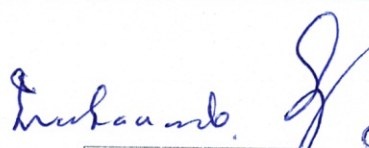
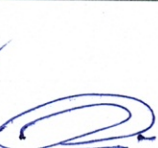
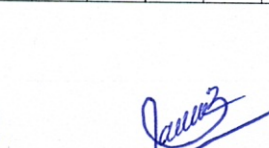


Comparative Statement
Design, Supply, Installation, Testing & Commissioning of 108 kW Adamjee Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA Main Campus
Tender # CW/31/24-25

S.#	Items	Unit	Qty	M/s. Hissam Energy (Pvt) Ltd				M/s. Ideal Power Solutions				M/s. Norberg Industries				M/s. Ningbo Green Light Energy (Pvt) Ltd				M/s. Creative Electronics			
				Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
1	MODULE MOUNTING STRUCTURE																						
a	ADAMJEE ROOF																						
1	Supply of PV Mounting structure in MS iron. The mounting structure must be designed structurally to be suitable to withstand all static loads (weight of modules, wind loads etc) minimum wind speed pressure 35m/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 guarantee 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: • Designing of the structure as per design specification approved by IBA Engineer. • Column/Pole Size: Minimum 4.5" x 4.5" columns may be circular or square shape in 12 Gauge. • All the structure material should be minimum 12 Gauge. • Primary Girders: 1.8kg/m & above • Secondary Girders: 1.8kg/m & above • Base Plate Size: 12" x 12" with 12mm thickness. • Top Plate Dimension: 6" x 6" with 6mm thickness. • Sag Rods: 12mm stud threaded at both side sag rod. • Bracing Angles: 2"x2" by 1/4" thickness • Structure should have cross bracing angle iron with gusset plate, cross bracing should be installed at both end of the structure to avoid sway under heavy winds. • Structure should have bracing angle. • Sharing Girders: Sharing of Girders not allowed in structure design. • 10° Angle Must be optimal for energy generation. • Material: MS iron A36. • Civil Fabric: RCC concrete pads, plate sizes shall be minimum 1' x 1' x 1' with finish plaster. • Fasteners: All Allen bolts, Spring Washer, Nuts, Washer & Plate Washer must be SS304. • Structure should have proper cleaning platform minimum width of 1.5' in 3' checker plate with side supports. • Paint: Before applying two coats of epoxy paint in smoke grey colour, the contractor must first apply two coats of red oxide coating. • Mounting Accessories: Includes brackets, Solid Midclamps & End clamps, and bolts. • Layout as per approved by IBA Engineer. • Civil work as per drawing and specification approved by IBA Engineer. • Civil work as per drawing and specification approved by IBA Engineer. • 10° angle is to be maintained as per recommended. • The Contractor shall remove all the debris and clear the site before & after the completion of work as per IBA direction. • The Contractor shall submit the detail technical shop drawing before execution of work. • After completion of the work the contractor shall submit the as built drawing. • All Allen bolts, nuts, bolts, washers, spring washers and screws for the project should be stainless steel (SS 304). • The contractor must submit the ANSYS/JAI report prior to the project execution. • Waterproofing and any other roof damage must be repaired with the approval of the IBA Engineer.	WMT	108000.00	28.00	3,024,000.00	544,320.00	3,568,320.00	27.08	2,922,480.00	526,046.40	3,448,526.40	36.72	3,961,760.00	713,836.80	4,675,596.80	37.00	3,996,000.00	719,280.00	4,715,280.00	43.94	4,745,796.48	85,424.37	5,600,219.85
