

Comparative Statement
Design, Supply, Installation, Testing & Commissioning of 117.12kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi.
Tender # CW/07/26-27

Sr. No.	Product	Unit	Qty	Engineer's Estimate				M/s. Energy Solutions (Pvt) Limited				M/s. Ideal Power Solutions				M/s. Creative Electronics (Pvt) Ltd.				M/s. Korbey Industries				M/s. Beyondgreen (Pvt) Ltd.			
				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)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
1	PV MODULES 117.12KWp: 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 Peak 600 or above Wp rated power (b) Junction Box Protection Degree, IP68 (c) Connection box, 4mm2 conductor cross section, (d) Cable with, MC4 male and female connectors, (e) Anodized Aluminium Frame and Support Bars (f) PVC dust, 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 instructions and approval. Make: Jinko/Long/Canadian	Watt	117120.00	45.00	5,270,400.00	527,040.00	5,797,440.00	88.75	4,655,520.00	465,552.00	5,121,072.00	55.51	6,501,224.73	650,122.47	7,151,347.20	40.84	4,783,180.80	478,318.06	5,261,498.86	41.31	4,838,120.73	483,812.07	5,321,932.80	39.50	4,626,240.00	462,624.00	5,088,864.00
2	GRID-TIED INVERTER (PCU) 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 10MW). The DC max power input ratings 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 (trip protection with Opti protect, electronic string fuses, self-healing string failure detection, DC surge arrester 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	1.00	1,550,000.00	1,550,000.00	279,000.00	1,829,000.00	1,169,915.00	1,169,915.00	210,584.70	1,380,499.70	1,063,559.32	1,063,559.32	191,440.68	1,255,000.00	1,157,797.00	1,157,797.00	208,403.46	1,366,200.46	1,289,763.00	1,289,763.00	232,157.34	1,521,920.34	1,093,120.00	1,093,120.00	196,779.60	1,289,899.60
	Brief specification as under: a. Max Input DC Voltage: 1140V b. MPPT Operating Voltage Range: 200V~1000V, c. Min 16 Independent MPPT Trackers d. Minimum Efficiency 98.0% e. Warranty: 5 Years (Extendable to 10 Years) f. Minimum IP rating should be IP65																										
3	COMBINER BOXES Supply of DC Isol/Array Junction Box 34mmx36mmx100mm Colour Code: RAL7035, MS Powder Coated with all accessories for outdoor usage IP65, proper cable glands as per cable size, dusted cable ducts should be installed for internal DC cabling. DC Combiner Box shall be provided One DC Breaker 4 Pole per string. DC Breaker 4 Pole 25A/50A, 100VDC, Qty=14 DC Breaker Make: ABB/Zheng/Dehn/Chint	Each	1.00	175,000.00	175,000.00	31,500.00	206,500.00	178,250.00	178,250.00	32,085.00	210,335.00	88,989.63	88,989.63	15,910.17	104,900.00	93,905.00	93,905.00	16,902.90	110,807.90	214,020.00	214,020.00	38,523.60	252,543.60	375,000.00	375,000.00	67,500.00	442,500.00
4	CABLES Supply of DC Cable, 1 Core 6mm2 Cu/XLPO/LPO 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/Kuika/ Jukal as IBA Engineer Approved.	Meter	31500.00	850.00	1,101,500.00	198,450.00	1,300,950.00	223.00	702,450.00	126,441.00	828,891.00	245.76	774,152.54	139,347.46	913,500.00	320.34	1,009,071.00	181,632.78	1,190,703.78	368.59	1,161,068.64	208,992.36	1,370,061.00	455.00	1,559,250.00	280,665.00	1,839,915.00

Muhammad Anwar
Chairperson PC-A
Chief Librarian, IBA Karachi

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

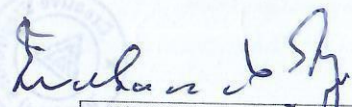
Muhammad Haris Qureshi
External Member PC-A
Procurement Specialist, HEJ

Sadia Jabeen Asim
External Member PC-A
Senior Engineer (Civil), HEJ

Muhammad Rameez
Member PC-A
Sr. Manager Projects, IBA Kh.

