TENDER NOTICE NO. FHO-01/2025

1) PAEC Foundation (a welfare organization) invites sealed bids (containing two separate envelops, one marked as **"TECHNICAL PROPOSAL"** and second marked as **"FINANCIAL PROPOSAL"** (on Single Stage Two Envelop Bidding Procedure) from **Original Equipment Manufacturers, Authorized Distributors / Dealers and** for **SUPPLY AND INSTALLATION OF 75 KW SOLAR SYSTEM** at Pharmacy and Petrol Pumps on FOR Jauharabad and DG Khan.

2) Interested bidders may download the bids qualification criteria & bidding documents from the websites www.paecf.org.pk and www.ppra.gov.pk against payment of Rs.1000/- (non-refundable) through Pay order or CDR in favor of PAEC Foundation.

3) Pre-Bid meeting will be held on **24th February, 2025** by **1400 hours** at **PAEC Foundation Head Office, Adjacent to NORI Hospital Hanna Road G-8/3 Islamabad**

4) Tender can be submitted at **PAEC Foundation Head Office, Adjacent to NORI Hospital Hanna Road G-8/3 Islamabad** on or before **4th March, 2025** by **1000 hours,** which will be opened on the same day at **1030 hours.**

5) Bid security (earnest money), equal to 2% of total bid amount in shape of DD/PO/CDR or a Bank Guarantee only must be attached with Financial Proposal (Cash, crossed / open cheques shall not be accepted).

General Manager (Projects)
Pakistan Atomic Energy Commission Foundation
Ph.051-9263295-97, Ext: 205
Islamabad

PAKISTAN ATOMIC ENERGY COMMISSION FOUNDATION

Near NORI Hospital, Hanna Road, G-8/3, Islamabad

TENDER DOCUMENT

SUPPLY AND INSTALLATION OF 75 KW SOLAR SYSTEM

(To be installed at Pharmacy situated in Jauharabad and Petrol Pumps situated in DG Khan and Jauharabad)

Tender No. FHO-01/2025

This tender will be opened on **4th March, 2025 at 10:30 Hrs.** at PAEC Foundation, Near NORI Hospital, Hanna Road, G-8/3, Islamabad.

Name of Firm / Company: _____

Address: _____

Contact Person: _____ Designation: _____

Phone No: _____ Fax No: _____ Cell No. _____

GST Reg. No: _____ National Tax Number: _____

Active email address (CAPITAL letters): _____

Status of Firm / Company: *(Pls. Tick appropriate Box)*

Manufacturer ☐ Authorized Distributor ☐ General Supplier / Reseller ☐

ITEMS MARKED WITH (*) MUST BE ATTACHED; OTHERWISE YOUR BID SHALL BE DECLARED AS NON-RESPONSIVE

PROCUREMENT METHOD:

"SINGLE STAGE TWO ENVELOPS BIDDING PROCEDURE"

1. Bidding is based on National Competitive Bidding (NCB) in accordance with "Single Stage Two Envelope Bidding Procedure" comprising of "Technical Proposal & Financial Proposal" (Separately Sealed) in single package, as per PPRA-Rules 2004 Clause No. 36(b).

2. Tender document duly completed should reach the Procurement Department, at PAEC Foundation, Near NORI Hospital, Hanna Road, G-8/3, Islamabad, not later than **March 4, 2025 1000 Hrs**. Late Tenders will not be entertained. No telegraphic or faxed bid will be accepted.

3. Technical Proposals will be opened at **1030 Hrs on the same date** in the office of the General Manager (Projects), PAEC Foundation in the presence of bidders or their

authorized representatives who may choose to attend.

4. Sealed Financial Proposals shall be held in safe custody. Financial Proposals will be opened publicly after completing the technical evaluation, in the presence of technically qualified bidder(s),at the date and the timings given afterwards.

5. Financial Proposals of technically non-qualified bidder(s) shall be returned un-opened.

6. If two or more lowest evaluated compliant bidders quote the same price in their financial proposal,then the contract will be equally divided among all those bidder(s) or will be awarded to the bidder with better technical specification or PAEC Foundation may ask the bidders to submit the Financial Proposal again or PAEC Foundation reserves the right to negotiate the price with lowest evaluated bidders.

GENERAL TERMS AND CONDITIONS:

1. Tender shall be opened on the given date, time and venue. In the case of holiday on given tender opening date, same shall be opened on next working day.

2. Tender must be accompanied with a Pay Order / Demand Draft, CDR for amounting to Rs. 1,000/- (non-refundable) as tender fee in favor of **PAEC Foundation**. Tender document without tender fee shall not be accepted. Cash, crossed / open cheques shall not be acceptable (must be attached with the technical proposal). **(*)**

3. Tender should be addressed to the General Manager (Projects), PAEC Foundation Islamabad.

4. PAEC Foundation takes no responsibility for delay, loss or non-receipt of bids sent by post / courier.

5. Original tender Document, along with item specifications must be attached. All pages must be signed and stamped. **(*)**

6. Technical evaluation shall be carried out by the Technical Evaluation Committee and finalized according to the recommendations of the committee.

7. Please attach the Financial Soundness Certificate / the Account Maintenance Certificate issued by your bank which should not be older than 03 months. **(*)**

8. The bidder should submit an "Affidavit" on Rs. 100/- Stamp Paper that the Bidder / Firm / Companyis not Blacklisted from any Government / Semi Government / Non-Government Organization and the equipment supplied by the bidder(s) / Firm / Company, shall be free from defects in all respects. **(*)**

9. The bidder must be a registered taxpayer with FBR on Active Taxpayer List (ATL) and certificate must be attached for NTN and GST. (If GST is exempted, please provide necessary evidence). **(*)**

10. Copies of the last three tax returns of Income Tax and GST must be attached with the bid. **(*)**

11. GST should be exclusively/separately indicated in the Tender document and bill/invoice.

12. Bidders should quote their rates clearly on the tender document for each item in figures and words.The bid / rate shall be valid for a period of **Two (02) months** from the date of the opening of the bid which may be extendable with mutual consent. Validity of the bid for a shorter period shall be rejected as non-responsive. **(*)**

13. The Bidder shall furnish, as part of its bid, **a bid security (earnest money), equal to 2% of bid price inclusive of all taxes in shape of DD/PO/CDR or a Bank Guarantee only**

must be attached with Financial Proposal (Cash, crossed / open cheques shall not be accepted) (Earnest Money is arranged for quoted items (Whole project)). The bid security is refundable to the unsuccessful bidders after finalization of the tender. Bid security of successful bidder(s) will be retained till activation of services. Bid without the Earnest Money shall not be entertained even (if) bidder(s) is/are technically qualified. (*)

14. Bid security of successful bidder will be returned upon submission of Performance Security in shape of a Bank Guarantee as per detail given ahead).

