

# SUMMARY OF BID PRICES

Item no.	Description	TOTAL INSTALLED CAPACITY KWP	AMOUNT	TOTAL UNIT GENERATION YEARLY (Minimum)
2(A)	Design, Procurement, Supply, Installation, Testing and Commissioning of On Grid Solar Power System . (BUS PORT )	252.81 219.4	23,894,269/-	356,103 Kwh 320,400
2(B)	Design, Procurement, Supply, Installation, Testing and Commissioning of On Grid Solar Power System . (CAR PORT )	381.60 400.68	33,443,222/-	537,515 kwh 574,800
2(C)	Design, Procurement, Supply, Installation, Testing and Commissioning of On Grid Solar Power System (ADAMJEE CAR PORT )	171.72	16,232,195/-	241,851 kwh 247,200
2(D)	Design & Construction of Control Room Civil Work : a) Control Room 12'-0"x16'-0" 1 No	—	868,979/-	—
2(E)	Design, Supply, Install, Testing & Commission of Fuel Control System.	—	738,504/-	—
2(F)	Design, Supply, Install, Remote Monitoring Unit	—	321,691/-	—
2(G)	Design, Supply, Install, Weather Station	—	160,514/-	—
2(H)	Grid Study & Net Metering including all relevant accessories as per KE requirement.	—	492,366/-	—
	<b>TOTAL AMOUNT OF THE PROJECT COST</b>	791.78 806.13	75,951,773/-	1142400 1,135,469 Kwh

Per watt rate (PKR) = 94.22/-  
Inclusive of taxes

4/5

MEMBER (EXTERNAL)  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
Syed Jahanzaib  
Hafiz Ali

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
S.M. Waheed Zaidi  
M. Absarulhaque

(6)

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
Mr. Harris Qureshi

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
Dr. Shahid M. R.



**BILL OF QUANTITY**  
**ABSTRACT OF COST**

Halceerz

(7)

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION

CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION



252-81

Kwp.

219.4

252.8

28053

7,092,079/-

Haris Qureshi  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

MEMBER (8)

MEMBER  
CENTRAL PURCHASE COMMITTEE

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI



CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION



Sr No	Product	Unit	Qty	RATE	AMOUNT
2	<b>PV Modules – 219.4 Kwp:</b>				
	<p>Supply, install, Testing &amp; Commissioning ( SITC ) Mono Crystalline 144 Cells 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</p> <p>(a). Min. Power Pmax 530 or above Wp rated power  (b). open circuit voltage (Voc) +/- 5 % 49.05V–49.65V  (c) MPP Voltage Vmpp 41.2 V – 41.8 V  (d) MPP Current Impp 12.75 A – 13.04 A  (e) Short Circuit Current Isc +/- 5 % 13.65A–13.92 A.  (f) Module Efficiency 20.0 – 20.5 %  (g) Operating Temp. Degree Centigrade - 40 ~ +85  (h) Maximum System Voltage 1500 V UL 1000 V IEC  (i) Maximum Series Fuse Rating 25 A  (j) Junction Box Protection Degree , IP 68  (k) connection box, 4.0 mm2 conductor cross section,  (m) cable with , MC4 male and female connectors,  (o) Anodized Aluminum Frame and Support Bars  (p) PVC duct, Clamps &amp; Accessories ,support and labels to be stalled under PV Array.</p> <p>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.</p> <p>All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval.</p>	Kwp.	219.4	252.81	46,646/-
3	<b>GRID -TIED INVERTER ( PCU )</b>				
	<p>Supply, install, testing &amp; 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 arrester type (2 ) to ensure max availability. All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval.</p> <p>Make: Sungrow/Huawei/SMA  Power Rating: 100 KW &amp; above .</p>	EACH	2	815,375/-	1,630,750/-

Handwritten signature: Hafiz Javed

Stamp: MEMBER CENTRAL PURCHASE COMMITTEE INSTITUTE OF BUSINESS ADMINISTRATION KARACHI

Handwritten signature: Sh. S.M. Waheed

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Handwritten signature: Hanis Qureshi

