

Tender # Proc/199



Tender Document

Supply, Installation, Testing, training and Commissioning of
Solar System for Nine Cluster Schools in different cities of Sindh

May 2019

Last Date for Submission	June 12, 2019 @ 1:00 pm
Tender Opening Date	June 12, 2019 @ 1:30 pm

Sukkur IBA University

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Supply, Installation, Testing, training and Commissioning of
Solar System for Nine Cluster Schools in different cities of Sindh

Please see the attachment for technical specifications and quantity.

Technical Information of Equipment:

S. No	Items	Product name	Model	Make of Equipment	Part No	Relationship with principle
01						
02						
03						
04						
05						

Cost Estimation of the Equipment:

S. No	Items	Qty	Product name	Model	Make of Equipment	Part No	Unit Price	Total Cost
01								
02								
03								
04								
05								

1. GENERAL TERMS AND CONDITIONS

The following General Terms and Conditions apply to all the equipment/works under this tender.

The last date of receipt of Bids is as mentioned on face sheet of this document.

Documents/Details Required.

- 1.1 Documents should be properly signed and stamped by competent authority.
- 1.2. Detail of repair & maintenance facilities
- 1.3. Structure/Organizational Chart.
- 1.4. Affidavit to the effect that the firm has not been black listed by any Government/Semi Government Organization.
- 1.5. The Bidder indemnify Sukkur IBA against all third-party claims of infringement of patent, trade mark industrial design rights arising from use of the goods or any part thereof in Pakistan.
- 1.6. Sukkur IBA or its representative shall have the right to inspect and/or to test the equipment to confirm their conformity to the contract specifications.
The Technical Specifications shall specify what inspections and tests Sukkur IBA requires and where they are to be conducted. Sukkur IBA shall notify the contractor, in writing, of the identity of any representatives entrusted for this purpose.
- 1.7. It is mandatory that the Bidders provide the following documents and information with respect to its relationship with Principal.
 - 1.7.1. Name and contact details of Principal/Manufacturer representative who is authorized to verify Vendor's local partnership
 - 1.7.2. Duration and scope of association in the current capacity with the Principal
 - 1.7.3. Copy of the Principal's Certification (along with its validity period), authorizing the Vendor as local partner/representative in Pakistan to Offer/Bid Principal's equipment and services

1.8. The Bidder/Vendor shall provide the following information with respect to its set up in Pakistan.

1.8.1. Number of Vendors offices and addresses, thereof, phone and fax numbers and e-mail address as well as names and designations of responsible persons.

1.8.2. Number of engineers and technical staff in Vendor's office

1.8.3. Profile of technical staff with relevant experience, resume and number of Customers and sites looked after /supported by each.

1.8.4. Problem reporting procedure and fault response time in hours for fault rectification, escalation procedures with respect to response or turnaround time in hours.

1.9. The Bidder shall provide following information with respect to its Company Profile

1.9.1. Registered Name of the Organization.

1.9.2. National Tax Number, Sales Tax Number and GST number

1.9.3. Head Office address.

1.9.4. Management structure & Organization Chart

1.9.5. Name, Address with Telephone/Telex and Fax numbers of the contact Person

1.10. Financial status of the Vendor's/Bidder's Organization with supporting documents and last two years annual reports.

1.11. Provide a certificate from your bank certifying your sound financial position and credit limit from the bank.

1.12. List of clients and their Acceptance of deliverables, showing separately the items provided and value thereof

1.13. Sukkur IBA reserves the right to reject any or all Bids/Offer without assigning any reason or cancel the process at anytime.

1.14. Sukkur IBA reserves the right to increase/decrease the quantity of items/scope of the work. Bidder has no right to challenge the decision in Court.

1.15 Documentary evidence of claims made in proposal regarding experience, relationship with principal etc.

2. PROPOSAL SUBMISSION REQUIREMENTS

2.1. A bidder can submit bid for single, two or all equipment, however bid in each item will be treated and evaluated separately.

