PARTS:</u>				
	i. Air Filter ii. Oil Filter iii. Fuel Filter iv. Driving Belt v. Set of diodes for excitation system. vi. Additional spares if any recommended.	job	01 Depend upon location of DG Set 1 set 1 set 1 set 1 set 1 set		
9	Supply and fixing of cable tray 18SWG MS Sheet with Cover and finished with epoxy power point to be installed for power cables with all fixing accessories (6" X 12") or as required.	job	01		
10	<u>MISCELLANEOUS</u>				
	Any other item whether specified or not but deemed necessary and required for the entire complete and functional system as per the site requirements.				
	Total Amount INCLUSIVE OF TAX(ES)				