Comparative Statement
Design, Supply, Installation, Testing & Commissioning of 117.12kW Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi.
Tender # CW/07/26-27

Sr. No.	Product	Unit	Qty	Engineer's Estimate				M/s. Energy Solutions (Pvt) Limited				M/s. Ideal Power Solutions				M/s. Creative Electronics (Pvt) Ltd.				M/s. Isaribg Industries				M/s. Beyondgreen (Pvt) Ltd.			
				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)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
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 (Raychem). According to drawings, specifications, instructions, and demand of the supervising engineer as follows: Brand: Pakistan Cable/Fest Cable as IBA Engineer Approved.																										
d	4C x 95mm ² 0.6/1kV Cu/PVC/STD Pure Copper	Meter	18.00	17,500.00	315,000.00	56,700.00	371,700.00	17,930.00	322,740.00	58,093.20	380,833.20	18,115.59	326,440.68	58,759.32	385,200.00	21,000.00	379,080.00	68,294.40	447,374.40	19,816.67	356,700.05	64,206.01	420,906.06				
e	Earthing Cables Supply, Installation & Testing of Earthing Cable, including uPVC Pipe with related accessories. Brand: Pakistan Cable/Fest Cable as IBA Engineer Approved.																										
f	1 core 2.5/4 sqmm, CU/PVC/FLEX (Green) from panel to panel	Meter	276.00	200.00	54,000.00	9,720.00	63,720.00	97.00	26,180.00	4,714.20	30,904.20	125.50	33,885.00	6,099.30	39,984.30												
g	1 core 6 sqmm, CU/PVC/FLEX (Green) from panel/structure to ECP	Meter	50.00	700.00	35,000.00	6,300.00	41,300.00	376.00	18,800.00	3,384.00	22,184.00	300.00	15,000.00	2,700.00	17,700.00	172.80	46,656.00	8,398.08	55,054.08	1,761.48	475,600.42	85,608.08	561,208.50	210.00	56,700.00	10,206.00	66,906.00
h	1 core, 50 sqmm, CU/PVC/STD (Green) from Inverter to LV Panel	Meter	18.00	2,500.00	45,000.00	8,100.00	53,100.00	2,900.00	52,200.00	9,396.00	61,596.00	2,250.00	40,500.00	7,290.00	47,790.00	368.28	18,414.00	3,314.52	21,728.52	285.36	14,267.80	2,568.20	16,836.00	410.00	20,500.00	3,690.00	24,190.00
i	Earthing SYSTEM Supply, Installation, testing and commissioning of Earth Electrodes (Rod Type) for Earthing System with 25mm Dia 3 meters (Other) long driven Pure copper (Solid rod, pure copper bar/rod 50mm (width) x 6mm (thickness), complete with clamps, lugs, washer/bolts, connected with 3/70mm ² bare copper 50mm dia GI 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 80cm. Earthing result should be less than 1 Ohm for AC/DCA.	Each	2.00	150,000.00	300,000.00	54,000.00	354,000.00	69,000.00	138,000.00	24,840.00	162,840.00	68,220.34	136,440.68	24,559.32	161,000.00	194,508.00	389,016.00	70,022.88	459,038.88	148,625.00	297,250.00	53,505.00	350,755.00	500,000.00	1,000,000.00	180,000.00	1,180,000.00
j	MISCELLANEOUS ITEMS Supply of 6-inch UPVC Class D conduit sockets, Bends, Elbows, T-Joints, G.I. Clamps, complete in all respects. Make: Dadeh/Jeddah/Galco/Steel as IBA Engineer Approved.	Meter	50.00	2,500.00	125,000.00	22,500.00	147,500.00	575.00	28,750.00	5,175.00	33,925.00	3,889.83	189,491.53	30,506.47	200,000.00	1,296.00	64,800.00	11,664.00	76,464.00	1,902.40	95,119.52	17,121.58	112,241.50	5,800.00	290,000.00	52,200.00	342,200.00
