Tender Fee: Rs. 5000/-
(Non-Refundable)

TENDER FORM

FINANCIAL DOCUMENT

Tender # CW/31/25-26

Design, Supply, Installation, Testing & Commissioning of 117.12 kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi

INSTITUTE OF BUSINESS ADMINISTRATION IBA KARACHI
IBA MAIN CAMPUS KARACHI UNIVERSITY ENCLAVE KARACHI
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SCHEDULE - A TO BID: SCHEDULE OF PRICES

A. Price Schedule of Solar PV Systems:

SUMMARY OF BID PRICES

Item No.	Description	TOTAL INSTALLED CAPACITY kWp	AMOUNT (PKR)	TOTAL UNIT GENERATION YEARLY (Minimum) KWh
(A)	Design, Supply, Installation, Testing & Commissioning of 117.12 kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi	117.12		
TOTAL COST OF THE PROJECT WITH OUT TAX				
TOTAL COST OF THE PROJECT WITH TAX				
TOTAL COST OF THE PROJECT PER WATT WITH TAX				

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PROJECT TITLE: Design, Supply, Installation, Testing & Commissioning of 117.12 kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi					
ABSTRACT OF COST					
Sr No.	**Product**	**Capacity**	**Unit**	**Quantity**	**Price (PKR)**
	Photovoltaic Solar System works				
	General: The system is designed to cover the Essential loads in Staff Town IBA Karachi				
1	The system will be grid interactive connected which will allow many power sources options. The system will import from the grid when loads are being more than the generated from PV and supply surplus electricity to the grid when PV generates more than the loads.				
2	Contractor shall submit shop drawings for all civil, electrical and a complete photovoltaic solar system works, including a single line diagram showing all the components of the PV system, DC & AC distribution boards, PV Arrays layout, connections and cables, wire cross section for all the system to be approved by the Engineer before executing the work.				
3	Supply and installation of all aluminum mounting clamps with complete accessories required for the installation and secure fixing of solar PV panels, complete in all respects.				
4	The contractor shall submit the Manufacture testing certificate, country of origin, certified characteristics, test performance curves, As recommended by manufacturer, maintenance manuals and manufacturer's warranty for each component of the system.				
5	As-built drawings shall be submitted after handing over the work.				
6	All DBs will be lockable type.				
7	Upon completion of the installation, the contractor shall organize an on-site training program involving nominated employer's staff. Such a program shall be carried out during the commissioning phase. The cost of the training shall be deemed to have been included in the tendered rates.				
8	The price includes all builder's work, making good and reinstatement including necessary materials and workmanship as well as removal of unwanted materials to dump sites approved by the engineer to complete the job successfully.				
9	All the following items include Supply, Installation, Testing, Commissioning and Operate of the complete installed PV Solar System				
10	All materials that are not naturally corrosion-resistant shall be treated or finished to protect surface and functional integrity under the ambient conditions prevailing at the site.				
11	To protect metallic accessories from corrosion two anticorrosive coats of paint will be made of material.				
12	During the installation of cable trays, DBs, or any other equipment/items, if the existing paintwork is damaged, it shall be the responsibility of the contractor to repair and reinstate the affected areas using the epoxy coating to match the existing finish, complete in all respects				

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Design, Supply, Installation, Testing & Commissioning of 117.12 kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi							
Sr No	**Product**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount without Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
1	**PV MODULES-117.12KWp:**						
i)	Supply of N-Type or any latest tech. Bifacial Photovoltaic Solar Modules Tier 1 Type anti-reflective high transparency low iron tempered glass, with earthing provision. The modules STC parameters must be as under (a) Min Power Pmax 610 or above Wp rated power (b) Junction Box Protection Degree, IP 68 (c) Connection box, 4.0mm2 conductor cross section, (d) Cable with, MC4 male and female connectors, (e) Anodized Aluminum Frame and Support Bars (f) PVC duct, Clamps & Accessories, support and labels to be installed under PV Array. The Contractor shall provide manufacturer warranty for solar panel for a period not less than 25 years. Contractor must submit all the required certificates for each PV solar panel from manufacturer as per specification. All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval. Make: Jinko/Longi/Canadian	Watt	117120				