2.2. Sealed Bid clearly marked as **"ORIGINAL"** should consist of following two separate and independent parts i.e. **1) Technical Proposal 2) Financial Proposal** and should be clearly marked as Technical Proposal/Financial Proposal in bold and affixed to each envelope at a clearly visible location.

2.2.1. TECHNICAL PROPOSAL

2.2.1.1. Technical Proposal must include the complete solution proposed by the Vendor with filled-in specification sheets.

2.2.1.2. After review of the Technical Proposal, promising Vendors will be selected and will be asked to give a demonstration/presentation on their solution.

2.2.1.3. Based on the Technical Proposal and the presentations, Vendors will be selected in order of preference and their Technical Solution will be rated on a scale of 100. The criteria considered will be compliance with equipment specifications, capability of integration, references, after sales support etc.

2.2.1.4. Financial Proposal of only those Vendors will be considered whose Technical Proposal qualify.

2.2.2. FINANCIAL PROPOSAL

2.2.2.1. Financial Proposal will include the prices quoted on individual item/Equipment basis

2.2.2.2. For each category the quoted prices must include all taxes, customs and freight charges for delivery at the required locations at own risk and cost.

2.2.2.3. This Equipment is required for educational institution. Sukkur IBA, therefore, expects significant educational and volume discounts.

2.2.2.4 the Bidder/Vendor shall furnish **separate earnest money** equivalent to **2%** of the total value of Bid in the form of Bank Draft issued by a scheduled bank of Pakistan in favor of "**Sukkur IBA**", valid for **at-least one year** and enclosed along with financial proposal.

2.3. **No Bid shall be entertained without earnest money.** Earnest money of the successful bidder will be released at the time of submission of Ten percent (10%) Performance Guarantee of the total contract value

2.4. Bid security is required to compensate Sukkur IBA against the consequences of:

2.4.1. Subsequent unauthorized variations and/or modifications of the terms of bid.

2.4.2. Pre-mature withdrawal of the bid before the completion of the bid evaluation

2.4.3. Failure of the bidder to sign the resultant Contract, in the event of such Contract being awarded to it.

2.5. Successful bidder is required to deposit **Ten percent 10%** of total contract value as **Performance Guarantee** in the form of **Bank Draft** issued by a scheduled bank of Pakistan in favor of "**Sukkur IBA**" at the time of signing of contract agreement and will be released at the time of delivery of equipment at site.

2.6. Proposals sent to Sukkur IBA by fax or email will not be accepted.

2.7. An effort by a Bidder to influence Sukkur IBA, directly or indirectly THROUGH UNFAIR MEANS may result in the rejection of Bidder's Proposal and blacklisting for any future tender of Sukkur IBA.

2.8. Prices quoted will be firm for the entire period of Contract. All prices to be quoted in **Pak Rupees**, and must clearly state all applicable taxes which must be included in quoted price.

3. HARDWARE AND SERVICE REQUIREMENTS

Following are the minimum requirements which the bidder/vendor for the equipment:

3.1 The Vendor must install all equipment and components and must ensure that the proposed equipment is fully operational and function properly at all variables.

3.2 Vendor must furnish components, wires, connectors, materials and parts, equipment for the complete installation of the system, in accordance with recommendations of the equipment manufacturer. Installation shall follow standard broadcast wiring and installation practice and shall meet or exceed industry standards for such work.

3.3 Vendor must ensure that all systems are in first class working condition and free of short circuits, ground loops, video noise and excessive system noise or any fault affecting its efficiency/quality/life.

3.4 At time of installation, Vendor must provide owner's manuals, manufacturer's data sheets, and a complete equipment list.

3.5 At the time of installation, Vendor must provide comprehensive system schematics, labeling and showing detailed connections to all equipment.

1. SELECTION PROCEDURE

Sukkur IBA intent in issuing this RFP is to award a contract to the lowest and best responsive Vendor/Bidder who meets required standard of specifications and other factors. The Vendor's past performance, cooperation, and ability to provide service and training are general factors that will be weighed in the selection process.

