

TENDER DOCUMENTS

(Single Stage Two Envelope Procedure)

Ref No: MS/Procurement/2026/....

Tender for Supply, Installation and Commissioning of Monopole Hybrid Solarized Parking sheds at NUMS–NIASR, Rawalpindi

1. **Introduction:** National University of Medical Sciences (NUMS) invites sealed proposals through PPRA EPADS for Supply, Installation and Commissioning of **Monopole Solarized** Parking sheds at NUMS–NIASR, Abid Majeed Road, Rawalpindi as described and summarized in accordance with procedures, conditions and contract terms prescribed in the tender documents. Bids shall be received as per “*Single Stage- Two Envelope Procedure*”. Both envelopes should be sealed and marked as “**Technical & Financial Proposals**” separately and inserted in one single envelop. After scrutinizing technical proposals tender evaluation committee will decide date and time for opening of Financial Proposals which will be communicated to the technically qualified firms/contractor in due course of time. Last date for submission of bids/ proposals is **Thursday 23 July, 2026 by/till 1000 hrs**. Sealed bids, prepared in accordance with instructions to Bidders (ITBs) of the bidding documents, should reach on/ before the due date & time mentioned above whereas documents sent through email or fax shall not be accepted.

NUMS reserves the right to modify/change the quantity of equipment/items/work in accordance with PPRA rules without any change in unit price or other terms and conditions. Furthermore, NUMS reserves the right to accept or reject any, all, or part of the submitted offers/ proposals as per decision of Tender Evaluation committee and PPRA rules. Please note that this document does not constitute a commitment by NUMS to award a contract or to pay any costs incurred in the preparation of bidding documents.

2. **Language:** As determined by NUMS, the working language of this tender is **English**. Other languages will **not be accepted**.

3. **Qualifying Conditions:** The main criteria for admission to the tender are as follows: -

- I. Copy of valid AEDB Certificate (**Mandatory**)
- II. Valid PEC registration Certificate in Solar category. EE11(XVII), EE11(III), EE11(VI), EE11(XXV), ME07 (V), M05 (**Mandatory**)
- III. Valid Income tax registration certificates. (**Mandatory**)
- IV. Valid Sales tax registration certificates. (**Mandatory**)
- V. List of **125 KW** or more projects (Hybrid / On-grid Solar PV Plants) completed in last five years with date of completion and name of the customer with address, Cell and phone contact with email address. (Irrelevant or non-solar PV plant related projects list or data or any attachment can result in rejection of Bid). (**Mandatory**)

- VI. Completion certificates of completed projects. **As per Form D (Mandatory)**
- VII. List of three trained graduate engineers (one electrical, one mechanical and one Civil) having more than five years' experience of working on Solar PV Plant and copy of valid membership card of Pakistan Engineering Council. **(Mandatory)**
- VIII. System design report generated through solar PV simulation software (e.g., PVsyst), showing year-wise projected AC energy output from the Hybrid system for 15 years. **(Mandatory)**
- IX. **Bid Security @ 2%** of the total Proposal / Bid amount in the shape of **CDR/ Demand draft or Pay order** in favor of "National University of Medical Sciences", (NTN # 9010197-0), shall be submitted with bids. No other mode of bid security will be accepted.

4. Tender Basis: -

- a. All Tender Documents must be completed in full otherwise the application will be disqualified.
- b. All applicants will receive identical documents: No applicant should add, omit, or change any item, term or condition in original papers.
- c. Each applicant should take one bid only. Bid shall be made in writing calculated in PKR only and clearly stated on the appropriate forms.
- d. The price schedule must include all information requested, including origin of materials

5. Scope of Works: Monopole Hybrid Solarized Parking sheds at NUMS–NIASR, Abid Majeed Road, Rawalpindi as per given BOQs and drawings (attached as Annex-F) on a turnkey basis. A complete Single Line Diagram (SLD) from PV modules to the point of injection must be provided. The system must be equipped with all necessary protection devices, including earthing, anti-islanding protection, AC/DC disconnects, manual switch, lightning arrestors, surge protection, and AC/DC current and voltage monitoring instruments. The solar PV modules shall be mounted on monopole elevated steel structure at main parking area of NIASR (Diagram of Parking area which has to covered can be obtained from this office). System must be designed for synchronization with already existing solar system or work independently. Layout of safe trenches for cabling etc from parking area to Generator room / existing solar system be incorporated in drawings with complete details of route, depth, safety, trench covers etc.

The AC Power Distribution Cabinet (LV Panel) must include all AC disconnects, bus bars, manual ON/OFF switch, fuses, voltage and current meters, and any other required components. The system must support remote monitoring of energy data via mobile, laptop, or computer; the Purchaser shall provide a Wi-Fi connection to the inverter. The system must be delivered complete in all respects, including all components, accessories, and installation works. **(as per approved list of Specifications attached with tender documents at Annex A & C).**

Work must include after sale / services and maintenance for a period of two years.