15. The successful bidder shall have to furnish within **fourteen (14) days** after the execution / signing of the contract / issuance of Purchase Order, a performance security to the amount of **5% of the contract price / value of the Purchase Order** to PAEC Foundation. The proceeds of the performance security shall be payable to PAEC Foundation as compensation for any loss resulting from the Supplier's failure to complete its obligations under the contract / order. The performance security shall be denominated in the currency of the contract and shall be in the following form.

    a) A Bank Guarantee issued by any Commercial Bank located in Pakistan ("A" rated or above).

    b) The performance bond will be discharged by PAEC Foundation not later than **15 days** following the date of expiry of the warranty, under the contract.

    If the Performance security is not submitted to PAEC Foundation within the specified period or its amount is less than 5% of the contract price / purchase order value, PAEC Foundation reserves the right to cancel the award ofcontract / purchase order and forfeit the Bid Security.

16. The Goods / Item(s) / Equipment(s) / Component(s) of the Equipment(s), which will be supplied, should conform to the standard specifications and free from defects in all respects.

17. Items must be delivered to the PAEC Foundation site Office at the address mentioned below or as instructed within **Thirty (30) days** from receipt of the Purchase Order (PO).

    a) No extensions will be allowed unless granted by PAEC Foundation based on solid grounds.

    b) Delay in provision of Goods / Item(s) / Equipment(s) / Component(s) of the Equipment(s) / Service(s) by the Bidder(s) / Supplier(s) / Dealer(s) in accordance with the time scheduleprescribed in the General Terms and Conditions (GTC) shall not be tolerated and in such default, penalty for delaying Goods / Item(s) / Equipment(s) / Component(s) of the Equipment(s) / Service(s) shall be imposed @ 0.1% per day of the Total Contract / OrderAmount or Value of the Goods / Item(s) / Equipment(s) / Component(s) of the Equipment(s) / Service(s) delivered after due date, which will be capped to maximum of 10% of the totalvalue of the Contract /

Purchase Order (PO) / Undelivered Goods / Item(s) / Equipment(s) / Component(s) of the Equipment(s) / Service(s).

c) The penalty on the value of goods / item(s) not delivered in time will be imposed which may lead to cancellation of order without any liability to the PAEC Foundation and the said bidder / supplier / firm / company may also be blacklisted.

d) Moreover, any penalty may be imposed by the PAEC Foundation in case of any default by the bidder / supplier, in addition to initiating legal action against such defaulter. PAEC Foundation has also right to stop its pending payment or forfeit its guarantee / security submitted to the PAEC Foundationin this procurement or any other contract.

18. Notwithstanding anything contrary provided in the provisions of General Terms and Conditions (GTC) Clauses, the Bidder/Supplier shall not be liable for forfeiture of its performance security, liquidated damages, late delivery charges, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of the Force Majeure.

a. For purposes of this clause, "Force Majeure" means an event beyond the control of the Bidder/Supplier and not involving the Bidder/Supplier's fault or negligence and not foreseeable.

b. If a Force Majeure situation arises, the Bidder/Supplier shall promptly notify the PAEC Foundation in writing of such condition and the cause thereof along with evidence. Unless otherwise directed by the PAEC Foundation in writing, the Bidder/Supplier shall continue toperform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. The benefit of Force Majeure shall be in favor of the client (PAEC Foundation), if it happens anytime.

19. PAEC Foundation requires Contractor/Bidders, the highest standard of ethics during the procurement and execution of contracts. For the purposes of this provision, the terms set forth inPPRA Rules /Act shall be applicable:

a. PAEC Foundation will bar a firm/company/individual bidders/Contractors /consultant or whatsoever named, in accordance with Blacklisting procedures under Public Procurement Rules 2014in any case if deems so.

b. Furthermore, the Contractor/ Bidder(s) shall be aware of the provision stated in the General Terms & Conditions of the Contract.

20. PAEC Foundation may, under the applicable Law (s) for a specified period, debar a bidder/ Contractor from participating in any public procurement process of PAEC Foundation, if the bidder or contractorhas:

a. Acted in a manner detrimental to the public interest or good practices.

b. Consistently failed to perform his obligation under the contract.

c. Not performed the contract up to the mark.

d. Indulged in any corrupt practice.

If PAEC Foundation debars a bidder/Contractor, the procuring agency:

a. The said bidder/firm/company may also be blacklisted for a period of at least two years.
b. May forward the decision to the Public Procurement Regulatory Authority (PPRA) for publication on the website of the PPRA; and
c. May request the PPRA to debar the bidder or Contractor for procurement of all procuring agencies.

21. PAEC Foundation has the right to take any legal action against the bidder/supplier/firm/company if he found involved in corrupt practice in addition to blacklisting.

22. PAEC Foundation reserves the right to increase or decrease the quantity of goods specified ahead at the time of award of tender as per PPRA Rules. PAEC Foundation also reserves the right to place the order on partial shipment basis.

23. The supplied items should conform to the standard specifications and free from defects in all respects.

24. Income tax and GST shall be withheld as per Government rules.

25. Payment shall be released after completion of work subject to submission of the Sales Tax Invoice if necessary duly verified by the technical department. Taxes shall be withheld as per Government rules.

26. All the bidders will be appreciated to visit Foundation Pharmacy and Petrol Pumps situated in Jauharabad and DG Khan before submitting their proposal.

27. The bidder must be registered with AEDB Pakistan (Alternate Energy Development Board), Bidder must attach the copy of AEDB certificate.