Stamp: MEMBER CENTRAL PURCHASE COMMITTEE INSTITUTE OF BUSINESS ADMINISTRATION KARACHI

Stamp: INSTITUTE OF BUSINESS ADMINISTRATION KARACHI

Handwritten signature: Dr. Shahid

Stamp: CHAIRPERSON CENTRAL PURCHASE COMMITTEE INSTITUTE OF BUSINESS ADMINISTRATION KARACHI



	<b>Brief specification is as under :</b>			
a	MPPT Voltage Range : 550V-850V,			
b	MPPT Operating Voltage Range : 200V ~ 1000V,			
c	Min 09 Independent MPP Trackers ,			
d	Minimum Efficiency 98.0 % ,			
e	Warranty : 5 Years			
f	Certification Required : CE, IEC 61727, IEC 62109-1/2			
4	<b>BREAKER BOXES</b>			
a	<b>DC BOX</b>			
	Supply , installation, testing & commissioning ( SITC ) of DC Box/ Array Junction Box with all accessories for out-door usage with water proof enclosure . Each Junction Box Shall be provided with suitable Metal Oxide Varistors ( Mov's), Surge Arrestors, one fuse, one SPD (Surge Protection device) and one DC Protection per string. DC Protection 16A, 1200VDC Qty : 09 nos DC SPD's Type 2 Qty : 09 nos ( Refer Single Line Diagram Sheet E-09 )	EACH	2	119,252/- 238,504/-
b	<b>AC BREAKER BOXES</b>			
i)	Supply, installation, testing & commissioning ( SITC ) of of AC Breakers Box with all related accessories for outdoor usage with water proof enclosure. AC Breaker 200A, 4P, MCCB , 600V , Qty : 02 Main AC Breaker 400A, 4P, MCCB, 600V, Qty: 01 ( Refer Single Line Diagram Sheet E-09 )	EACH	1	282,599/- 282,599/-
ii)	Supply, installation, testing & commissioning ( SITC ) of of LV Panel with all related accessories including termination of cables in existing panel. AC Breaker adj 400A, 4P, MCCB , 600V , Qty : 01 AC Breaker adj 800A, 4P, MCCB , 600V , Qty : 01 Main AC Breaker adi 1000A, 4P, MCCB, 600V, Qty: 01 ( Refer Single Line Diagram Sheet E-09 )	EACH	1	N/A N/A (Hookup with ear port)
5	<b>CABLES</b>			
a	<b>DC Cables</b>			
	Supply, Installation & Testing of DC Cable, 1 Core 4mm <sup>2</sup> Cu/XLPE/XLPE 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 less than 1%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.8kV DC, Standard Double insulated : Cross link polyolefin. Tinned copper conductor : Certified from DIN VDE 0295 CL.5, Fine-wire, IEC 60228 CL.5. Cable should be Certified from TUV Approved. Standard: EN50618	Meter	3520	104/- 366,080/-
b	<b>AC Cables</b>			
	supplying, connecting, and termination of the XLPE CU cables with all required works, in different sizes of ducts or pipes for internal cables , , clamps and			