6. Payments: Complete payment will be made upon complete & satisfactory installation / commissioning of Solar system and its subsequent acceptance by End User / NUMS. No mobilization / secure advance will be paid to vendor / contractor.

7. **In-eligibility of Applicants:** Applicants cannot apply if they: -
- Are not registered companies with Tax & other government departments.
 - Have been convicted for an offence concerning professional conduct.
 - Have been guilty of grave professional misconduct.
 - Have not fulfilled obligations related to payment of taxes.
 - Are guilty of serious misinterpretation/misrepresentations.
 - Late deposit of tender documents.
8. **Bid Delivery:** All bids will be delivered (though post/courier/by hand) in standard format in a sealed envelope. The envelope will be clearly marked with the precise reference of the invitation to which it is a response.
9. **Bid Opening:** The bids will be opened in the presence of the Tender Evaluation Committee and Applicant's Representative (who wish to witness), at NUMS ATR Building, Humayun road, near Kutchery chowk **on Thursday 23 July, 2026 at/after 1030 hrs.**
10. **Bid Evaluation:** The Tender Committee will evaluate the technical proposals. Bid evaluation criteria is attached as **Annex B**. After completing technical evaluation, further process of financial evaluation will commence. It can be on same day or any other day as decided by Tender committee.
11. **Technical Specifications:** The technical specifications for **Monopole Hybrid Solarized** Parking sheds at NIASR, Abid Majeed Road, Rawalpindi be floated as per attached **Annexure-A**. The tenderers should not deviate from these technical specifications and should submit complete details of the item(s), technical design and attach authentic literature/specifications along with their tenders/offers, traceable to the genuine manufacturers or testing laboratories/institutions.
12. **Installation & Maintenance:** The bidders must have local installation company / partners and the local partner / company must have a proper workshop for the repair, maintenance/ service support and experience. Company will clearly mention periodic maintenance and schedule and its duration. Downtime of the system, if any, will be credited towards maintenance period of the company and same will be extended.
13. **Specific Terms & Conditions:**
- The item wise rates (separately) quoted should be inclusive of all applicable Govt taxes.
 - The price should be mentioned including all accessories, transportation, installation, and other service charges.
 - Goods quoted other than NUMS's approved specifications will not be accepted and quotation will be treated as cancelled.**
 - Cost, quality & time factors will be given due consideration for selection of vendor.
 - Payment will be released within 25-30 days, through cross cheque in the name of firm after completion of project as per NUMS satisfaction (ref para 6 of TD) and submission of invoices, complete in all respect.
 - No advance/ mobilization amount will be released to the selected vendor.**
 - Call deposit @ 2%** of bid value in shape of DD/PO (cross cheque/cash will not be acceptable) in

the name of “NUMS” to be attached with bids; otherwise bids will be treated as cancelled for further review. Call Deposit will be returned to un-successful bidder after selection of final contractor / vendor. Call deposit below 2% of bid value will not be accepted.

- h. Call deposit of successful bidder will be released after job completion and as per NUMS satisfaction.
- i. **Penalty @0.1% per day** on the value of undelivered quantities will be imposed after agreed due date of job completion.
- j. Tender documents/quoted **prices must be valid for minimum period of 180 days** from the date of opening of tenders.
- k. No amendments/changes on technical specifications shall be permitted after opening of Tenders and NUMS will not accept any conditional proposal. All such proposals will be treated as rejected.
- l. All proposals shall be evaluated in a manner prescribed in the tender documents, without reference to the price and any proposal may be rejected if it does not confirm to the specified requirements/specifications.
- m. A third-party audit will be carried out soon after the installation of the system to confirm whether the given specifications are met as per proposal or otherwise. Penalty will be imposed on deviations from submitted/agreed upon proposals.
- n. NUMS reserve the right to accept/reject any quotation without assigning any reason, or increase/decrease the quantities as given in tender documents.

(Signature of Vendor)

MS/Procurement/2026/

Detailed Specifications of Monopole Hybrid Solarized Parking sheds at
NIASR, Abid Majeed Road, Rawalpindi

Solar PV Modules

- Approximate Number of Cells and Type= 234 Nos or as per parking area (or as per 125KW) N-Type, bifacial (double glass) technology.
- Solar PV modules should be Tier-1 type
- Each PV module not less than 585W N-Type, bifacial (double glass) technology.
- Fill Factor not less than 0.78%.
- Modules must be TUV Rhineland certified as per IEC standards 61215 and 61730 latest edition.
- Minimum 10 years' replacement warranty and 25 years' performance warranty
- Size of total PV modules: Not less than 125 KW.
- Flash Test report and Module Test report as per IEC Standards 61215 and 61730 (Latest Editions) should be provided after delivery.
- Must be supplied with connected cables and MC4 connectors
- Preferred brands will be LONGI, JINKO & Canadian or equivalent
- Annual degradation should not be more than 2% in First year and subsequently 0.55% annually.