28. The PAEC Foundation reserves the right to accept or reject any bid or annul the procurement process at any time as prescribed under PPRA Rules.

MANDATORY DOCUMENTS REQUIRED (MUST BE ATTACHED WITH TECHNICAL PROPOSAL ON TOP OF ALL DOCUMENTS):

Sr. No	Description	Attached (Marks)
1	Tender Document duly filled, signed & stamped by the Bidder	3
2	Financial Soundness and Account Maintenance Certificate issued by bank with three years audit reports minimum Rs. 50 million and above revenue per year	10
3	Affidavit on Rs.100/- Stamp Paper that the Bidder / Firm / Company is not blacklisted from any Government / Semi-Government / Non-Government Organization	2
4	AEDB /PPIB C1 Certificate and PEC C3 Certificate	10
5	Copy of NTN & GST Certificate	3
6	Copies of Last Three Tax Return of both Income Tax and Sales Tax	4
7	Validity of the bid for a period of Two (02) months (Confirmation required)	2
8	Delivery of ordered items within given Days (30 Days) (Confirmation required onLetterhead)	2
9	Minimum 1 Deployment of solar products of capacity 150 kW or above with copy of generation license issued on company name.	15
10	Minimum 2 Deployment of solar products of capacity 100 kW or above with copy of generation license issued on company name.	12
11	Relevant Work Experience (Minimum 2 Deployment at Petrol Pump)	12
12	List of 2 Minimum Engineers with company salary slips	5
13	Attendance in Pre-bid meeting is mandatory	5
14	Technical proposal Datasheets of all major equipment's	15

Note:
Your bid will be rejected if any of the above documents are not attached with the bid.

Evaluation Formula:

Technical Score: 70%
Financial Score: 30%

1. Minimum 49 **marks** out of 70 marks shall be required for technical qualification. The Evaluation committee will carry out the evaluation of the proposals as per the evaluation criteria. Absence of any required document will lead to zero marks in that specific area.
2. The Financial bids will be marked based on the following formula:

$$\frac{\text{Lowest Bid}}{\text{Bid Value}} \times \text{Financial Score Percentage}$$

3. The weightage of scores obtained in the technical and financial evaluation shall be added and the proposal of firm/company/service provider scoring the maximum points shall be selected.
4. The bidder whose bid has been determined to be substantially responsive technically and to the conditions of tender document and has scored highest as per the evaluation criteria will be awarded the work/contract.
5. The selected firm/company/service provider shall be ranked 1st (having the highest combined score). The firm/company/service provider ranked 2nd (having the 2nd highest combined score) shall be kept in reserve in case the first ranked firm/company/service provider withdraws, or fails to comply with the requirements as the case may be.

PRODUCT EVALUATION CRITERIA:

i. Initial scrutiny of tender documents / bids
ii. Technical Evaluation as per BOQ
iii. Evaluation of Demo Unit (s) **if needed.**
iv. Selection of technically compliant bidder(s)
v. Financial Evaluation of compliant bidders(s)
vi. Award of tender to most advantageous bidder for whole package i.e. 75KVA.

Procurement Department
PAEC Foundation,
Near NORI Hospital, Hanna Road,
G-8/3 Islamabad.
Tel: 051-9263295-97 Ext 205
PAEC Foundation NTN: 2266500-5

Declaration by the Bidder
Should be on Rs.100/- stamp paper.

I,_____being owner / proprietor / director / representative of this firm / company hereby certify that I have read all the terms & conditions of this office and are acceptable to me. All items will be of the best quality according to the standard specification. I will be bound to replace any items if found substandard, unsatisfactory or defective without any claim to **PAEC Foundation Islamabad**. If I fail to do so, I understand that PAEC Foundation has the right to confiscate the earnest money and blacklist our firm/company.

I hereby also confirm to provide warranty including service & support with parts for complete unit(s) (where applicable) from the date of delivery.

As of today, this firm / company is not blacklisted from any Government/Semi-Government/Non- Government Organization.

SIGNATURE & STAMP

Name:_____

Designation: _

TECHNICAL PORTION (must be placed in separate sealed envelope marked as (TECHNICAL PROPOSAL)

TECHNICAL TERMS AND CONDITIONS & MANDATORY DOCUMENTARY REQUIREMENT (TECHNICAL) (MUST BE ATTACHED WITH TECHNICAL PROPOSAL):

1. Certificate(s) of Manufacturer / Authorized Dealership / Distributors should be attached with the bid. The bidder must submit a current / valid certificate of authorized dealership / distributorship from principal of the quoted items. The said certificate must be issued directly by the principal to the bidders. **(*)**

2. 03 Years Multimode Modular Solar Hybrid Inverter, Sales and service experience of offered model.

3. Authorization of warranty Provision for Solar Hybrid Inverter, Tier one solar panels by the Manufacturer / Assembler **(*)**

4. Vendor should provide "Turnkey Solution" for the Project.

5. PAEC Foundation will not pay any kind of commissioning & testing charges.

6. The bidder must attach system layout design for execution of the Project. **(*)**

7. The bidder must submit list of active clients, the details of their Offices, sub office(s), workshopsall over Pakistan. **(*)**

8. The bidder must have their own qualified field servicing team along with proper tooling / instruments for trouble shooting.

9. The bidder must ensure the availability of spare parts and consumables.

10. The bidder must replace the faulty equipment from its active inventory within 48 hours of Incident reporting. (Panels / Inverters / Batteries)

11. The bidder must ensure the availability of standby unit / equipment in case of failure during warranty period.

12. The bidder must quote standard warranty period of offered equipment. **(*)**

13. The successful bidder must provide the technical submittal, operation / maintenance manual,wiring diagram of solar inverter installation & Mono Perc / Half Cut tier 1 solar panel(s).

14.

- **Turnkey Solution** - Installation & Commissioning, Testing Complete in all aspects with 5 YearsServices Warranty.
- **Transportation –** Delivery of all items / equipment on site.

Terms & Conditions

Company will provide maintenance manual and training to the client. Company will provide free-of-cost services for maintenance.

