

# **DOW UNIVERSITY OF HEALTH SCIENCES**



## **BIDDING DOCUMENTS**

### **Single Stage – Two Envelope Procedure**

**As per Rule 46 (2) of SPPRA, 2010 (Amended up to date)**

**NIT No. DUHS/W&S/2025/1587, Date: 24<sup>th</sup> October, 2025**

**SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF  
(270KW & 450KW) GRID TIED SOLAR SYSTEM AT  
(GIRLS HOSTEL, OJHA CAMPUS) & (WAREHOUSE, OJHA  
CAMPUS), DUHS KARACHI**

**(REF NO: DUHS/W&S-NIT/184)**

## NOTICE INVITING TENDER (NIT)



### OFFICE OF THE DIRECTOR WORKS & SERVICES DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI.

Baba-e-Urdu Road, Karachi. Direct No. 92-21- 99216065  
Website: [www.duhs.edu.pk](http://www.duhs.edu.pk) E-mail: [rahim.khan@duhs.edu.pk](mailto:rahim.khan@duhs.edu.pk)

NIT No. DUHS/W&S/2025/1587

Dated: October 24, 2025

## TENDER NOTICE

Dow University of Health Sciences (DUHS), Karachi is a Public Sector University that invites e-bids through E-Pak Acquisition & Disposable System (EPADS) from well-reputed Companies / Bidders/firms having registration with the Federal Board of Revenue (FBR), Income Tax Department, Sindh Revenue Service Board and Sales Tax.

| S # | NAME OF WORK                                                                                                                                                                | METHOD OF PROCUREMENT                                                                                 |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1   | REPAIR AND MAINTENANCE SERVICES FOR UNINTERRUPTED POWER SUPPLIES (UPS) (REF. NO. DUHS/W&S-NIT/183)                                                                          | Single Stage – Two Envelope Procedure as per rule 46 sub rule-2 of SPP Rules 2010 (Amended upto date) |
| 2   | SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF (270KW & 450KW) GRID TIED SOLAR SYSTEM AT (GIRLS HOSTEL & WAREHOUSE), OJHA CAMPUS, DUHS KARACHI (REF. NO. DUHS/W&S-NIT/184) | Single Stage – Two Envelope Procedure as per rule 46 sub rule-2 of SPP Rules 2010 (Amended upto date) |

|            |                                                                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Tender Fee | Rs. 5,000/- (Rupees Five Thousand Only) Non-Refundable in shape of Pay Order / Demand Draft in favor of Dow University of Health Sciences, Karachi. |
| Security   | Bid Security and Performance Security as mentioned in the bidding document.                                                                         |

E-Bidding documents as per detailed terms and conditions, specifications and requirements are available for the registered bidders on Sindh Public Procurement Regulatory Authority's EPADS at <https://portalsindh.eprocure.gov.pk/#/> and University website <https://duhs.edu.pk> on the payment noted above (non-refundable) on any working day except the day of opening of tenders.

The electronics bids must be submitted using EPADS before closing time **11-11-2025** at **10:00 Hrs.** Manual bids, shall not be accepted. Electronic Bids will be opened on **11-11-2025** at **11:30 Hrs.** For any query related to e-bidding, bidders may contact the Facilitator / Coordinator, Procurement Committee, Dow University of Health Sciences (DUHS), located at 5th Floor, Admin Block, DMC Campus, Baba-e-Urdu Road near Civil Hospital, Karachi at Phone No. 021-38771000 (Ext. 5820, 5814, 5907). The Tender Fee (non-refundable) and Bid Security (refundable) shall be submitted in the form of a Pay Order or Demand Draft issued by a Scheduled Bank of Pakistan in favor of Dow University of Health Sciences, Karachi, and must be delivered to the above-mentioned office of the Facilitator / Coordinator, Procurement Committee, at the same address.

In case of any unforeseen situation resulting in the closure of the office on the date of opening or if Government declares Holiday the tenders shall be submitted/opened on the next working day at the same time & venue. The Procuring Agency reserves the right to reject any or all bids subject to relevant provisions of SPP Rules, 2010 (Amended up to date) and may cancel the bidding process at any time prior to the acceptance of a bid or proposal under "Rule-25" of said Rules. In case of any ambiguity, inconsistency, or conflict between the Notice Inviting Tender (NIT) and the Bidding Document, the provisions of the Bidding Document shall prevail.

### DIRECTOR

**Works & Services**  
**Dow University of Health Sciences, Karachi**

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## **B: BID DATA SHEET**

The following specific data shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB) / Terms & Conditions. Whenever there is a conflict, the provisions herein shall prevail over those in ITB / T&C.

|     |                                                                    |                                                                                                                                                                                                                                                                 |
|-----|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | <b>Name of Procuring Agency:</b>                                   | Dow University of Health Sciences, Karachi (DUHS)                                                                                                                                                                                                               |
| 2.  | <b>Bidding Procedure:</b>                                          | Single Stage –Two Envelope Procedure                                                                                                                                                                                                                            |
| 3.  | <b>Name of Contract:</b>                                           | Supply, Fixing, Installation & Commissioning of (270 KW & 450 KW) Grid Tied Solar System at (Girls Hostel, Ojha Campus) & (Warehouse, Ojha Campus), DUHS, Karachi.                                                                                              |
| 4.  | <b>Tender fee:</b>                                                 | Rs.5,000/- (Five Thousand Rupees Only) Non-Refundable in Shape of Pay Order / Demand Draft in favor of Dow University of Health Sciences, Karachi.                                                                                                              |
| 5.  | <b>Submission of Tender fee &amp; Bid Security Address:</b>        | Dow University of Health Sciences (DMC Campus), Facilitator / Coordinator, Procurement Committee, Admin Block 5 <sup>th</sup> Floor DMC Campus, Baba-e-Urdu Road near Civil Hospital Karachi. Phone No. 021-38771000 Extension 5820,5814, 5907                  |
| 6.  | <b>Language of the Bid:</b>                                        | English                                                                                                                                                                                                                                                         |
| 7.  | <b>Currency of the Bid:</b>                                        | The price quoted shall be in Pakistani Rupee on DDP Basis                                                                                                                                                                                                       |
| 8.  | <b>Bid Prices:</b>                                                 | The price shall be fixed during the contract period.                                                                                                                                                                                                            |
| 9.  | <b>Bid Security:</b>                                               | The amount of bid security shall not be less than <b>Rs 2.5%</b> of the total contract value in the form of a Call Deposit, Bank Draft or a Bank Guarantee issued by a scheduled bank of Pakistan, in favour of the Dow University of Health Sciences, Karachi. |
| 10. | <b>Bid Validity Period:</b>                                        | 90 days                                                                                                                                                                                                                                                         |
| 11. | <b>Tender Purchasing date:</b>                                     | As Per NIT                                                                                                                                                                                                                                                      |
| 12. | <b>Deadline for bid submission:</b>                                | As Per NIT<br>(Online through EPADs at <a href="https://eprocure.gov.pk/">https://eprocure.gov.pk/</a> )                                                                                                                                                        |
| 13. | <b>Date, Time and Place of Bid opening:</b>                        | As Per NIT<br>(Online through EPADs at <a href="https://eprocure.gov.pk/">https://eprocure.gov.pk/</a> )                                                                                                                                                        |
| 15. | <b>Alternate Bid:</b>                                              | Not Allowed                                                                                                                                                                                                                                                     |
| 16. | <b>Joint Venture / Consortium Bid:</b>                             | Not Allowed                                                                                                                                                                                                                                                     |
| 17. | <b>Required Delivery Schedule from the Date of Contract award.</b> | Delivery & Installation within 90 Days or earlier.                                                                                                                                                                                                              |
| 18. | <b>Performance Security:</b>                                       | Amount of Performance Security shall not be less than 5% of the total contract value.                                                                                                                                                                           |

## C: INSTRUCTIONS TO BIDDERS. (ITB)

### 1. INTRODUCTION

#### 1 SCOPE

**1.1 “SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF (270KW & 450KW) GRID TIED SOLAR SYSTEM AT (GIRLS HOSTEL, OJHA CAMPUS) & (WAREHOUSE, OJHA CAMPUS), DUHS, KARACHI”.** Through Bidding Single Stage Two Envelope Procedure as per SPPRA Rules-2010 (Amended up to date).

#### 2 ELIGIBLE BIDDERS

- 2.1. This Invitation for Bids is open to all Engineering firms / contractors Authorized Agents / Sole Distributors within Pakistan, having valid authorization certificate of the product.
- 2.2. Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the University to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation for Bids.
- 2.3. Government-owned enterprises may participate only if they are legally and financially autonomous, if they operate under commercial law, and if they are not a dependent agency of the Federal Govt. or Provincial Govt.
- 2.4. Bidder should not be eligible to bid if they are under a declaration of ineligibility for corrupt and fraudulent practices issued by any Government organization in accordance with sub **clause 35.1.**
- 2.5. **Joint Venture not allowed**

#### 3 ELIGIBLE GOODS

- 3.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries and all expenditures made under the contract shall be limited to such goods and services. For this purpose, the term “Goods” includes any Goods that are the subject of this Invitation for Bids and the term “Services” shall include related services such as transportation, insurance etc. **The “Origin” means the place where the “goods” are mined, grown, or produced, or the place from which the “related services” are supplied.** Goods are produced through manufacturing or processing, or substantial and major assembly of ingredients / components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

## **2. THE BIDDING PROCEDURE**

Single Stage - Two Envelope Procedure under Rule 46(2) of SPPRA Rules, 2010 Amended up to date. (Online through EPADS at <https://eprocure.gov.pk/>)

- (a) Procuring agency shall evaluate the technical proposal in a manner prescribed in advance, without reference to the price and reject any proposal which does not conform to the specified requirements;
- (b) No amendments in the technical proposal shall be permitted during the technical evaluation;
- (c) Financial proposals of technically qualified bids shall be opened online on EPADS.
- (d) Financial proposal of bids found technically non-responsive shall not be opened from EPADS.
- (e) Bid found to be the lowest evaluated or best evaluated bid shall be accepted.

## **3. THE BIDDING DOCUMENTS**

### **CONTENTS OF BIDDING DOCUMENTS**

#### **3.1 The Bidding Documents:**

In addition to the Invitation for Bids (IFB) / Tender Notice, the bidding documents include:

- i. Instructions to Bidders (ITB);
- ii. General Conditions of Contract (GCC);
- iii. Special Conditions of Contract (SCC);
- iv. Schedule of Requirements;
- v. Technical Specifications;
- vi. Contract Form;
- vii. Manufacturer's Authorization Form;
- viii. Performance Guarantee Form;
- ix. Bid Form; and
- x. Price Schedules.

3.2 In case of discrepancies between the Invitation for Bids (IFB) / Tender Notice and the Bidding Documents, the Bidding Documents shall take precedence

3.3 The bidders are expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish complete information required in the bidding documents or to submit a bid not substantially responsive to the bidding documents may result in rejection.

### **AMENDMENT / CLARIFICATION OF BIDDING DOCUMENTS**

3.4 An interested bidder, who has obtained bidding documents, may request for clarification of the bidding document on EPADS in accordance with the Rule 23(1) of SPPRA Rules, 2010 (Amended up to date).

3.5 Any request for clarification which is received well before 05 working days before the submission of bids on EPADS. The Procuring Agency in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.

## **4. PREPARATION OF E-BIDS**

### **LANGUAGE OF BID**

#### **4.1 Preparation of Bids**

The bid prepared by the bidder, as well as all correspondence and documents relating to the bid exchanged by the bidder and the Procuring Agency shall be in English. Supporting documents and printed literature furnished by the bidder may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case for purposes of interpretation of the Bid, the translated version shall prevail.

### **DOCUMENTS COMPRISING THE BID**

#### **4.2 The bid prepared by the Bidder shall comprise the following:**

- (a) Bid Form;
- (b) Price Schedule;
- (c) Documentary evidence to the effect that the Bidder is eligible to bid and is qualified to perform the Contract if its bid is accepted;
- (d) Documentary evidence to the effect that the goods to be supplied by the Bidder are eligible goods and related services as defined in clause-3 and conform to the bidding documents; and Bid Security.

### **BID PRICES**

4.3 The prices and discounts quoted by the Bidder in the Bid Form and in the Price Schedules shall conform to the requirements specified below.

4.4 All items in the Schedule of Supply must be listed and priced separately in the Price Schedules. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items. Items not listed in the Price Schedule shall be assumed not to be included in the Bid.

4.5 The price to be quoted in the Bid Form shall be the total price of the Bid excluding any discounts offered.

4.6 The bidder shall clearly specify any unconditional discounts, including the methodology for their application (i.e., percentage on total bid value or item-wise). Any conditional or ambiguous discount offers shall not be considered for evaluation.

4.7 Prices proposed in the Price Schedule Forms for Goods / services, shall be disaggregated, when appropriate. This disaggregation shall be solely for the purpose of facilitating the comparison of Bids by the Procuring Agency. This shall not in any way limit the Procuring Agency's right to contract on any of the terms offered:

a) Price Schedule for Goods offered from within the Procuring Agency's country:

- i. Detailed Specification of Stores
- ii. Model / Cat No.
- iii. Name of Manufacturer.
- iv. Country of Origin
- v. Quantity of Stores
- vi. Unit
- vii. The unit price of the goods quoted on delivered duty paid (DDP) basis, including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of goods, or on the previously imported goods of foreign origin;
- viii. All prices must be in Pakistani Rupees (PKR), inclusive of all applicable taxes, duties, levies, and charges. If taxes are not specifically mentioned, the price shall be deemed inclusive of all applicable taxes, duties and levies as per prevailing laws. DUHS will deduct applicable taxes, duties and other levies at source. Errors in calculation of taxes, duties, levies, and charges shall be borne by the contractor. The price shall be fixed during the contract period. However, subsequent exemption / reduction in tax rate / reduced rates in indirect taxes during contract period will be adjusted accordingly.

4.8 Final Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A Bid submitted with an adjustable price quotation shall be treated as nonresponsive and shall be rejected.

#### **BID CURRENCIES**

4.9 Prices shall be quoted in Pak Rupees unless otherwise specified in the Bid Data Sheet.

#### **DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATION**

4.10 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Procuring Agency's satisfaction:

- (a) that, in the case of a Bidder offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' Manufacturer or producer to supply the goods in the Procuring Agency's country;
- (b) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a Bidder not doing business within the Procuring Agency's country, the Bidder is or will be (if awarded the contract) represented by an Agent in that country equipped, and able to carry out the Bidder's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
- (d) That the Bidder meets the evaluation & qualification criteria of bidding document.

#### **DOCUMENTS ESTABLISHING GOODS' ELIGIBILITY AND CONFORMITY TO BIDDING DOCUMENTS**

4.11 Pursuant to ITB Clause 8, the Bidder shall furnish, as part of its bid, documents establishing the

eligibility and conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.

- 4.12 The documentary evidence of the eligibility of the goods and services shall consist of a statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
- 4.13 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings, and data, and shall consist of:
- (a) a detailed description of the essential technical and performance characteristics of the goods; and
  - (b) an item-by-item commentary on the Procuring Agency's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.
- 4.14 For purposes of the commentary to be furnished pursuant to ITB Clause 12.3(b) above, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Procuring Agency in its Technical Specifications, are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in its bid, provided that it demonstrates to the Procuring Agency's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

### **BID SECURITY**

- 4.15 The Bidder shall furnish, as part of its proposal, a Bid Security in the amount and currency specified in the Bid Data Sheet and SCC. Unsuccessful bidders' Bid Security will be returned. The successful Bidder's Bid Security will be discharged upon signing of contract and furnishing the Performance Security bond, duly guaranteed by a scheduled bank.
- 4.16 The Bid Security shall remain valid for a period of 28 days beyond the bid validity period.
- 4.17 The Bid Security is required to protect the Procuring Agency against the risk of Bidder's conduct, which would warrant the Security's forfeiture;
- 4.18 The Bid Security may be forfeited:
- a. if a Bidder withdraws its bid during the period of bid validity; or
  - b. in the case of a successful Bidder, the Bidder fails:
    - i). to sign the Contract; or
    - ii). to complete the supplies / services in accordance with the general Conditions of contract.

### **BID VALIDITY**

- 4.19 Bids shall remain valid for 90 days from the date of its opening. A bid valid for a shorter period shall be treated as non-responsive and rejected.
- 4.20 The Procuring Agency shall ordinarily be under an obligation to process and evaluate the bids within the stipulated bid validity period. However, for any reasons to be recorded in writing, if an extension is considered necessary, all those who have submitted their bids shall be asked to extend their respective bid validity period.

### **ALTERNATIVE BIDS**

- 4.22 Unless otherwise indicated in the BDS, alternative bids shall not be considered.

## **5. SUBMISSION OF E-BIDS ONLINE ON EPADS**

### **ALL BIDS SHOULD BE SUBMITTED ONLINE THROUGH SPPRA EPADS**

#### **DEADLINE FOR SUBMISSION OF BIDS AS PER NIT**

- 5.1 The Procuring Agency may, at its convenience, extend this deadline for submission of bids by amending the bidding documents in which case all rights and obligations of the Procuring Agency and the Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

### **LATE BID**

- 5.2 All bids should be submitted online through SPPRA EPADS, Later E-Submission/uploading not acceptable.