Solar HV Hybrid Inverters

- Minimum individual Inverter size should not be less than 125 KW.
- Type of Inverters = Three phase Hybrid Inverter / Solis or equivalent
- 5 years' warranty from the date of installation
- Make: Preferred brands will be Huawei, Solis, Goodwe (Imported) or Equivalent
- Maximum Efficiency: not less than 98%.
- Total Harmonic Distortion: Less than 3%
- Standards compliance: UL 1741, IEC 62109-1/2, IEC 62116, IEC 61683 and IEC 61727
- Built-in SPD on DC and AC side.
- Built with Data Logger, Data Dongle, Communication Interfaces Protections, RS232/Ethernet (Network Supported) And Remote Monitoring Capability.

Backup Batteries System

- Battery technology shall be Lithium Iron Phosphate (LiFePO₄) / Pylontech or equivalent
- Each battery module shall have a minimum usable energy capacity of 16 kWh.
- Total battery bank capacity shall be sized to meet the system requirements for the 65-kW hybrid solar system backup.

- Battery system shall be modular, expandable, and suitable for parallel operation.
- The battery bank shall be compatible with the proposed hybrid inverter and Energy Management System (EMS).
- Battery manufacturer shall be internationally recognized with proven installations and after-sales support.
- Nominal voltage: As per manufacturer's standard (48V, 51.2V, 96V or higher).
- Depth of Discharge (DoD): Minimum 90%.
- Round-trip efficiency: $\geq 95\%$.
- Charge and discharge current ratings shall comply with inverter requirements.
- Each battery module shall be equipped with an integrated Battery Management System (BMS)

BMS shall provide:

- Over-voltage protection.
 - Under-voltage protection.
 - Over-current protection.
 - Short-circuit protection.
 - Over-temperature and under-temperature protection.
 - Cell balancing function.
- Communication protocols shall include CAN Bus and/or RS-485 for inverter integration and monitoring.
- State of Charge (SOC), State of Health (SOH), voltage, current and temperature shall be available for monitoring.
- Cycle life shall be minimum 6,000 cycles.
- Calendar life shall be minimum 10 years.
- Capacity degradation after 10 years shall not exceed manufacturer's specified limits.
- Battery shall operate efficiently under ambient temperatures ranging from -10°C to $+55^{\circ}\text{C}$.
- Protection class shall be minimum IP20 for indoor installation and IP54/IP65 for outdoor cabinets.
- Battery bank shall support remote monitoring through SCADA/Web Portal/Mobile Application.
- Real-time monitoring of voltage, current, power, energy, alarms and fault logs shall be available.
- Event recording and historical data storage shall be provided.
- Battery system shall comply with IEC 62619.
- Battery modules shall comply with UN38.3 transportation standards.
- Battery cells shall comply with IEC 62133.
- The complete energy storage system shall comply with IEC 62477 or equivalent safety standards.
- Battery racks/cabinets shall include:
 - DC isolators.
 - Circuit breakers/fuses.
 - Emergency shutdown arrangement.
 - Fire-resistant construction.
- Batteries shall be supplied with racks or cabinets suitable for floor mounting.
- Ventilation and spacing shall be maintained according to manufacturer recommendations.
- All interconnecting cables, lugs, bus bars and accessories required for complete installation shall be

included

- Labels and warning signs shall comply with IEC standards.
 - IEC 62619 – Safety requirements for secondary lithium batteries.
 - IEC 62133 – Safety requirements for portable sealed secondary cells and batteries.
 - IEC 62477 – Safety requirements for power electronic converter systems.
 - UN38.3 – Transport safety requirements.
 - IEC 61000 – Electromagnetic compatibility.
 - IEC 60529 – Degree of protection (IP rating).
 - UL 1973 (preferred).
 - UL 9540 / UL 9540A (preferred for Battery Energy Storage Systems)

MC4 Connectors

- Qty: As per design
- Current rating: As per design
- Ingress protection: IP 67
- Standard Compliance: EN 50521:2008

Remote Monitoring at Common Monitoring LED

Whole System must have capability to monitor Power and energy data at minimum 50 Inch Smart LED display of Samsung/SONY Make. Bidders have to supply LED along with any interfacing, hardware/Software required for display of health of the system at LED. Energy parameters displayed must be Load watts, Energy consumed, PV watts, DC Energy (KWh) and AC KWh injected energy by each system, Total DC and AC KWh, String Monitoring, data graphs, Alarms and patterns etc. LED will act as Dashboard to be installed at suitable visible place.