	all needed fittings to connect cables terminals from source to destination. According to drawings, specifications, instructions, and demands of the supervising engineer. as follow:				
i)	4C x 70mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper	Meter	20	5093/-	101,860/-
ii)	4C x 240 mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper	Meter	30	19,325/-	579,750/-
c	<b>Earthing Cables</b>				
	Supply, Installation & Testing of Earthing Cable, Including PVC Pipe with related accessories. Brand : Pakistan Cable or Equivalent as Engineer approved.				
i)	Single Core 4 sqmm, CU/PVC/FLEX(Green)	Meter	140	50/-	7000/-
ii)	1 core, 10 sqmm, Bare Conductor	Meter	150	181/-	27150/-
iii)	1 core, 35 sqmm, CU/PVC/FLEX(Green).	Meter	20	749/-	14,980/-
iv)	1 core, 120 sqmm, CU/PVC/STD(Green)	Meter	30	2,074/-	62,220/-
6	<b>EARTHING SYSTEM</b>				
	Earthing System. Supply, installation, testing and commissioning of Earth Electrodes (Rod Type) for Earthing System with 25mm dia 3 meters (10 feet) long driven copper rod, complete with clamps lugs, washers/bolts, connected with 2x70mmsq bare copper earth conductors to Earth connecting point including 50mm dia G.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. Earthing result should be less than 5 Ohm for AC combiner, less than 1 Ohm for DC combiner and less than 10 ohm for Structure/lighting protection system.	Each	6	53,855/-	323,130/-
7	<b>LIGHTNING PROTECTION SYSTEM</b>				
i)	Supply, Installation, Testing & Commissioning of Air rod with Base, rod length 500 mm high from PV panels, rod diameter 15mm, thread size M16, conductor material copper With all related accessories as per drawing & specification	Each	10	4,308/-	43,080/-
ii)	Supply, Installation, Testing & Commissioning of lighting protection pole 20 ft long with RCC foundation with all related accessories as per drawing & specification	Each	10	8,616/-	86,160/-
iii)	Supply, Installation, Testing & Commissioning of test clamp. Test Clamp shall be made of copper	Each	6	1,847/-	11,082/-
iv)	Supply, Installation & Testing of 1 core, 70 sqmm, CU/PVC/STD(Green) Earthing Cable, Including PVC Pipe with related accessories.	Meter	400	1,105/-	442,000/-
8	<b>CABLE TRAY</b>				
	Supply and installation of following sizes 16 SWG heavy duty G.I Perforated Cable Tray 150mm x 75mm with 16 SWG G.I. Covers as per details given in the drawings and specifications. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, nuts, bolts, washer, Hiltidrop-in anchor, etc,	Meter	10	12,310/-	123,100/-



	complete in all respect, as per the Specification and Drawings.				
9	<b>MISC. CIVIL WORK</b>				
a	Providing , Laying in Position, RCC rain water disposal Channel size 3'-0"x2'-0" ( average ) with slope with RCC Perforated Cover 2" thick as per design & direction to collect & dispose rain water to a sump out side the station .Concrete min . Class B and MS steel Grade 60 Deformed.	Job	1	95,101/-	95,101/-
b	Supply and installation of 150 mm dia RCC Pipe for DC/AC cable, including excavation, sand bedding, back-filling, manholes etc., complete in all respects, in the following sizes:	Meter	80	1,784/-	142,720/-
c	Construction of concrete manholes / cable chambers (900 mm x 900 mm x 900 mm deep) with heavy duty RCC covers with anti-rust paint , including all required sleeves for pulling under ground power cables laid in pipes.	Each	2	23,746/-	47,552/-
d	Construction of concrete manholes / cable chambers (600 mm x 600 mm x 900 mm deep) with heavy duty RCC covers with anti-rust paint , including all required sleeves for pulling under ground power cables laid in pipes.	Each	1	20,209/-	20,209/-
e	Re-fixing Paver as in Position including providing sand etc required & Removal /Cutting of trees etc	Job	1	475,504/-	475,504/-
	<b>TOTAL AMOUNT FOR BUS PORT</b>				

CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
Or Shahid Mir

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

Hasnain



MEMBER (EXTERNAL)  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
M. Nasirulhaque  
Malik

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI  
(72)





~~381.60~~Kwp.

400.68

381.60

1295351

7,836,156

CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

MEMBER  
CENTRAL PURCHASE COMMITTEE  
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CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION

MEMBER  
CENTRAL PURCHASE COMMITTEE  
OFFICE OF BUSINESS ADMINISTRATION  
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(13)





Sr No	Product	Unit	Qty	RATE	AMOUNT
2	<b>PV Modules – 400.68 Kwp:</b>				
	<p>Supply, install, Testing &amp; Commissioning ( SITC ) Mono Crystalline 144 Cells 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</p> <p>(a).Min. Power Pmax 530 or above Wp rated power (b), open circuit voltage (Voc) +/- 5 % 49.05V–49.65V (c) MPP Voltage Vmpp 41.2 V – 41.8 V (d) MPP Current Imp 12.75 A – 13.04 A (e) Short Circuit Current Isc +/- 5 % 13.65A–13.92A. (f) Module Efficiency 20.0 – 20.5 % (g) Operating Temp. Degree Centigrade - 40 ~ +85 (h ) Maximum System Voltage 1500 V UL 1000 V IEC (i) Maximum Series Fuse Rating 20 A (j ) Junction Box Protection Degree , IP 68 (k) connection box, 4.0 mm2 conductor cross section, (m) cable with, MC4 male and female connectors, (o) Anodized Aluminum Frame and Support Bars (p) PVC duct, Clamps &amp; Accessories, support and labels to be stalled under PV Array. 3 bypass diodes per module, and 1 bypass diode per each string of modules and 1 bypass diode for each array of modules, Modules must have in built blocking diodes, 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.</p>	Kwp.	400.68	381.60	46,646/-
3	<b>GRID -TIED INVERTER ( PCU )</b>				
	<p>Supply, install, testing &amp; 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. All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval.</p> <p>Make: Sungrow /Huawei/SMA</p>	EACH	3	815375/-	2,446,125/-