### **WITHDRAWAL OF BIDS**

- 5.3 The Bidder may after its submission withdraw prior to the expiry of the deadline prescribed for submission of bids.

## **6. OPENING AND EVALUATION OF BIDS**

### **OPENING OF BIDS BY THE PROCURING AGENCY**

- 6.1 The Procuring Agency will open all bids Online through EPADS system, as per NIT date & time.

### **CLARIFICATION OF BIDS**

- 6.2 During evaluation of the bids, the Procuring Agency may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the prices or substance of the bid shall be sought, offered, or permitted.

### **PRELIMINARY EXAMINATION**

- 6.4 The Procuring Agency will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

- 6.5 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its bid security may be forfeited.
- 6.6 The Procuring Agency may waive any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.
- 6.7 Prior to the detailed evaluation, pursuant to ITB Clause 23 the Procuring Agency will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions, such as those concerning Bid Security, Applicable Law, and Taxes and Duties, will be deemed to be a material deviation. The Procuring Agency's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 6.8 If a bid is not substantially responsive, it will be rejected by the Procuring Agency and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

#### **EVALUATION AND COMPARISON OF BIDS**

- 6.9 The Procuring Agency will evaluate and compare the bids which have been determined to be substantially responsive, pursuant to ITB Clause 22.
- 6.10 The Procuring Agency's evaluation of a bid will be on delivered duty paid (DDP) basis inclusive of prevailing duties/taxes/levies.
- 6.11 The Procuring Agency's evaluation of a bid will take into account, in addition to the bid price quoted, one or more of the following factors, and quantified in ITB Clause 24:

##### **Incidental costs**

- The Contractor shall bear full responsibility for all deliveries and deliverables to the DUHS.
- The Contractor shall not claim or charge on account of logistics, transportation, loading/unloading, insurance, freight, labor costs or any other charges. No separate claims on these heads will be entertained.

##### **▪ Delivery schedule offered in the bid**

The goods covered under this invitation are required to be delivered / shipped within an acceptable range of weeks specified in the Schedule of Requirement.

#### **Deviations in payment schedule from that specified in the Special Conditions of Contract**

Bidders shall state their bid price for the payment schedule outlined in the SCC. Bids will be evaluated on the basis of this base price

- 6.12 For the purpose of comparison of bids quoted in different currencies, price shall be converted into Pakistani Rupees. The rate of exchange shall be the selling rate prevailing seven working days before the date of opening of the bids, as notified by the National Bank of Pakistan (NBP) / State Bank of Pakistan (SBP).

## QUALIFICATION / EVALUATION CRITERIA (MANDATORY REQUIREMENTS)

### A. QUALIFICATION REQUIREMENTS

| S#  | Qualification Criteria (Mandatory Requirements)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | <b>Compliance to the Technical Specifications.</b><br>The bidder is required to provide the relevant documents such as Sketches, Drawings, Catalogues, Brochures, Technical Data Sheet duly highlighting the complete technical specifications of the offered goods along with the dimensions and details of material.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2.  | Technical Proposal on Bidder's Letterhead                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3.  | Item-wise / Feature-wise product compliance / deviation sheet /statement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4.  | Valid Manufacturer Authorization in accordance with ITB Clause 11.1 (a).<br>Only manufacturer and its sole / authorized agent can quote the goods, no sub distributors / spot authorized agent is allowed to bid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 5.  | Copy of CNIC of signatory of the Bid Forms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6.  | Complete Bidding Document, duly signed and stamped on its each/every page as acceptance of all terms & conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7.  | Valid Registration Certificates from all relevant tax authorities (FBR/SRB) evidences incorporation under all applicable tax laws.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8.  | Valid Income Tax (FBR) Registration with Active Tax Payer Status on FBR website                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9.  | Valid PEC Registration Certificate in appropriate category C4 or above with the specialization following codes <b>EE 03, EE04, EE 10, EE11 (iii) Solar Energy System, CE10</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10. | Tender Purchase Receipt (Scanned)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 11. | Affidavit on stamp paper of Rs. 100/- duly notarized to the effect that:<br><b>i.</b> The bidder is neither blacklisted nor suspended by any National /International, including Provincial and Federal Government.<br><b>ii.</b> Any director or owner of the bidding company is not awarded any punishment from any Court of Law.<br><b>iii.</b> Bidder has submitted the correct and complete information along with the bid/offer. If any document / information is found forged / engineered / fake/ bogus at any stage, the bidder may be declared as Blacklisted in accordance with law and the performance guarantee and payment, if any may be forfeited.                                                                          |
| 12. | Bid Security shall be submitted at DUHS before the opening of the tender However, a copy of the same shall be inserted in the Technical Proposal after hiding the amount.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 13. | Company Profile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 14. | Valid Electrical Inspector License.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 15. | Valid AEDB or Equivalent license for Net-metering in category C-2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 16. | <b>Experience and Past Performance:</b><br>Experience in similar nature of work(s) executed during the last five years:<br><b>i.</b> At least one similar nature of work having minimum cost 80% of the estimated cost of the work; or<br><b>ii.</b> At least two similar nature works each having minimum cost 50% of the estimated Cost of the work.<br>(for supplying, fixing installation, & commissioning the quoted for the physical verification of quality of offered products) In Govt./Semi-Govt./Autonomous Bodies/ Universities/ Hospitals/Private Sector/Banking Sector. Following documentary evidences of each project must be provided for consideration: (1) Contract Agreement or Workorders (2) Completion Certificates |
| 17. | Average Annual Turnover in the last five (05) financial years should not be less than <b>PKR 120</b> million supported by Income Tax Returns (ITR – FBR) with demonstrated through audited statements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 18. | List of technical staff of bidders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 19. | Solar panels must have minimum 12 years warranty. Solar Inverter must have minimum 5 years warranty.<br>Panel fixing mountings must have minimum 10 years warranty.<br>Minimum 1-year workmanship warranty should be provided by bidder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 20. | All the proposed products should be well known, well reputed brands and widely used for its quality, performance and reliability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**B. CRITERIA FOR BID EVALUATION**

**i. Technical Proposal Evaluation:**

- a) The bids disqualified / not responsive to the **MANDATORY QUALIFICATION CRITERIA** provided at ITB Clause 24(A) shall not be eligible for further Technical Evaluation.
- b) Conditional Bids, Telegraphic Bids, Bids not accompanied by Bid Security of required amount and form, bids received after specific date and time and bids of Black Listed firms shall be treated as rejected / non-responsive.
- c) The bids shall be evaluated and compared on **ITEMIZED BASIS** reflected in the Section: G – Technical Specifications.
- d) **Bids are invited as per Single Stage – Two Envelope Procedure** in accordance with sub rule 2 of rule 46 of the Sindh Public Procurement Rules, 2010 (Amended up to date). **In case, any bidder encloses the financial bid within the technical bid, the same shall be rejected summarily.**
- e) Only those Financial Bids / Proposals will be announced / considered which were technically qualified.
- f) To technically qualify Bidders must obtain not less than the total specified minimum acceptable mandatory **70%** Marks out of **100%**, and each category should not be less than **50%** marks. However, obtaining of minimum acceptable marks / points in category is mandatory; failing which the Bidder shall be considered technically failed and his financial bid shall not open from EPADS.
- g) Based on the record / documentary evidence submitted by the bidders, each firm shall be technically evaluated as per following merit point system for weighing evaluation factors / criteria.

**ELIGIBILITY CRITERIA**

| S.no | Description                                                                                                     | Total Marks | Marks Obtained | Remarks            | Attachment of relevant evidence in each case is mandatory.in case of non-compliance no mark will be awarded | Evidence Attached |
|------|-----------------------------------------------------------------------------------------------------------------|-------------|----------------|--------------------|-------------------------------------------------------------------------------------------------------------|-------------------|
| 1    | YEARS IN BUSINESS IN THE REQUISITE FIELD (AS A SUPPLIER, FIXING, INSTALLATION & COMMISSIONING OF SOLAR SYSTEMS) | 10          |                | ABOVE 7 YEARS      | NTN CERTIFICATE IS REQUIRED TO BE ENCLOSED                                                                  |                   |
|      |                                                                                                                 | 7           |                | ABOVE 5 TO 7 YEARS |                                                                                                             |                   |
|      |                                                                                                                 | 5           |                | 3 TO 5 YEARS       |                                                                                                             |                   |
| 2    | VALID KARACHI ELECTRICAL LICENSE OF BIDDER                                                                      | 10          |                | YES                | DOCUMENTARY PROOFTO BE ATTACHED.                                                                            |                   |
|      |                                                                                                                 | 0           |                | NO                 |                                                                                                             |                   |

|   |                                                                                                                                           |                      |  |                                              |                                                                              |  |
|---|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--|----------------------------------------------|------------------------------------------------------------------------------|--|
| 3 | VALID AEDB<br>LICENSE                                                                                                                     | 10<br><br>Disqualify |  | C-2 category<br><br>Any Other                | DOCUMENTARY PROOF<br>TO BE ATTACHED.                                         |  |
| 4 | PEC REGISTRATION<br>CATEGORY WITH<br>SPECIALIZATION<br>CODES OF EE03,<br>EE04, EE11<br>(iii) (Solar Energy<br>System), CE 10<br>OF BIDDER | 20                   |  | C4 OR ABOVE<br>WITH<br>MENTIONED<br>CODES    | DOCUMENTARY<br>PROOF TO BE<br>ATTACHED.                                      |  |
|   |                                                                                                                                           | 0                    |  | C4 OR ABOVE<br>WITHOUT<br>MENTIONED<br>CODES |                                                                              |  |
| 5 | COUNTRY OF<br>ORIGIN OF<br>INVERTERS                                                                                                      | 10                   |  | SUNGROW/<br>HUAWEI                           | DOCUMENTARY<br>PROOF TO BE<br>ATTACHED                                       |  |
|   |                                                                                                                                           | 5                    |  | ANY OTHER                                    |                                                                              |  |
| 6 | IMPORTED ITEMS<br>DELIVERY TIME                                                                                                           | 10                   |  | READY<br>STOCK                               | DOCUMENTARY<br>PROOF TO BE<br>ATTACHED                                       |  |
|   |                                                                                                                                           | 5                    |  | WITHIN 45<br>DAYS                            |                                                                              |  |
| 7 | SOLAR TRAINED<br>ENGINEER                                                                                                                 | 5                    |  | AVAILABLE<br>IN KARACHI                      | DOCUMENTARY<br>PROOF TO BE<br>ATTACHED                                       |  |
|   |                                                                                                                                           | 0                    |  | NOT<br>AVAILABLE                             |                                                                              |  |
| 8 | ELECTRICAL &<br>MECHANICAL PEC<br>ENGINEER                                                                                                | 5                    |  | AVAILABLE                                    | DOCUMENTARY PROOF<br>TO BE ATTACHED                                          |  |
|   |                                                                                                                                           | 0                    |  | NOT<br>AVAILABLE                             |                                                                              |  |
| 9 | EXPERIENCE OF<br>SIMILAR<br>PROJECTS                                                                                                      | 20                   |  | 5 OR MORE                                    | REQUIRED COPY OF<br>CONTRACT<br>AGREEMENTS AND<br>COMPLETION<br>CERTIFICATES |  |
|   |                                                                                                                                           | 5                    |  | LESS THAN 5                                  |                                                                              |  |
|   |                                                                                                                                           | 0                    |  | LESS THAN 3                                  |                                                                              |  |
|   | TOTAL MARKS                                                                                                                               | 100                  |  | QUALIFIED / DISQUALIFIED                     |                                                                              |  |

**NOTE:**

- 1 ATTACHMENT OF RELEVANT EVIDENCE IN EACH ABOVE REQUISITE IS MANDATORY. IN CASE OF NON-PROVISION OF EVIDENCE IN ANY OF THE REQUISITE, NO MARKS WILL BE AWARDED.
- 2 ACQUIRING OF 70% MARKS OF THE TOTAL SCORE WILL MAKE THE BIDDER QUALIFY IN ELIGIBILITY CRITERIA.

**ii. FINANCIAL PROPOSAL EVALUATION:**

- a) Technically qualified/successful bidder(s) shall be eligible for Financial Proposal(s).
- b) Financial Bids / Proposals of Technically disqualified / rejected / non-responsive bidders will not be opened on EPADS.
- c) Only those items financial offer will be considered which were technically qualified.
- d) Bids not accompanied by the Bid Security of required amount and form shall be rejected.
- e) Procuring Agency shall not be responsible for any erroneous calculation of taxes and all differences arising out shall be fully borne by the Successful Bidder.
- f) For the purpose of comparison of bids quoted in different currencies (if applicable), price shall be converted into Pakistani Rupees. The rate of exchange shall be the selling rate prevailing seven working days before the date of opening of the bids, as notified by the National Bank of Pakistan (NBP) / State Bank of Pakistan (SBP).

**CONTACTING THE PROCURING AGENCY**

- 6.13 Any direct or indirect effort by a bidding firm to influence the Procuring Agency during the process of selection of a bidder or award of contract may besides rejection of its bid result into its disqualification from participation in the Procuring Agency's future bids.

**REJECTION OF BIDS**

- 6.14 Notwithstanding anything stated here-before after the Procuring Agency may reject any or all bids at any time prior to the acceptance of a bid. The Procuring Agency may upon request, communicate to a bidder, the grounds for its rejection, but shall not be under obligation to justify those grounds.

## **RE-TENDERING**

- 6.15 If the Procuring Agency has rejected all bids, it may move for a Re-Tendering or may seek any alternative method of procurement under the provisions of the prevailing Rules.

## **BID EVALUATION REPORT**

- 6.16 DUHS shall upload the Final Bid Evaluation Report on the websites of the Authority (EPADS) and DUHS, and shall also intimate all bidders, at least three (3) working days prior to the issuance of the Letter of Acceptance.

## **7. AWARD OF CONTRACT ACCEPTANCE OF BID AND AWARD CRITERIA**

DUHS shall award the contract to the bidder offering the lowest evaluated responsive bid among the technically qualified bidders, subject to fulfillment of all terms and codal formalities.

## **PROCURING AGENCY'S RIGHT TO VARY QUANTITIES**

- 7.1 The Procuring Agency reserves the right to increase or decrease the quantity of stores originally specified in the Price Schedule and Schedule of Requirements without any change in unit price or other terms and conditions.

## **LIMITATIONS ON NEGOTIATIONS**

- 7.2 The Procuring Agency reserves the right to hold negotiation of delivery schedule or completion schedule for all the items or any item.
- 7.3 Negotiations will not be used to change substantially:
- i. the technical quality or details of the requirement, including the tasks or responsibilities of the bidder or the performance of the goods;
  - ii. the terms and conditions of the Contract and;
  - iii. anything affecting the crucial or deciding factors in the evaluation of the proposals / bid and / or selection of successful bidder.

## **NOTIFICATION OF AWARD**

- 7.4 Prior to the expiry of the original or extended period of bid validity, the successful bidder will be informed in writing of acceptance of its bid by the Procuring Agency.

## **SIGNING OF CONTRACT**

- 7.5 While conveying acceptance of bid to the successful bidder, the Procuring Agency will send the bidder Contract Form provided in the bidding documents, incorporating all points of agreement between the Parties.

- 7.6 Within Twenty (20) days of receipt of the Contract Form, the successful Bidder and the Procuring Agency will sign and date the Contract on legal stamp paper valuing 0.35% of the value of contract, (cost shall be borne by the bidder). In case the successful Bidder, after completion of all codal formalities, shows inability to sign the Contract, its Bid Security shall be forfeited. The firm may also be blacklisted from taking part in any future bidding of Procuring Agency for a period up to five Years. In such a situation, the Procuring Agency may make the award to the next lowest evaluated responsive bidder or for Re-Tendering.

### **PERFORMANCE SECURITY / GURANTEE**

- 7.7 The successful Bidder shall furnish Performance Security. Upon submission of Performance Security, the Bid Security will be returned to the Bidder. The amount of Performance Security is specified at Bid Data Sheet.
- 7.8 Failure of the successful Bidder to comply with any of the requirements specified in this document shall be considered as sufficient grounds for the annulment of the award and forfeiture of the Bid Security, in which event the Procuring Agency may make the award to the next lowest evaluated Bidder at the risk and cost of the former.

### **CORRUPT OR FRAUDULENT PRACTICES**

- 7.9 The Procuring Agency and the Bidders / Manufacturers / Contractors are expected to observe the highest standard of ethics during the procurement and execution of the Contract. In pursuance of this policy, the relevant terms / phrases as may apply are defined below:
- (i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution; and
  - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract to the detriment of the Procuring Agency, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial noncompetitive levels and to deprive the Procuring Agency of the benefits of free and open competition;
- 7.10 The Procuring Agency will take all possible administrative / legal measures if it is found that the Bidder recommended for award was / is engaged in corrupt or fraudulent practice(s) before or after signing of the contract resulting into the conviction of the proprietor under criminal case besides blacklisting of the firm either indefinitely or for such period of time as may be determined by the Procuring Agency.
- 7.11 Will declare a firm ineligible, either indefinitely or for a stated period of time, for the award of a Contract if it, at any time, determines that the firm has engaged in corrupt or fraudulent practices in competing for or in executing a Contract.