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2	**GRID-TIED INVERTER (PCU)**	**Unit**	**Qty**	**Unit Price(PKR)**	**Amount without Tax (PKR)**	**Tax Amount(PKR)**	**Amount with Tax (PKR)**
i)	Supply of DC/AC grid tie 3-phase inverter with data communication unit with Ethernet connection. The inverter with must be suited to any PV module configuration, and depending on the system design and installation proposed and for the future extended also. (Leading Market brand, having annual production greater than 1GW). The DC max power input rating should be at least 1.2 times of AC power at standard test condition (STC). The inverter unit shall be suitable for indoor and outdoor installations with IP65. The inverter must include safety concepts such as (triple protection with Opti protect, electronic strings fuses, self-learning string failure detection, DC surge arrestor type (2) to ensure max availability. The inverter includes online monitoring with Wi-Fi Dongle. All works and materials must be according to the drawings, specifications and supervisor engineer instructions and approval. Make:Sungrow/Huawei/SMA Power Rating: 110KW to 125KW.	Each	1				
	Brief specification is as under:						
a	Max Input DC Voltage: 1100V						
b	MPPT Operating Voltage Range: 200V~1000V,						
c	Min 10 Independent MPPT Trackers						
d	Minimum Efficiency 98.0%,						
e	Warranty: 5 Years (Extendable to 10 Years)						
f	Minimum IP rating should be IP65						

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3	**COMBINER BOXES**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount without Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
a	**DC COMBINER BOX**						
i)	Supply of DC box/Array Junction Box 14gauge Wall/Pad mounted Colour Code: RAL7035, MS Powder Coated with all accessories for outdoor usage IP65, proper cable glands as per cable size, slotted cable ducts should be installed for internal DC cabling. DC Combiner Box shall be provided One DC Breaker 4Pole per string. DC Breaker 4Pole 25A/32A,1000VDC, Qty=14 DC Breaker Make: ABB/Zjbeny/Dehn/Chint	Each	1				
4	**CABLES**						
a	**DC CABLES**						
	Supply of DC Cable, 1 Core 6mm2 Cu/XLPO/XLPO cable complete in all respect with accessories to connect the PV solar cells together and to the inverter directly to have a complete operational circuit, clamps, trays and cable end terminations which shall be DC plug and socket connectors. The allowable voltage drop for DC cables between PV Arrays and inverter should be less than 2%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.5kV DC, Standard Double insulated: Cross link polyolefin, Tinned copper conductor: Cable should be Certified from TUV Approved. Standard: EN50618 Make: Pakistan Cable/Fast Cable/Kuka/ Jiukai as IBA Engineer Approved.	Meter	3150				
b	**AC Cables**						
	Supply of the power cables with all required works in different sizes of ducts/pipes, Cable lugs, Clamps and all needed fittings to connect cables terminals from source to destination with LV termination kit (Raychm). According to drawings, specifications, instructions, and demand of the supervising engineer as follow: Brand: Pakistan Cable/Fast Cable as IBA Engineer Approved.						

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i)	4C x 95mm2,0.6/1kV Cu/PVC/PVC STD Pure Copper	Meter	18				
c	**Earthing Cables**						
	Supply, Installation & Testing of Earthing Cable, Including uPVC Pipe with related accessories. Brand: Pakistan Cable/Fast Cable as IBA Engineer Approved.						
i)	1 core 2.5/4 sqmm, CU/PVC/FLEX (Green) from panel to panel	Meter	270				
ii)	1 core 6 sqmm, CU/PVC/FLEX (Green) from panel/Structure to ECP	Meter	50				
iii)	1 core, 50 sqmm, CU/PVC/STD (Green) from Inverter to LV Panel	Meter	18				

5	**EARTHING SYSTEM**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount without Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
i)	Supply, Installation, testing and commissioning of Earth Electrodes (Rod Type) for Earthing System with 25mm Dia 3 meters (10feet) long driven Pure copper Solid rod, pure copper busbar 50 mm (width) × 6 mm (thickness). complete with clamps lugs, washer/bolts, connected with 1x70mmsq bare copper 50mm diaG.I pipe/UPVC pipe class 'D/E' up to Earth chamber, job includes copper conductor to earth electrode rod at one end and provision/fixing of cable lugs at other end, including all accessories and RCC inspection chamber, heavy duty G.I. Cover having earth symbol, etc as per the specifications and drawings and to the entire satisfaction and approval of the IBA Engineer. Minimum depth of the earth pit should be 80ft, Earthing result should be less than 1 Ohm for AC/DC/LA	Each	2				
6	**MISCELLANEOUS ITEMS**						
i)	Supply of 6-inch UPVC Class D conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects. Make: Dadex/Jeddah/Galco/Steelex as IBA Engineer Approved.	Meter	50				