Dr. Shafiq  
M. I.  
CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
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MEMBER  
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INSTITUTE OF BUSINESS ADMINISTRATION  
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MEMBER (EXTERNAL)  
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INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI



	Power Rating: 100 KW or above.				
	<b>Brief specification is as under :</b>				
a	MPPT Voltage Range : 550V-850V,				
b	MPPT Operating Voltage Range : 200V ~ 1000V,				
c	Min 06 Independent MPP Trackers ,				
d	Minimum Efficiency 98.0 % ,				
e	Warranty : 5 Years				
f	Certification Required : CE, IEC 61727, IEC 62109-1/2				
4	<b>BREAKER BOXES</b>				
a	<b>DC BOX</b>				
	Supply, installation, testing & commissioning (SITC) of DC Box/ Array Junction Box with all accessories for out door usage with water proof enclosure. Each Junction Box Shall be provided with suitable Metal Oxide Varistors ( Mov's), Surge Arrestors, one fuse, one SPD (Surge Protection device) and one DC Protection per string. DC Protection 16A, 1200V Qty : 10 nos DC SPD's Type 2 Qty : 10 nos (Refer Single Line Diagram Sheet E-09 )	EACH	3	12,252/-	366,756/-
b	<b>AC BREAKER BOXES</b>				
	Supply, installation, testing & commissioning ( SITC ) of of AC Breakers Box with all related accessories for out door usage with water proof enclosure. AC Breaker 200A, 4P, MCCB , 600V , Qty : 04 Main AC Breaker 800A, 4P, MCCB, 600V, Qty: 01 ( Refer Single Line Diagram Sheet E-09 )	EACH	1	423,588/-	423,588/-
5	<b>CABLES</b>				
a	<b>DC Cables</b>				
	Supply , Installation, & Testing of DC Cable, 1 Core 4mm <sup>2</sup> including XLPE/XLPE Pipe 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 less than 1%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.8kV DC, Standard. Double insulated : Cross link polyolefin. Tinned copper conductor : Certified from DIN VDE 0295 CL.5, Fine-wire, IEC 60228 CL.5. Cable should be Certified from TUV Approved. Standard: EN50618	Meter	8000	104/-	832,000/-
b	<b>AC Cables</b>				
	supplying, connecting, and termination of the XLPE CU cables with all required works, in different sizes of ducts or pipes for internal cables , , clamps and all needed fittings to connect cables terminals from source to destination. According to drawings, specifications, instructions and demands of the supervising engineer, as follow:				

Dr. Sahid Mir  
CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
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MEMBER (EXTERNAL)  
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INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