## **D: GENERAL CONDITIONS OF CONTRACT (GCC)**

### **1. DEFINITIONS**

1.1 In this Contract, the following terms shall be interpreted as indicated:

- (a) "The Contract" means the agreement entered into between the Procuring Agency and the Bidder, as recorded in the Contract Form signed by the Parties, including all attachments and appendices thereto and all documents incorporated by reference therein. .
- (b) "The Contract Price" means the price payable to the Bidder under the Contract for the full and proper performance of its Contractual obligations.
- (c) "Goods" means all of the commodities, raw material, furniture, fixture, machinery and equipment, and/or other materials that the Supplier is required to supply to the Procuring Agency under the Contract.
- (d) "Related Services" means the services incidental to the supply of the goods, such as insurance, installation, fixations, training and initial maintenance, printing of special instructions on the label and packing, design and logo of the Procuring Agency, transportation of goods up to the desired destinations and other such obligations of the Bidder covered under the Contract.
- (e) "GCC" means the General Conditions of Contract contained in this section.
- (f) "SCC" means the Special Conditions of Contract.
- (g) "The Procuring Agency" means the Dow University of Health Sciences, Karachi.
- (h) "The Bidder" means the individual or firm supplying the goods under this Contract.
- (i) "Day" means official working day excluding national holidays.

### **2. APPLICATION**

2.1 These General Conditions shall apply to the extent that they are not inconsistent with provisions of other parts of the Contract.

### **3. TECHNICAL SPECIFICATIONS / STANDARDS**

3.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standards appropriate to the Goods' country of origin. Such standards shall be the latest issued by the concerned institution.

#### **4. USE OF CONTRACT DOCUMENTS AND INFORMATION**

- 4.1 The Bidder shall not without the Procuring Agency's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern; sample, or information furnished by or on behalf of the Procuring Agency in connection therewith, to any person other than a person employed by the Bidder in the performance of the Contract. Disclosure to such employed person shall be made in confidence and shall extend only, as far as may be necessary, to such performance and not further or otherwise.
- 4.2 The Bidder shall permit the Procuring Agency to inspect the Bidder's accounts and records relating to the performance of the Supplies.

#### **5. PATENT RIGHTS**

- 5.1 The Bidder shall indemnify the Procuring Agency against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the country.

#### **6. ENSURING STORAGE ARRANGEMENTS**

- 6.1 To ensure storage arrangements for the intended supplies, the Bidder shall inform the Procuring Agency at least two weeks prior to the arrival of the consignments at its store/warehouse. However, in case no space is available at its store/warehouse at the time of supply, the Procuring Agency shall, seven days prior to such a situation, inform the Bidder, in writing, of the possible time-frame of availability of space by which the supplies could be made. In case the Bidder abides by the given time frame, he will not be penalized for delay.

#### **7. INSPECTIONS, TESTS & TRAINING**

- 7.1 The Procuring agency or its representative(s) shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Procuring agency. SCC and the Technical Specifications shall specify what inspections and tests the Procuring agency requires and where they are to be conducted. The Procuring agency shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.
- 7.2 The inspections and tests may be conducted on the premises of the Supplier, appoint of delivery, and/or at the Goods' final destination. If conducted on the premises of the Supplier, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Procuring agency
- 7.3 Should any inspected or tested Goods fail to conform to the Specifications, the Procuring agency may reject the Goods, and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Procuring agency.
- 7.4 The Procuring agency's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Procuring agency's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Procuring agency or its representative prior to the Goods' shipment from the country of origin.

- 7.5 Nothing in GCC Clause 7 shall in any way release the Supplier from any warranty or other obligations under this Contract.

## **8. DELIVERY AND DOCUMENTS**

- 8.1 The Bidder shall in accordance with the terms specified in the Schedule of Requirements make delivery of the goods. Details of documents to be furnished by the Bidder are specified in SCC.

## **9. INSURANCE**

- 9.1 The goods supplied under the Contract shall be delivered to the Procuring Agency after the payment of all taxes and customs duty, cess, octroi charges etc. Risk will be transferred to the Procuring Agency only after the delivery of these goods has been made to the Procuring Agency. Hence, payment of insurance premium, if any, shall be the responsibility of the Bidder.

## **10. TRANSPORTATION**

- 10.1 The Bidder shall arrange such transportation of the goods as is required to prevent them from damage or deterioration during transit to their final destination as indicated in the Schedule of Requirements.
- 10.2 The goods shall be supplied at the consignee's end (Dow University of Health Sciences, OJHA Campus, Karachi) as per Schedule of Requirements on the risk and cost of the Bidder. Transportation including loading/unloading of goods shall be the responsibility of Bidder.

## **11. INCIDENTAL SERVICES**

- 11.1 The Bidder will be required to provide to the Procuring Agency incidental services the cost of which should be included in the total bid price.

## **12. WARRANTY / GUARANTEE**

- 12.1 The term period of warranty / guarantee means the period of twelve **(12) months or in accordance with extended warranty period** from the date on which the Stores have been put into operation and demonstrated to the University staff. In any case this period shall not exceed six months beyond the warranty expiration period from the date of taking-over of goods.
- 12.2 During the period of warranty / guarantee, the Contractor shall remedy, at his /her expense, all defects in design, materials, and workmanship that may develop or are revealed under normal use of the goods upon receiving written notice from the University; the notice shall indicate in what respect the goods are faulty.
- 12.3 The provisions of this Clause include all the expenses that the Contractor may have to incur for delivery and installation / fixation of such replacement parts, material and equipment as are needed for satisfactory operation of the goods at the Procuring agency's premises.
- 12.4 The Procuring Agency shall promptly notify the Bidder in writing of any claims arising out of this warranty.
- 12.5 The performance security will be discharged by the Procuring agency and returned to the Supplier after the warranty period of twelve (12) months which starts from after completion and functioning of the project.

### **13. PAYMENT**

- 13.1 The method and conditions of payment to be made to the Bidder under this Contract are specified in SCC.

### **14. ASSIGNMENT**

- 14.1 The Bidder shall not assign, in whole or in part, its obligations to perform to another party under this Contract, except with the Procuring Agency's prior written consent.

### **15. DELAYS IN THE BIDDER'S PERFORMANCE**

- 15.1 Delivery of the goods shall be made by the Bidder in accordance with the time schedule prescribed by the Procuring Agency in the Schedule of Requirements / Contract Agreement.
- 15.2 If at any time in the course of performance of the Contract, the Bidder shall promptly notify the Procuring Agency in writing of the causes of delay and its likely duration. As soon as practicable, after receipt of the Bidder's notice, the Procuring Agency shall evaluate the situation and may, depending on merits of the situation, extend the Bidder's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the Parties by a supplementary Contract to be treated as an addendum to the original contract.
- 15.3 Any undue delay by the Bidder in the performance of its delivery obligations shall render it liable to the imposition of liquidated damages.

### **16. PENALTIES LIQUIDATED DAMAGES**

- 16.1 Subject to GCC Clause 18, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in SCC. Once the maximum is reached, the Procuring agency may consider termination of the Contract pursuant to GCC Clause 17.

### **17. TERMINATION FOR DEFAULT**

- 17.1 The Procuring agency, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:
- (a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Procuring agency pursuant to GCC Clause 15; or
  - (b) if the Supplier fails to perform any other obligation(s) under the Contract.
  - (c) if the Supplier, in the judgment of the Procuring agency has engaged corrupt or

For the purpose of this clause:

“Corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

- 17.2 In the event the Procuring agency terminates the Contract in whole or in part, pursuant to GCC Clause 17.1, the Procuring agency may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Procuring agency for any excess costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

## **18. FORCE MAJEURE**

- 18.1 Notwithstanding the provisions of GCC Clauses 15, 16, and 17, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 18.2 For purposes of this clause, “Force Majeure” means an event beyond the control of the Supplier and not involving the Supplier’s fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Procuring agency in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- 18.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Procuring agency in writing of such condition and the cause thereof. Unless otherwise directed by the Procuring agency in writing, the Supplier shall continue to perform 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.

## **19. TERMINATION FOR INSOLVENCY**

- 19.1 The Procuring agency may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Procuring agency.

## **20. TERMINATION FOR CONVENIENCE**

- 20.1 The Procuring agency, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Procuring agency's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- 20.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Procuring agency at the Contract terms and prices. For the remaining Goods, the Procuring agency may elect:
- (a) to have any portion completed and delivered at the Contract terms and prices; and/or
  - (b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

## **21. RESOLUTION OF DISPUTES**

- 21.1 The Procuring agency and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 21.2 If, after thirty (30) days from the commencement of such informal negotiations, the Procuring agency and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in SCC. These mechanisms may include, but are not restricted to, conciliation mediated by a third party, adjudication in an agreed manner and/or arbitration.

## **22. GOVERNING LANGUAGE**

- 22.1 The Contract shall be written in the language specified in SCC. Subject to GCC Clause 23, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

## **23. APPLICABLE LAW**

- 23.1 The Contract shall be interpreted in accordance with the laws of the Procuring agency's country (Islamic Republic of Pakistan), unless otherwise specified in SCC.

## **24 TAXES AND DUTIES**

- 24.1 Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Procuring agency in case of Delivered Duty Paid (DDP) basis.

## **E: SPECIAL CONDITIONS OF CONTRACT (SCC)**

### **1. DEFINITIONS (GCC CLAUSE 1)**

- GCC 1.1 (g) The Procuring Agency is the Dow University of Health Sciences, Karachi.
- GCC 1.1 (h) The Bidder is: \_\_\_\_\_  
(name and address of the successful bidder)

### **2. BID SECURITY (ITB CLAUSE 13)**

- ITB 13.1 The Bidder shall furnish, as part of its financial proposal/bid, refundable Bid Security in Pak Rupees @ 2.5% of the total bid value in the shape of Call Deposit, Bank Draft or a Bank Guarantee in the name of the Dow University of Health Sciences, Karachi. The financial bid found deficient of the Bid Security will be rejected. No personal cheque in lieu thereof will be acceptable at any cost. The previous Bid Security, if any, will not be considered or carried forward. However, the Bid Security of the successful Bidder will be returned upon submission of Performance Security equal to 5% of the Contract amount that will remain with the Dow University of Health Sciences, Karachi till satisfactory completion of the Contract period. After delivery and acceptance of the Goods, the performance security shall be reduced to five (5) percent of the Contract Price to cover the Supplier's warranty obligations.

### **3. TECHNICAL SPECIFICATIONS / STANDARDS (GCC CLAUSE 3)**

- GCC 3.1 The technical specifications of the goods provided in the bidding document are only for widest possible competition and not for favor any single contractor or supplier nor put others at a disadvantage. However, the brand name, catalogue No. / Name etc., if any, has only been used for the reference purpose. Goods offered **“ATLEAST EQUIVALENT OR HAVING BETTER TECHNICAL SPECIFICATIONS”** shall also be considered.

### **4. INSPECTIONS AND TESTS (GCC CLAUSE 7)**

- GCC 7.1, 7.2, 7.3  
7.4 & 7.5 The goods received in the Dow University of Health Services, Karachi from the Bidder will be thoroughly inspected and examined by Engineer to make sure that the goods received conform to the specifications laid down in the bid documents and which have been approved by the Procurement Committee for procurement. The Engineer will submit its inspection report, any deficiency pointed out by the Engineer shall have to be rectified by the Bidder free of cost.

## **5. DELIVERY AND DOCUMENTS (GCC CLAUSE 8)**

- GCC Clause 8.1 The Bidder shall provide the following documents at the time of delivery of goods to the Store / Warehouse of the Dow University of Health Sciences, Karachi for verification duly completed in all respects:
- i. Original copies of Delivery Note (Delivery Challan) (in duplicate) showing item's description, make, model, quantity as well as Lot Number, Batch Number, Registration Number, manufacturing and expiry dates (if applicable).
  - ii. Original copies of the Bidder's invoices (in duplicate) showing warranty, item's description, make, model as well as Lot Number, Batch Number, Registration Number, manufacturing and expiry dates (if applicable) per unit cost, and total amount.
  - iii. Original copies of the Sales Tax Invoices (where applicable) in duplicate showing item's description, quantity, per unit cost (excluding GST), as university is exempted from GST
  - iv. Manufacturer's or Bidder's warranty certificate.
  - v. Inspection certificate issued by the nominated inspection Engineer along with Bidder's factory inspection report.
  - vi. Certificate of origin.

## **6. INSURANCE (GCC CLAUSE 9)**

- GCC 9.1 The goods supplied under the Contract shall be on DDP basis at consignee's end under which risk will be transferred to the Procuring Agency only after it has taken delivery of the goods. Hence insurance coverage is Bidder's responsibility.

## **7. WARRANTY / GUARANTEE (GCC CLAUSE 12)**

- GCC 12.1 The goods shall be accompanied by manufacturer standard warranty / guarantee or 1 year or extended warranty, whichever is more.
- GCC 12.2 The Procuring Agency shall promptly notify the Bidder in writing of any claims arising out of this warranty.

## **8. PAYMENT (GCC CLAUSE 13)**

- GCC 13.1 The method and conditions of payment to be made to the Bidder under this Contract shall be as follows:
- (a) Payment shall be made in Pak Rupees.
  - (b) Secured advance against the cost of deliveries of Solar Panels, inverters, MS Structure and cables i.e. 50% of the Purchase Price (purchase receipt should be produced) shall be paid upon delivery at site, while remaining payment after satisfactory installation, integration and testing of the products at the Project site (s), subject to the production of installation and Operational Acceptance certificates

- (c) The payment will be made to the Bidder within 90 days of the receipt of original delivery challan(s) and invoice(s) in duplicate duly completed in all respect and signed and stamped by the Director of Works & Services. The Inspection Engineer will prepare and submit a report of physical inspection with a certificate to the effect that the goods conform to the specifications laid down in the bidding documents.

#### **9. PENALTIES/ LIQUIDATED DAMAGES (GCC CLAUSE 16)**

GCC 16.1

- (i) In case deliveries are not completed within the time frame specified in the schedule of requirements / contract, a Show Cause Notice will be served on the Bidder which will be following by cancellation of the Contract to the extent of non-delivered portion of installments. No supplies will be accepted and the amount of Performance Guarantee / Security to the extent of non-delivered portion of supplies of relevant installments will be forfeited. If the firm fails to supply the whole installments, the entire amount of Performance Guarantee/Security will be forfeited to the Government Account and the firm will be blacklisted at least for two years for future participation in bids:
- (ii) The liquidated damage shall be 0.5 % per week or part thereof. The maximum amount of liquidated damages shall be 10% of the amount of contract. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, the Procuring Agency shall rescind the contract, without prejudice to other courses of action and remedies open to it.
- (iii) In case of any major or minor failure resulting in damage to property or injury to personnel within the premises of the Procuring Agency, and if such failure is found to be due to the negligence of the service provider, the contractor shall bear all remedial costs and may be penalized as mutually agreed by both parties.

#### **10. RESOLUTION OF DISPUTES (GCC CLAUSE 21)**

GCC 21.2 In the case of a dispute between the Procuring agency and the Supplier, the dispute shall be referred to the dispute resolution mechanism as defined in rule 31, 32 and 34 of the SPPRA Rules, 2010 (Amended up to date).

#### **11. GOVERNING LANGUAGE (GCC CLAUSE 22)**

GCC 22.1 The language of this Contract shall be ENGLISH.

#### **12. APPLICABLE LAWS (GCC CLAUSE 23)**

GCC 23.1 The Contract shall be governed by the Laws of Pakistan and the Courts of Karachi - Pakistan shall have exclusive jurisdiction.