All Vendors will provide demo (proof of concept) to verify the claims in the Technical Specifications of the Brochures. This would also determine the quality and specifications of the equipment.

EVALUATION CRITERIA

(1) Technical Evaluation Criteria – Weight age 70 %

S. No	Bidder Name	Max Score	Bidder Name	Remarks
1	Meeting Specifications	30		
2	Relevant Experience with Academic Institutions	10		
3	Relationship with Principal	5		
4	Quoted Products Origin	10		
5	Warranty/ Guarantee	10		
6	Complains Response Time	5		
7	After Sale Service (Local Expertise)	5		
8	Lead Time (Order to Delivery Time)	5		
9	Company Profile	15		
10	Cliental Served Profile	5		
	Total	100		

Note: Please attach documentary evidence in support of your claims in technical proposal.

(2) Financial Evaluation Criteria- Weight age 30 %

2. DELIVERY & INSTALLATION

Delivery and Installation should be at the Sites/Locations at the risk and cost of successful bidder.

3. WARRANTY

Following Warranty clauses are applicable:

The successful Bidders shall warrant the equipment and its components to be free from any sort of defects in material and workmanship for a minimum period of 1 year from date of completed installation and shall repair or replace on a timely basis any defective component, assembly or portion free of cost. Technical support should be available on call basis. Competent staff of the bidder will attend each and every call within 3-4 hours of its notification either on phone or in writing during business hours (9am -5pm). Delay in attending the call and delay in rectification of fault will lead to consequential financial damages to the Vendor/Bidder.

4. SERVICES

8.1. Sukkur IBA shall promptly notify the supplier in writing of any claims arising under this warranty and the Vendor/Supplier will repair/replace the defective stores at reasonable speed but within the specified period and time & without any additional cost, specifications, and/or other Contract commitments

5. LIQUIDATED DAMAGES

Liquidated damages shall be applicable as under:

- a) Delay of one week to handover the Equipment
As per specifications = 0.5% of the total cost

- b) Delay of two weeks to handover the equipment
As per specifications = 1.0% of the total cost

- c) Delay of three weeks to handover the
Equipment as per specifications = 2.0% of the total cost

- d) Delay of four weeks to handover the equipment
As per specifications =4.0% of the total cost

Note: In case of delay beyond four weeks, Sukkur IBA reserves the right to cancel the order and impose penalty up to 10% of ordered value.

6. TERMS OF PAYMENT

Payment shall be made in the following manner:

Within 30 days after satisfactory supply, installation, testing, training, complain & error free functioning of the system at Sukkur IBA University and receipt of invoice.

TECHNICAL SPECIFICATIONS & QUANTITY

Supply, Installation, Testing, training and Commissioning of Solar System for Nine Cluster Schools in different cities of Sindh

OFF-Grid Solar Power System

GENERAL SYSTEM DESCRIPTION

The system shall be designed and sized as per the site requirements and shall consist of mainly the following: -

- I. Solar photovoltaic panels
- II. Off-Grid Inverters
- III. Module mounting structure
- IV. Junction boxes
- V. AC Distribution board
- VI. Surge & Earthing protection system
- VII. Cables and other accessories
- VIII. Lighting Protection System

The PV array converts the light energy of the sun to DC power. The module mounting structure shall be used to hold the module in position. The DC power generated shall be converted to 3 phase/1-Phase, AC, 415V/230, 50 Hz. solar panels shall be integrated with the premises power supply from electricity authority.

I. SOLAR PV MODULES:

Since the light intensity in the region and the temperature parameters have been taken into consideration, we strongly recommend to go for PV Crystalline modules. The photovoltaic modules shall be designed, manufactured, and tested in accordance with the most recent applicable standards as follows

(i) TESTING, CERTIFICATION & QUALITY ASSURANCE

- a) Every module shall be factory flash tested at Standard Test Conditions according to IEC 60904 to determine the peak rated nominal power output and then sorted into 5-watt bin increments.