Energy Solutions  
SOLIS  
KARACHI

PROJECTS  
DEPARTMENT



i)	4C x 70mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper	Meter	50	5,093/-	254,650/-
ii)	2 x 4C x 240 mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper	Meter	30	19,325/-	579,750/-
c	<b>Earthing Cables</b>				
	Supply, Installation & Testing of Earthing Cable, Including PVC Pipe with related accessories. Brand : Pakistan Cable or Equivalent as Engineer approved.				
i)	Single Core 2.5/4 sqmm, CU/PVC/FLEX(Green)	Meter	260	50/-	13,000/-
ii)	1 core, 10sqmm, Bare Conductor	Meter	250	181/-	45,250/-
iii)	1 core, 35 sqmm, CU/PVC/FLEX(Green).	Meter	50	749/-	37,450/-
iv)	1 core, 120 sqmm, CU/PVC/STD(Green)	Meter	240	2,074/-	497,760/-
6	<b>EARTHING SYSTEM</b>				
	Earthing System. Supply, installation, testing and commissioning of Earth Electrodes (Rod Type) for Earthing System with 25mm dia 3 meters (10 feet) long driven copper rod, complete with clamps lugs, washers/bolts, connected with 2x70mmsq bare copper earth conductors to Earth connecting point including 50mm dia G.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. Earthing result should be less than 5 Ohm for AC combiner, less than 1 Ohm for DC combiner and less than 10 ohm for Structure/lighting protection system.	Job	6	53,855/-	323,130/-
7	<b>LIGHTNING PROTECTION SYSTEM</b>				
i	Supply, Installation, Testing & Commissioning of Air rod with Base, rod length 500 mm high from PV panels, rod diameter 15mm, thread size M16, conductor material copper With all related accessories as per drawing & specification	Each	23	4,308/-	99,084/-
ii	Supply, Installation, Testing & Commissioning of lighting protection pole 12 ft long with RCC foundation with all related accessories as per drawing & specification	Each	23	8,616/-	198,168/-
iii	Supply, Installation, Testing & Commissioning of test clamp. Test Clamp shall be made of copper	Each	6	1,849/-	11,082/-
iv	Supply, Installation & Testing of 1 core, 70 sqmm CU/PVC/STD(Green) Earthing Cable, Including PVC Pipe with related accessories.	Meter	650	1,105/-	718,250/-
8	<b>CABLE TRAY</b>				
i)	Supply and installation of following sizes 16 SWG heavy duty G.I Perforated Cable Tray 150mm x 75mm with 16 SWG G.I. Covers as per details given in the drawings and specifications. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, nuts, bolts, washer, Hitidrop-in anchor, etc, complete in all respect, as per the Specification and Drawings	Meter	30	1,231/-	36,930/-

Dr. Shaukat  
MEMBER  
CENTRAL PURCHASE COMMITTEE  
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Sh. Samiul Haq  
MEMBER  
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INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

Mr. Nadeem Khan  
MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

Haqeezullah





ii)	Supply and installation of following sizes 16 SWG heavy duty G.I Perforated Cable Tray 300mm x 75mm with 16 SWG G.I. Covers as per details given in the drawings and specifications. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, nuts, bolts, washer, Hiltidrop-in anchour, etc, complete in all respect, as per the Specification and Drawings	Meter	30	2,462/-	73,860/-
9	<b>MISC. CIVIL WORK</b>				
a	Providing, Laying in Position, RCC rain water disposal Channel size 3'-0"x2'-0" ( average ) with slope with RCC Perforated Cover 2" thick as per design & direction to collect & dispose rain water to a sump out side the station. Concrete min. Class B and MS steel Grade 60 Deformed.	Job	1	95,104/-	95,101/-
b	Supply and installation of 150 mm dia RCC Pipe for DC/AC cable, including excavation, sand bedding, back-filling, manholes etc., complete in all respects, in the following sizes:	Meter	100	1,784/-	178,400/-
c	Construction of concrete manholes / cable chambers (600 mm x 600 mm x 900 mm deep) with heavy duty RCC covers with anti-rust paint, including all required sleeves for pulling under ground power cables laid in pipes.	Each	5	20,209/-	101,045/-
d	Re-fixing Paver as in Position including providing sand etc required & Removal /Cutting of trees etc	Job	1	475,504/-	475,504/-
	<b>TOTAL AMOUNT FOR CAR PORT ( 4 Nos )</b>				

*Sm. vijesh*  
*Zahedi*  
MEMBER  
CENTRAL PURCHASE COMMITTEE  
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KARACHI

*Dr. Shahid*  
*Mir*  
CHAIRPERSON  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI



*Spd*  
*Dehangeb*  
MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

*Hafeez*  
*Wahid*

*Haris*  
*Qureshi*  
MEMBER (EXTERNAL)  
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INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

*M. Nasirulhage*  
*Malik*  
MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI





$= 171.7 \text{ KWp}$

Unit

171.72

20208/-

3,470,032/1

MEMBER (EXTERNAL)