- Remote monitoring of system performance and faults.
- No charge for site visits in case of any faults in system.
- Site visits in case of abnormal performance degradation of PV panels.

DOCUMENTS: Must be provided by the successful bidder(s)

- Shipment documents with Solar Panels serial number
- Inverters warranty cards

WARRANTY:

1) **System:**

5 years complete system on site

NOTE:

Vendor will be responsible for Grid Input and Inverter Output. The respective cables to be taken to and from main DB or as directed by Engineer In charge to identify place where the Solar Inverter is to be installed.

Technical Specifications
Goods/Items (s) List as per Specifications given in Technical Portion

35-kWp Solar PV System at Petrol Pump DG Khan			
Sr. no	**Equipment**	**Specification**	**Qty**
01	Solar PV Modules	• Tier-1, Class-A, N-Type, Monofacial with 35 mm frame or better • Power rating 580W or higher, Anti-PID • Make: Tier-1, A-Grade as per Bloomberg latest list i.e. Canadian solar, Jinko solar, JA solar or equivalent • Standard compliance: IEC61730, 61215, ISO 9001,14001 etc. • Thermal power co efficient Pmax: ≤0.29 %/ ºC • Efficiency ≥ 22.45 %, Positive tolerance only • J.Box: factory equipped weather proof with minimum IP68 protection with provision of opening or replacement of DC cables, blocking diodes and convenient debugging, if required • Loading Capacity: 5400pa (Positive load),2400 Pa (negative load) provided with all performance and other relevant test reports/ certifications included but not limited to I-V Curve test, flash module test, hotspot test, Anti-PID test etc • 12 years of product warranty,30 year performance warranty or better	≥35KW
02	Solar Inverter	• Type: String Inverter, Grid tied, 1/1.5kV (DC), 3-Phase, multi-MPPT, transformer -less • Make: Sungrow, Huawei, Fronius (EU), SMA or approved equiv • Size: As per optimal array design, but not less than 25kVA • AC Voltage:3/N/PE,220V/380V,230/400V • AC Voltage Range:310-480V • Rated grid frequency:50Hz/60Hz	≥31.5 kW AC output

		• Inverter to PV ratio: optimal but not less than 0.9 per inverter • Maximum Efficiency ≥ 98% • Power Factor >0.99 (at rated power), 0.8 leading-0.8 lagging (Adjustable) • Total Harmonic Distortion (THD) < 3% (at rated power) • Grid support: Active and reactive power control • Standard compliance:IEC 62109-1/2,IEC 62116, IEC 61683 etc for safety, grid connectivity, parallel operation & other relevant standards • Degree of protection:IP 65 or better • DC/AC SPDs: Type-2 or better • Warranty:10 years local replacement with OEM certificate • Built with data logger, communication interfaces, protections and remote monitoring capability, provided with inspection report from reputed, independent third-party testing/ inspection institution	
03	DC Cable	• 99.9% cooper, double insulated, cross-linked insulation (XLPE/PO), Class 5, flexible tinned conductor • Size 6 mm2 or more • Voltage drop less than 2% • Voltage level 1.5/1.5 KV for max PV system voltage up to 2kV • Operating Temperature: - 20 ºC ~ 90 ºC, flexible weather resistant, UV resistant, ozone resistant, ozone corrosion resistant, halogen free & flame retardant • Provided with all major test report such as conductor resistant test insulation resistant test, etc.	As per Req

		• Standard compliance: IEC 62930:2017. IEC-60287, EN 50618 or equivalent • Cables to be laid in conduits of high quality • Make: Pakistan/Fast/Top Cable or approved equivalent	
04	AC Cable	• 4-core, 99% cooper, PVC Insulated /PVC Sheathed or better • Standard compliance: IEC 60228, BS 6346(Insulation). IEC-60364-5-52(sizing) IEC-60287/BS-7671 • Make: Pakistan/Fast or approved equivalent	As per Req
05	DC Breaker	• MCB,2 or 4 pole, 1000 VDC • Rated current, $I_{rated:}$ ≥ 20A as per PVs/String Max Breaking current, I_{max} : ≥ 5kA • Make: Schneider/Terasaki (Japan) or approved equiv • Individual breaker for every string with manual operation feature • Standard compliance:IEC 60947-2	1 No. per string
06	AC Breaker	• MCCB, 4 Pole with adjustable rating to be placed at output side of each On-Grid Inverter • I_{CU}: I_{CS} @415V • Max Breaking Current, I_{max} ≥ 36kA • Make: Schneider Electric/ABB/Terasaki or approved equivalent • Standard Compliance: IEC 60947-2	1 No. per Inverter
07	Surge Protection Devices	• 2 Pole, 1000VDC, Type II or better • Rated Current, I_{rated} ≥ 20A • Max Breaking Current, I_{max} ≥ 20kA • Make: Schneider Electric/ ABB/ Dehn Germany or approved equiv • SPDs at each string shall be additional to inverter's built in SPDs • Standard Compilance: IEC 61643-2	1 No. per DC string (DC SPD) 1 no. per inverter (AC SPD)

8	DC Panel / DB	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor/ outdoor type as per requirement and/ or Client's preference • With fans, louvers, proper fixtures, thimbles, lugs, connectors, labelling / tagging and foundations	≥01 Nos.
9	AC Panel	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor I outdoor type as per requirement and / or Client's preference, with IP-56 or better rating • With MCCB / ACB, digital meters, energy analyzers (Make: Datakom, Entes or approved equiv.), selector switches, CTs, phase indication lights (Make: Maruyasu Japan or Approved equiv.), fans, louvers with proper fixtures, thimbles, lugs, connectors, labelling / tagging and all other necessary fittings	≥01 Nos.
10	Solar Panels Mounting Structure	• Specific customized mounting structures shall be required for various roof-top locations/ segments • Material Section (Purlin/Beam/Column): C/U-Channel/1 beam or better • Thickness: 12 SWG / 2.75 mm for galvanized steel or better • Support/bracing: 14 SWG /2.0 mm or better • Parking shed shall be single/mono pitch. • Rawal bolts SS 304, M10, L = 100 mm to fix frame with columns • 04 nos. of galvanized anchor bolts (ASTM F959) or SS 304 may be used to fix base plate with concrete foundation. • Welding job must be executed according to prevailing welding standards for structural steel work, if required	≥33kWp DC