2	PV MODULES 108 KW																						
1	Supply of 1/6 type or any latest tech. Efficient Photovoltaic Solar Modules Tier 1 Type anti-reflective high transparency low iron tempered glass with excellent properties. 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 Dmm2 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 15 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/Sungrow/Trina. Make: Sungrow/Huawei/SMA Power Rating: 110KW to 125KW. Brief specification is as under: a. Max Input DC Voltage: 1100V. b. MPPT Operating Voltage Range: 200V~1000V. c. Min 32 independent MPPT Trackers. d. Minimum Efficiency: 98.0% e. Warranty: 10 Years (Extendable to 25 Years). f. Minimum IP rating should be IP65.	WMT	108000.00	32.00	3,456,000.00	-	3,456,000.00	51.83	5,576,040.00	-	5,576,040.00	31.32	3,382,560.00	-	3,382,560.00	34.00	3,672,000.00	-	3,672,000.00	33.00	3,564,000.00	-	3,564,000.00
3	GRID-TIED INVERTER (PCS)																						
1	Supply of DC/AC grid tie 3-phase inverter with data communication unit with Ethernet connection. The inverter must be suited to any PV module configuration, and depending on the system design and installation proposed and for the future extended also. (Leaving Market brand, having annual production greater than 10W). 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 arrester type II) 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. Brief specification is as under: a. Max Input DC Voltage: 1100V. b. MPPT Operating Voltage Range: 200V~1000V. c. Min 32 independent MPPT Trackers. d. Minimum Efficiency: 98.0% e. Warranty: 10 Years (Extendable to 25 Years). f. Minimum IP rating should be IP65.	Each	1.00	1,600,000.00	1,600,000.00	288,000.00	1,888,000.00	1,228,813.56	1,228,813.56	211,286.44	1,430,000.00	1,372,881.36	1,372,881.36	247,118.64	1,620,000.00	1,720,950.00	1,720,950.00	300,771.00	2,020,721.00	1,681,000.0000	1,681,000.00	298,980.00	1,979,980.00
4	COMBINER BOXES																						
a	DC COMBINER BOX																						
1	Supply of DC box/Array Junction Box 16-gauge wall mounted with all accessories for outdoor usage, proper cable glands as per cable size, sorted cable ducts should be installed for internal DC cabling. DC Combiner box shall be provided One DC Breaker 40A per string. DC Breaker 40A/25A/100VDC, Qty=12 DC Breaker Make: ABB/2Bemy/Delm/Dint	Each	1.00	65,000.00	65,000.00	11,700.00	76,700.00	177,118.64	177,118.64	31,881.36	209,000.00	75,600.00	75,600.00	13,608.00	89,208.00	216,000.00	216,000.00	38,880.00	254,880.00	105,644.00	105,644.00	19,015.92	124,659.92
b	AC COMBINER BOX (V FANU)																						