~~MEMBER (EXTERNAL)~~  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
KARACHI

Dr. Shahid  
Miri

(18)

MEMBER  
CENTRAL PURCHASE COMMITTEE  
INSTITUTE OF BUSINESS ADMINISTRATION  
Karachi

Dr. Nishu Chhoge  
Malk

CHAIRPERSON  
REAL PURCHASE COMMITTEE  
OF BUSINESS ADMINISTRATION  
KARACHI

CENTRAL PURCHASE OFFICE  
INSTITUTE OF BUSINESS ADMINISTRATION









Make: Sungrow/Huawei/SMA					
Power Rating: 60KW <del>X 1</del> : 100KW <del>X 2</del> ✓					
Brief specification is as under :					
a	MPPT Voltage Range : 550V-850V,				
b	MPPT Operating Voltage Range : 200V ~ 1000V,				
c	Min 06 Independent MPP Trackers ,				
d	Minimum Efficiency 98.0 % ,				
e	Warranty : 5 Years				
f	Certification Required : CE, IEC 61727, IEC 62109-1/2				
4	<b>BREAKER BOXES</b>				
a	<b>DC BOX</b>				
	Supply, installation, testing & commissioning ( SITC ) of DC Box/ Array Junction Box with all accessories for out door usage with water proof enclosure . Each Junction Box Shall be provided with suitable Metal Oxide Varistors ( Mov's), Surge Arrestors, one fuse, one SPD (Surge Protection device) and one DC Protection per string. DC Protection 16A, 1200V Qty : 07 nos DC SPD's Type 2 Qty : 07 nos ( Refer Single Line Diagram Sheet E-09 )	EACH	2	119,253/-	220,506/-
b	<b>AC BREAKER BOXES</b>				
i	Supply, installation, testing & commissioning ( SITC ) of of AC Breakers Box with all related accessories for out door usage with water proof enclosure. AC Breaker 120A, 4P, MCCB , 600V , Qty : 03 Main AC Breaker 400A, 4P, MCCB, 600V, Qty: 01 ( Refer Single Line Diagram Sheet E-09 )	EACH	1	327,977/-	327,977/-
ii	Supply, installation, testing & commissioning ( SITC ) of of LV Panel with all related accessories including termination of cables in existing panel Main AC Breaker 400A, 4P, adj MCCB, 600V, Qty: 01 ( Refer Single Line Diagram Sheet E-09 )	EACH	1	245,117/-	245,117/-
5	<b>CABLES</b>				
a	<b>DC Cables</b>				
	Supply , Installation, & Testing of DC Cable, 1 Core 4mm <sup>2</sup> including XLPE/PVC Pipe 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 less than 1%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.8kV DC, Standard. Double insulated : Cross link polyolefin. Tinned copper conductor : Certified from DIN VDE 0295 CL.5, Fine-wire, IEC 60228 CL.5. Cable should be Certified from TUV Approved. Standard: EN50618.	Meter	2530	104/-	263,120/-
b	<b>AC Cables</b>				
	supplying, connecting, and termination of the XLPE CU cables with all required works, in				