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ii)	Supply of 2-inch UPVC SCH 40 conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects Make: Dadex/Jeddah/Galco/Steelex as IBA Engineer Approved.	Meter	40				
iii)	Supply of 1-inch UPVC SCH 40 conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects. Make: Dadex/Jeddah/Galco/Steelex as IBA Engineer Approved.	Meter	50				
iv)	Supply of 6-inch G.I conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects. Make: IIL as IBA Engineer Approved.	Meter	40				
v)	Supply of following sizes 16SWG heavy duty GI Perforated as per site requirement. Cable Tray 100mm x 75mm with 14 SWG GI. Complete all installation material such as angle iron support of size, round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchour, etc. Complete in all respects, as per the specification.	Meter	140				

7	**SERVICES**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount without Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
	Designing, Fabrication, Installation, Testing & Commissioning of following items complete in all respects:	Watt	117120				
i)	Installation, Testing & Commissioning of Photovoltaic Solar Modules						
ii)	Installation, Testing & Commissioning of Grid tie 3-phase Inverter with data communication unit with Ethernet connection						
iii)	Installation, Testing & Commissioning of DC Box/Array Junction Box 14-gauge wall mounted with all accessories for outdoor usage						
vi)	Installation, Testing & Termination of DC Cable, 1 Core 6mm2 Cu/XLPO/XLPO cable complete in all respect with accessories.						
v)	Installation, Testing & Termination of the AC power cables complete in all respect with accessories.						
vi)	Installation, Testing & Termination of Earthing Cables complete in all respect with accessories.						
vii)	Installation of following sizes 16SWG heavy Duti GI Perforated as per site requirement. Cable Tray 100mm x 75mm complete with all installation material.						

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viii)	Installation of UPVC/GI conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, along with excavation works complete in all respects.						
ix)	Re-fixing pavers/Tiles/ Road Cutting as in position including providing sand, backfilling etc for AC & DC cables as per site requirements	Job	1				
x)	Construct of concrete manholes/cable chambers (600mm x 600mm x 600mm deep) with heavy duty RCC covers with anti-rust paint, including all required sleeves for pulling underground power cables laid in pipes.	Each	4				
xi)	Service of Net metering application process for extension of new system & existing solar system at staff town IBA, handling as per K.E approved criteria complete in all respects or directed by Engineer. This also includes the services charges & fee for assessment of Grid load flow study of Existing & new installed system, service charges for Load Inspector etc. Only the cost of K. Electric/Nepra Challan shall be paid by IBA.	Job	1				

8	**OPERATION & MAINTENANCE**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount without Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
i)	Two years of operations and maintenance is an integral activity of this EPC project, which will determine the success of this project. It is to be noted that 2 years O&M will be initiated after project closet is intended that the project performs as per design "Performance Commitment Table" while also maintaining the project to ensure reliability and longevity for 25 years. Industry best practices to be used to operate and maintain the solar PV Project. All necessary preventive and corrective actions to be shared and implemented before the start of the O&M contract. The following key performance metrics to be monitored and reported which are as follows: • Cleaning of solar panels to remove dirt,	Watt	117120				

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	dust, and debris (minimum twice in a month). • Inspection of cables, connectors, junction boxes, and grounding systems. • Tightening of bolts, screws, and clamps in mounting structures. • Identifying and resolving faults in modules, inverters, or other components. • Rapid response to critical failures to minimize downtime. • Tracking key performance indicators (KPIs) such as energy output, PR (performance ratio), and system availability. • Implementing software updates for inverters and monitoring systems. • Managing claims for defective components under warranty. • Implementing and maintaining safety measures for O&M personnel. Performance Ratio (burn test) to be carried out for 15 days once project is completely installed and ready for testing. Monthly reports to be shared covering all aspects of solar PV performance including an event log. Any system under performance or failure of equipment will automatically trigger the requirement of a detailed root cause analysis RCA (based on site-based tests) and a report will have to be submitted at the earliest completion of an RCA.						
	Total Amount in PKR without Tax						
	Tax Amount						
	Grand Total Amount in PKR with Tax						

Grand Total Amount Rupees in Words: Rs. _____

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