#### **13. NOTICES (GCC CLAUSE 24)**

##### ***Procuring Agency's address for notice purposes:***

Director Works & Services

Dow University of Health Sciences (DMC Campus) Baba-e-Urdu Road, Beside Civil Hospital, Karachi. Phone No. + 92-21-38771000 (Ext.5820)

##### ***Bidder's address for notice purposes:***

Name of Bidder: \_\_\_\_\_

Name of Contact Person & Designation: \_\_\_\_\_

Phone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

Mobile Phone No. \_\_\_\_\_

Email Address \_\_\_\_\_

## F: SCHEDULE OF REQUIREMENTS

The delivery schedule hereafter expressed the date of delivery required.

| SR. | DESCRIPTION                                                                                                                                                                         | QTY | REQUIRED DELIVERY SCHEDULE FROM THE DATE OF CONTRACT AWARD | LOCATION                                       |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------|------------------------------------------------|
| 01. | <b>SUPPLY, FIXING, INSTALLATION &amp; COMMISSIONING OF (270KW &amp; 450KW) GRID TIED SOLAR SYSTEM AT (GIRLS HOSTEL, OJHA CAMPUS) &amp; (WAREHOUSE, OJHA CAMPUS), DUHS, KARACHI.</b> | 02  | Delivery & Installation within 90 Days or earlier.         | Girls Hostel & Warehouse, Ojha Campus, Karachi |
|     | (SPECIFICATIONS OF ABOVE ITEMS ARE ATTACHED)                                                                                                                                        |     |                                                            |                                                |

**NOTE:** SPECIFICATIONS OF ABOVE ITEMS ARE ATTACHED.

## G: TECHNICAL SPECIFICATIONS

**(BIDDERS TO ENDORSE REPLY/REMARKS AGAINST EACH CLAUSE AND STAMP, SIGN EACH PAGE)**

| S.No     | ACTIVITY                                                         | DUHS | Vendor | REMARKS                                  |
|----------|------------------------------------------------------------------|------|--------|------------------------------------------|
| <b>1</b> | <b>IMPORTED ITEMS :</b>                                          |      |        |                                          |
| 1.1      | Supply of Solar PV Panels                                        |      |        | Mono-PERC PV Panels                      |
| 1.2      | Supply of Grid-Tied Inverters                                    |      |        | Efficiency>98%                           |
| 1.3      | Supply of DC Surge Arrestors                                     |      |        | Inverter built-in option                 |
| 1.4      | Supply of remote monitoring system (On Request, additional Cost) |      |        | Solar Info Logger                        |
| <b>2</b> | <b>FABRICATED ITEMS :</b>                                        |      |        |                                          |
| 2.1      | Supply of Solar PV Mounting Structure                            |      |        |                                          |
| 2.2      | Supply of AC Combiner Box                                        |      |        | Customized, Fabricated Box for Breakers. |
| <b>3</b> | <b>BREAKERS:</b>                                                 |      |        |                                          |
| 3.1      | Supply of AC Breaker (Local)                                     |      |        | Terasaki/ABB/Schneider                   |
| <b>4</b> | <b>CABLES &amp; ACCESSORIES:</b>                                 |      |        |                                          |
| 4.1      | Supply of DC Cables on site                                      |      |        | Cu/XLPE/XLPE; EN-50618                   |
| 4.2      | DC Cables with male and female MC4 connectors                    |      |        |                                          |
| 4.3      | Cable ties and cable tagging captions for DC and AC cables       |      |        |                                          |

|             |                                                                                   |             |               |                                                                                                     |
|-------------|-----------------------------------------------------------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------|
| 4.4         | Supply of AC cable from Inverter till LV Room                                     |             |               | Stranded cable (Only 50 Meters). If exceeds, it will be charged as per actual.                      |
| 4.5         | Supply of grounding cable                                                         |             |               | Stranded cable                                                                                      |
| 4.6         | Communication cable (enclosed in PVC pipe) with RJ45 connector on ends            |             |               |                                                                                                     |
| <b>5</b>    | <b>MOUNTING STRUCTURE:</b>                                                        |             |               |                                                                                                     |
| 5.1         | Supply of Mounting channel                                                        |             |               | Elevated Structure                                                                                  |
| 5.2         | Supply of mounting clamps                                                         |             |               | Aluminum                                                                                            |
| 5.3         | Supply of solar panel clamps                                                      |             |               | Aluminum                                                                                            |
| 5.4         | Area Clearance of location                                                        |             |               |                                                                                                     |
| 5.5         | All tools for installation of mounting and testing                                |             |               |                                                                                                     |
| <b>S.No</b> | <b>ACTIVITY</b>                                                                   | <b>DUHS</b> | <b>Vendor</b> | <b>REMARKS</b>                                                                                      |
| <b>6</b>    | <b>ENGINEERING DRAWING :</b>                                                      |             |               |                                                                                                     |
| 6.1         | Complete Drawings and manuals of the installed system and equipment - hard copies |             |               | Panel placement & SLD will be provided after project confirmation.                                  |
| 6.2         | Complete Drawings and manuals of the installed system and equipment - soft copies |             |               | Panel placement will be provided after project confirmation.                                        |
| <b>7</b>    | <b>MECHANICAL WORKS :</b>                                                         |             |               |                                                                                                     |
| 7.1         | Supply of bare copper conductors                                                  |             |               |                                                                                                     |
| <b>8</b>    | <b>ELECTRICAL WORKS :</b>                                                         |             |               |                                                                                                     |
| 8.1         | Interconnection of inverters for monitoring                                       |             |               |                                                                                                     |
| 8.2         | Electricity connection to site                                                    |             |               |                                                                                                     |
| 8.3         | AC grid voltage stabilization                                                     |             |               |                                                                                                     |
| 8.4         | Electrical studies which included Grid, load flow, transient, harmonic            |             |               | Vendor will give suggestion on Solar Power termination and Genset synch for power curtailment only. |
| 8.5         | Supply of Lightning Arrester                                                      |             |               | Copper Rod with supporting mast.                                                                    |
| <b>9</b>    | <b>MISCELLANEOUS WORKS:</b>                                                       |             |               |                                                                                                     |
| 9.1         | Utility approvals (if applicable)                                                 |             |               |                                                                                                     |
| 9.2         | Inverter Room                                                                     |             |               |                                                                                                     |

|      |                                                                                |  |  |  |
|------|--------------------------------------------------------------------------------|--|--|--|
| 9.3  | Provide shade free area for installation of PV Panels as per layout            |  |  |  |
| 9.4  | Location to install Inverters, AC Combiner Box & other equipment               |  |  |  |
| 9.5  | Regular Cleaning of PV Modules after Project handover                          |  |  |  |
| 9.6  | Internet facility at site for monitoring                                       |  |  |  |
| 9.7  | Food for Supplier personnel at site (if remote area)                           |  |  |  |
| 9.8  | Warehousing and Security of Supplied items till execution                      |  |  |  |
| 9.9  | Electricity, water and sanitary facilities in site office and residential area |  |  |  |
| 9.10 | Security of site and residential area                                          |  |  |  |
| 9.11 | Access to works site for execution and completion of works                     |  |  |  |

| S.No      | ACTIVITY                                                                                           | DUHS | Vendor | REMARKS |
|-----------|----------------------------------------------------------------------------------------------------|------|--------|---------|
| <b>10</b> | <b>CIVIL WORKS:</b>                                                                                |      |        |         |
| 10.1      | Construction of grounding pits                                                                     |      |        |         |
| <b>11</b> | <b>PROCUREMENT &amp; TRANSPORTATION:</b>                                                           |      |        |         |
| 11.1      | Provide time of arrival, details of driver and timely delivery                                     |      |        |         |
| 11.2      | Offloading of all the equipment delivered on site                                                  |      |        |         |
| 11.3      | Movement of Equipment from customer warehouse to site                                              |      |        |         |
| 11.4      | To/from site transportation for contractor's personnel (from residence area to work area and back) |      |        |         |
| 11.5      | Inspection of the equipment after reaching the site                                                |      |        |         |
| <b>12</b> | <b>COMMISSIONING:</b>                                                                              |      |        |         |
| 12.1      | Testing of string, Inverter voltages,                                                              |      |        |         |
| 12.2      | Pre-execution checklist and commissioning form                                                     |      |        |         |
| 12.3      | Complete testing and verification of solar system                                                  |      |        |         |
| 12.4      | Startup and commissioning of solar system                                                          |      |        |         |
| 12.5      | Training of complete solar system to customer utility manager                                      |      |        |         |
| 12.6      | Troubleshooting in case of any faults                                                              |      |        |         |

## TECHNICAL SPECIFICATION

- Bidders shall fill specifications of offered products in the following table.
- Write “compliance” if same specifications are offered and for non-compliance for any specific parameter, mention the offered specification.
- The bidder should meet the technical specifications and scope of work as specified in the bidding document.
- Non-Compliance may lead to rejection of the bid.
- Features and Technical parameters of the system components shall be as follows:

### 1. SOLAR PANELS:

| S.No. | Specifications                     | Value                                                                                                                                                                                                                       | Bidders Offered Specification |
|-------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1     | Wattage                            | 610 Watt or above (The higher the better)                                                                                                                                                                                   |                               |
| 2     | Type                               | Half Cell, N-type or any latest tech                                                                                                                                                                                        |                               |
| 3     | Modules Voltage Rating             | 1500V                                                                                                                                                                                                                       |                               |
| 4     | Max Series Fuse Rating             | Rating of series Fuse must be 25 Amp or higher in case of 600W+ module                                                                                                                                                      |                               |
| 5     | Product Workmanship Warranty       | 12 Years                                                                                                                                                                                                                    |                               |
| 6     | Power Warranty                     | 25 Years                                                                                                                                                                                                                    |                               |
| 7     | Max Operational Temperature        | 90 Deg                                                                                                                                                                                                                      |                               |
| 8     | PV Modules attached DC Cables      | DC Cable length to be kept according to landscape orientation.<br>Thus having more length.                                                                                                                                  |                               |
| 9     | Product Certifications             | IEC 61215, IEC 61730, IEC 61701, IEC 62716                                                                                                                                                                                  |                               |
| 10    | Product Listing                    | Product to be listed in PVEL top performers list. BOQ of module to be same as that of module inspected by PVEL Labs.<br><a href="https://scorecard.pvel.com/top-performers/">https://scorecard.pvel.com/top-performers/</a> |                               |
| 11    | Solar PV Pallet                    | Specs to be shared. To be resistant to shocks during transportation.                                                                                                                                                        |                               |
| 12    | Bankability of the solar PV module | AAA rated module brands to be used. This rating list based on PV module tech bankability ratings.                                                                                                                           |                               |

## 2. INVERTER:

| S.No. | Specifications                  | Value                                                                                                        | Bidders Offered Specification |
|-------|---------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1     | Wattage                         | 125 KW                                                                                                       |                               |
| 2     | Type                            | Multiple MPPT, String Type, Transformer less                                                                 |                               |
| 3     | Warranty                        | 10 years (Extendable to 15 years)                                                                            |                               |
| 4     | Insulation Monitoring           | Should have DC insulation monitoring capability and alerts that could be made available on the RMS dashboard |                               |
| 5     | Over Voltage Protection         | Type II SPD DC/AC side.                                                                                      |                               |
| 6     | IP Rating                       | Should be IP65 or higher                                                                                     |                               |
| 7     | Test Report                     | Factory testing report to be shared                                                                          |                               |
| 8     | Certification                   | EN 62109-1/-2, IEC 62109-1/-2, EN 50530, IEC 62116, IEC 61727, IEC 60068, IEC 61683                          |                               |
| 9     | Max Operational Temperature     | 60 Deg                                                                                                       |                               |
| 10    | Product Certifications          | IEC 61215, IEC 61730, IEC 61701, IEC 62716                                                                   |                               |
| 11    | Product Listing                 | Product to be listed in PVEL top performers list.                                                            |                               |
| 12    | Anti- islanding protection      | Yes                                                                                                          |                               |
| 13    | High temperature operation      | Capacity to de-rate only after 50deg                                                                         |                               |
| 14    | AFCI                            | Must be included in inverter.                                                                                |                               |
| 15    | PID Recovery function           | Must be included in inverter.                                                                                |                               |
| 16    | IV curve Sensor's Accuracy      | It should be less than 1 or equal to 0.5%                                                                    |                               |
| 17    | Harmonics                       | Should be less than or equal to 3%                                                                           |                               |
| 18    | IV tracking feature in RMS      | Yes                                                                                                          |                               |
| 19    | Local footprint and after sales | Inverter OEM to have local presence to facilitate after sales service and replacements.                      |                               |

### 3. ELECTRICAL PROTECTION EQUIPMENT

| S.No. | Description                                                                                                                                                                                                 | Bidders Offered Specification |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1     | The solar PV electrical protections to be designed based on IEC 62548, IEC 61643-32. Should include OCPD, OVP, Lightning Protection etc. as required on standards. Electrical panels will be outdoor rated. |                               |

### 4. TRUCTURE KEY ATTRIBUTES

| S.No. | Description                                                                                               | Bidders Offered Specification |
|-------|-----------------------------------------------------------------------------------------------------------|-------------------------------|
| 1     | The Solar PV structure and foundations to be designed for 35m/s continuous wind speed                     |                               |
| 2     | Structure material to be anodized MS Iron ASTM A36.                                                       |                               |
| 3     | Optimum tilt angle for maximum energy production.                                                         |                               |
| 4     | Structure to comply with a) ASCE 7-10- {For Design of wind loading} ASIC LRFD- {For Design of structure}. |                               |

### 5. PROJECT SPECIFIC REQUIREMENTS

| S.No. | Description                                                                                                                                                                                                                                                                                                                         | Bidders Offered Specification |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1     | The solar PV module structure to structure clearance on the ground should be optimal for shadow losses.                                                                                                                                                                                                                             |                               |
| 2     | All DC Cables should be single core tin-copper, double insulated XLPO/XLPO, UV resistant and compliance with H1Z2Z2-K                                                                                                                                                                                                               |                               |
| 3     | DC breakers to be included in the design to allow for safe maintenance and access of DC strings. All DC breakers will be installed in a separate isolator box (beneath) where the inverters are being installed. DC breaker will be completely packed and holes with PG glands should be equal to No. of cable entering in the box. |                               |
| 4     | Each MPPT should have its separate DC side breaker rated to the operational voltage.                                                                                                                                                                                                                                                |                               |
| 5     | Fill factor for DC cable trays/Conduit should not exceed 50%.                                                                                                                                                                                                                                                                       |                               |
| 6     | All AC LV Power cables from inverter till termination point should be multicore having insulation 70 to 90 deg Celsius XLPE/PVC & PVC/PVC non-armoured copper conductor.                                                                                                                                                            |                               |
| 7     | DC and AC voltage drop not to exceed 2% for all cables. PCSIR or any third-party inspection report for DC cable cross-section needs to be shared. Third-party test report is required if using any imported cable.                                                                                                                  |                               |
| 8     | LV panel must be equipped with an Energy Analyzer for proper energy accounting.                                                                                                                                                                                                                                                     |                               |

|    |                                                                                                                                                                                                                                          |  |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 9  | DC Cables electrical connection with DC breakers to be ensured with tinned copper O/U lugs.                                                                                                                                              |  |
| 10 | All equipment's temperature rating will be as per operating temperature conditions.                                                                                                                                                      |  |
| 11 | Equipotential bonding PV arrays to be ensured as per standard. Earthing Pit resistance for DC/AC to be equal to or less than 1 ohms.                                                                                                     |  |
| 12 | Remote monitoring systems will be deployed to allow for the effective monitoring of Solar PV systems, Diesel Engine and Grid.                                                                                                            |  |
| 13 | All Allen bolts, nuts, bolts, washers, and screws for the project should be Stainless steel (SS 304).                                                                                                                                    |  |
| 14 | All lugs will be of tinned copper.                                                                                                                                                                                                       |  |
| 15 | The Bidder shall consider the conditions found at the site to avoid any corrosion problems, especially with equipment installed outdoor.                                                                                                 |  |
| 16 | All material not naturally corrosion-resistant shall be treated or finished to protect surface and functional integrity under the ambient conditions prevailing at the site.                                                             |  |
| 17 | To protect metallic accessories from corrosion two anticorrosive coats of paint will be made on material.                                                                                                                                |  |
| 18 | 4mm <sup>2</sup> and 6mm <sup>2</sup> MC4 connectors type, Amphenol must be used.                                                                                                                                                        |  |
| 19 | In landscape orientation cable must be directly connected with another panel. No jumper cable in interconnection of panel will be allowed.                                                                                               |  |
| 20 | Short circuit rating of LV panel must be same as existing LV panels. The LV panel bus bar dimensions should be according to operating current. SPD sizing must be according to the LV panel and solar PV system requirement.             |  |
| 21 | communication scheme for the integration with existing genset controller                                                                                                                                                                 |  |
| 22 | I-V curve Testing on Commissioning                                                                                                                                                                                                       |  |
| 23 | Temperature monitoring within the combiner boxes with respect to the string inverter must be done                                                                                                                                        |  |
| 24 | PRE-Execution - safety and quality control plan for which should include procedures to maintain safety and quality and the resources required at the site therefore a complete safety plan in every aspect is required from the bidders. |  |
| 25 | DRAFT - safety and quality control plan for which should include procedures to maintain safety and quality and the resources required at the site therefore a complete safety. plan in every aspect is required from the bidders         |  |

|    |                                                                                                                                                                                                                                                                         |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 26 | Warranty Document (Confirm to be provided in 1 week of Commissioning).<br>PV Modules PV Inverter<br>Mounting Structure Cables & Switchgear Workmanship                                                                                                                  |  |
| 27 | After the successful commissioning of the solar plant, a detailed set of engineering drawings will be developed that will be used to document the manner of installation of the solar plant, cable run, and the location of the apparatus as was installed at the plant |  |
| 28 | In case of any claim, system must be energized within 14 days of claim at maximum.                                                                                                                                                                                      |  |
| 29 | Project Manager to be nominated by vendor who is all the time available on-site during execution                                                                                                                                                                        |  |
| 30 | Complete integration of the solar system with existing system that the solar power is injected safely at ICP on the system busbar                                                                                                                                       |  |
| 31 | Shutdown to be approved 07 days in advance with the owner                                                                                                                                                                                                               |  |
| 32 | Daily project Updates to PC from DUHS                                                                                                                                                                                                                                   |  |
| 33 | Weekly Progress Report                                                                                                                                                                                                                                                  |  |
| 34 | Biweekly Progress Report                                                                                                                                                                                                                                                |  |
| 35 | DC voltages there is a high probability of solar PV module undergoing PID degradation. Design to ensure PID is mitigated via product selection or design is encouraged.                                                                                                 |  |

**Note:**

Any minor equipment and material may not be specifically mentioned in this specifications/BOQ or in drawings but are required to make the system complete in a every respect in accordance with technical specification shall be deemed to have been covered under the scope of this specification and shall be provided by the tenderer/supplier within the quoted items rate.