	different sizes of ducts or pipes for internal cables , clamps and all needed fittings to connect cables terminals from source to destination. According to drawings, specifications , instructions, and demands of the supervising engineer. as follow:				
i)	4C x 35mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper	Meter	25	1941/-	48,525/-
ii)	4C x 185 mm <sup>2</sup> , Cu 0.6/1kV XLPE/PVC Pure Copper Armoured Cable 4C x 95mm <sup>2</sup> x 2	Meter	70	7,488/-	1,048,320/-
c	<b>Earthing Cables</b>				
	Supply, Installation & Testing of Earthing Cable, Including PVC Pipe with related accessories. Brand : Pakistan Cable or Equivalent as Engineer approved.				
i)	Single Core 2.5/4 sqmm, CU/PVC/FLEX(Green)	Meter	110	50/-	5,500/-
ii)	1 core, 10sqmm Bare Conductor	Meter	120	184/-	21,720/-
iii)	1 core, 16 sqmm, CU/PVC/FLEX(Green).	Meter	25	350/-	8,750/-
iv)	1 core, 95 sqmm, CU/PVC/STD(Green) 50 sqmm	Meter	170	996/-	139,440/-
6	<b>EARTHING SYSTEM</b>				
	Earthing System. Supply, installation, testing and commissioning of Earth Electrodes (Rod Type) for Earthing System with 25mm dia 3 meters (10 feet) long driven copper rod, complete with clamps lugs, washers/bolts, connected with 2x70mmsq bare copper earth conductors to Earth connecting point including 50mm dia G.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. Earthing result should be less than 5 Ohm for AC combiner, less than 1 Ohm for DC combiner and less than 10 ohm for Structure/lighting protection system.	Job	6	53,855/-	323,130/-
7	<b>LIGHTNING PROTECTION SYSTEM</b>				
i	Supply, Installation ,Testing & Commissioning of Air rod with Base, rod length 500 mm high from PV panels, rod diameter 15mm, thread size M16, conductor material copper With all related accessories as per drawing & specification	Each	10	4,308/-	43,080/-
ii	Supply, Installation ,Testing & Commissioning of lighting protection pole 12 ft long with RCC foundation with all related accessories as per drawing & specification	Each	10	8,616/-	86,160/-
iii	Supply, Installation ,Testing & Commissioning of test clamp. Test Clamp shall be made of copper	Each	6	1,847/-	11,082/-
iv	Supply, Installation & Testing of 1 core, 70 sqmm, CU/PVC/STD(Green) Earthing Cable, Including PVC Pipe with related accessories.	Meter	200	1,105/-	221,000/-
8	<b>CABLE TRAY</b>				
	Supply and installation of following sizes 16 SWG heavy duty G.I Perforated Cable Tray 150mm x 75mm with 16 SWG G.I. Covers as per details given in the	Meter	10	1,231/-	12,310/-

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	drawings and specifications. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, nuts, bolts, washer, Hiltidrop-in anchor, etc, complete in all respect, as per the Specification and Drawings				
9	<b>MISC. CIVIL WORK</b>				
a	Providing, Laying in Position, RCC rain water disposal Channel size 3'-0"x2'-0" ( average ) with slope with RCC Perforated Cover 2" thick as per design & direction to collect & dispose rain water to a sump out side the station. Concrete min. Class B and MS steel Grade 60 Deformed.	Job	1	95,101/-	95,101/-
b	Supply and installation of 150 mm dia RCC Pipe for DC/AC cable, including excavation, sand bedding, back-filling, manholes etc., complete in all respects, in the following sizes:	Meter	10	1,754/-	17,540/-
c	Construction of concrete manholes / cable chambers (600 mm x 600 mm x 900 mm deep) with heavy duty RCC covers with anti-rust paint, including all required sleeves for pulling under ground power cables laid in pipes.	Each	1	29,209/-	29,209/-
d	Dismantling & Re-fixing Existing Steel Shade at some designated place as in Position including providing Footing, foundation, CC flooring etc Complete as required & Removal /Cutting of trees etc	Job	1	118,876/-	118,876/-
	<b>TOTAL AMOUNT FOR ADAMJEE CAR PORT</b>				

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# **CIVIL WORKS FOR CONTROL ROOMS & INVERTOR /PCU STATIONS**

Sr No	Product	Unit	Qty	RATE	AMOUNT
1	<b>CONTROL ROOM</b>	Reference Specification			
	Design, Provide & Construct RCC Frame Structure Control Room Size 12'-0" x16'-0" for installation of Weather Station & Fuel Control System including all type of Masonry work with Aluminum Doors & windows & 12000 BTU AC .The rate include, all type of labour & material required. Max ht. of the Building 10'-0" from FFL. Non Skid Tiled floor and Plastic Emulsion on walls internal & Weather Shield on External walls as per direction of Engineer Incharge & approved design & drawing	Sq M	17.84	N/A	N/A
2	<b>INVERTOR ROOM</b>				
	Design, Provide & Construct RCC Frame Structure Invertor Room Size 10'-0" x12'-0"ht. 10'-0" for installation of Grid Tied Invertors at a) Bus Port & Car Port b) Adam jee Car Port c) Auditorium Roof Port (N/A) The rate including all type of Masonry work with Aluminum Doors & windows & 12000 BTU AC .The rate include, all type of labour & material required. Max ht. of the Building 10'-0" from FFL. Non Skid Tiled floor and Plastic Emulsion on walls internal & Weather Shield on External walls as per direction of Engineer Incharge & approved design & drawing	Sq M	33.54 22.36	31,707/-	708,969/-
3	Providing & supply of adjustable & moveable trolley type ladder with working Plate form for cleaning of SPV maximum working height 20'-0"	Each	1	160,009/-	160,009/-

\* Control room to be considered as Invertor room.