Manuals/ Publications

The successful Bidder will supply all the service and maintenance manuals / publications in hard and soft copy of each component of the system along with the supply.

System Protections

- System must be complete with all protections including DC and AC Disconnects, DC/AC Surge protection, Lightning arresters and Grounding etc.
- Surge protection shall be provided on the DC side and the AC side of the PV system.
- The Lightning Arresters must be provided and numbers to be designed as per site conditions to avoid any damage because of Lightning.
- A minimum of two separate dedicated copper earth electrodes (DC and AC) connected through a copper wire with the Earthing rods in two pits must be used for the Earthing at DC and AC side of solar PV system (structure, Inverter, SPDs etc.) with a total earth resistance not exceeding 3 ohms at DC and AC Side.
- All metallic Chassis of DC and AC PV Components requiring Earthing must be earthed separately as SOP of local DISCO.

PV DC Cables

- Single core 99.9% copper cable with conductor withstanding at temperature of 120 Degree minimum.
- Cables must be double insulated tested at 1.5 KV.
- Weather resistant, UV resistant, Ozone corrosion resistant, halogen free (low smoke zero halogen) and flame resistant.
- XLPE/XLPO Insulation withstanding temperature range from -4-degree C to 120 Degree C.
- Cable must be tested as per Solar PV standard IEC 51608 or IEC 62930 and test report must be provided along with Type Tested certificate.
- In case of cable from Local manufacturer, the warranty must be minimum five years at Manufacturer's letter head and compliance as IEC 50618/62930 Must be assured.

AC Power Distribution/LV Cabinet

- AC Power Distribution Cabinet (LV Cabinet) must contain AC circuit breakers, contactors, bus bars, AC SPD and OFF/ON main switch with monitoring of Voltage, current, Power and, Energy. The components must of high-quality complying with national standards of switchgears.
- Preferred brands are Bilal Switchgear Engineering, MK Engineering, & Capital Electro Engineering or any reputed Quality switchgear manufacturer.

Injection of Energy

Energy will be injected at 440V Existing Distribution panel available, but the Bidder has to supply separate AC Power distribution cabinet (LV cabinet) with built-in protection, automatic and manual isolation from the distribution circuit.

Technical Datasheets

Technical datasheet of each PV component must be provided in technical Bid.

PV DIESEL SYSTEM CONTROLLER/SYNCHRONIZER

PV DIESEL Synchronizer/controller should provide harmony and smooth operation of PV with Diesel GenSet providing intelligent control mechanism for joint operation of PV and Diesel set with the objective of optimum and reliable power to the load. It must guarantee a constant power balance (reactive and active) within a PV GENSET system at all times. ATS is already Present with GenSet for auto-start of diesel generator.

Solar panel structure:

Installation of Solar PV module with elevated structure on parking special sheds. Structure material based on MS type pipe based poles with minimum 8" square pipe 6mm. Beam with 6" x 2" pipe 10swg. Perlin with 4" x 1.5" pipe 10swg. Paint undercoat and upper coat with anti-rust paint. Civil poles with 1.5 x 1.5 ft concrete. Other accessories like aluminum T, galvanized nut bolts. All structure must be strengthened with slings as shown in attached diagram / photograph.

General Engineering Work

The cable laying ducts/Channels from PV Modules to Inverters must be of MS Hot dip with no possibility of entering of any sects or animals and all internal cable laying channels/ducts connecting the Inverters, Ducting and cable laying must be of perforated MS Galvanized/Slotted high-quality PVC duct. Interconnection of PV modules must be through MC4 cables/connectors without any joint and MC4 cables interconnecting PV Modules must not be very tight and should have some play to avoid cable cracking. All concrete pads must be high quality martial mix and must be at same level so that the structure should not look as curved or raised at some point. Earthing material and work should be of high quality. Earthing required is at DC and AC with two separate bores. The structure must be vibration and rust free and must withstand harsh environments. The workmanship should be high quality through trained and experienced technicians and engineers. All thimbles and connectors must be of high quality.

EVALUATION OF BIDS

Final bid evaluation shall be carried on quality cost method with 60%:40% weightage for Technical and Financial bid respectively. However Final decision will be made by CA on recommendations made by Board of officers detailed for this purpose.