## List of Manufacturers Recommended

- The acceptance of equipment/ materials offered by these manufacturers will be subject to compliance of offered models/ materials with the specifications, capacity and/ or performance requirements.
- All other items not included in the list hereunder will be approved by the DUHS in accordance to their compliance with the specifications, capacity and/ or performance requirements.
- Onus lies with the Contractor / supplier for establishing the genuineness of any material/ product.
- Following are the specification of material. Bidder can also offer equivalent products, however, adequate documentation in the form of technical data sheets and type test certificates from independent laboratories stating the standards to which the product complies with shall be furnished in the support of their being equivalent. The DUHS reserves the right to ask the bidder of additional documentation in the regard.

| Product                                     | Standards                                                                                                  | Recommended Manufacturers                                                         |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| PV Panels<br>( Tier 1 BNEF)                 | As per standards and specifications mentioned in technical specifications and the Bill of Quantities (BOQ) | Longi Himo x10/ Jinko N-Type/Canadian Solar<br>Or Approved equivalent             |
| Inverters                                   |                                                                                                            | Huawei /Sungrow<br>OR approved equivalent                                         |
| Electric Panels,<br>Distribution Boards     |                                                                                                            | Hussain and Co. / A to Zee Switchgears OR approved equivalent                     |
| Circuit Breakers:<br>MCCB & MCB             | As per standards and specifications mentioned in technical specifications and the Bill of Quantities (BOQ) | ABB<br>Schneider Terasaki<br>Chint (DC only)<br>OR approved equivalent            |
| Surge Protection Device (SPD)               |                                                                                                            | Dehn Schneider Chint Phoenix<br>OR approved equivalent                            |
| AC / DC Cables                              |                                                                                                            | Pakistan Cables /Fast Cables (DC and AC Cables & Earthing) OR approved equivalent |
| Earthing                                    |                                                                                                            | Furse GCEM/ Dehn<br>OR approved equivalent                                        |
| Lightning Protection System                 |                                                                                                            | LPS France/ Indelec/ SIRIUS Application Technologies OR approved equivalent       |
| Wiring Devices                              |                                                                                                            | Schnieder /Orange /Legrand<br>OR approved equivalent                              |
| <u>PVC Conduits and Accessories</u>         |                                                                                                            | Galco/ Dadex/Jeddah Polymer<br>OR approved equivalent                             |
| <u>Cable Tray / Trunking</u>                |                                                                                                            | Electroline/ Hussain & Co.<br>OR approved equivalent                              |
| Fixing Accessories / Anchor bar & bolts etc |                                                                                                            | Hilti /Mungo/ Fischer<br>OR approved equivalent                                   |

### NOTE:

- i. Bidder will submit the sample / partial sample, according to the nature of the ordered for the approval, prior to supply of the entire quantities.

## G: SAMPLE FORMS

## 1. PERFORMANCE GUARANTEE/SECURITY FORM

To: [Name & Address of the Procuring Agency]

Whereas \_\_\_\_\_ **[Name of Bidder]** (hereinafter called "the Bidder") has undertaken, in pursuance of Contract No. **[number]** dated **[date]** to supply **[description of goods]** (hereinafter called "the Contract").

And whereas it has been stipulated in the said Contract that the Bidder shall furnish to the Procuring Agency with a Bank Guarantee by a scheduled bank for the sum of 5% of the total Contract amount as Security for compliance with the Bidder's performance obligations in accordance with the Contract.

And whereas we have agreed to provide a Guarantee: for the said Bidder

Therefore, we hereby unconditionally and irrevocably guarantee, on behalf of the Bidder, up to a total of **[Amount of the Guarantee in Words and Figures]** and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the Contract and without requiring the Procuring Agency to initiate action against the Bidder and without cavil or argument any sum or sums within the limits of **[Amount of Guarantee]** as aforesaid. The amount stated in the demand made under this guarantee shall be conclusive proof of the amount payable by the Guarantor under this guarantee.

The obligations of the Guarantor under this guarantee shall be valid for four months after the completion of delivery of supplies by the Bidder to the Procuring Agency of the full quantity of the goods for which this Guarantee is being given, and until all and any obligations and sums due have been paid in full.

Signature and Seal of the Guarantors / Bank Address

Date \_\_\_\_\_

## 2. MANUFACTURER'S AUTHORIZATION FORM

[SEE CLAUSE 11.1 (a) OF THE INSTRUCTION TO BIDDERS]

Dated: \_\_\_\_\_

To: The Dow University of Health Sciences Karachi.

WHEREAS                     **[name of the Manufacturer]**                     who are established and reputable Manufacturers of                     **[name and /or description of the goods]**                     having factories at                     **[address of factory]**                     do hereby authorize                     **[name and address of Bidder / Agent]**                     to submit a bid, and subsequently follow- up / negotiate and sign the Contract with you against Invitation for Bids (IFB) / Tender Notice for the goods manufactured, by us, under the patent name of \_\_\_\_\_  
\_\_\_\_\_ for performance of the contract.

We hereby commit and assure our full guarantee and warranty / guarantee as per Clause 12 of the General Conditions of Contract for the goods offered for supply by the above mentioned firm against this Invitation for Bids.

[Signature for and on behalf of Manufacturer]

[Name and Designation]

Note:

This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person competent and having the power of attorney to bind the Manufacturer. It should be included by the Bidder in its bid.

### 3. CONTRACT AGREEMENT FORM

THIS AGREEMENT made the \_\_\_\_\_ day of \_\_2025 between *Dow University of Health Sciences, Karachi* of *Islamic Republic of Pakistan* (hereinafter called “the Procuring Agency”) of the one part and **[Name of Bidder]** of \_\_\_\_\_  
**[city and country of Bidder]** (hereinafter called “the Bidder”) of the other part:

WHEREAS the Procuring Agency invited bids for certain goods and ancillary services, viz., **[brief description of goods and services]** and has accepted a bid by the Bidder for the supply of those goods and services in the sum of \_\_\_\_\_ **[contract price in words and figures]** (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - (a) the Bid Form and the Price Schedule submitted by the Bidder;
  - (b) the Schedule of Requirements;
  - (c) the Technical Specifications;
  - (d) the General Conditions of Contract;
  - (e) the Special Conditions of Contract;
  - (f) the Procuring Agency’s Notification of Award; and
  - (g) Complete bidding documents.

2. In consideration of the payments to be made by the Procuring Agency to the Bidder as hereinafter mentioned, the Bidder hereby covenants with the Procuring Agency to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract

4. The Procuring Agency hereby covenants to pay the Bidder in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

\_\_\_\_\_  
Signed / Sealed by the Manufacturer /  
Authorized Bidder / Authorized Agent

\_\_\_\_\_  
Signed / Sealed by Procuring Agency

#### 4. INTEGRITY PACT (AFFIDAVIT)

##### DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS

M/s. \_\_\_\_\_, the service provider hereby  
declared that:

- (a) Its intention not to obtain the procurement / services / work of any contract, right, interest, privilege, or other obligation or benefit from the DUHS or any administrative or financial offices thereof or any other department under the control of the DUHS through any corrupt practice(s).
- (b) Without limiting the generality of the forgoing the bidder / company / firm / agency represents and warrants that it has fully declared the charges, fees, commission, taxes, levies etc, paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within the DUHS directly or indirectly through any means any commission, gratification, bribe, gifts, kickback whether described as consultation fee or otherwise, with the object of obtaining or including the procurement or service contract or order or other obligations whatsoever from the DUHS, except that which has been expressly declared pursuant hereto.
- (c) The bidder / company / firm / agency / accepts full responsibility and strict liability for making any false declaration / statement, not making full disclosure, misrepresenting facts or taking any action likely to degrade the purpose of declaration, representation and warranty. It agrees that any contract / order obtained aforesaid shall without prejudice to any other right & remedies available to the DUHS under any law, contract, or other instrument, be stand void at the discretion of the DUHS.
- (d) Notwithstanding any right and remedies exercised by the DUHS in this regard, bidder / company / firm / agency agrees to indemnify the DUHS for any loss or damage incurred by it on account of its corrupt business practice & further pay compensation to the DUHS in any amount equivalent to the loss of any commission, gratification, bribe, gifts, kickback given by the bidder / company / firm / supplier / agency / service provider as aforesaid for the purpose of obtaining or inducing procurement / work / service or other obligation or benefit in whatsoever from the DUHS.

Dow University of Health Sciences  
Signature & Seal

(Name of Security Firm)  
Signature & Seal

**Note:** This integrity pact is mandatory requirement other than auxiliary services / works.

## H: BID FORM & PRICE SCHEDULE

### 1. BID FORM

To: The Dow University of Health Sciences Karachi

Dear Sir,

Having examined the Bidding Documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver the goods specified in the said Bidding

Documents for the sum of                     **[Total Bid Amount Rs.]**  
**Amount in words**

or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid.

2. The free of cost / donation / discounts offered and the methodology for their application are: \_\_\_\_\_

2. We undertake, if our bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

4. If our bid is accepted, we shall obtain an unconditional guarantee of a bank in the sum of 5% of the Contract Price for the due performance of the Contract, in the form prescribed by the Procuring Agency.

5. We agree to the validity of this bid for 90 days from the date fixed for financial bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

6. Until a formal Contract is prepared and executed, this bid, together with the written acceptance thereof and notification of award, by the Procuring Agency, shall constitute a binding Contract between us.

7. We understand that you are not bound to accept the lowest or any bid you may receive.

Name\_\_\_\_\_

In the capacity of \_\_\_\_\_

Signed\_\_\_\_\_

Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date \_\_\_\_\_

## 2. PRICE SCHEDULE IN PAK RUPEES DELIVERED DUTY PAID (DDP BASIS)

SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF (270KW & 450KW) GRID TIED SOLAR SYSTEM  
AT (GIRLS HOSTEL, OJHA CAMPUS) & (WAREHOUSE, OJHA CAMPUS), DUHS, KARACHI.

FOR GOODS OFFERED WITHIN THE PROCURING AGENCY'S COUNTRY

### PRICE SCHEDULE – SUPPLIES

(Girls Hostel, OJHA CAMPUS)