Muhammad Anwar Chairperson PC-A Chief Librarian, IBA Karachi	Syed Akbar Hussain Kazmi Member PC-A Manager Finance, IBA Karachi	Muhammad Asim Qureshi External Member PC-A Procurement Specialist, HEI	Sadia Jabeen Asim External Member PC-A Senior Engineer (CW), HEI	Muhammad Rameez Member PC-A Sr. Manager Projects, IBA Kh.
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Comparative Statement

Design, Supply, Installation, Testing & Commissioning of 108 kWp Adamjee Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA Main Campus
Tender # CW/31/24-25

S. #	Items	Unit	Qty	M/s/ Nizam Energy (Pvt) Ltd				M/s/ Ideal Power Solutions				M/s/ Isarbang Industries				M/s/ Ningho Green Light Energy (Pvt) Ltd				M/s/ Creative Electronics			
				Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
0	Supply AC Combiner Box (LV Panel) with pad floor standing Wall Mounted Locally fabricated in 18-gangs, Colour Code: RAL7035, MS Powder Coated, Copper Glends, 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 4Pine, 60KA with HRC Fuses Energy Meter: Janitza or Equivalent CT's: Fico/Fast or Equivalent MCCB Make: ABB/Schneider or Equivalent SPD Make: ABB/Schneider or Equivalent HRC Fuses Make: Schneider/ABB/Voltron or Equivalent	Each	1.00	170,000.00	170,000.00	30,600.00	200,600.00	254,237.29	254,237.29	45,762.71	300,000.00	108,000.00	108,000.00	19,440.00	127,440.00	182,000.00	182,000.00	29,360.00	191,360.00	715,000.00	715,000.00	128,700.00	843,700.00
5	CABLES																						
1	DC Cables Supply of 1 Core 6mm ² Cu/NLPO/NLPO 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 connections. 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 1.5kVDC, Standard Double Insulated, Cross link polyolefin, Tinned copper conductor. Cable should be Certified from TÜV Approved, Standard EN50518 Make: Pakistan Cable/Fast Cable/Nuka/ Jinkai as Engineer Approved.	Meter	1600.00	350.00	560,000.00	100,800.00	660,800.00	254,237.28	406,779.66	73,220.34	480,000.00	334.80	535,680.00	96,422.40	632,102.40	350.00	560,000.00	100,800.00	660,800.00	453.20	715,120.00	130,521.80	855,641.80
2	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 (Baychem). According to drawings, specifications, instructions, and demand of the supervising engineer as follow: Brand: Pakistan Cable/Fast Cable or Equivalent as IBA Engineer Approved.																						
3	4C x 120mm ² ALV Cu/PVC/PVC STD Pure Copper	Meter	20.00	18,000.00	360,000.00	84,800.00	444,800.00	19,500.00	390,000.00	70,200.00	460,200.00	10,716.00	414,720.00	74,649.60	489,369.60	24,500.00	490,000.00	84,200.00	574,200.00	24,904.00	498,080.00	89,654.40	587,734.40
4	Earthling Cables Supply of Earthling Cable, including uPVC Pipe with related accessories. Brand: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.																						
5	1 core 2.5 sqmm, Cu/PVC/NLPO (Green)	Meter	450.00	200.00	90,000.00	16,200.00	106,200.00	105.00	47,250.00	8,505.00	55,755.00	27.00	121,500.00	21,870.00	143,370.00	230.00	103,500.00	18,630.00	122,130.00	345.90	83,655.00	15,077.90	98,732.90
6	1 core 4 sqmm, Cu/PVC/NLPO (Green)	Meter	180.00	180.00	32,400.00	5,832.00	38,232.00	161.00	28,980.00	5,216.40	34,196.40	334.80	60,264.00	10,847.52	71,111.52	285.00	51,300.00	9,234.00	60,534.00	224.40	40,392.00	7,270.56	47,662.56
7	1 core, 50 sqmm, Cu/PVC/PVC STD (Green)	Meter	40.00	50.00	2,000.00	360.00	2,360.00	1,900.00	76,000.00	13,680.00	89,680.00	1,836.00	73,440.00	13,219.20	86,659.20	1,700.00	68,000.00	12,240.00	80,240.00	1,827.10	75,084.00	13,155.12	88,239.12
8	EARTHING SYSTEM Supply of Earth Electrodes (Rod Type) for Earthing System with 25mm Dia 3 meters (10ft) long driven Pure copper Solid rod, complete with clamps, lugs, washer/bolts, connected with 3x70mmq bare copper 50mm dia) pipe/uPVC pipe class 12" up to Earth chamber, job includes earthing of copper conductor to earth electrode rod at one end and provision/fixing of cable lugs at other end, including all accessories and ECR 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 80cm, Earthing result should be less than 1 ohm for AC/DG/LTA	Each	3.00	160,000.00	480,000.00	86,400.00	566,400.00	75,000.00	225,000.00	40,500.00	265,500.00	157,881.36	473,644.07	85,355.93	559,000.00	30,000.00	90,000.00	16,200.00	106,200.00	106,700.00	330,100.00	57,618.00	377,718.00