- b) Module flash test data must be made available by serial number through the manufacturer's enterprise resource program (ERP) to the customer upon request.
- c) The factory flash tester shall be a Pasan Triple A rated flasher.
- d) Only modules that have greater than or equal to the nameplate rated power are to be placed into the corresponding bin.
- e) The module power tolerance will be -0 / +5Wp, with positive tolerance only.
- f) The module manufacturer must be certified to the TUV Power Control program which verifies flasher measurements for the modules.
- g) Each module must have an electro-luminescence image taken for cell quality verification before being packaged for sale.
- h) The solar laminate shall use a highly UV resistance encapsulate (EVA) that can withstand over 3,000 kW/m² radiation for wavelengths 280 to 400 nm.
- i) The module serial number and manufacturer's name shall be incorporated beneath the glass inside the laminate construction and visible from the front side of the module.
- j) MC-4 connectors will be used for termination of cables to Solar PV Modules.

(ii) CERTIFICATION – PRODUCT

- a) The module shall have a 30-year, linear power warranty. **The first-year power is 97% of the nameplate and should not degrade more than 0.35 % annually for 30 years.**
- b) DIN EN / IEC 61215 Ed 2.: Crystalline silicon terrestrial photovoltaic modules - design qualification and type approval
- c) DIN EN 61730 incl. PC II: Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction
- d) UL 1703: Flat-plate photovoltaic modules and panels
- e) PID certification: Highly resistant to potential-induced degradation (PID). Very important, since PID will result in drastic reduction in efficiency beyond 5 years.

- f) DIN EN 61701: Salt mist corrosion testing of photovoltaic modules.
- g) DIN EN 60068-2-60: Ammonia resistance.
- h) IEC 60068-2-68: Dust resistance
- i) 2 PfG 1795/10.10: “Power Controlled” for PV modules. TUV Rheinland inspection mark for guaranteed compliance with stated nominal power of solar modules; verified externally at regular intervals

(iii) CERTIFICATION – MANUFACTURER

- a) The Manufacturer should be European brand.
- b) The panels made of Europe will be given preference.
- c) The manufacturer should have Authorized Distributor in Pakistan.
- d) The manufacturer should be Vertically Integrated Company.
- e) The manufacture can also be called for a meeting if needed.

(iv) CERTIFICATIONS

- ISO 9001: Quality management system
- ISO 14001: Environmental management system
- BS OHSAS 18001: Occupational health and safety management systems
- ISO 50001: Energy management system

II. PV INVERTERS:

- (i) Should be string type inverter.
- (ii) DC rating power supported up to 10kWp
- (iii) Noise emission (typical) 51dB (A)
- (iv) Ambient temperature should be between -25C to 60C (Should be installed in the ventilated room)
- (v) Maximum Efficiency should be greater than 97%

- (vi) Operating frequency range 50 Hz, 60 Hz / -6 Hz to +5 Hz
- (vii) Night Self consumption should be less than 3W for inverter
- (viii) Degree of protection (as per IEC 60529) IP 65
- (ix) Should be Supported to monitoring System
- (x) Preferred Origin: US, European.
- (xi) Guarantee: minimum 10 years
- (xii) VFR 2014, AS 4777, BDEW 2008, C10/11, RD 1699, RD 661/2007, SI4777,
- (xiii) G59/3, IEC61727, IEC 62109-1/2, NEN EN 50438, NRS 097-2-1, PPC, UTE C15-712-1, VDE 0126-1-1, VDE-AR-N 4105, , CE, CEI 0-16, CEI 0-21, EN 504381,
- (xiv) Nominal Voltage Range 160V to 280V
- (xv) DC reverse polarity protection / AC short-circuit current capability
- (xvi) Ground fault monitoring / grid monitoring
- (xvii) Maximum permissible value for relative humidity should be 100% (non-condensing)
- (xviii) Design drawings with material selected shall be submitted for prior approval.