Bids shall be technically evaluated first as per the following technical evaluation criteria. One part is mandatory without which the bids will be rejected without further evaluation. Second part is numbered evaluation and passing marks are 60%

S No	Evaluation Parameters	Status	Yes/No	Remarks if any
A - MANDATORY ITEMS – NON-NUMBERED *				
1	Complete BOQ	Yes/No	-	
2	Sys Designed	Yes/No	-	
3	System design Report	Yes/No	-	
4	Data sheet specs (Clearly readable)	Yes/No	-	
5	Five years warranty of whole system with free material and labor at bidder's letter head.	Yes/No	-	
6	Valid Income Tax Registration Certificates	Yes/No	-	
7	Valid Sales Tax Registration Certificates	Yes/No	-	
8	Earnest Money attached.	Yes/No	-	
9	Provision of Non-Black Listing record on company letter head duly signed and stamped on company letter head*	Yes/No	-	
10	PEC Certificate	Yes/No	-	
11	AEDB Certificate	Yes/No	-	
12	PV Cable test report from accredited LAB as per IEC 50618 or 92930.	Yes/No	-	
BIDS will be disqualified if any of above item is marked "No"				
B	Mandatory – Numbered items	Total	Marks Obtained	
1	Solar PV Module TIER-1 with Complete test report as per IEC 61215 and 61730 (Latest Edition)	20		
2	Inverter as per preference with IEC certificates	20		
3	Number of three graduate engineers with valid PEC Card having more than five years experience	10		
4	Clearly Readable Technical Datasheets of each component provided as per BOQ	10		

5	125 KW Solar Hybrid Projects Completed successfully with attached Performance certificates	10		
6	PEC and AEDB Certificate	10		
7	Company Experience from the date of its incorporation	10		
8	One Pager Bank Statement mentioning Three years having closing balance of more than 10 million	10		
Total Technical Marks		100		
Minimum Technical Qualification Marks		70		
Marks Obtained				

Tender for Supply, Installation and Commissioning of Monopole Hybrid Solarized Parking sheds

Component Name	RATING/Specifications	Qty (No / Set/Job)	Unit Rate	GST %	Total price including all applicable taxes	Warranty
PV Modules	585-710 W Tire-1 PV Module N-Type monocrystalline, bifacial (Double Glass)	125 kW / or as per parking area				10 years' replacement and 25 years performance
Three Phase PV Inverter	125 KW HV Hybrid with Wi-Fi Dongle	01				Five Years warranty
Data logger	Built In	01				Five Years warranty
Backup Batteries storage system	Lithium-Ion battery with BMS and compatible with inverter, online deep monitoring of battery cell, operation, charging, discharging, load management through with battery independent software. Minimum 1 battery unit not less than 16KW	65 kW				10 years Warranty
PV Cables	Single core PV Copper DC Cable 6mm ² XLPE/ PVC as per IEC 50618/62930	As per System				Five years warranty in case of Local
PV Elevated galvanized structure	Parking special shed Mild Steel Vertical beam / Columns (10G) & Horizontal Beams (12G), MS Angle Red Oxide with double quoted paint and C angle 14G galvanized with SS Nuts and Bolts	As per System				10 years warranty
AC Cables	04 Core 95 mm ² Copper/PVC AC-Cable As per BSS & IEC standard	As per site req				Five years warranty

Permanent Earthing <10 ohms Package including boring, cables and material	As per DISCO/NEPRA SRO 892/2015 as per RFP	01 Job			Five years warranty
Power Distribution Cabinet (LV Cabinet)	GI powder coated Panel having bus bars, circuit breakers, disconnects, manual switch, SPDs & Energy Meter etc.	01			Five years warranty
Lightening Arrestors	Copper lightening arrestor with spike for radius coverage of as per roof area and with copper earthing rod 19mm ² thick & 3 meter long	03			Five years warranty
Outside Main Disconnect	440V/250-A AC disconnect switch	01			Five years warranty
PV Gen Set Synchronization	PV Diesel Gen Set Synchronization system including controller, switching, cabling and Interfaces	01 set			Five Years warranty
Services	Design, Supply, installation, commissioning & Testing	01 Job			Five Years Warranty

List of 125KW and above Hybrid Solar PV projects Completed in Pakistan
Mandatory for Last 05 Years

Name of Project	Client Name	Contact Nr (Cell and Landline)	Client Complete Address	Date of Completion	Completion Certificates