		• Panels' orientation: south azimuth angle of 180° ± 20° (180° corresponds to True South). Tilt angle shall be 15° or better • PV Module shall be fixed with frame through SS 304, MB x 30 mm Nuts/Bolts/Washers or Aluminum clamps (End/Mid) as per OEM recommendations while structure members (purlin, beam etc.) will be joined with each other through SS 304, M1O x 30 mm Nuts/Bolts/Washers. Washers should be used on both sides of bolts. • Solar panel lower end should be minimum 06 inches above from roof level and minimum distance between two panels will be 25 mm • Rawal bolts SS 304, M10, L = 100 mm or better shall be used to fix frame with roof • These fasteners must be tighten with pre-defined torque as per OEM recommendations. All fasteners must be adequately protected from atmosphere and weather conditions. Chemical sealant must be used during anchoring to give adhesion between bolt and concrete to avoid water leakage • Design shall be appropriate, innovative and easy to install & replace any module. Structure must be designed with appropriate factor of safety. The corners/ edges must be chamfered to avoid sharp edges. The array structure shall be grounded • Sufficient distance of installed panels must be from parapet/ boundary wall to avoid shade on panels and to allow regular cleaning of solar panels, they should be easily accessible for personnel.	

		• Mounting structure & foundation shall be designed with reference to the existing roof surface conditions to withstand wind speed of 150 km/h, using relevant Pakistani / International wind load codes. The successful bidder shall provide dynamic/wind analysis report using prevalent industrial software • Bidder must also submit certificates / documents / test reports along with relevant literature related to the quality and safety of structures.	
11	Civil work	• RCC foundation shall be used having minimum size of 12" x 12" x 12" with appropriate reinforcement / steel bars. foundation block shall be at least 1 feet above from ground level • 1:2:4 cement ratio must be used in all concrete works • Pad top shall also be slightly tapered to avoid water accumulation	As per req.
12	Earthing Protection	• 99.9% Copper, Single Core of suitable size/rating as per IEC 60364- 5-54, not less than 6mm^2 for exposed conductive parts. Sizing of earthing wire to be calculated, as per relevant IEC standard, for every equipment • Earth Resistance must not exceed 5 Ohms for any earthing pit. • DC Earthing to be installed as per IEC 60364-7	≥01 Nos.
13	Earth Pit	• Earth pit excavation of sufficient size (1.5m x 1.5m x 5.0m minimum) in hard rock / gravelly soil • Copper plate (99% pure of 500mm x 500mm x 10mm minimum) with 02 Nos. earth leads of bare copper conductor in mixture of wood, coal powder, salt and sand, with Mesh Resistances ≤ 1.0 Ohm • Earth Termination Point comprising of Copper99.9% pure) strip, fitted with brass nuts,	≥01 Nos.

		bolts, washers for installation / mounting with adequate inspection chamber	
14	Zero Export Device	• Complete with Analyzer, CTs, PTs, etc. for monitoring and logging of real-time power flow values and other parameters • Make: Original/ Recommended as per Inverter • Associated Cat-VI or approved equiv. communication cable to be interfaced with Inverters	01 No.
15	Firefighting	• Appropriate fire extinguishing equipment near each inverter I Point of Injection of Solar Power	01 Set Per Inverter
16	Other Accessories	• High quality UPVC Conduits for DC Cables, perforated GI cable trays (size: 18 SWG or better) with caps for AC cables with cable ties, clamps, thimbles, etc. • All other additional equipment/ parts which are necessary for smooth / efficient long-term operation of solar PV systems	As per Req.
17	Installation/ Commissioning Services and Net Metering	• Complete System Installation, Testing and Commissioning, complete in all respects • Preparation and submission of Net Metering application and necessary documentation, pre-requisites, DISCO load flow studies etc. on behalf of Client and submit corresponding fees such as NEPRA fees, Demand Notices etc. as per site requirement • Continued follow up of the case till activation of net metering and replacement I update of existing electrical infrastructure, if required, for net metering • All fees I costs associated with Net Metering to be borne by supplier	01 Job

30-kWp Solar PV System at Petrol Pump Jauharabad			
Sr. no	**Equipment**	**Specification**	**Qty**
01	Solar PV Modules	• Type: Tier-1, Class-A, N-Type, Monofacial with 35 mm frame or better • Power rating 580W or higher, Anti-PID • Make: Tier-1, A- Grade as per Bloomberg latest list i.e. Canadian solar, Jinko solar, JA solar or equivalent • Standard compliance: IEC61730, 61215, ISO 9001,14001 etc. • Thermal power co efficient Pmax: ≤0.29 %/C • Efficiency ≥ 22.45 %,Positive tolerance only • J.Box: factory equipped weather proof with minimum IP68 protection with provision of opening or replacement of DC cables, blocking diodes and convenient debugging, if required • Loading Capacity: 5400pa (Positive load),2400 Pa (negative load) provided with all performance and other relevant test reports/ certifications included but not limited to I-V Curve test, flash module test, hotspot test, Anti-PID test etc • 12 years of product warranty,30-year performance warranty or better	≥30KWp
02	Solar Inverter	• Type: String Inverter, Grid tied, 1/1.5kV (DC), 3-Phase, multi-MPPT, transformer -less • Make: Sungrow, Huawei, Fronius (EU), SMA or approved equivalent • Size: As per optimal array design, but not less than 25kVA • AC Voltage:3/N/PE,220V/380V,230/400V	≥27 kW AC output

