Tender Fee: Rs. 5000/-

(Non-Refundable)

TENDER FORM

FINANCIAL DOCUMENT

Tender # CW/26/24-25

Design, Supply, Installation, Testing & Commissioning of 102 kWp HBL Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA City Campus

INSTITUTE OF BUSINESS ADMINISTRATION IBA KARACHI
IBA MAIN CAMPUS KARACHI UNIVERSITY ENCLAVE
KARACHI
UAN 111-422-422 (92-21) 38104701 www.iba.edu.pk

INVITATION FOR BIDS

INSTITUTE OF BUSINESS ADMINISTRATION IBA KARACHI

NOTICE INVITING TENDER

The Institute of Business Administration, Karachi (IBA) invites sealed bids from active taxpayers of manufacture / firm / companies / supplier registered with relevant tax authorities for the following tender.

Tender Title (Ref. No.)	Procedure	Bid Security
Design, Supply, Installation, Testing & Commissioning of 102 kWp HBL Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA City Campus CW/26/24-25 • **Mandatory Site Visit:** April 03, 2025 at 11 AM at IBA City Campus	Single Stage Two Envelope	2%
• Fee: Rs.5,000/- each • Issuance start date: March 18, 2025 at 9 AM • Issuance end date & time: April 09, 2025 at 3 PM • Submission date & time: March 18, 2025 to April 09, 2025 from 9 AM to 3 PM • Opening date & time: April 09, 2025 at 3:30 PM		

Tender Document may be collected after submission of paid fee challan from the Office of **Head of Procurement, Fauji Foundation Building, IBA Main Campus, University Enclave, Karachi** on any working day (Monday to Friday). Alternatively, the tender document can be downloaded from the website. The Tender fee challan is to be generated from the IBA website https://www.iba.edu.pk/tenders/ which may be deposited in any branch of Meezan Bank Ltd. Sealed bids should be dropped in Tender Box placed at the Security Office, Gate # 4, IBA Main Campus University Enclave Karachi and will be opened on same date & venue in the presence of the bidders representatives who may wish to attend. In case of holiday the tender shall be opened / received on the next working day at same place and time. Bid Security in the form of Pay Order or Demand Draft has to be submitted in favor of "**IBA Karachi**" along with the Financial Proposal.

Kindly mention "Tender Number" at top left corner of the envelope.

N.B. IBA Karachi reserves the right to reject any bid or cancel the bidding process subject to relevant provision of SPP Rules 2010.

REGISTRAR
IBA, Main Campus, Univeristy Enclave, Karachi 75270
111-422-422 Fax (92-21) 99261508
Contact Person Sr. Executive Purchase on 38104700 ext: 2150
Email tenders@iba.edu.pk
Website https://www.iba.edu.pk/tenders/
https://ppms.pprasindh.gov.pk/PPMS/public/portal/notice-inviting-tender

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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 102kWp Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System	102.00		
TOTAL ESTIMATED COST OF THE PROJECT WITH OUT TAX				
TOTAL ESTIMATED COST OF THE PROJECT WITH TAX				
TOTAL ESTIMATED COST OF THE PROJECT PER WATT WITH TAX				

PROJECT TITLE: Design, Supply, Installation, Testing & Commissioning of 102 kWp Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA City Campus

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 IBA City Campus				
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	Contractor shall submit the catalogues of each component showing the requested specifications stated at the bill of quantity.				
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 components 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 works, 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 PV Solar System				
10	All material 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 on material.				
12	Contractor must provide Bank Maintenance Guarantee for Period of One year for all components of the Solar System.				
13	If any necessary upgrades of copper links/circuit breakers/etc required in IBA existing LV Panel for AC cable connections, Contractor must include the price in the financial proposal.				