k	Supply of 2-inch UPVC SCH 40 conduit sockets, Bends, Elbows, T-Joints, G.I. Clamps, complete in all respects. Make: Dadeh/Jeddah/Galco/Steel as IBA Engineer Approved.	Meter	40.00	450.00	18,000.00	3,240.00	21,240.00	718.00	28,720.00	5,169.60	33,889.60	800.00	32,000.00	5,760.00	37,760.00	432.00	17,280.00	3,116.40	20,396.40	475.60	19,024.07	3,424.33	22,448.40	1,950.00	78,000.00	14,040.00	92,040.00
l	Supply of 1-inch UPVC SCH 40 conduit sockets, Bends, Elbows, T-Joints, G.I. Clamps, complete in all respects. Make: Dadeh/Jeddah/Galco/Steel as IBA Engineer Approved.	Meter	50.00	250.00	12,500.00	2,250.00	14,750.00	575.00	28,750.00	5,175.00	33,925.00	365.00	16,250.00	3,285.00	21,535.00	324.00	16,200.00	2,916.00	19,116.00	416.15	20,807.63	3,745.37	24,553.00	1,290.00	64,500.00	11,610.00	76,110.00
m	Supply of 6-inch G.I. conduit sockets, Bends, Elbows, T-Joints, G.I. Clamps, complete in all respects. Make: IBA as IBA Engineer Approved.	Meter	40.00	6,500.00	30,000.00	46,800.00	86,800.00	718.00	28,720.00	5,169.60	33,889.60	4,237.29	189,491.53	30,506.47	200,000.00	8,288.00	331,200.00	59,616.00	390,816.00	2,615.80	104,631.86	18,833.74	123,465.60	3,100.00	124,000.00	22,320.00	146,320.00
n	Supply of following sizes 165W heavy duty GI Perforated as per site requirement. Cable Tray 100mm x 75mm with 14 SWS GI. Complete all installation material such as angle iron support of size, round bar, elbows, Tee, Nuts, Bolts, Washer, etc. Complete in all respects, as per the specification.	Meter	140.00	3,500.00	49,000.00	88,200.00	578,200.00	2,602.00	364,280.00	65,570.40	429,850.40	2,542.37	355,932.20	64,067.80	420,000.00	3,894.00	545,160.00	98,128.80	643,288.80	4,161.50	582,610.00	104,669.80	687,279.80	2,300.00	322,000.00	57,960.00	379,960.00
o	SERVICES Designing, Fabrication, Installation, Testing & Commissioning of following items complete in all respects:	Watt	117120.00	5.00	95,600.00	87,840.00	673,440.00	5.29	619,364.80	92,934.72	712,299.52	4.40	515,328.00	77,289.20	592,617.20	2.71	317,895.20	47,609.28	365,004.48	2.97	348,304.70	52,245.70	400,550.40	4.00	468,480.00	70,272.00	538,752.00
p	Installation, Testing & Commissioning of Photovoltaic Solar Modules																										
q	Installation, Testing & Commissioning of Grid tie 3-phase inverter with data communication unit with Ethernet connection																										
r	Installation, Testing & Commissioning of DC Box/Array Junction Box 34 gauge wall mounted with all accessories for outdoor use																										
s	Installation, Testing & Termination of DC Cable, 1 Core 6mm ² Cu/XLPO/HD cable complete in all respect with accessories.																										
t	Installation, Testing & Termination of the AC power cables complete in all respect with accessories.																										
u	Installation, Testing & Termination of Earthing Cables complete in all respect with accessories.																										