		• AC Voltage Range:310-480V • Rated grid frequency:50Hz/60Hz • Inverter to PV ratio: optimal but not less than 0.9 per inverter • Maximum Efficiency ≥ 98% • Power Factor >0.99 (at rated power), 0.8 leading-0.8 lagging (Adjustable) • Total Harmonic Distortion (THD) < 3% (at rated power) • Grid support: Active and reactive power control • Standard compliance 62109-1/2,IEC 62116, IEC 61683 etc for safety, grid connectivity, parallel operation & other relevant standards • Degree of protection: IP65 or better • DC/AC SPDs: Type-2 or better • Warranty:10 years local replacement with OEM certificate • Built with data logger, communication interfaces, protections and remote monitoring capability, provided with inspection report from reputed, independent third-party testing/ inspection institution	
03	DC Cable	• 99.9% cooper, double insulated, cross-linked insulation (XLPE/PO), Class 5, flexible tinned conductor • Size 6 mm^2 or more • Voltage level 1.5/1.5 KV for max PV system voltage up to 2kV • Operating Temperature: - 20 ºC ~ 90 ºC, flexible weather resistant, UV resistant, ozone corrosion resistant, halogen free & flame retardant • Provided with all major test report such as conductor resistant test insulation resistant test, etc.	As per Req

		• Standard compliance: IEC 62930:2017. IEC-60287, EN 50618 or equivalent • Cables to be laid in conduits of high quality • Make: Pakistan/Fast/Top Cable or approved equivalent	
04	AC Cable	• 4-core, 99% cooper, PVC Insulated /PVC Sheathed or better • Standard compliance: IEC 60228, BS 6346(Insulation). IEC-60364-5-52(sizing) IEC-60287/BS-7671 • Make: Pakistan/Fast or approved equivalent	As per Req
05	DC Breaker	• MCB,2 or 4 pole, 1000 VDC • Rated current, I_{rated} :≥ 20A as per PVs/String Max Breaking current, I_{max} :≥ 5kA • Make: Schneider/Terasaki (Japan) or approved equivalent • Individual breaker for every string with manual operation feature • Standard compliance: IEC 60947-2	1 No. per string
06	AC Breaker	• MCCB, 4 Pole with adjustable rating to be placed at output side of each On-Grid Inverter • I_{CU}: I_{CS} @415V • Max Breaking Current, I_{max} : ≥ 36kA • Make: Schneider Electric/ABB/Terasaki or approved equivalent • Standard Compliance: IEC 60947-2	1 No. per Inverter
07	Surge Protection Devices	• 2 Pole, 1000VDC, Type II or better • Rated Current, I_{rated} ≥ 20A • Max Breaking Current, I_{max} ≥ 20kA • Make: Schneider Electric/ ABB/ Dehn Germany or approved equivalent • SPDs at each string shall be additional to inverter's built in SPDs • Standard Compliance: IEC 61643-2	1 No. per DC string (DC SPD) 1 no. per inverter (AC SPD)

8	DC Panel / DB	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor/ outdoor type as per requirement and/ or Client's preference • With fans, louvers, proper fixtures, thimbles, lugs, connectors, labelling / tagging and foundations	≥ 01 Nos.
9	AC Panel	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor I outdoor type as per requirement and / or Client's preference, with IP-56 or better rating • With MCCB / ACB, digital meters, energy analyzers (Make: Datakom, Entes or approved equivalent.), selector switches, CTs, phase indication lights (Make: Maruyasu Japan or Approved equiv.), fans, louvers with proper fixtures, thimbles, lugs, connectors, labelling / tagging and all other necessary fittings	≥ 01 Nos.
10	Solar Panels Mounting Structure	• Specific customized mounting structures shall be required for various roof-top locations/ segments • Material Section (Purlin/Beam/Column): C/U-Channel/1 beam or better • Thickness: 12 SWG / 2.75 mm for galvanized steel or better • Support/bracing: 14 SWG /2.0 mm or better • Parking shed shall be single/mono pitch. • Rawal bolts SS 304, M10, L = 100 mm to fix frame with columns • 04 nos. of galvanized anchor bolts (ASTM F959) or SS 304 may be used to fix base plate with concrete foundation.	≥33kWp DC

		• Welding job must be executed according to prevailing welding standards for structural steel work, if required • Panels' orientation: south azimuth angle of 180° ± 20° (180° corresponds to True South). Tilt angle shall be 15° or better • PV Module shall be fixed with frame through SS 304, M8 x 30 mm Nuts/Bolts/Washers or Aluminum clamps (End/Mid) as per OEM recommendations while structure members (purlin, beam etc.) will be joined with each other through SS 304, M1O x 30 mm Nuts/Bolts/Washers. Washers should be used on both sides of bolts • Solar panel lower end should be minimum 06 inches above from roof level and minimum distance between two panels will be 25 mm • Rawal bolts SS 304, M10, L = 100 mm or bettershall be used to fix frame with roof • These fasteners must be tighten with pre-defined torque as per OEM recommendations. All fasteners must be adequately protected from atmosphere and weather conditions. Chemical sealant must be used during anchoring to give adhesion between bolt and concrete to avoid water leakage • Design shall be appropriate, innovative and easy to install & replace any module. Structure must be designed with appropriate factor of safety. The corners/ edges must be chamfered to avoid sharp edges. The array structure shall be grounded • Sufficient distance of installed panels must be from parapet/ boundary wall to avoid shade on panels and to allow regular cleaning of solar	

		panels, they should be easily accessible for personnel. • Mounting structure & foundation shall be designed with reference to the existing roof surface conditions to withstand wind speed of 150 km/h, using relevant Pakistani / International wind load codes. The successful bidder shall provide dynamic/wind analysis report using prevalent industrial software • Bidder must also submit certificates / documents / test reports along with relevant literature related to the quality and safety of structures.	
11	Civil work	• RCC foundation shall be used having minimum size of 12" x 12" x 12" with appropriate reinforcement / steel bars. foundation block shall be at least 1 feet above from ground level • 1:2:4 cement ratio must be used in all concrete works • Pad top shall also be slightly tapered to avoid water accumulation	As per req.
12	Earthing Protection	• 99.9% Copper, Single Core of suitable size/rating as per IEC 60364- 5-54, not less than 6mm^2 for exposed conductive parts. Sizing of earthing wire to be calculated, as per relevant IEC standard, for every equipment • Earth Resistance must not exceed 5 Ohms for any earthing pit. • DC Earthing to be installed as per IEC 60364-7	≥ 01 Nos.
13	Earth Pit	• Earth pit excavation of sufficient size (1.5m x 1.5m x 5.0m minimum) in hard rock / gravelly soil • Copper plate (99% pure of 500mm x 500mm x 10mm minimum) with 02 Nos. earth leads of bare copper conductor in mixture of wood, coal	≥ 01 Nos.