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## FUEL SAVER CONTROLLER

Sr No	Product	Unit	Qty	RATE	AMOUNT
	<b>Fuel Saver Controller</b>				
	<p>Design, Supply, installation, testing and commission of SMA Or Equivalent Fuel Save Controller System Solution for the Integration of PV Power Plant into Electrical Net Work based on Gen Sets.</p> <p>Fuel Save Controller should performs the following tasks:</p> <ul style="list-style-type: none"> <li>➤ Monitoring of the gensets' power and operating status</li> <li>➤ Monitoring of the load and grid status</li> <li>➤ 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</li> <li>➤ Control and communication interface to PV inverters</li> <li>➤ Internal logging of all relevant system data</li> <li>➤ Provision of relevant system data for local and remote monitoring</li> <li>➤ Emergency shutdown of the PV inverters in case of a system malfunction</li> </ul> <p>The bidder shall provide the complete technical details of the system .</p>	Each	1	738,504/-	738,504/-

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# WEATHER STATION

Sr No	Product	Unit	Qty	RATE	AMOUNT
	<b>WEATHER MONITORING STATION</b>				
	<p>Design, Supply, installation, testing and commission of Weather monitoring System along with all necessary equipment and software which should be capable of monitoring the solar radiance, wind velocity, module cell temperature, ambient temperature, humidity, wind direction and rain fall level. All sensors must be of class-A.</p> <p>The performance monitoring system shall use the present weather information and compare the solar power generated with the typical power to be produced with respect to the present available solar irradiance. The deviation of power generation shall be embedded in the automatic report generation documents, any degradation or performance deviation shall be alerted to the user through email. Based on this, the users initiate the maintenance/cleaning of solar panel, trouble shooting of the solar power system, etc.</p> <p>The weather information shall be recorded in the database continuously 24-hour basis and the same shall be viewed through the internet browser.</p> <p>The weather data stored in the database server shall be retrieved and displayed in the user intranet browser in user friendly tabular and graphical format. The user shall select the date range to view the history of weather data with date and time stamping.</p> <p>The automatic report generation feature in the server shall automatically generate the report based on the events or time duration and convert the same report in to PDF, word, excel, html and other formats and shall send to the specified e-mail ids as an attachment.</p> <p>The row, column, content, user email-id, shall be specified during the configuration setting by the user.</p> <p>The automatic report generation shall monitor the various user defined events continuously.</p> <p>For generating automatic reports and emailing process shall not require any human intervention.</p>	Each	1	160,514/-	160,514/-

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# REMOTE MONITORING SYSTEM

Sr No	Product	Unit	Qty	RATE	AMOUNT
	<b>DATA MANGER with REMOTE MONITORING SYSTEM</b>				
	<p>Design, Supply, installation, testing and commission of Data Manger with Remote Monitoring System consists of the following parameter:</p> <ul style="list-style-type: none"> <li>• Total energy generation of PV Plant</li> <li>• Instantaneous Power been generated by solar PV Plant</li> <li>• Performance ratio of PV plant.</li> <li>• Current load of client</li> <li>• Load profile v/s energy generation.</li> </ul> <p>Data should be store on server for not more than 10 min time interval. Data must be access through internet via user friendly GUI.</p>	Each	1	121,691/-	121,691/-

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# NET METERING

Sr No	Product	Unit	Qty	RATE	AMOUNT
	NET METERING				
	Service of Grid Study & Net metering application process 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 service charges for Load Inspector etc. Only the cost of Challan shall be paid by IBA.	Each	1	492336/-	492336/-

\* Fees for NEPRA & KE will be borne by IBA as the fees chalan's will be on IBA's name.

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