III. Panel MOUNTING STRUCTURE:

- (i) Design drawings with material selected shall be submitted for prior approval.
- (ii) The array structure shall be so designed that it will occupy minimum space without sacrificing the output from PV panels.

- (iii) The structure shall be designed to allow easy replacement of any module and shall be in line with the site requirements.
- (iv) The module alignment and tilt angle shall be calculated to provide the maximum annual energy output and report will be submitted through PV Sys Software/Equivalent to decide inclination/Tilt Angle of PV Panels.
- (v) All the PV Panel structure should be ready made as no welding will be done at Site.
- (vi) The PV modules should be fixed on the Aluminum Channels made by Aluminum Common Grade 6005 with T-5 Temper (Imported).
- (vii) The array structure shall be grounded properly.
- (viii) All materials used should have a proven history of reliable and stable operation in external outdoor applications.
- (ix) All fasteners shall be of stainless steel of grade SS 304 (Fischer/Equivalent).
- (x) The array structure shall withstand wind gusts up to 150 km/hr.
- (xi) The array structure shall be grounded properly.
- (xii) Contractor has to submit wind flow study to assure bearing capacity of 150Km/hr. speed made by Structure manufacturer.
- (xiii) Civil Works RCC foundations will be made for erecting car Parking structure as per requirement or as per drawings attached and as recommended by Engineer of Sukkur IBA University.

IV. JUNCTION BOXES

- (i) The junction boxes shall have suitable cable entry points via PV Connectors and outgoing cables shall be through cable glands of appropriate sizes.
- (ii) Suitable markings are provided on the bus bar for easy identification & cable ferrules shall be fitted at the cable termination points for identification.
- (iii) Suitable surge protection shall be used at the terminals of array junction boxes for external over voltage protection and also for lightning protections.

- (iv) The array junction boxes should be Weather-proof IP66 3 in 2 out Array Junction Box.
- (v) The Positive Input of AJB should be through 2-Pole DC Breakers.
- (vi) The junction boxes shall have Transparent Lid for Easy Viewing
- (vii) All the lugs and its related material will be of Cembre/ Equivalent Manufacturer.

V. AC DISTRIBUTION BOARD: 1Nos.

- (i) The AC power output of the inverter shall be fed to the AC Distribution Board.
- (ii) All the AC/DC Indoor & Outdoor Wiring will be done in Cable Trays with its covers & Supports & Accessories and when required GI (PVC) Flexible pipe will be used.

VI. SURGE & EARTHING PROTECTIONS

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

SURGE PROTECION

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement). Surge protection shall be provided on the DC side and the AC side of the solar system.

- a) The DC surge protection devices (SPDs) shall be installed in the DC distribution box adjacent to the solar grid inverter.
- b) The AC SPDs shall be installed in the AC Main Distribution Board adjacent to the solar grid inverter The SPDs earthing terminal shall be connected to earth through the above-mentioned dedicated earthing system.
- c) The SPDs shall be of type 2 as per IEC 60364-5-53

EARTHING PROTECION

- a) Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition, the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/SECI as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
- b) Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.
- c) A minimum of two separate dedicated and interconnected earth electrodes must be used for the earthing of the solar PV system support structure.
- d) The earth electrodes shall have a precast concrete enclosure with a removable lid for inspection and maintenance. The entire earthing system shall comprise noncorrosive components.

VII. CABLES AND ACCESSARIES:

All AC Cables of appropriate size to be used in the system shall have the following characteristics: Cable Manufacturer should be reputed Brand of Pakistan Approved Suppliers (**Pakistan Cable**)

- (i) Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- (ii) Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- (iii) Voltage rating 660/1000V
- (iv) Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- (v) Flexible
- (vi) Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- (vii) Cable Routing/ Marking: All cable/wires are to be routed in a Powder coated cable

tray with anti-rust paint cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.