		powder, salt and sand, with Mesh Resistances ≤ 1.0 Ohm • Earth Termination Point comprising of Copper99.9% pure) strip, fitted with brass nuts, bolts, washers for installation / mounting with adequate inspection chamber	
14	Zero Export Device	• Complete with Analyzer, CTs, PTs, etc. for monitoring and logging of real-time power flow values and other parameters • Make: Original/ Recommended as per Inverter • Associated Cat-VI or approved equiv. communication cable to be interfaced with Inverters	01 No.
15	Firefighting	• Appropriate fire extinguishing equipment near each inverter / Point of Injection of Solar Power	01 Set Per Inverter
16	Other Accessories	• High quality UPVC Conduits for DC Cables, perforated GI cable trays (size: 18 SWG or better) with caps for AC cables with cable ties, clamps, thimbles, etc. • All other additional equipment/ parts which are necessary for smooth / efficient long term operation of solar PV systems	As per Req.
17	Installation/ Commissioning Services and Net Metering	• Complete System Installation, Testing and Commissioning, complete in all respects • Preparation and submission of Net Metering application and necessary documentation, pre-requisites, DISCO load flow studies etc. on behalf of Client and submit corresponding fees such as NEPRA fees, Demand Notices etc. as per site requirement • Continued follow up of the case till activation of net metering and replacement / update of existing electrical infrastructure, if required, for net metering • All fees / costs associated with Net Metering to be borne by supplier	01 Job

10-kWp Solar PV System at Pharmacy Jauharabad			
Sr. no	**Equipment**	**Specification**	**Qty**
01	Solar PV Modules	• Type: Tier-1, Class-A, N-Type, Monofacial with 35 mm frame or better • Power rating 580W or higher, Anti-PID • Make: Tier-1, A- Grade as per Bloomberg latest list i.e. Canadian solar, Jinko solar, JA solar or equivalent • Standard compliance: IEC61730, 61215, ISO 9001,14001 etc. • Thermal power co efficient P_{max}: ≤0.29 %/ ºC • Efficiency ≥ 22.45 %, Positive tolerance only • J.Box: factory equipped weather proof with minimum IP68 protection with provision of opening or replacement of DC cables, blocking diodes and convenient debugging, if required • Loading Capacity: 5400pa (Positive load),2400 Pa (negative load) provided with all performance and other relevant test reports/ certifications included but not limited to I-V Curve test, flash module test, hotspot test, Anti-PID test etc • 12 years of product warranty,30-year performance warranty or better	≥10KWp
02	Solar Inverter	• Type:, Grid tied, 1/1.5kV (DC), 3-Phase, multi-MPPT, • Make: Sungrow, Huawei, Fronius (EU), SMA or approved equivalent • Size: As per optimal array design • AC Voltage:3/N/PE,220V/380V,230/400V • AC Voltage Range:310-480V • Rated grid frequency:50Hz/60Hz • Inverter to PV ratio: optimal but not less than 0.9 per inverter • Maximum Efficiency ≥ 98%	≥ 10 kW AC output

		• Power Factor >0.99 (at rated power), 0.8 leading-0.8 lagging (Adjustable) • Total Harmonic Distortion (THD) < 3% (at rated power) • Grid support: Active and reactive power control • Standard compliance:IEC 62109-1/2,IEC 62116, IEC 61683 etc for safety, grid connectivity, parallel operation & other relevant standards • Degree of protection:IP65 or better • DC/AC SPDs: Type-2 or better • Warranty:10 years local replacement with OEM certificate • Built with data logger, communication interfaces, protections and remote monitoring capability, provided with inspection report from reputed, independent third-party testing/ inspection institution	
03	DC Cable	• 99.9% cooper, double insulated, cross-linked insulation (XLPE/PO), Class 5, flexible tinned conductor • Size 6 mm2 or more • Voltage level 1.5/1.5 KV for max PV system voltage up to 2kV • Operating Temperature: - 20º C ~ 90 ºC, flexible weather resistant, UV resistant, ozone corrosion resistant, halogen free & flame retardant • Provided with all major test report such as conductor resistant test insulation resistant test, etc. • Standard compliance: IEC 62930:2017. IEC-60287, EN 50618 etc • Cables to be laid in conduits of high quality • Make: Pakistan/Fast/Top Cable or approved equivalent	As per Req

04	AC Cable	• 4-core, 99% cooper, PVC Insulated /PVC Sheathed or better • Standard compliance: IEC 60228, BS 6346(Insulation). IEC-60364-5-52(sizing) IEC-60287/BS-7671 • Make: Pakistan/Fast or approved equivalent	As per Req
05	DC Breaker	• MCB,2 or 4 pole, 1000 VDC • Rated current, I_{rated} : ≥ 20A as per PVs/String Max Breaking current, I_{max} : ≥ 5kA • Make: Schneider/Terasaki (Japan) or approved equivalent • Individual breaker for every string with manual operation feature • Standard compliance: IEC 60947-2	1 No. per string
06	AC Breaker	• MCCB, 4 Pole with adjustable rating to be placed at output side of each On-Grid Inverter • I_{CU}: I_{CS} @415V • Max Breaking Current, I_{max}: ≥ 36kA • Make: Schneider Electric/ABB or approved equivalent • Standard Compliance :IEC 60947-2	1 No. per Inverter
07	Surge Protection Devices	• 2 or 4-Pole, 1000VDC, Type II or better • Rated Current, I_{rated} ≥ 20A, • Max Breaking Current, I_{max}: ≥ 20kA • Make: Schneider Electric/ ABB/ Dehn Germany or approved equivalent • SPDs at each string shall be additional to inverter's built-in SPDs • Standard Compliance: IEC 61643-2	1 No. per DC string (DC SPD) 1 no. (AC SPD)
8	DC Panel / DB	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor/ outdoor type as per requirement and/ or Client's preference	≥ 01 Nos.