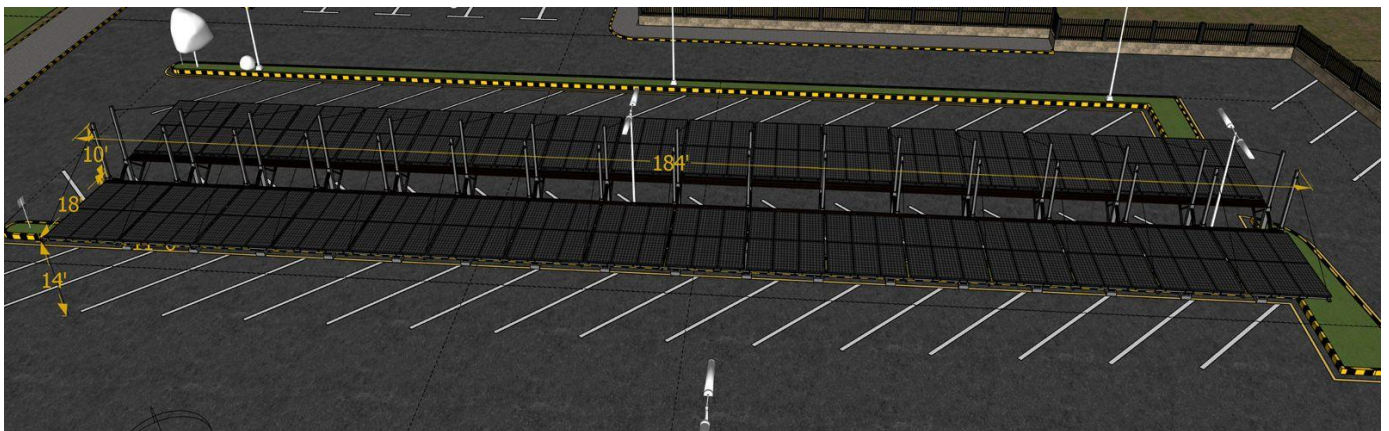
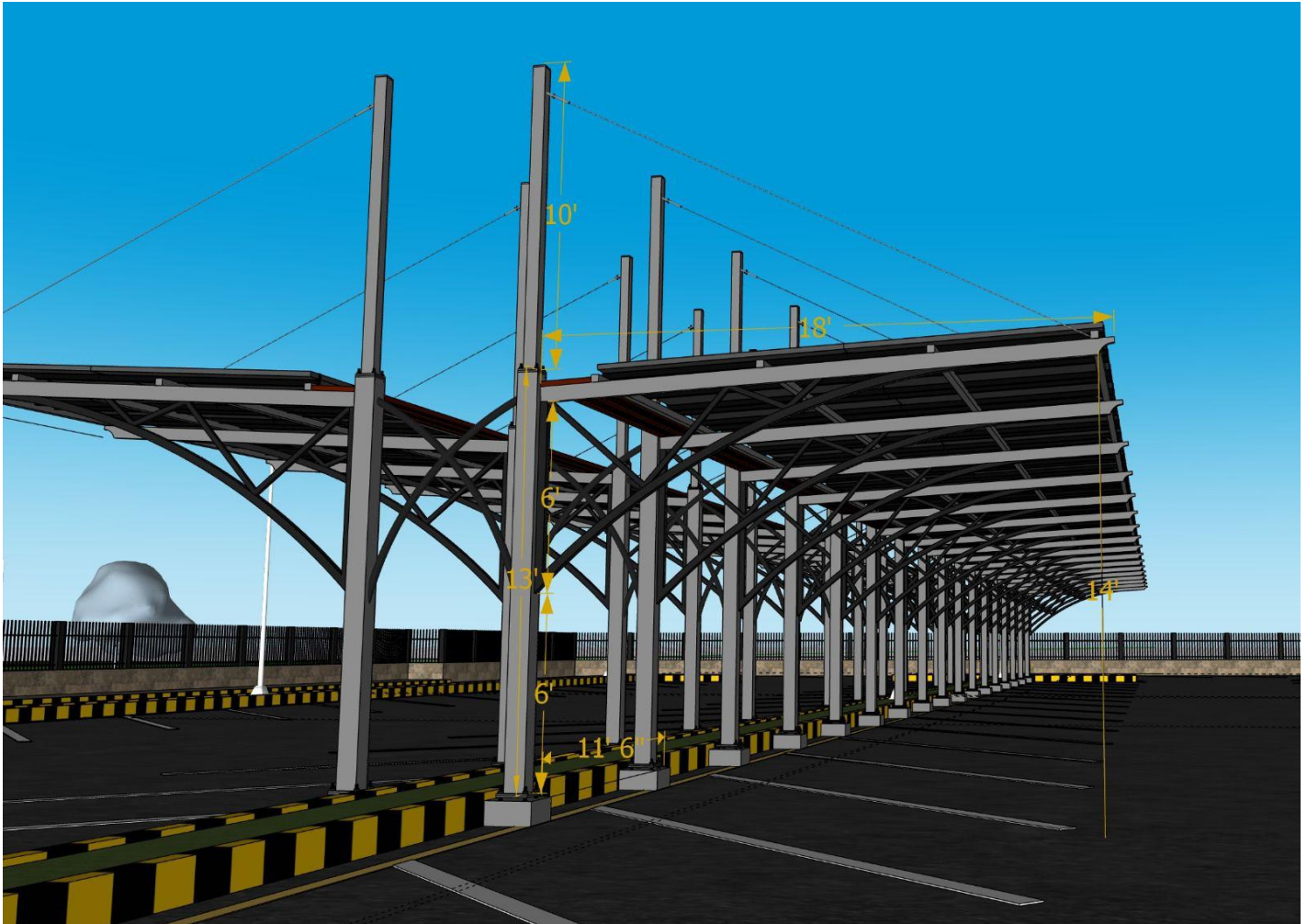
Note: No project other than PV Plant of less than 100KW