9	DATA LOGGER REMOTE MONITORING SYSTEM Supply of Data Manager with Remote Monitoring System consists of the following parameter: a) Total energy generation of PV Plant b) Instantaneous Power being generated by solar PV plant c) Current load of client d) Load profile & energy generation e) Daily Solar Plant generation report in PDF form 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	1.00	250,000.00	250,000.00	45,000.00	295,000.00	144,067.80	144,067.80	25,932.20	170,000.00	270,000.00	270,000.00	48,600.00	318,600.00	150,000.00	150,000.00	27,000.00	177,000.00	88,000.00	88,000.00	15,840.00	103,840.00
10	CABLE TRAY Supply of following size 150x50 Heavy Duty (HDI) Perforated/Non-Perforated as per site requirement. Cable Tray 150mm x 100mm with 16 HDI HDI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, with drop-in anchors, etc. Complete in all respect, as per the specification and drawings.	Meter	40.00	6,800.00	272,000.00	48,960.00	320,960.00	1,288.00	51,920.00	9,345.60	61,265.60	3,584.00	142,560.00	25,460.80	168,020.80	2,000.00	80,000.00	14,400.00	94,400.00	3,850.00	154,000.00	27,720.00	181,720.00
11	MISCELLANEOUS ITEMS Supply of 1-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects. Supply of 2-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects. Supply of 3-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects. Supply of 4-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects. Supply of 1-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects.	Meter	75.00	400.00	30,000.00	1,400.00	31,400.00	837.80	62,834.75	11,310.25	74,145.00	3,122.00	234,900.00	42,882.00	277,182.00	1,000.00	75,000.00	13,500.00	88,500.00	680.00	49,500.00	8,910.00	58,410.00
12	Supply of 1-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects.	Meter	60.00	300.00	18,000.00	1,240.00	21,240.00	595.90	35,753.90	6,431.70	42,185.60	2,268.00	136,080.00	24,494.40	160,574.40	600.00	36,000.00	6,480.00	42,480.00	380.00	23,100.00	4,158.00	27,258.00
13	Supply of 1-inch UPVC conduit sockets, Bends, Elbows, T-joints, G.I. Clamps, complete in all respects.	Meter	40.00	250.00	10,000.00	1,800.00	11,800.00	297.36	11,894.34	2,140.96	14,035.30	1,188.00	47,510.00	6,553.80	54,073.80	500.00	20,000.00	3,600.00	23,600.00	264.00	10,560.00	1,900.80	12,460.80
14	Supply of 1/2" Spiral Staircase Material: Steel, 3-Coat Black Colour Enamel Paint Dia: 6", height: 15" Center Post Dia: 4" Tread Surface: 5 mm thick Checkered plates Tread Frame: 1 1/2" x 1 1/2" Angle Iron 8" Riser & Closure Handrail: 1 1/2" round pipe, 12 SWG 1 1/2" x 1 1/2" square pipe, 2.5" x 3" height at the nose of each tread Baluster height: 7" Top Platform: 2' x 5' Foundation: 2' x 4" Starting Masonry Steps & Base Platform with Terracotta Stone Complete in all respect & related accessories as per Engineer instructions and approval. Dismantling of existing staircase	Job	1.00	250,000.00	250,000.00	45,000.00	295,000.00	230,000.00	230,000.00	42,400.00	271,400.00	486,000.00	486,000.00	87,480.00	573,480.00	290,000.00	290,000.00	52,000.00	342,000.00	550,000.00	550,000.00	99,000.00	649,000.00
15	Supply of Air Conditioner Type: Split (Wall mounted) BTU Capacity: 2 TON (24000 BTU) DC Inverter Type with complete accessories Warranty: 1 Year Parts & 3 Years compressor Brand: Gree/Kemwood	Each	1.00	250,000.00	250,000.00	45,000.00	295,000.00	170,000.00	170,000.00	30,800.00	200,800.00	324,000.00	324,000.00	58,320.00	382,320.00	180,000.00	180,000.00	50,400.00	330,400.00	276,100.00	276,100.00	49,698.00	325,798.00
16	Supply of Double Telescopic Aluminum Ladder compact to extend height to 20ft. The folding ladder is high quality construction ensure that each section expands and retracts safely. Intelligent locking pins hold the sections in place and prevent sliding and the ladder will retract smoothly and slowly. Anti-Slip Steps and rubber feet fitted to protect internal flooring with the grip handle	Each	1.00	150,000.00	150,000.00	27,000.00	177,000.00	47,200.00	47,200.00	8,496.00	55,696.00	216,000.00	216,000.00	34,880.00	254,880.00	60,000.00	60,000.00	10,800.00	70,800.00	77,000.00	77,000.00	11,860.00	90,860.00
19	REVISED																						
20	Designing, Fabrication, Installation, Testing & Commissioning of following Items complete in all respects: a) Installation, Testing & Commissioning PV Mounting structure b) Photovoltaic Solar Module c) Installation, Testing & Commissioning of Grid tie 3 phase inverter with data communication unit with Ethernet connection	Work	108000.00	3.00	324,000.00	48,600.00	372,600.00	1.48	159,612.17	23,947.83	183,560.00	5.00	540,000.00	81,000.00	821,000.00	4.50	486,000.00	72,900.00	558,900.00	11.00	1,188,000.00	174,300.00	1,362,300.00
21	DC Box/Array Junction Box 16circuit will mounted with all accessories for outdoor usage																						