BOQ SOLAR PV SYSTEM AT IBA CITY CAMPUS ESTIMATED CAPACITY_102kWp							
Sr No	**Product**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
1	**MODULE MOUNTING STRUCTURE**						
	HBL ROOF						
i)	Designing, Supplying, Fabrication & Installation of PV Mounting structure in MS Iron. The mounting structures and the civil concrete footings must be designed structurally to be suitable to withstand all static loads (weight of modules, wind loads etc) minimum wind speed pressure 40m/s with 3sec of gust pressure in harsh environment. The design submission must be as per ASTM-A36, ASTM-123 and ASCE 7-10. The mounting structure components are bonded together to guaranty potential equalization. The work is to be carried out strictly as per approved structure drawings, design and specification and the rate quoted is inclusive of the following:	Watt	102000.0				
a	Designing of the structure as per design specification approved by IBA Engineer. • Column/Pole Size: Minimum 4.5” x 4.5” in 12 gauge. Columns may be circular or square shape. •Primary Girder: 1.8Kg/ft & above • Secondary Girder: 1.8Kg/ft & above • Base Plate Size: 12” x 12” with 12mm thickness. • Top Plate Dimension: 6” x 6” with 6mm thickness. • Bracing Angles: 2"x2" by 1/4" thickness • Sharing Girder: Sharing of Girder not allowed in structure design. • Tilt Angle: Must be optimal for energy						

	generation. • Material: MS Iron A306 • Cross Bracing: Column to column in 3"x3" by 1/4" thickness angle iron with gusset plate cross bracing should be installed at both end of the structure to avoid sway under heavy winds. • Civil Pads: RCC concrete pads, pads sizes shall be L x W x H (1' x 1' x 1') with finish plaster. • Fasteners: All Allen bolts, Spring Washer, Nuts, Washer & Plate Washer must be SS304. • Cleaning Platform: MS cleaning platform minimum width of 1.5' with 1.5"x1.5" angle iron in 3/16" thick with side supports. • Paint: Before applying two coats of epoxy paint in smoke Gray colour, the contractor must first apply two coats of red oxide coating. • Mounting Accessories: Includes brackets, Solid Midclamps & End clamps, and bolts.	
b	Layout at Site approved by IBA Engineer	
c	Civil work as per drawing and specification approved by IBA Engineer.	
d	Placing of GI Rawal Bolts, Nuts bolts as per design & length & Details approved by IBA Engineer.	
e	Tilt angle is to be maintained as per recommended.	
f	The Contractor shall remove all the debris and clear the site before & after the completion of work as per IBA direction	
g	The Contractor shall submit the detail technical shop drawing before execution of work.	
h	After completion of the work the contractor shall submit the as built drawing.	
i	All Allen bolts, nuts, bolts, washers, spring washers and screws for the project should be Stainless steel (SS 304).	
j	The contractor must submit the ANSYS/SAP report prior to the project's execution.	
k	Waterproofing and any other roof damage must be repaired with the approval of the IBA Engineer.	

2	**PV MODULES-102KWp:**	**Unit**	**Qty**	**Unit Price(PKR)**	**Amount with out Tax (PKR)**	**Tax Amount(PKR)**	**Amount with Tax (PKR)**
i)	Supply, Installation, Testing & Commissioning (SITC) 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 600 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 Aluminium 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	102000.0				

3	**GRID-TIED INVERTER (PCU)**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
i)	Supply, Installation, Testing & Commissioning (SITC) 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 the 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 instruction's 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: 10 Years (Extendable to 15 Years)						
f	Minimum IP rating should be IP65						

4	**COMBINER BOXES**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
a	**DC COMBINER BOX**						
i)	Supply, Installation, Testing & Commissioning (SITC) of DC box/Array Junction Box 16gauge wall mounted with all accessories for outdoor usage, 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				
b	**AC COMBINER BOX (LV PANEL)**						
i)	Supply, Installation, Testing & Commissioning (SITC) of AC Combiner Box (LV Panel) with pad floor standing/Wall Mounted Locally fabricated in 16 gauge, Colour Code: RAL7035, MS Powder Coated, Copper Glands, Lugs, Phase indication lights, Tin Coated Copper Busbar for 3 Phases with colour coded heat shrinkable sleeves, Neutral & Earth with Polycarbonate cover sheet. Brass glands at bottom In & Out, CT's, Energy meter with all related accessories for outdoor usage dust proof enclosure. AC Breaker 250A,4P,MCCB,400V/415V, Qty:01 AC SPD 4Pole, 65kA with HRC Fuses Energy Meter: Janitza or Equivalent CT's: Ficco/Saci or Equivalent MCCB Make: ABB/Schneider or Equivalent SPD Make: ABB/Schneider or Equivalent HRC Fuses Make: Schnieder/ABB/Voltron or Equivalent	Each	1				