Name of Bidder: \_\_\_\_\_

#### BOQ- ROOF MOUNTED SOLAR PV SYSTEM 270 KW GIRLS HOSTEL

| Sr No | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Unit | Qty     | Unit Price (PKR) | Total Amount (PKR) |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|------------------|--------------------|
| 1     | <b>MODULE MOUNTING STRUCTURE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |         |                  |                    |
| i)    | Designing, Supplying, Fabrication & Installation of Elevated Mounting structure Hot Dip Galvanized Iron (HDGI). The mounting structures must be designed structurally to be suitable to withstand all static loads (weight of modules, wind loads etc). Minimum wind speed pressure 35m/s in harsh environment. The design submission must be as per ASTM-A36, ASTM-123 and ASCE 7-10. The mounting structure components are bonded together to guaranty potential equalization. The tilt angle shall be optimum as per site requirement. The work is to be carried out strictly as per approved structure drawings, design and specification and the rate quoted is inclusive of the following:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Watt | 270,000 |                  |                    |
| a     | <b>Designing of the structure as per specification and approved by DUHS Engineer:</b> <ul style="list-style-type: none"> <li>• Column/Pole Size: 4" x 4" in 12 gauge. Columns may be circular or square shape.</li> <li>• Base Plate Size: 10" x 10" with 10mm thickness.</li> <li>• Height structure will be 15 ft</li> <li>• Top Plate Dimension: 6" x 6" with 6mm thickness.</li> <li>• Bracing Angles: in 12 gauges.</li> <li>• Sharing Girder: Sharing of Girder not allowed in structure design.</li> <li>• Tilt Angle: Must be optimal for energy generation.</li> <li>• Cleaning Space: Adequate cleaning space must be incorporated.</li> <li>• Material: Hot Dip Galvanized (HDGI).</li> <li>• Civil Pads: Civil concrete pads sizes shall be L x W x H (1' x 1' x 1')</li> <li>• Gauges: All gauges will be assessed before galvanization.</li> <li>• Fasteners: All Allen bolts, Spring Washer, Nuts, Washer &amp; Plate Washer must be SS304.</li> <li>• Cleaning Platform: MS Moveable cleaning ladder in 14gauge with proper cleaning platform of checker plate with epoxy paint.</li> <li>• Galvanization Coating Thickness: 100 to 120 microns for durability.</li> <li>• Mounting Accessories: Includes brackets, clamps, and bolts</li> </ul> |      |         |                  |                    |
| b     | Structure Drawing must be submitted prior supply and installation and approved by DUHS Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |         |                  |                    |
| c     | Placing of Anchor Bolts & Base Plate as per design & length & Details approved by DUHS Engineer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |         |                  |                    |
| d     | The Contractor shall remove all the debris and clear the site as per direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |         |                  |                    |
| e     | The Contractor shall submit the detail technical shop drawing before execution of work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |         |                  |                    |
| f     | After completion of the work the contractor shall submit the as built drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |         |                  |                    |
| g     | Minimum warranty period for structure 10 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |         |                  |                    |
| 2     | <b>PV MODULES-270 KW:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |         |                  |                    |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |     |  |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|--|--|
| i  | <p>Supply, Installation, Testing &amp; Commissioning (SITC) N-type Bifacial Photovoltaic Solar Modules Tier 1 Type anti-reflective high transparency low iron tempered glass, with earthing provision. The modules STC parameters must be as under</p> <p>(a) Min Power Pmax 610 or above Wp rated power</p> <p>(b) Junction Box Protection Degree, IP 68</p> <p>(c) Connection box, 4.0mm<sup>2</sup> conductor cross section,</p> <p>(d) Cable with, MC4 male and female connectors,</p> <p>(e) Anodized Aluminium Frame and Support Bars</p> <p>(f) PVC duct, Clamps &amp; Accessories, support and labels to be installed under PV Array. The Contractor shall provide manufacturer warranty for solar panel for a period not less than 25 years.</p> <p>Contractor must submit all the required certificates for each PV solar panel from manufacturer as per specification with complete import documents, standard laboratory test certificates.</p> <p>All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval.</p> <p><b>Make: Jinko or Longi HI-MO X10 or Equivalent</b></p> | No. of Panels | 445 |  |  |
| 3  | <b>GRID-TIED INVERTER (PCU)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |     |  |  |
| i) | <p>Supply, Installation, Testing &amp; Commissioning (SITC) DC/AC grid tie 3-phase inverter with data communication unit with Ethernet connection. The inverter with must be suited to any PV module configuration, and depending on the system design and installation proposed and for the future extended also. (Leading Market brand, having annual production greater than 1GW). The DC max power input rating should be at least 1.2 times of AC power at standard test condition (STC). The inverter unit shall be suitable for indoor and outdoor installations with IP65. The inverter must include the safety concepts such as (triple protection with Opti protect, electronic strings fuses, self- learning string failure detection, DC surge arrestor type</p> <p>(2) to ensure max availability. The inverter includes online monitoring with wife Dongle. All works and materials must be according to the drawings, specifications and supervisor Engineer instructions and approval.</p> <p><b>Make: Sungrow/Huawei/SMA or equivalent Power Rating: 125KW (2 Nos.) &amp; 50 KW (1 No.)</b></p>                                            | No            | 3   |  |  |
|    | <b>Brief specification is as under:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |     |  |  |
| a  | Max Input DC Voltage: 1100V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |     |  |  |
| b  | MPPT Operating Voltage Range: 200V~1000V,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |     |  |  |
| c  | Min 10 Independent MPPT Trackers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |     |  |  |
| d  | Minimum Efficiency 98.0%,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |               |     |  |  |
| e  | Warranty: 10 Years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |     |  |  |
| f  | Minimum IP rating should be IP65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |     |  |  |
| 4  | <b>INVERTER STAND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |     |  |  |
| 1  | Supplies, Rigging and Installation of 03-Inverters Stands with (front and back combination of rigging; i.e, two inverters on single stand) complete nut bolts / anchor bolts as required as per provided drawings. Chemical anchoring used if required (Make: GMSA/HILTI/FISCHER). Civil pad is also considered if required. Load Bearing capacity of 400kg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Job           | 1   |  |  |
| 5  | <b>COMBINER BOXES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |     |  |  |
| a  | <b>DC COMBINER BOX</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               |     |  |  |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |   |  |  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|--|--|
| i)  | Supply, Installation, Testing & Commissioning (SITC) of DC box/Array Junction Box with all accessories for outdoor usage, proper cable glands as per cable size. DC Combiner Box shall be provided One DC Breaker 4Pole per string.<br>DC Breaker 4Pole 25A/32A,1000VDC, Qty=20<br><b>DC Breaker Brand:</b><br><b>Make: ABB/Schneider/Chint or Equivalent</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Each | 3 |  |  |
| 6   | <b>AC COMBINER BOX (LV PANEL)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |   |  |  |
| i)  | Supply, Installation, Testing & Commissioning (SITC) of AC Combiner Box (LV Panel) with pad floor standing/Wall mounted, locally fabricated in 16 gauge, Colour Code: RAL7035, MS Powder Coated, Copper Glands, and Lugs, Phase indication lights, Tin Coated Copper Bulbar for 3 Phases with colour coded heat shrinkable sleeves, Neutral & Earth with Polycarbonate cover sheet. Brass glands at bottom In & Out, CT's, Energy meter with all related accessories for outdoor usage minimum IP Rating 54 With dust proof enclosure.<br>MCCB Breaker 250A,4P, 36KA, Qty:02,<br>MCCB Breaker 150A adj., 4P, 36kA, Qty: 01<br>ACB Breaker 1000A adj,4P, 65kA, Qty:01<br>AC SPD 4Pole, 65kA with HRC Fuses with bases<br><b>Energy Analyzer:</b><br><b>Make: Janitza or Equivalent</b><br><b>CT's:</b><br><b>Make: Ficco/Saci or Equivalent</b><br><b>Brand of ACB &amp; MCCB</b><br><b>Make: ABB/Schneider or Equivalent</b><br><b>SPD</b><br><b>Make: ABB/Schneider or Equivalent</b><br><b>HRC Fuses</b><br><b>Make: Schnieder/ABB or Equivalent</b> | Each | 1 |  |  |
| ii) | <b>LV Panel (Stand alone) :</b><br>Specification: Supply, Installation, Testing & Commissioning (SITC) of AC Combiner Box (LV Panel) with pad floor standing/Wall mounted, locally fabricated in 16 gauge, Colour Code: RAL7035, MS Powder Coated, Copper Glands, and Lugs, Phase indication lights, Tin Coated Copper Bulbar for 3 Phases with colour coded heat shrinkable sleeves, Neutral & Earth with Polycarbonate cover sheet. Brass glands at bottom In & Out, CT's, Energy meter with all related accessories for outdoor usage minimum IP Rating 54 With dust proof enclosure.<br>ACB Breaker 1000A adj,4P,MCCB,400V/415V, Qty:01<br>AC SPD 4Pole, 65kA with HRC Fuses Energy Meter: Janitza or Equivalent CT's: Ficco/Saci or Equivalent<br>MCCB Make: ABB/Schneider or Equivalent SPD Make: ABB/Schneider or Equivalent<br>HRC Fuses Make: Schnieder/ABB/Voltron or Equivalent                                                                                                                                                             | Each | 1 |  |  |
|     | <b>Note: Coupling of Solar LV Panel with existing LV panel in substation through same rating of bus bar as existing panel</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |   |  |  |
| 7   | <b>CABLES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |   |  |  |
| a   | <b>DC CABLES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |   |  |  |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |       |  |  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|--|--|
|      | Supply, Installation & Testing of DC Cable, 1 Core 6 sq.mm Cu/XLPO/XLPO cable complete in all respect with accessories to connect the PV solar cells together and to the inverter directly to have a complete operational circuit, clamps, trays and cable end terminations which shall be DC plug and socket connectors. The allowable voltage drop for DC cables between PV Arrays and inverter should be less than 2%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.5kV DC, Standard Double insulated: Cross link polyolefin, Tinned copper conductor:<br>Cable should be Certified from TUV Approved. Standard: EN50618<br>Tagging and other accessories must be complete in all aspects<br><b>Make: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.</b> | Meter | 5,500 |  |  |
| b    | <b>AC Cables</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |       |  |  |
|      | Supply, Installation & Testing of the AC power cables & Grounding Cables with all required works in different sizes of ducts/pipes, Cable lugs, Clamps and all needed fittings to connect cables terminals from source to destination. According to drawings, specifications, instructions, and demand of the supervising engineer as follow:<br><b>Brand: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.</b>                                                                                                                                                                                                                                                                                                                                                                                                |       |       |  |  |
| i)   | 4C x 120 sq.mm , 0.6/1kV Cu / XLPE / /PVC Pure Copper with lugs, brass glands, tagging and other accessories (Inverters to AC Combiner). Must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Meter | 350   |  |  |
| ii)  | 2x4C x 240 sq.mm ,0.6/1kV Cu/XLPE/PVC Pure Copper with lugs, brass glands, tagging and other accessories (Inverters to AC Combiner). Must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Meter | 200   |  |  |
| c    | <b>Grounding Cables</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |  |  |
| i)   | Grounding Cable Laying and termination - 1C - 2.5 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories (Panel to Panel Earthing) must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Meter | 500   |  |  |
| ii)  | Grounding Cable Laying and termination - 1C - 10 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories (Table to Table) must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Meter | 250   |  |  |
| iii) | Grounding Cable Laying and termination - 1C - 25 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories required (Inverters to Sub Combiner and Sub Combiner to Main Combiner - Main Combiner to Earthing Pit) must be complete in all aspects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Meter | 200   |  |  |
| 8    | <b>CONNECTORS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |       |  |  |
|      | Supply & Installation of MC4 Connectors Fuse Based, with accessories as required (Sample shall be provided before installation) 1500Volts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |  |  |
| a)   | MC 4 Connector - For Strings - Imported Amphenol / BlueSunS Solar / Equivalent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Pairs | 40    |  |  |
| b)   | MC 4 Connector - For Looping - Imported Amphenol / BlueSun Solar / Equivalent ( Looping)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pairs | 20    |  |  |
| 9    | <b>EARTHING SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |       |  |  |
| i)   | Grounding Pits (less than 1 ohm required), Electrode type having bore depth 120 ft to 150 ft, 6 inch bore or to achieved less than 1 ohm with complete accessories including manholes and UPVC schedule 40 conduits.Task must complete in all aspect.<br><b>Note: Copper purity shall be 99.99%, certificates might be required</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Job   | 6     |  |  |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |     |  |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--|--|
| a) | Supply & Installation of Copper Rod 25mm diameter, length: 10 Ft (Local) with complete accessories; Copper purity shall be 99.99%, certificates might be required.                                                                                                                                                                                                                                                                                                                                                                  | Nos   | 6   |  |  |
| b) | Supply & Installation of Earthing powder<br><b>Make: Bentonite Chemical</b> , vendor needs to get approval for chemical bags first. Need to show the pictures of the bags for approval                                                                                                                                                                                                                                                                                                                                              | Nos   | 60  |  |  |
| c) | Supply & Installation of bare Copper Rope 2 x 95 sq.mm (From pit to test point).                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mtr   | 600 |  |  |
| d) | Supply & Installation of UPVC Schedule=40 Pipe dia 6" with complete accessories<br><b>Make: (Jeddah / Adamjee/equivalent etc). (For Casing)</b>                                                                                                                                                                                                                                                                                                                                                                                     | Mtr   | 520 |  |  |
| e) | Supply & Installation of main hole with cover (concrete box of 1' x 1' x 6" inches), cover would be of chequered sheet should be of iron material (thickness of 6mm) that can with sand heavy loads                                                                                                                                                                                                                                                                                                                                 | Nos   | 6   |  |  |
| f) | Supply & Installation of busbar 250mm x 25mm x 5mm with box with complete accessories and MS box (Powder coated)                                                                                                                                                                                                                                                                                                                                                                                                                    | Nos   | 6   |  |  |
| g) | Supply & Installation of Accessories (SS304 Nut and bolts, MS Anchor Bolt Electroplated M12 x 120mm).                                                                                                                                                                                                                                                                                                                                                                                                                               | Job   | 1   |  |  |
| 10 | <b>LIGHTNING ARRESTER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |     |  |  |
| a  | Supply & Installation of Lightning arrester (ESE SIRIUS) at 5 meter Height with all the accessories.                                                                                                                                                                                                                                                                                                                                                                                                                                | Nos   | 2   |  |  |
| b  | Supply & Installation of Bare Copper Conductor 1C x 50 sq.mm (From Lightning Arrester to test point).                                                                                                                                                                                                                                                                                                                                                                                                                               | Mtr   | 600 |  |  |
| c  | Supply & Installation of Base plate 100mm x 100mm x 6mm (Local MS with epoxy paint).                                                                                                                                                                                                                                                                                                                                                                                                                                                | Nos   | 2   |  |  |
| d  | Supply & Installation of Pole (Local MS with epoxy paint).                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |     |  |  |
| I  | 3" Dia 12 Gauge 2.1 m Height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nos   | 2   |  |  |
| II | 4" Dia 12 Gauge 2 m Height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Nos   | 2   |  |  |
| 11 | <b>DATA LOGGER REMOTE MONITORING SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |     |  |  |
| i) | Supply, installation, testing and commission of data Manager with Remote Monitoring System consists of the following parameter:<br>a) Total energy generation of PV Plant<br>b) Instantaneous Power been generated by solar PV plant<br>c) Performance ratio of PV plant<br>d) Current load of client<br>e) Load profile v/s energy generation.<br>f) Daily Solar Plant report in PDF from<br>Data should be store on server for not more than 10 min time interval.<br>Data must be access through internet via user friendly GUI. | Each  | 1   |  |  |
| 12 | <b>CABLE TRAY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |     |  |  |
| i) | Supply and installation of following sizes 14SWG heavy duty HDGI Perforated Cable Tray 75mm x 75mm with 14 SWG HDGI.<br>Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                   | Meter | 250 |  |  |

|                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--|--|
| ii)                                                                                                       | Supply and installation of following sizes 14SWG heavy duty HDGI Perforated Cable Tray 100mm x 100mm with 14 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Meter | 120 |  |  |
| iii)                                                                                                      | Supply and installation of following sizes 14SWG heavy duty HDGI Cable Tray 200mm x 100mm with 14 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Meter | 80  |  |  |
| 13                                                                                                        | <b>UPVC PIPES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |     |  |  |
| i)                                                                                                        | Supply and installation of 3-inch UPVC pipe for branch connection to main cable tray with other accessories including Elbow, reducers, bands, T-bands, dressing cable ties etc must be complete in all aspects.<br><b>(For Branches of DC Cables) Elevated Structure</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Meter | 350 |  |  |
| ii)                                                                                                       | Supply and installation of 2-inch UPVC pipe for branch connection to main cable tray with other accessories including Elbow, reducers, bands, T-bands, dressing cable ties etc must be complete in all aspects.<br><b>(For Branches of DC Cables) Elevated Structure</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Meter | 150 |  |  |
| 14                                                                                                        | <b>NET METERING/ GEN SET CONTROLLER<br/>(Option (i)/ Option (ii))</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |     |  |  |
| i)                                                                                                        | Service of Net metering application process & handling as per K.E approved criteria complete in all respects or directed by Engineer. This also includes the services charges & fee for assessment of Grid load flow study if it required & service charges for Load Inspector etc. Only the cost of green meter shall be paid by DUHS <b>(IF APPLICABLE)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Job   | 1   |  |  |
|                                                                                                           | <b>Option (ii) Fuel Saver Controller System</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |
| i)                                                                                                        | Design, Supply, Installation, testing and commissioning of Deif / Encombi or Equivalent Fuel Saver Controller System Solution for the Integration of PV Power Plant into Electrical Network based on Gensets. Fuel Save controller should performs the following tasks: a) Monitoring of the genset's power and operating status b) Monitoring of the load and grid status c) Calculation of suitable values for the maximum power output of the PV inverters according to defined parameter settings and the current status of gensets and load d) Control and communication interface to PV inverters e) Internal logging of all relevant system data f) Provision of relevant system data for local and remote monitoring g) Emergency shutdown of the PV inverters in case of a system malfunction h) Online Dashboard access to monitor solar power plant, Gensets & Grid and daily plant report in excel file. The bidder shall provide the complete technical details of the system | No    | 1   |  |  |
| 15                                                                                                        | <b>ACCESSORIES &amp; Civil Work</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |     |  |  |
| i)                                                                                                        | Accessories & Any Civil Work related to above scope (Cable Ties (UV resistant (make: KSS), Lugs, Taggings, Brass Glands, GI Flexible Pipes, Polymer Flexible Pipes etc) must be installed as per site requirements and complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Job   | 1   |  |  |
| <b>Grand Total (Supply of 270KW Grid Tied Solar System At (Girls Hostel, Ojha Campus), DUHS, Karachi)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |
| <b>Installation of 270 KW Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |
| <b>Net Metering</b>                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |
| <b>TOTAL AMOUNT (A)</b>                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |     |  |  |

**Note:**

1. In case of discrepancy between unit price in figure and words and total price mentioned in words shall prevail.
2. DG set price should be in CNF / CFR, local items will be quoted in PKR (DDP).

**PRICE SCHEDULE – SUPPLIES**  
**(WAREHOUSE, OJHA CAMPUS)**

Name of Bidder: \_\_\_\_\_

**BOQ- PEB SHED ROOF MOUNTED SOLAR PV SYSTEM 450 KW WAREHOUSE**

| Sr No | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit          | Qty     | Unit Price (PKR) | Total Amount (PKR) |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------|------------------|--------------------|
| 1     | <b>MODULE MOUNTING STRUCTURE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |         |                  |                    |
| i)    | <p>Designing, Supplying, Fabrication &amp; Installation of PEB Mounting structure. The mounting PEB structures must be designed structurally to be suitable to withstand all static loads (weight of modules, wind loads etc). Minimum wind speed pressure 44 m/s in harsh environment. The design submission must be as per AL 6063-T6, AL6063-5, SS 416 , ASTM-A36, ASTM-123 and ASCE 7-10. The PEB Shed structure components are bonded together to guaranty potential equalization. The tilt angle shall be optimum as per site requirement. The work is to be carried out strictly as per approved structure drawings, design and specification and the rate quoted is inclusive of the following:<br/> <b>Make: Local Fabricated</b><br/> <b>Aluminium Rail for mounting (AL6063-T5) Dimension 76x38x2mm</b><br/> <b>Aluminium Clamps (AL6063-T6)</b><br/> <b>Aluminium Omega Bracket (AL6063-T5) Thickness 5mm</b><br/> <b>For PEB Shed pasted type Mounting Structure with SS 416 hardware (i-e nuts, bolts, s.w, p.w) (INCLUDING WATERPROOFING)</b></p>                                                                                                                                                         | Watt          | 450,000 |                  |                    |
| a     | Structure Drawing must be submitted prior supply and installation and approved by DUHS Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |         |                  |                    |
| b     | Placing of Anchor Bolts & Base Plate as per design & length & Details approved by DUHS Engineer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |         |                  |                    |
| c     | The Contractor shall remove all the debris and clear the site as per direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |         |                  |                    |
| d     | The Contractor shall submit the detail technical shop drawing before execution of work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |         |                  |                    |
| e     | After completion of the work the contractor shall submit the as built drawing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |         |                  |                    |
| f     | Minimum warranty period for structure 10 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |         |                  |                    |
| 2     | <b>PV MODULES-450 KW:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |         |                  |                    |
| i     | <p><b>Supply, Installation, Testing &amp; Commissioning (SITC) N-type Bifacial Photovoltaic Solar Modules Tier 1 Type anti-reflective high transparency low iron tempered glass, with earthing provision. The modules STC parameters must be as under</b><br/> <b>Min Power Pmax 610 or above Wp rated power</b><br/>           (a) Junction Box Protection Degree, IP 68<br/>           (b) Connection box, 4.0mm<sup>2</sup> conductor cross section,<br/>           (c) Cable with, MC4 male and female connectors,<br/>           (d) Anodized Aluminum Frame and Support Bars<br/>           (e) PVC duct, Clamps &amp; Accessories, support and labels to be installed under PV Array. The Contractor shall provide manufacturer warranty for solar panel for a period not less than 25 years.<br/>           Contractor must submit all the required certificates for each PV solar panel from manufacturer as per specification with complete import documents, standard laboratory test certificates.<br/>           All works and materials must be according to the drawings, specifications and supervisor engineer instruction's and approval.<br/> <b>Make: Jinko or Longi HI-MO X10 or Equivalent</b></p> | No. of Panels | 740     |                  |                    |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |   |  |  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|--|--|
| <b>3</b> | <b>GRID-TIED INVERTER (PCU)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |   |  |  |
| i)       | <p>Supply, Installation, Testing &amp; Commissioning (SITC) DC/AC grid tie 3-phase inverter with data communication unit with Ethernet connection. The inverter with must be suited to any PV module configuration, and depending on the system design and installation proposed and for the future extended also. (Leading Market brand, having annual production greater than 1GW). The DC max power input rating should be at least 1.2 times of AC power at standard test condition (STC). The inverter unit shall be suitable for indoor and outdoor installations with IP65. The inverter must include the safety concepts such as (triple protection with Opti protect, electronic strings fuses, self-learning string failure detection, DC surge arrester type (2) to ensure max availability. The inverter includes online monitoring with wifi Dongle. All works and materials must be according to the drawings, specifications and supervisor Engineer instructions and approval.</p> <p><b>Make: Sungrow/Huawei/SMA or equivalent Power Rating: 125KW (4 Nos.)</b></p> | No   | 4 |  |  |
|          | <b>Brief specification is as under:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |   |  |  |
| a        | Max Input DC Voltage: 1100V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |   |  |  |
| b        | MPPT Operating Voltage Range : 200V~1000V,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |   |  |  |
| c        | Min 10 Independent MPPT Trackers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |   |  |  |
| d        | Minimum Efficiency 98.0%,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |   |  |  |
| e        | Warranty : 10 Years                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |   |  |  |
| f        | Minimum IP rating should be IP65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |   |  |  |
| <b>4</b> | <b>INVERTER STAND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |   |  |  |
| 1        | Supplies, Rigging and Installation of 03-Inverters Stands with (front and back combination of rigging; i.e, two inverter on single stand) complete nut bolts / anchor bolts as required as per provided drawings. Chemical anchoring used if required (Make: GMSA/HILTI/FISCHER). Civil pad is also considered if required. Load Bearing capacity of 400kg.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Job  | 1 |  |  |
| <b>5</b> | <b>COMBINER BOXES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |   |  |  |
| a        | <b>DC COMBINER BOX</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |   |  |  |
| i)       | <p>Supply, Installation, Testing &amp; Commissioning (SITC) of DC box/Array Junction Box with all accessories for outdoor usage, proper cable glands as per cable size. DC Combiner Box shall be provided One DC Breaker 4Pole per string.</p> <p>DC Breaker 4Pole 25A/32A,1000VDC, Qty=20</p> <p><b>DC Breaker Brand:</b></p> <p><b>Make: ABB/Schneider/Chint or Equivalent</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Each | 4 |  |  |
| <b>6</b> | <b>AC COMBINER BOX (LV PANEL)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |   |  |  |
| i)       | <p>Supply, Installation, Testing &amp; Commissioning (SITC) of AC Combiner Box (LV Panel) with pad floor standing/Wall mounted, Locally fabricated in 16 gauge, Colour Code: RAL7035, MS Powder Coated, Copper Glands, and Lugs, Phase indication lights, Tin Coated Copper Bulbar for 3 Phases with colour coded heat shrinkable sleeves, Neutral &amp; Earth with Polycarbonate cover sheet. Brass glands at bottom In &amp; Out, CT's, Energy meter with all related accessories for outdoor usage minimum IP Rating 54 With dust proof enclosure.</p> <p>MCCB Breaker 250A,4P, 36KA, Qty:04,</p> <p>ACB Breaker 1000A adj,4P, 65kA, Qty:01</p> <p>AC SPD 4Pole, 65kA with HRC Fuses with bases</p> <p><b>Energy Analyzer:</b></p> <p><b>Make: Janitza or Equivalent</b></p> <p><b>CT's:</b></p> <p><b>Make: Ficco/Saci or Equivalent</b></p>                                                                                                                                                                                                                                     | Each | 1 |  |  |