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

Comparative Statement
Design, Supply, Installation, Testing & Commissioning of 117.12kWp Carport Grid Tied Utility Interactive Photo Voltaic Solar Power System at Staff Town IBA Karachi.
Tender # CW/07/26-27

Sr. No.	Product	Unit	Qty	Engineer's Estimate				M/s. Energy Solutions (Pvt) Limited				M/s. Ideal Power Solutions				M/s. Creative Electronics (Pvt) Ltd.				M/s. Isenberg Industries				M/s. Beyondgreen (Pvt) Ltd.			
				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)	Unit Price (PKR)	Amount without Tax (PKR)	Tax Amount (PKR)	Amount with Tax (PKR)
vii)	Installation of following sizes 160W/60 heavy Duty GI Perforated as per site requirement. Cable Tray 200mm x 75mm complete with all installation material.																										
viii)	Installation of UPVC/GI conduit sockets, Bends, Elbows, T-Joints, GI Clamps, along with excavation works complete in all respects.																										
ix)	Re-fixing pavers/Ties/Road Cutting as in position including providing sand, backfilling etc for AC & DC cables at car site (replacements).	Job	1.00	117,120.00	117,120.00	17,568.00	134,688.00	50,000.00	50,000.00	7,500.00	57,500.00	20,000.00	20,000.00	3,000.00	23,000.00	35,640.00	35,640.00	5,346.00	40,986.00	118,900.00	118,900.00	17,835.00	136,735.00	100,000.00	100,000.00	15,000.00	115,000.00
x)	Construct of concrete manholes/cable chambers 1800mm x 600mm x 600mm deep with heavy duty RCC covers with anti-rust paint, including all required pieces for pulling underground power cables laid in pipes.	Each	4.00	65,000.00	260,000.00	39,000.00	299,000.00	5,053.00	20,212.00	3,031.80	23,243.80	20,000.00	80,000.00	12,000.00	92,000.00	11,340.00	45,360.00	6,804.00	52,164.00	52,220.88	208,883.51	31,332.53	240,216.04	30,000.00	120,000.00	18,000.00	138,000.00
xi)	Service of Net metering application process for extension of new system & existing solar system at staff town IBA, handling in per I.C.I 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 Chaitans shall be paid by IBA.	Job	1.00	750,000.00	750,000.00	112,500.00	862,500.00	462,500.00	462,500.00	69,375.00	531,875.00	58,560.00	58,560.00	8,784.00	67,344.00	1,061,986.00	1,061,986.00	159,297.80	1,221,283.80	59,450.00	59,450.00	8,917.50	68,367.50	897,000.00	897,000.00	134,550.00	1,031,550.00
OPERATION & MAINTENANCE																											
1)	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 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 (minimum twice in a month). • Inspection of cables, connectors, junction boxes, and grounding system. • 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 (Burr 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.	Watt	117120.00	5.00	585,600.00	87,840.00	673,440.00	10.25	1,200,480.00	180,072.00	1,380,552.00	5.35	628,337.39	93,850.61	722,188.00	8.85	1,036,512.00	155,476.80	1,191,988.80	12.91	1,512,375.65	226,856.35	1,739,232.00	7.00	819,840.00	122,976.00	942,816.00
Total Amount in PKR without Tax							12,050,720.00				10,096,041.80				11,024,583.42				11,393,501.08				11,788,237.93				12,559,410.00
Tax Amount 18%							806,760.00				555,797.70				580,235.99				740,416.87				846,396.60				995,013.00
Tax Amount 10%							527,040.00				465,552.00				650,122.47				478,318.08				483,812.07				462,624.00
Tax Amount 15%							344,748.00				352,913.52				195,033.81				374,533.98				337,187.08				360,798.00
Grand Total Amount in PKR with Tax							13,729,268.00				11,470,305.02				12,450,375.70				12,986,770.01				13,455,633.68				14,377,845.00
Quoted Amount											11,469,695.00				12,449,710.50				12,978,279.00				13,455,934.52				14,017,047.00






Muhammad Anwar
 Chairperson PC-A
 Chief Librarian, IBA Karachi

Syed Akbar Hussain Razmi
 Member PC-A
 Manager Finance, IBA Karachi

Muhammad Harris Qureshi
 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