- (viii) The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 30 years.
- (ix) The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation
- (x) Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- (xi) The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1% and minimum size of cable will be 6sqmm from Panel to Inverter.
- (xii) DC Cables should meet following specifications.
- Temperature Range: -40 Celcius to +90 Celcius
 - Nomnal Voltage: 1800V DC
 - AC Test Voltage: 10000V
 - Cable Structure:
 - Bare copper, tinned, finely stranded
 - according to DIN VDE 0295 class 5 and IEC 60228 cl. 5
 - Double-insulated
 - Insulation cross-linked Polyolefin
 - Outer sheath cross-linked Polyolefin
 - Approvals
 - According to PV1-F requirement profile for
 - PV cable DKE/VDE AK 411.2.3
 - VDE (Reg. 8266)
 - TÜV (2 PfG 1169/08.2007, R60025298)
 - RoHS and CE compliant
 - UL certification in progress (UL Subject 4703)

- Properties
 - Ozone resistant acc. to EN 50396
 - Weather und UV resistant acc. to HD 605/A1
 - Halogen-free acc. to EN 50267-2-1, EN 60684-2
 - Resistant to acid and bases acc. to EN 60811-2-1
 - Flame-resistant acc. to VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
 - Very robust and abrasion-resistant sheath acc. to DIN EN 53516
 - Resistant to short-circuits up to 200 °C
 - Short-circuits temperature 200 °C / 5sec.
 - Anticipated service life - 25 years
 - Hydrolysis and ammoniac resistant
- (xiii) The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1 %.

VIII. LIGHTNING PROTECTIONS

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

The PV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SP array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

Any extra wiring or rearranging the load required for balancing the load will be done by the contractor in order to smooth running / Operation of system.

No any joint in cable will be made and if required IP-65 cable connector will be used.

The contractor will provide 4G Device or cloud controller for remote monitoring system and for remotely controlled operation.

In remote monitoring system all the data logs & Events should recorded, and live data can be accessible from anywhere including running load & its battery percentage Etc.

Megger test reports of all wiring including Open Circuit voltage details of all strings will be submitted before commissioning of system.

In case of any error in system, Contractor will provide full support the troubleshoot the error and if required contractors technical team will personally visit the site to resolve the complaint and no any visiting charges will be paid in first three years.

The Contractor will provide necessary training of operation of each system to Staff available at various schools.

The contractor will submit 03 sets of As Built Drawings with serial no's of equipment to the client of System and will do all the tagging in wiring required for system.

In order to understand the technical requirement of the off-grid system, the bidders are requested to visit the site and based upon the site assessment propose their design. It should be designed in such a way that it should not disturb the aesthetic look of the building with consultation of client/project director/ building architect etc.

The product proposed by the bidders from origins of Europe/ America/Japan will be highly encouraged.

The bidders are requested to bid their products only from one single supplier. E.g. Module from principal A, Invertor from principal B.

ESTIMATE of Schools Off Grid Solar System				
Important Note Quantity mentioned is of ONE School, we need Solar System for NINE Schools				
S. N	Item Details	Brand	QTY	Unit
1	Solar Panel Poly (Crystalline)-350W or >350W with 30 Year linear Warranty & 10 years workmanship warranty with 18 % Efficiency and CE Certified with availability of flash test reports of quality from manufacturer.	REC /Canadian Solar or equivalent	60	W
2	Hybrid Solar Power Inverter (GoodWe /Equivalent), 7 KW with 10 Year Warranty with Remote Monitoring System & can be remotely Controlled. (CE Certified) with parallel kit & Operation and Support Li-Ion Batteries with cloud system & 3G/4G Supported	Off-Grid GoodWe/Equivalent	3	No.
3	Lithium Battery with Cabinet & Battery management System (BMS) with remote monitoring system & Control with 10 years Warranty	Lithium Battery 13.8 KWh (48 V) -TESLA/BYD	3	No.
4	Battery Racks /Cabinet	Powder Coated Rust free	3	No.
5	PV Breaker (DC)	ABB/Schneider (1500V ,16 A), 2-pole, 16A or equivalent	8	No.
6	Battery Breaker (DC) Schneider/Equivalent with its Battery Cable (DC) Helukable/Equivalent at Losses less than 1%	ABB/Schneider, DC-100A ,2-Pole or equivalent	3	Job
7	Battery Breaker Box (IP-54), GI Powder Coated 14 Guage	Hussain & Co or equivalent	1	Job
8	Inverter Breaker	ABB/Schneider, AC-32A ,2-Pole or equivalent	3	No.
9	Load breaker -4-Pole-100 A	ABB/Schneider or equivalent	1	No.
10	Interlocking (3-Phase Breaker Type)	ABB/Schneider or equivalent	1	No.