5	**CABLES**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
a	**DC CABLES**						
	Supply, Installation & Testing 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 Engineer Approved.	Meter	2000				
b	**AC Cables**						
	Supply, Installation & Testing 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 or Equivalent as IBA Engineer Approved.						
i)	4C x 120mm2,0.6/1kV Cu/PVC/PVC STD Pure Copper	Meter	25				
c	**Earthing Cables**						
	Supply, Installation & Testing of Earthing Cable, Including uPVC Pipe with related accessories. Brand: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.						
i)	1 core 2.5 sqmm, CU/PVC/FLEX (Green)	Meter	540				
ii)	1 core 4 sqmm, CU/PVC/FLEX (Green)	Meter	180				
iii)	1 core, 50 sqmm, CU/PVC/STD (Green)	Meter	50				

6	**EARTHING SYSTEM**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out 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, 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 cad-welding of 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 Engineer. Minimum depth of the earth pit should be 80ft, Earthing result should be less than 1 Ohm for AC/DC/LA	Each	3				
7	**DATA LOGGER REMOTE MONITORING SYSTEM**						
i)	Supply, installation, testing and commission of data Manager with Remote Monitoring System consists of the following parameter: a) Total energy generation of PV Plant b) Instantaneous Power been generated by solar PV plant c) Current load of client d) Load profile v/s energy generation. e) Daily Solar Plant generation report in PDF from Data should be store on server for not more than 10 min time interval. Data must be access through internet via user friendly GUI.	Each	1				

8	**CABLE TRAY**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
i)	Supply and installation of following sizes 16SWG heavy Duti HDGI Perforated/Non-Perforated as per site requirement. Cable Tray 150mm x 100mm with 16 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchour, etc. Complete in all respect, as per the specification and drawings.	Meter	100				
9	**CIVIL & MISCELLANEOUS WORK**						
i)	Supply and installation of 2-inch UPVC conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects.	Meter	100				
ii)	Supply and installation of 1-inch UPVC conduit sockets, Bends, Elbows, T-Joints, G.I Clamps, complete in all respects.	Meter	80				
iii)	Construct of concrete manholes/cable chambers (900mm x 900mm x 900mm deep) with heavy duty RCC covers with anti-rust paint, including all required sleeves for pulling underground power cables laid in pipes.	Each	1				
iv)	Re-fixing pavers/Tiles as in position including providing sand etc.	Job	1				
v)	Supply & Installation of Inverter & LV Panel fiber shed as per Engineer instructions and approval.	Each	1				

10	**NET METERING**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out Tax (PKR)**	**Tax Amount (PKR)**	**Amount with Tax (PKR)**
i)	Service of Net metering application process for extension of new system & existing solar system at IBA City campus handling as per K.E approved criteria complete in all respects or directed by Engineer. This also include the services charges & fee for assessment of Grid load flow study of IBA City campus & service charges for Electrical Load Inspector NOC etc. Only the cost of K.Electric/Nepra Challan shall be paid by IBA	Job	1				
11	**FUEL SAVER CONTROLLER**						
i)	Design, Supply, Installation, testing and commissioning of Deif/Encombi or Equivalent Fuel Saver Controller System Solution for the Integration of PV Power Plant into Electrical Network based on Gensets. Fuel Save controller should performs the following tasks: a) Monitoring of the genset's power and operating status b) Monitoring of the load and grid status c) Calculation of suitable values for the maximum power output of the PV inverters according to defined parameter settings and the current status of gensets and load d) Control and communication interface to PV inverters e) Internal logging of all relevant system data f) Provision of relevant system data for local and remote monitoring g) Emergency shutdown of the PV inverters in case of a system malfunction h) Online Dashboard access to monitor solar power plant, Gensets & Grid and daily plant report in excel file. The bidder shall provide the complete technical details of the system	Each	1				

12	**OPERATION & MAINTENANCE**	**Unit**	**Qty**	**Unit Price (PKR)**	**Amount with out 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, dust, and debris. • 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 an 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.	Watt	343000				

	Note: Contractor should only submit the 102kWp Performance commitment table.						
	Total Amount in PKR with out Tax						
	Tax Amount						
	Grand Total Amount in PKR with Tax						

Grand Total Amount of in Words:

Rupees: _____

_____