		• With fans, louvers, proper fixtures, thimbles, lugs, connectors, labelling / tagging and foundations	
9	AC Panel	• Floor standing / wall mounted with MS powder coated finish • 14 SWG or better • Indoor / outdoor type as per requirement and / or Client's preference, with IP-56 or better rating • With MCCB / ACB, digital meters, energy analyzers (Make: Datakom, Entes or approved equiv.), selector switches, CTs, phase indication lights (Make: Maruyasu Japan or Approved equiv.), fans, louvers with proper fixtures, thimbles, lugs, connectors, labelling / tagging and all other necessary fittings	≥ 01 Nos.
10	Solar Panels Mounting Structure	• Mounting Material: Carbon Steel (ASTM A-36) or Aluminum Alloy 6061-T6 (ASTM B-221) • Galvanization: Hot Dipped, Zinc coated of minimum 80 microns thickness (ASTM A123) • Configuration: L#/L@ structure/ customized structure or better • Material Section/shape: (Plain/lip)/ square tube or better • Thickness: 12 SWG / 2.75 mm for galvanized steel and 10 SWG/2.58 mm for aluminum alloy or better • Panels' orientation: south azimuth angle of 180" ± 20" (180" corresponds to True South). Tilt angle shall be 15° or better • PV Module shall be fixed with frame through SS 304, M8 x 30 mm Nuts/Bolts/Washers or Aluminum clamps (End/Mid) as per OEM recommendations while structure members (purlin, beam etc.) will be joined with each other through SS 304, M1O x 30 mm	≥ 10 kWp DC

		Nuts/Bolts/Washers. Washers should be used on both sides of bolts. • Solar panel lower end should be minimum 06 inches above from roof level and minimum distance between two panels will be 25 mm • Rawal bolts SS 304, M10, L = 100 mm or better shall be used to fix frame with roof • Fasteners must be tighten with pre-defined torque as per OEM recommendations. Chemical sealant must be used during anchoring to give adhesion between bolt and concrete to avoid water leakage • Design shall be appropriate, innovative and easy to install & replace any module. Structure must be designed with appropriate factor of safety. The corners/ edges must be chamfered to avoid sharp edges. The array structure shall be grounded • Sufficient distance of installed panels must be from parapet/ boundary wall to avoid shade on panels and to allow regular cleaning of solar panels, they should be easily accessible for personnel. • Mounting structure & foundation shall be designed with reference to the existing roof surface conditions to withstand wind speed of 150 km/h, using relevant Pakistani / International wind load codes. The successful bidder shall provide dynamic/wind analysis report using prevalent industrial software • Bidder must also submit certificates / documents / test reports along with relevant literature related to the quality and safety of structures.	

11	Civil work	• PCC pad having minimum size of 8" x 8" x 6" around each frame leg • 1:2:4 cement ratio must be used in all concrete work • Pad top shall also be slightly tapered to avoid water accumulation	As per req.
12	Earthing Protection	• 99.9% Copper, Single Core of suitable size/rating as per IEC 60364- 5-54, not less than 6mm2 for exposed conductive parts. Sizing of earthing wire to be calculated, as per relevant IEC standard. • Earth Resistance must not exceed 5 Ohms for any earthing pit. • DC Earthing to be installed as per IEC 60364-7	≥ 01 Nos.
13	Earth Pit	• Earth pit excavation of sufficient size (1.0m x 1.0m x 5.0m minimum) in hard rock / gravelly soil • Copper plate (99% pure of 500mm x 500mm x 10mm minimum) with 02 Nos. earth leads of bare copper conductor in mixture of wood, coal powder, salt and sand, with Mesh Resistances ≤ 1.0 Ohm • Earth Termination Point comprising of Copper99.9% pure) strip, fitted with brass nuts, bolts, washers for installation / mounting with adequate inspection chamber	≥ 01 Nos.
14	Lightning Arrestor	• 1” Dia & 1m long rod with 5-spikes ball and base • Earthing plate 1 x 1 ft. Earthing rod 5 ft long and 16mm dia • 25mm x 1.6 mm cooper strip and earthing powder • Antistatic Mast, GI pipe with cooper rods fixed on MS plate as per EN 62305-2	≥ 01 Nos.

15	Zero Export Device	• Complete with Analyzer, CTs, PTs, etc. for monitoring and logging of real-time power flow values and other parameters • Make: Original/ Recommended as per Inverter • Associated Cat-VI or approved equiv. communication cable to be interfaced with Inverters	01 No.
16	Firefighting	• Appropriate fire extinguishing equipment near each inverter / Point of Injection of Solar Power	01 Set
17	Other Accessories	• High quality perforated GI cable trays for AC & DC cables (size: 18 SWG or better) with caps, cables ties, clamps, thimbles, etc. • All other additional equipment/ parts which are necessary for smooth / efficient long-term operation of solar PV systems	As per Req.
18	Installation/ Commissioning Services and Net Metering	• Complete System Installation, Testing and Commissioning, complete in all respects • Preparation and submission of Net Metering application and necessary documentation, pre-requisites, DISCO load flow studies etc. on behalf of Client and submit corresponding fees such as NEPRA fees, Demand Notices etc. as per site requirement • Continued follow up of the case till activation of net metering and replacement / update of existing electrical infrastructure, if required, for net metering • All fees / costs associated with Net Metering to be borne by supplier	01 Job

FINANCIAL PORTION

(Must be placed in Separate Sealed Envelope Marked as "FINANCIAL PROPOSAL" on Bidder Letter Head on following format)

Sr. No	Description	Unit Price (Rs.)	GST if applicable (Rs.)	Total Unit Price (Rs.) with Taxes	Qty.	Total Amount (Rs.)
1						
2						
3						
4						
5						
6						
7						

Grand Total Amount in Words (PKR):_____

_____

NOTE:

THE EARNEST MONEY SHALL BE CALCULATED ON GRAND TOTAL AMOUNT OF ALL QUOTED GOODS/ITEM(S) AND MUST BE ATTACHED WITH THE FINANCIALPROPOSAL ONLY.

BID WITHOUT EARNEST MONEY SHALL NOT BE ENTERTAINED EVEN THE BIDDER(S)/SUPPLIER(S) QUALIFIED TECHNICALLY