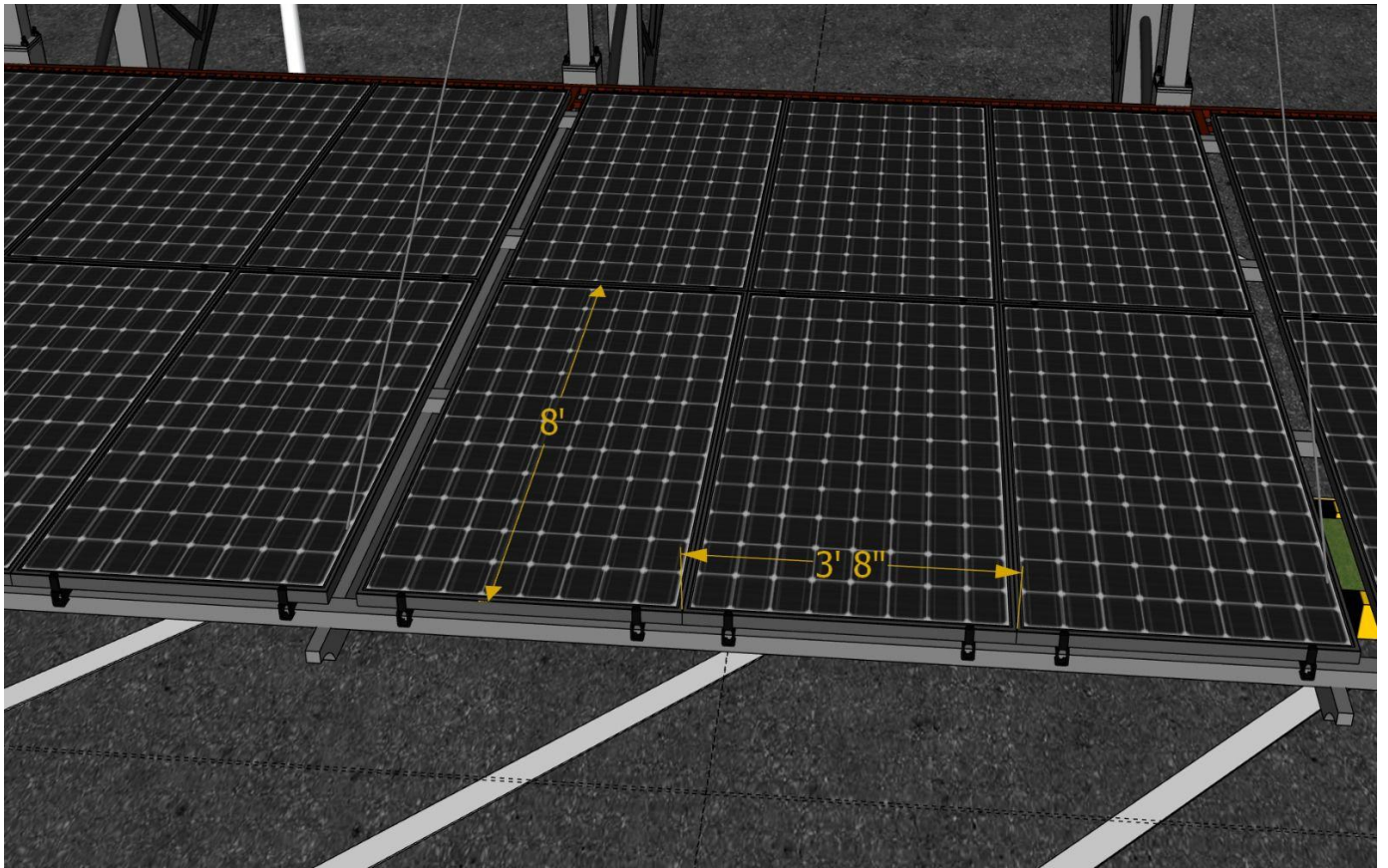
CHECK LIST FOR TERMS AND CONDITIONS

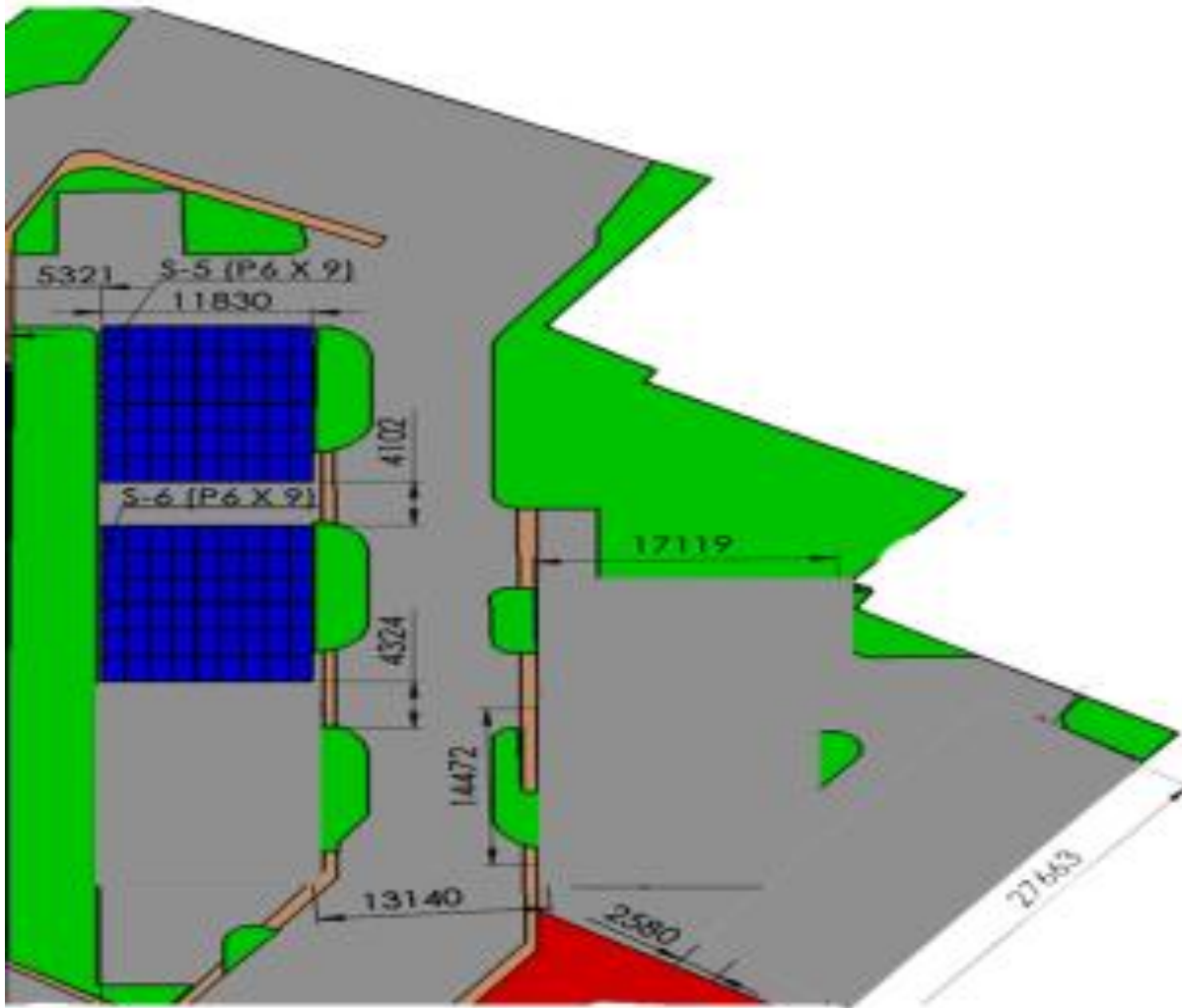
S. No	Terms & Conditions as per Bidding Document	Attached (Yes/No)	Page No.	Remarks
1.	Status of Bidder: Manufacturer or Authorized agent of the Manufacturer Whether Public Undertaking, Public Ltd., Private Ltd. Company or Proprietary Firm			
2.	Original Technical Catalogue of the quoted items			
3.	Certificate for sole ownership / partnership/ Certificate of Incorporation			
4.	One pager statement of turnover per year for last three successive years duly certified by concerned bank manager (Minimum Annual Turnover must be Rs. 10 Mn)			
5.	Rate of individual item must be quoted with all taxes according to format mentioned in the Bidding Document			
6.	Affidavit to the effect that the bidder is not blacklisted by any Govt. agency or have no pending case either civil or criminal against them.			
7.	Bid Security amount deposited is enclosed or not. If yes, please mention the details.			
8.	Acceptance of all terms / conditions towards after sales / services as mentioned in the bidding document.			
9.	Compliance Statement with relation to the terms & conditions as mentioned in the document.			
10.	Duly attested copy of sales tax registration certificate.			
11.	Soft copy of technical bids has been submitted or not.			

Above mentioned details are needed to be provided/ mentioned properly along with required documents at appropriate places, otherwise the offer of the bidder(s) shall be summarily rejected. Hence, bidder(s) are advised to go through the bidding documents carefully and be prepared with all the required documents to avoid rejection of offer.

DRAWING







Blue shaded area has to be covered with Monopole Solarized Parking Sheds.

Area can be physically seen / inspected at NUMS NIASR campus, Abid Majeed Road, Rawalpindi before submission of bids.