11	AC & DC DB,s with GI Glands & with (AC/DC Surge protection equipment), (IP-54) with imported copper bus bars (DB Should be 14 Guage , GI Powder Coated)	Hussain & Co or equivalent	As per Site	Job
12	Earthing cable (1C-6Sqmm & 1C-25 Sqmm)	Pakistan cables or equivalent	1	Job
13	Earthing Pit (Less than 2 Ohm) , Maintenance free & Lightning Protection system for PV Panels & Its structure	Copper made with its accessories	1	Job
14	DC Cable (6 sq.mm) (Losses less than 1%) with 30 Years warranty	Helukable-Germany or Equivalent	As per site	Job
15	AC Cables (Losses less than 1%)(Inverter to Load DB)	Pakistan cables or equivalent	As Per Site	Job
16	Earthing Cable	Pakistan cables or equivalent	As per site	Job
17	Panel Mounting Structure-Aluminum with bearing capacity of 150 Km/h wind speed/Gusts (Imported) with SS Fixtures (Fischer SS Rawl Bolts with epoxy/Grout (SIKA/Equivalent) filling in Rawl bolts) with other SS Accessories	Aluminum 6005, T-5 Grade	60	No.
18	Civil Works as per requirement	As recommended by Engineer	As per site	Job
19	Powder coated 14 guage cable trays with anti-rust paint	14-Guage	As per site	Job
20	Miscellaneous works		As per Site	Job
21	Installation & Transportation		1	Job

Note: Sukkur IBA reserves the right to increase or decrease the quantity of items

Important Note:

- **Please note that quantity mentioned in above Bill of Quantity (BOQ) is for One School, we require Solar System for Nine Schools.**
- **If anywhere in specification or BOQ, any brand name is mentioned, please read with the words "Or Equivalent" after brand name.**

MERIT-QUALITY-EXCELLENCE MERIT-QUALITY-EXCELLENCE MERIT-QUALITY-EXCELLENCE



Sukkur IBA University

TENDER NOTICE

Tender # PROC/199

Sealed bids are invited from manufacturer/authorized distributors/authorized dealers (Registered with Sales Tax & Income Tax Department) on “Single stage two envelope basis” having vast experience in respective field for following items for **Cluster Schools in different cities in Sindh.**

S.#	Description
01	Supply, Installation, Testing & Commissioning of Solar System in Cluster Schools

Details are mentioned in the tender documents, which can be obtained on provision of demand draft/pay order for each item **Rs. 500/=** (Non-refundable) in favor of Sukkur IBA, from the office of the **Manager Procurement Sukkur IBA University** on any working day from **18th May, 2019 to 11th June 2019.** The Last date for the submission of bids is **12th June 2019. up to 1300 Hours.** The technical bids will be opened on the same day at **1330 Hours** in the presence of bidders or their authorized representatives (who may choose to be present). The Financial proposals of only technically eligible firms will be accepted/Opened. The Procuring Agency may reject any bid subject to relevant provisions of SPP Rules 2010 and may cancel the bidding process at any time prior to acceptance of bid or proposal as per Rule-25(1) of said rules and as per PPRA rules.

Please send your queries: hari@iba-suk.edu.pk

REGISTRAR PID(H) 462/19

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