Muhammad Anwar
Chairperson PC-A
Chief Librarian, IBA Karachi

Syed Ashar Hussain Kazmi
Member PC-A
Manager Finance, IBA Karachi

Muhammad Asim
External Member PC-A
Procurement Sourcing, IBA

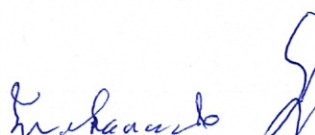
Sadia Jabeen Asim
External Member PC-A
Section Engineer, IBA

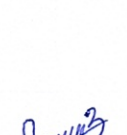
Muhammad Rameez
Member PC-A

Comparative Statement

Design, Supply, Installation, Testing & Commissioning of 108 kWp Adamjee Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System at IBA Main Campus
Tender # CW/31/24-25

				M/s. Nizam Energy (Pvt) Ltd				M/s. Ideal Power Solutions				M/s. Isarberg Industries				M/s. Nishan Green Light Energy (Pvt) Ltd				M/s. Creative Electronics			
S. #	Items	Unit	Qty	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
e)	AC Combiner Box (1/ Panel) with pad floor standing/Wall Mounted Locally fabricated in 16 sizes																						
f)	DC Cable, 1 Core 6mm ² Cu/LiPO/LiPO cable complete in all respect with accessories																						
g)	Installation, Testing & Termination of the AC power cables with all required works																						
h)	Installation, Testing & Termination of Earthing Cable																						
i)	Installation, Testing and Commissioning of data Manager with Remote Monitoring System																						
j)	Installation of following sizes 18SWG heavy Duty HDGI Perforated/Non-Perforated as per the requirement. Cable Tray 150mm x 150mm with 18 SWG HDGI. Complete with all installation material																						
k)	Installation of UPVC conduit sockets, Bends, Elbows, T-joints, G.I Clamps, complete in all respects																						
l)	Installation, Testing & Commissioning of Air Conditioner																						
m)	Re-fixing geyser/Wires as in position including provision and etc.	Each	1.00	100,000.00	100,000.00	15,000.00	115,000.00	34,500.00	34,500.00	5,175.00	39,675.00	18,200.00	18,200.00	2,410.00	20,610.00	30,000.00	30,000.00	4,500.00	34,500.00	35,640.00	35,640.00	5,346.00	40,986.00
n)	Fabricate, Installation of Fix Spiral Staircase Staircase M.S. Steel	Job	1.00	10,000.00	10,000.00	1,500.00	11,500.00	60,000.00	60,000.00	9,000.00	69,000.00	27,000.00	27,000.00	4,050.00	31,050.00	13,000.00	13,000.00	1,950.00	14,950.00	35,640.00	35,640.00	5,346.00	40,986.00
o)	Construct of concrete manholes/cable chambers (300mm x 300mm x 300mm deep) with heavy duty RCC covers with anti-slip paint, including all required sleeves for pulling underground power cables laid in pipes.	Each	1.00	100,000.00	100,000.00	15,000.00	115,000.00	33,000.00	33,000.00	4,950.00	37,950.00	108,000.00	108,000.00	18,200.00	126,200.00	12,000.00	12,000.00	1,800.00	13,800.00	17,820.00	17,820.00	2,673.00	20,493.00
11	OPERATION & MAINTENANCE																						
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 close to be initiated after 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 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 (PR) 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. Note: Contractor should only submit the 108kWp Performance commitment table.	Watt	108000.00	6.00	648,000.00	97,200.00	745,200.00	2.01	216,939.13	32,540.87	249,480.00	14.04	1,516,320.00	227,448.00	1,743,768.00	25.00	2,700,000.00	405,000.00	3,105,000.00	10.56	1,140,480.00	171,072.00	1,311,552.00
Total Amount in PKR without Tax						12,251,400.00				12,590,461.13				14,648,629.42				15,361,750.00				16,177,711.48	
Tax Amount						1,547,712.00				1,247,475.06				1,961,666.90				2,006,925.00				2,197,940.87	
Grand Total Amount in PKR with Tax						13,799,112.00				13,837,936.20				16,610,296.32				17,368,675.00				18,375,652.35	
QUOTED AMOUNT						13,834,572.00				13,865,194.12								17,445,908.00				18,409,886.00	



Muhammad Ammar Chairperson PC-A Chief Librarian, IBA Karachi	Syed Akbar Hussain Kazmi Member PC-A Manager Finance, IBA Karachi	Muhammad Ammar External Member PC-A Procurement Specialist, HEJ	Sadia Jabeen Asim External Member PC-A Senior Engineer (Civil), HEJ	Muhammad Rameez Member PC-A Sr. Manager Projects, IBA KHI.
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