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |       |  |  |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|--|--|
|     | <b>Brand of ACB &amp; MCCB</b><br><b>Make: ABB/Schneider or Equivalent</b><br><b>SPD</b><br><b>Make: ABB/Schneider or Equivalent</b><br><b>HRC Fuses</b><br><b>Make: Schnieder/ABB or Equivalent</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |       |  |  |
| ii) | <b>LV Panel (Stand alone) :</b><br>Specification: Supply, Installation, Testing & Commissioning (SITC) of AC Combiner Box (LV Panel) with pad floor standing/Wall mounted, Locally fabricated in 16 gauge, Colour Code: RAL7035, MS Powder Coated, Copper Glands, and Lugs, Phase indication lights, Tin Coated Copper Bulbar for 3 Phases with colour coded heat shrinkable sleeves, Neutral & Earth with Polycarbonate cover sheet. Brass glands at bottom In & Out, CT's, Energy meter with all related accessories for outdoor usage minimum IP Rating 54 With dust proof enclosure.<br>ACB Breaker 1000A adj,4P,MCCB,400V/415V, Qty:01<br>AC SPD 4Pole, 65kA with HRC Fuses Energy Meter: Janitza or Equivalent CT's: Ficco/Saci or Equivalent<br>MCCB Make: ABB/Schneider or Equivalent SPD Make: ABB/Schneider or Equivalent<br>HRC Fuses Make: Schnieder/ABB/Voltron or Equivalent<br><b>Note: Coupling of Solar LV Panel with existing LV panel in substation through same rating of bus bar as existing panel</b> | Each  | 1     |  |  |
| 7   | <b>CABLES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |       |  |  |
| a   | <b>DC CABLES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |       |  |  |
|     | Supply, Installation & Testing of DC Cable, 1 Core 6 sq.mm Cu/XLPO/XLPO cable complete in all respect with accessories to connect the PV solar cells together and to the inverter directly to have a complete operational circuit, clamps, trays and cable end terminations which shall be DC plug and socket connectors. The allowable voltage drop for DC cables between PV Arrays and inverter should be less than 2%. Minimum voltage capacity 1500VDC, Highest permissible voltage conductor/conductor should be 1.5kV DC, Standard Double insulated: Cross link polyolefin, Tinned copper conductor:<br>Cable should be Certified from TUV Approved. Standard: EN50618<br>Tagging and other accessories must be complete in all aspects<br><b>Make: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.</b>                                                                                                                                                                                                 | Meter | 7,000 |  |  |
| b   | <b>AC Cables</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |       |  |  |
|     | Supply, Installation & Testing of the AC power cables & Grounding Cables with all required works in different sizes of ducts/pipes, Cable lugs, Clamps and all needed fittings to connect cables terminals from source to destination. According to drawings, specifications, instructions, and demand of the supervising engineer as follow:<br><b>Brand: Pakistan Cable/Fast Cable or Equivalent as Engineer Approved.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |       |  |  |
| i)  | 4C x 120 sq.mm , 0.6/1kV Cu / XLPE / /PVC Pure Copper with lugs, brass glands, tagging and other accessories (Inverters to AC Combiner). Must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Meter | 400   |  |  |
| ii) | 2x4C x 240 sq.mm ,0.6/1kV Cu/XLPE/PVC Pure Copper with lugs, brass glands, tagging and other accessories (Inverters to AC Combiner). Must be complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Meter | 200   |  |  |

|      |                                                                                                                                                                                                                                                                                                                                     |       |     |  |  |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--|--|
| c    | <b>Grounding Cables</b>                                                                                                                                                                                                                                                                                                             |       |     |  |  |
| i)   | Grounding Cable Laying and termination - 1C - 2.5 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories (Panel to Panel Earthing) must be complete in all aspects.                                                                                                                                                | Meter | 800 |  |  |
| ii)  | Grounding Cable Laying and termination - 1C - 10 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories (Table to Table) must be complete in all aspects.                                                                                                                                                          | Meter | 600 |  |  |
| iii) | Grounding Cable Laying and termination - 1C - 25 Sq.mm 450/750 V Cu/PVC with lugs, glands, tagging and other accessories required (Inverters to Sub Combiner and Sub Combiner to Main Combiner - Main Combiner to Earthing Pit) must be complete in all aspects                                                                     | Meter | 420 |  |  |
| 8    | <b>CONNECTORS</b>                                                                                                                                                                                                                                                                                                                   |       |     |  |  |
|      | Supply & Installation of MC4 Connectors Fuse Based, with accessories as required (Sample shall be provided before installation) 1500Volts                                                                                                                                                                                           |       |     |  |  |
| a)   | MC 4 Connector - For Strings - Imported Amphenol / BlueSunS Solar / Equivalent                                                                                                                                                                                                                                                      | Pairs | 60  |  |  |
| b)   | MC 4 Connector - For Looping - Imported Amphenol / BlueSun Solar / Equivalent ( Looping)                                                                                                                                                                                                                                            | Pairs | 20  |  |  |
| 9    | <b>EARTHING SYSTEM</b>                                                                                                                                                                                                                                                                                                              |       |     |  |  |
| i)   | Grounding Pits (less than 1 ohm required), Electrode type having bore depth 120 ft to 150 ft, 6 inch bore or to achieved less than 1 ohm with complete accessories including manholes and UPVC schedule 40 conduits.Task must complete in all aspect.<br><b>Note: Copper purity shall be 99.99%, certificates might be required</b> | Job   | 6   |  |  |
| a)   | Supply & Installation of Copper Rod 25mm diameter, length: 10 Ft (Local) with complete accessories; Copper purity shall be 99.99%, certificates might be required.                                                                                                                                                                  | Nos   | 6   |  |  |
| b)   | Supply & Installation of Earthing powder<br><b>Make: Bentonite Chemical</b> , vendor needs to get approval for chemical bags first. Need to show the pictures of the bags for approval                                                                                                                                              | Nos   | 60  |  |  |
| c)   | Supply & Installation of bare Copper Rope 2 x 95 sq.mm (From pit to test point).                                                                                                                                                                                                                                                    | Mtr   | 600 |  |  |
| d)   | Supply & Installation of UPVC Schedule=40 Pipe dia 6" with complete accessories<br><b>Make: (Jeddah / Adamjee/equivalent etc). (For Casing)</b>                                                                                                                                                                                     | Mtr   | 520 |  |  |
| e)   | Supply & Installation of main hole with cover (concrete box of 1' x 1' x 6" inches), cover would be of chequered sheet should be of iron material (thickness of 6mm) that can with sand heavy loads                                                                                                                                 | Nos   | 6   |  |  |
| f)   | Supply & Installation of busbar 250mm x 25mm x 5mm with box with complete accessories and MS box (Powder coated)                                                                                                                                                                                                                    | Nos   | 6   |  |  |
| g)   | Supply & Installation of Accessories (SS304 Nut and bolts, MS Anchor Bolt Electroplated M12 x 120mm).                                                                                                                                                                                                                               | Job   | 1   |  |  |
| 10   | <b>LIGHTNING ARRESTER</b>                                                                                                                                                                                                                                                                                                           |       |     |  |  |
| a    | Supply & Installation of Lightning arrester (ESE SIRIUS) at 5 meter Height with all the accessories.                                                                                                                                                                                                                                | Nos   | 2   |  |  |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |     |  |  |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--|--|
| b    | Supply & Installation of Bare Copper Conductor 1C x 50 sq.mm (From Lightning Arrester to test point).                                                                                                                                                                                                                                                                                                                                                                                                                               | Mtr   | 600 |  |  |
| c    | Supply & Installation of Base plate 100mm x 100mm x 6mm (Local MS with epoxy paint).                                                                                                                                                                                                                                                                                                                                                                                                                                                | Nos   | 2   |  |  |
| d    | Supply & Installation of Pole (Local MS with epoxy paint).                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |     |  |  |
| I    | 3" Dia 12 Gauge 2.1 m Height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nos   | 2   |  |  |
| II   | 4" Dia 12 Gauge 2 m Height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Nos   | 2   |  |  |
| 11   | <b>DATA LOGGER REMOTE MONITORING SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |     |  |  |
| i)   | Supply, installation, testing and commission of data Manager with Remote Monitoring System consists of the following parameter:<br>a) Total energy generation of PV Plant<br>b) Instantaneous Power been generated by solar PV plant<br>c) Performance ratio of PV plant<br>d) Current load of client<br>e) Load profile v/s energy generation.<br>f) Daily Solar Plant report in PDF from<br>Data should be store on server for not more than 10 min time interval.<br>Data must be access through internet via user friendly GUI. | Each  | 1   |  |  |
| 12   | <b>CABLE TRAY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |     |  |  |
| i)   | Supply and installation of following sizes 14SWG heavy duty HDGI Perforated Cable Tray 75mm x 75mm with 14 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                      | Meter | 400 |  |  |
| ii)  | Supply and installation of following sizes 14SWG heavy duty HDGI Perforated Cable Tray 100mm x 100mm with 14 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                    | Meter | 550 |  |  |
| iii) | Supply and installation of following sizes 14SWG heavy duty HDGI Cable Tray 200mm x 100mm with 14 SWG HDGI. Complete with all installation material such as angle iron support of size, MS round bar, elbows, Tee, Nuts, Bolts, Washer, Hilti drop-in anchor, etc. Complete in all respect, as per the specification.                                                                                                                                                                                                               | Meter | 80  |  |  |
| 13   | <b>UPVC PIPES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |     |  |  |
| i)   | Supply and installation of 3 inch UPVC pipe for branch connection to main cable tray with other accessories including Elbow, reducers, bands, T- bands, dressing cable ties etc must be complete in all aspects.<br><b>(For Branches of DC Cables) Elevated Structure</b>                                                                                                                                                                                                                                                           | Meter | 500 |  |  |
| ii)  | Supply and installation of 2 inch UPVC pipe for branch connection to main cable tray with other accessories including Elbow, reducers, bands, T- bands, dressing cable ties etc must be complete in all aspects.<br><b>(For Branches of DC Cables) Elevated Structure</b>                                                                                                                                                                                                                                                           | Meter | 200 |  |  |

|                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |   |  |  |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---|--|--|
| 14                                                                                                                 | <b>NET METERING/ GEN SET CONTROLLER<br/>(Option (i)/ Option (ii))</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |   |  |  |
| i)                                                                                                                 | Service of Net metering application process & handling as per K.E approved criteria complete in all respects or directed by Engineer. This also includes the services charges & fee for assessment of Grid load flow study if it required & service charges for Load Inspector etc. Only the cost of green meter shall be paid by DUHS (IF APPLICABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Job | 1 |  |  |
|                                                                                                                    | Option (ii) Fuel Saver Controller System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |   |  |  |
| i)                                                                                                                 | Design, Supply, Installation, testing and commissioning of Deif / Encombi or Equivalent Fuel Saver Controller System Solution for the Integration of PV Power Plant into Electrical Network based on Gensets. Fuel Save controller should performs the following tasks: a) Monitoring of the genset's power and operating status b) Monitoring of the load and grid status c) Calculation of suitable values for the maximum power output of the PV inverters according to defined parameter settings and the current status of gensets and load d) Control and communication interface to PV inverters e) Internal logging of all relevant system data f) Provision of relevant system data for local and remote monitoring g) Emergency shutdown of the PV inverters in case of a system malfunction h) Online Dashboard access to monitor solar power plant, Gensets & Grid and daily plant report in excel file. The bidder shall provide the complete technical details of the system | No  | 1 |  |  |
| 16                                                                                                                 | <b>ACCESSORIES &amp; Civil Work</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |   |  |  |
| i)                                                                                                                 | Accessories & Any Civil Work related to above scope (Cable Ties (UV resistant (make: KSS), Lugs, Taggings, Brass Glands, GI Flexible Pipes, Polymer Flexible Pipes etc) must be installed as per site requirements and complete in all aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Job | 1 |  |  |
| <b>Grand Total (Supply of 450 KW Grid Tied Solar System At (Warehouse, Ojha Campus), DUHS, Karachi)</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |   |  |  |
| <b>Installation of 450 KW PEB Shed Roof Mounted Grid Tied Utility Interactive Photo Voltaic Solar Power System</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |   |  |  |
| <b>Net Metering</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |   |  |  |
| <b>TOTAL AMOUNT (B)</b>                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |   |  |  |

**Note:**

1. In case of discrepancy between unit price in figure and words and total price mentioned in words shall prevail.
2. DG set price should be in CNF / CFR, local items will be quoted in PKR (DDP).

## **PRICE SCHEDULE - SERVICES**

Name of Bidder :

### **A. Price Schedule of Solar PV Systems:**

#### **SUMMARY OF BID PRICES**

| <b>Item No.</b> | <b>Description</b>                                                                                                                   | <b>Unit/ Qty.</b> | <b>AMOUNT (PKR)</b> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|
| (A)             | Supply & Fixing Of (270KW & 450KW) Grid Tied Solar System At (Girls Hostel, Ojha Campus) & (Warehouse, Ojha Campus), DUHS, Karachi   | 1 Lot             |                     |
| (B)             | Installation of (270KW & 450KW) Grid Tied Solar System At (Girls Hostel, Ojha Campus) & (Warehouse, Ojha Campus), DUHS, Karachi      | 1 Job             |                     |
| (C)             | Transportation of Of (270KW & 450KW) Grid Tied Solar System At (Girls Hostel, Ojha Campus) & (Warehouse, Ojha Campus), DUHS, Karachi | 1 Job             |                     |
| (D)             | Net Metering Of (270KW & 450KW) Grid Tied Solar System At (Girls Hostel, Ojha Campus) & (Warehouse, Ojha Campus), DUHS, Karachi      | 1 Job             |                     |
|                 | TOTAL AMOUNT OF THE PROJECT WITH OUT TAX                                                                                             |                   |                     |
|                 | TOTAL AMOUNT OF THE PROJECT WITH TAX (SRB)                                                                                           |                   |                     |
|                 | GRAND TOTAL AMOUNT OF THE PROJECT PER WATT WITH TAX                                                                                  |                   |                     |

### **SIGNATURE OF BIDDER**

Note:

- (i) In case of discrepancy between unit price in figure and words and total price mentioned in words shall prevail.
- (ii) DG set price should be in CNF / CFR, local items will be quoted in PKR (DDP).

Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

Signed \_\_\_\_\_

Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date \_\_\_\_\_

**SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF (270KW & 450KW) GRID TIED SOLAR SYSTEM AT (GIRLS HOSTEL, OJHA CAMPUS) & (WAREHOUSE, OJHA CAMPUS), DUHS, KARACHI.**

**EXPERIENCE OF SIMILAR SUPPLY AND INSTALLATION**

| <b>Sr. No</b> | <b>Assignment Description</b> | <b>Name / Contact Details of Client</b> | <b>Cost</b> | <b>Start Date</b> | <b>End Date</b> | <b>Remarks</b> |
|---------------|-------------------------------|-----------------------------------------|-------------|-------------------|-----------------|----------------|
| 1.            |                               |                                         |             |                   |                 |                |
| 2.            |                               |                                         |             |                   |                 |                |
| 3.            |                               |                                         |             |                   |                 |                |
| 4.            |                               |                                         |             |                   |                 |                |
| 5.            |                               |                                         |             |                   |                 |                |
| 6.            |                               |                                         |             |                   |                 |                |
| 7.            |                               |                                         |             |                   |                 |                |
| 8.            |                               |                                         |             |                   |                 |                |
| 9.            |                               |                                         |             |                   |                 |                |
| 10.           |                               |                                         |             |                   |                 |                |

Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

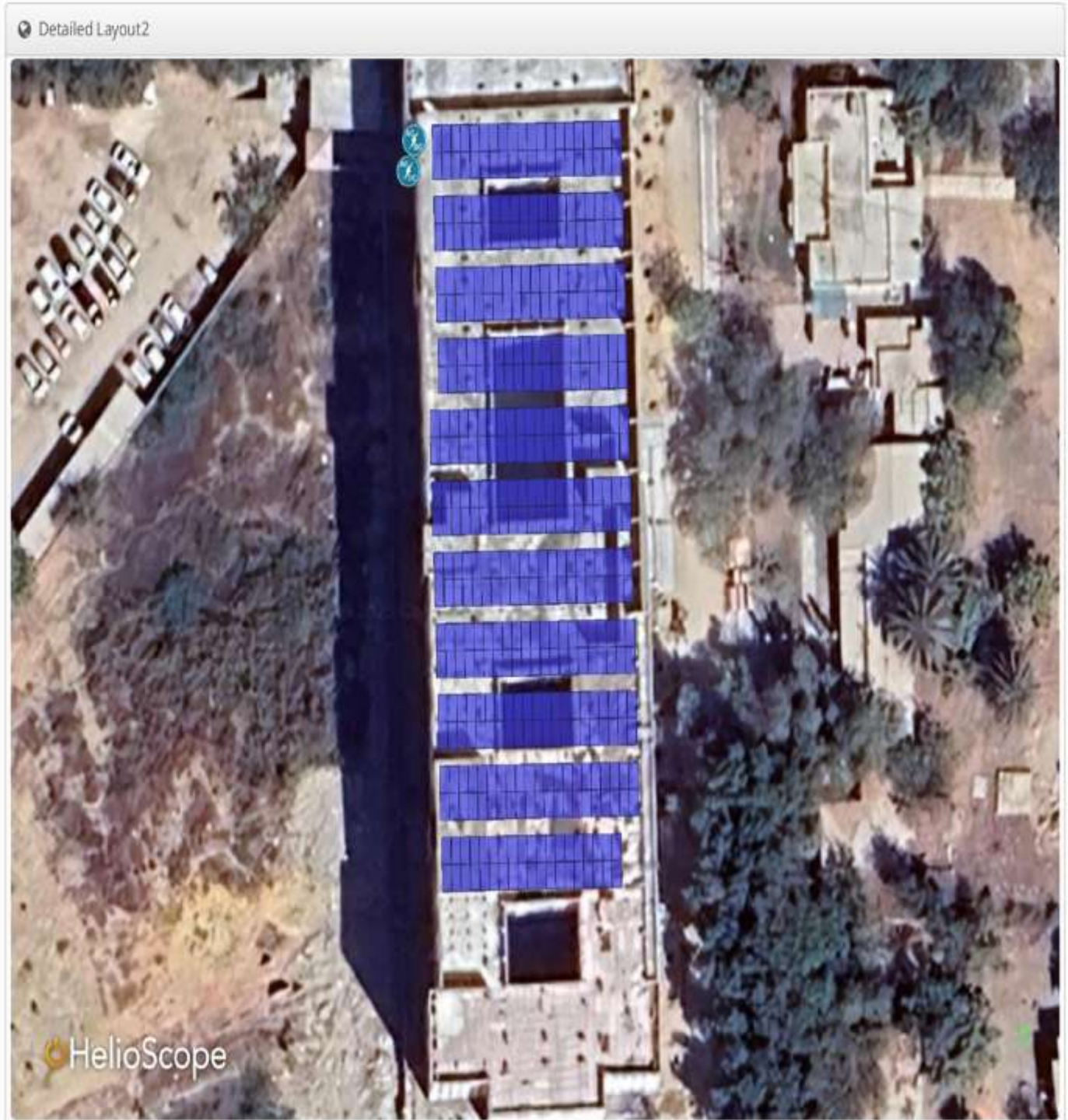
Signed \_\_\_\_\_

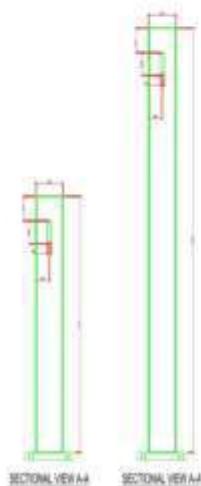
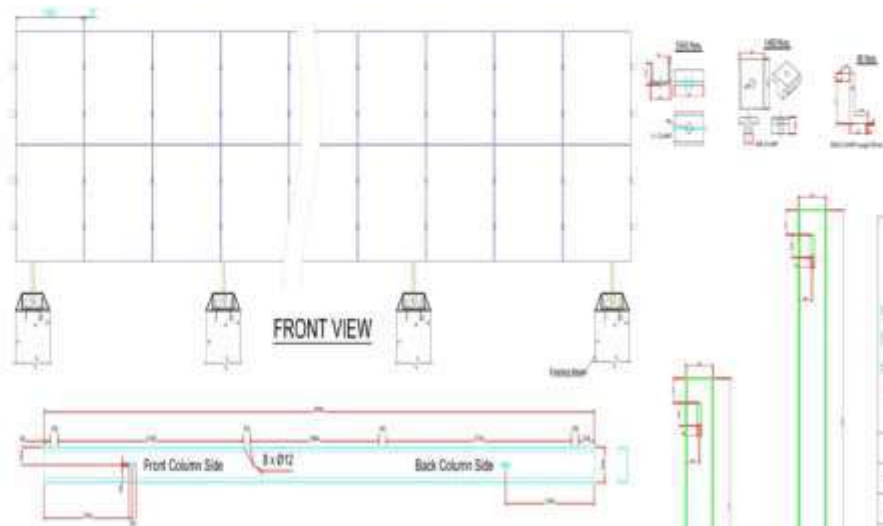
Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date \_\_\_\_\_

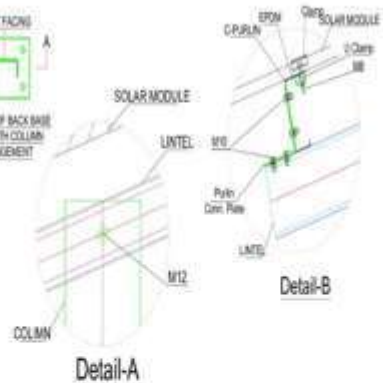
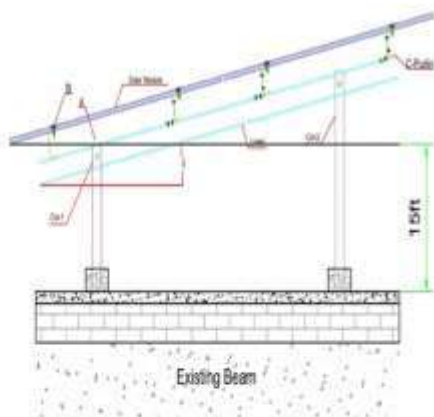
## I) DRAWINGS

### *Structure Drawing and Panel Layout of 270 KW – Girls Hostel*





| Module Data              |          | Array Information    |             |
|--------------------------|----------|----------------------|-------------|
| TYPE                     | MONO 7.5 | MODULE CAPACITY (Wp) | 750         |
| WIRE EXPOSURE CATEGORY   | 2        | TELEPHONE CABLE      | 1"          |
| DESIGN WIND SPEED (mph)  | 15       | DESIGN WIND (mph)    | 200-250 KPH |
| MODULE DESIGN LOAD (psf) | 5        | WATERING             | 1500        |
| TOTAL NUMBER OF PANELS   | —        | NO. OF STRUCTURES    | —           |

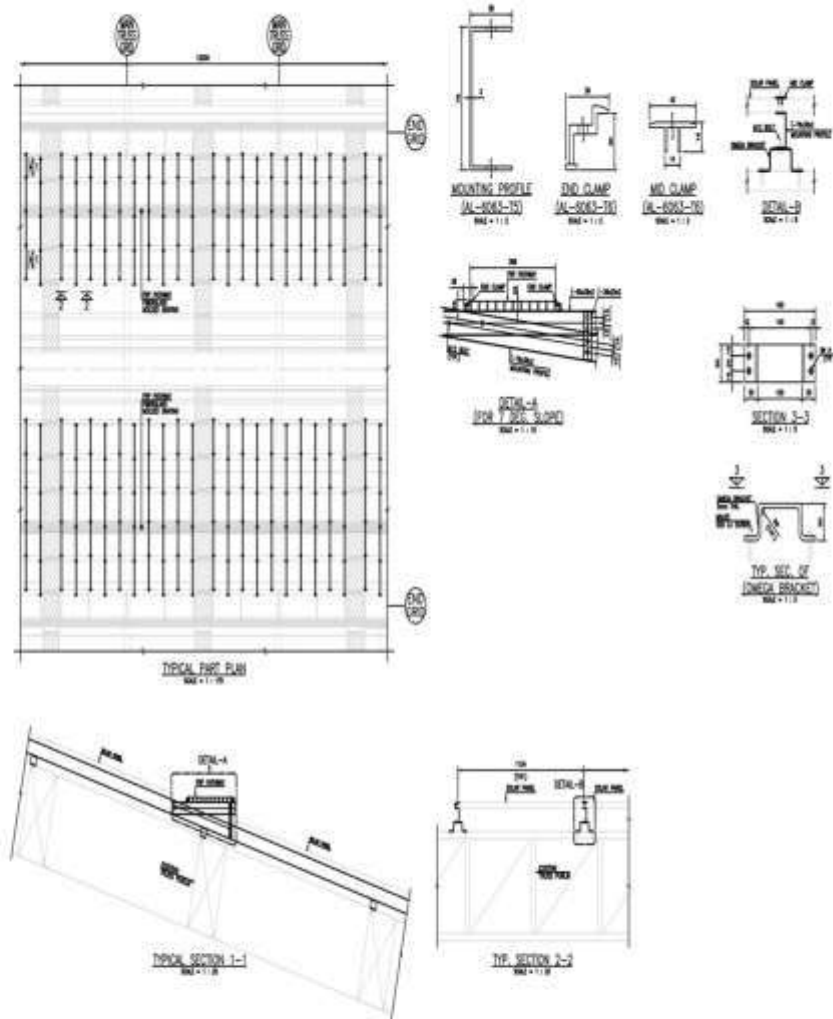


|  |      |      |      |           |             |
|--|------|------|------|-----------|-------------|
|  | Rev. | Iss. | Rev. | DATE      | PROJECT NO. |
|  |      |      |      | JUNE 2025 |             |
|  | Rev. | Iss. | Rev. | DATE      | PROJECT NO. |
|  |      |      |      |           |             |

## I) DRAWINGS

### Structure Drawing and Panel Layout of 450 KW – Warehouse





#### NOTES

1. ALL DIMENSIONS ARE IN MM.
2. ALL DIMENSIONS INCLUDING THICKNESS & GAUGE TO BE AS SHOWN IN DRAWING.
3. DIMENSIONS TO BE SHOWN IN DRAWING TO BE SHOWN IN DRAWING.
4. ALL DIMENSIONS TO BE SHOWN IN DRAWING.
5. ALL DIMENSIONS TO BE SHOWN IN DRAWING.
6. ALL DIMENSIONS TO BE SHOWN IN DRAWING.

|                                                                         |                                                                                     |      |                      |      |           |              |     |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|----------------------|------|-----------|--------------|-----|
| Dow University of Health Sciences,<br>Islamabad Road, Karachi, Pakistan | PROJECT<br>Ware House<br>DOW UNIVERSITY OF HEALTH SCIENCES,<br>DHUJA CAMPUS KARACHI | NO.  | Mechanical Structure | DATE | JULY 2025 | REVISION NO. | R/S |
|                                                                         |                                                                                     | DATE | TENDER DRAWING       |      |           |              |     |



# DAWN

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## OFFICE OF THE DIRECTOR WORKS & SERVICES DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI.

Baba-e-Urdu Road, Karachi. Direct No. 92-21- 99216065  
Website: [www.duhs.edu.pk](http://www.duhs.edu.pk) E-mail: [rahim.khan@duhs.edu.pk](mailto:rahim.khan@duhs.edu.pk)

NIT No. DUHS/W&amp;S/2025/1587

Dated: October 24, 2025

# TENDER NOTICE

Dow University of Health Sciences (DUHS), Karachi is a Public Sector University that invites e-bids through E-Pak Acquisition & Disposable System (EPADS) from well-reputed Companies / Bidders/firms having registration with the Federal Board of Revenue (FBR), Income Tax Department, Sindh Revenue Service Board and Sales Tax.

| S # | NAME OF WORK                                                                                                                                                                | METHOD OF PROCUREMENT                                                                                 |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1   | REPAIR AND MAINTENANCE SERVICES FOR UNINTERRUPTED POWER SUPPLIES (UPS) (REF. NO. DUHS/W&S-NIT/183)                                                                          | Single Stage – Two Envelope Procedure as per rule 46 sub rule-2 of SPP Rules 2010 (Amended upto date) |
| 2   | SUPPLY, FIXING, INSTALLATION & COMMISSIONING OF (270KW & 450KW) GRID TIED SOLAR SYSTEM AT (GIRLS HOSTEL & WAREHOUSE), OJHA CAMPUS, DUHS KARACHI (REF. NO. DUHS/W&S-NIT/184) | Single Stage – Two Envelope Procedure as per rule 46 sub rule-2 of SPP Rules 2010 (Amended upto date) |

|            |                                                                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Tender Fee | Rs. 5,000/- (Rupees Five Thousand Only) Non-Refundable in shape of Pay Order / Demand Draft in favor of Dow University of Health Sciences, Karachi. |
| Security   | Bid Security and Performance Security as mentioned in the bidding document.                                                                         |

E-Bidding documents as per detailed terms and conditions, specifications and requirements are available for the registered bidders on Sindh Public Procurement Regulatory Authority's EPADS at <https://portalsindh.eprocure.gov.pk/#/> and University website <https://duhs.edu.pk> on the payment noted above (non-refundable) on any working day except the day of opening of tenders.

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## DIRECTOR

### Works & Services

### Dow University of Health Sciences, Karachi



## OFFICE OF THE DIRECTOR WORKS & SERVICES DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI.

Baba-e-Urdu Road, Karachi. Direct No. 92-21-99216065  
Website: [www.duhs.edu.pk](http://www.duhs.edu.pk) E-mail: [rahim.khan@duhs.edu.pk](mailto:rahim.khan@duhs.edu.pk)

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|                   |                                                                                                                                                     |
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**DIRECTOR**

**Works & Services  
Dow University of Health Sciences, Karachi**

عوامي حقن جي ترجمان، ڪمپيوٽر تي پهرين مڪمل اخبار

ڪراچي، حيدرآباد ۽ سکر مان هڪ ئي وقت شايع ٿيندڙ

# روزاني عوامي آواز

سال 36 - شمارو 291 | ڇنڇر 25 آڪٽوبر 2025 | 02 جمادي الاول 1447ھ | صفحا 08 - قيمت 40 روپيا



## OFFICE OF THE DIRECTOR WORKS & SERVICES DOW UNIVERSITY OF HEALTH SCIENCES, KARACHI.

Baba-e-Urdu Road, Karachi. Direct No. 92-21- 99216065

Website: [www.duhs.edu.pk](http://www.duhs.edu.pk) E-mail: [rahim.khan@duhs.edu.pk](mailto:rahim.khan@duhs.edu.pk)

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