

Amended In Light of Pre-Bid Meeting



REQUEST FOR PROPOSAL

FOR

**DESIGN, SUPPLY, INSTALLATION AND
COMMISSIONING OF 50 KW SOLAR PV
PLANT AT ABBOTTABAD UNIVERSITY OF
SCIENCE & TECHNOLOGY (AUST)**

FOR

**GRID CONNECTED SOLAR PV POWER
PROJECT**

THROUGH

**ENGINEERING, PROCUREMENT, AND
CONSTRUCTION (EPC) BASED COMPETITIVE
BIDDING PROCESS**

**ONE STAGE TWO ENVELOPES
BIDDING PROCEDURE**

September, 2023

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NOTICE

FOR

REQUEST FOR PROPOSAL

**NOTICE
FOR REQUEST FOR PROPOSAL
FOR SOLAR POWER PLANT**

The Abbottabad University of Science & Technology (AUST), one of the most prestigious institutes of Pakistan (The Institute), intends to undertake 50 KW ON-GRID solar power project for its main campus on EPC basis.

The Institute hereby invites sealed bids on single stage two envelopes process (Technical and Financial) from eligible firms registered with AEDB and licensed by PEC in category-4 or above in relevant codes for Design, Supply, Construction, Erection, Testing, commissioning, training and post installation O&M services for two year.

A complete set of Bidding Documents may be able to be downloaded from Institutes Website (www.aust.edu.pk) after three days of publishing of this advertisement. Only complete bids, duly signed by authorized signatory and stamped, supported by requisite documents will be acceptable. Incomplete bids will not be acceptable and could be declared non-responsive.

Bids, accompanied by a Bid Security @ 2% of total bid value and stationary fee of Rs. 5,000/- along with credentials must be delivered in two sealed envelopes to the Institute by **11:00 Hours on _____, 2023** PO of AUST. Bids will be opened at 11:30 Hours on the same day, in the presence of bidders' representatives who choose to attend at the conference room of Admin Block.

The Bidder(s) or their designated representatives (maximum two) are invited to attend a "Pre-Bid Meeting" / Site Visit on _____, **2023** at 1100 Hours in Abbottabad UST. The applicant bidders must have successfully completed at least three (03) independent projects of 100 KW each during last five years.

The bidders shall furnish documentary evidence in support of meeting the eligibility criteria to the satisfaction of the Institute and should indicate complete name and address, NTN, STN, provincial Sales Tax on Services Number, valid registration certificate with AEDB and PEC, CVs of qualified staff with minimum three years' experience in solar projects and evidence of payment of monthly salary, list of projects completed in last five years with time of completion of each project and the projects in hand, certified financial statements for last three years and details of accounts maintained in different banks with certificate from the concerned branch in support.

The financial bids of only technically qualified Companies scoring at least 70% marks in technical evaluation per criteria mentioned in the bidding documents shall be opened publicly in the presence of bidder's representative's on _____, **2023**.

The University reserves the right to reject all bids or proposals at any time prior to acceptance of a bid or proposal, the sufficient reasons for which will only be communicated on request without any obligation to provide any justification.

Secretary Purchase Committee
Abbottabad University of Sciences and Technology,
District, Abbottabad, Khyber Pakhtunkhwa, Pakistan.
Telephone: 0992-922501

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

A. GENERAL

IB.1 INTRODUCTION

The Abbottabad University of Science & Technology (AUST) is one of the most prestigious institutes of Pakistan. AUST is known the world over for setting a standard of excellence in the field of research & academia.

The Institute has a 1500-acre campus that is located in Havelian, Abbottabad, Province Khyber Pakhtunkhwa.

In order to optimally exploit the solar power potential and augment power generation capacity, AUST management is entrusted with the responsibility of promotion and development of renewable energy in its main campus. In this regards AUST management intends to pre-qualify top class national/international engineering firms registered with AEDB & PEC under relevant category to construct a 50 KW On-Grid Solar Power Plant Project with following deliverables: -

- Designing of Solar Based Power Plant
- Supply of Solar Based Power Plant
- Installation of Solar Based Power Plant
- Testing & Commissioning of Solar Based Power Plant
- O & M Services during warranty Period

According to the RFP document published, the selected firm/ developer/ Company will enter EPC turnkey agreement with AUST, is responsible for the Design, Procure, Engineering, Commissioning and O&M Services to meet a minimum generation output committed in the bidding document.

Interested Engineering Firms/ Companies to apply against Subject Bidding Documents and shall submit its documents on or before 11:00 hrs **on _____, 2023**. The Project Location Map and other relevant details are depicted as Appendices to Bid

The EPC Contractor is bound / obligated to provide energy generation commitment as described/ agreed in the bidding documents. In case of deficit in committed generation, the EPC firm/Company may install extra PV module or any settlement based on consensus will be considered.

IB.2 PURPOSE OF PROJECT BRIEF AND BIDDING INSTRUCTIONS

Selection of Successful bidder(s) for procurement of grid connected Solar PV Power Projects for aggregate capacity up to 50 KW shall be done through Turnkey Process.

The Works to be executed under this Contract comprise Design, Construct, Manufacture, Supply, Installation, and Testing & Commissioning of 50 KW Solar Power Generation Plant for AUST, Havelian, District Abbottabad, Province Khyber Pakhtunkhwa.

The RFP document has been prepared for Solar PV Power Project which means the solar project that uses sunlight for direct conversion into electricity through Photo Voltaic Technology. A detailed scope of work has been furnished along with the

Annexure/Appendices referred to herein and any future additions and amendments to this document constitute the Bidding Documents. The successful Bidder will be expected to complete the works within the stipulated period of 180 days as specified in these Bidding Documents.

Operations and maintenance of facilities such as operations, cleaning of power plant, electrical and mechanical infrastructure maintenance and other requirements needed for smooth operations shall be provided by the Executing Company.

IB.3 ELIGIBLE BIDDERS

This Invitation for Bidding Document is open to all the Bidders meeting the following requirements in case of contracting firms or the contracting firms proposed by the Bidding Company:

- Constructors/Operators duly licensed by the Pakistan Engineering Council (PEC) in the category relevant to the value of the Works with specialized solar Code EE-11.
- Constructors/Operators duly licensed by the Alternative Energy Development Board (AEDB) for Net-Metering.
- The applicant bidders should have successfully completed at least two (02) projects of similar nature in last 3 years.
- The successful bidder shall be required to enter into a contract with the client as per relevant rules.
- Other terms and conditions will be mentioned in the contract.
- The bidder should not be black listed by any public or private sector organization (attach an affidavit on stamp paper)
- The client shall deduct applicable taxes from the payments. Rates quotes should be in Pak Rupees inclusive of all applicable taxes. If not specifically mentioned, it will be presumed that offered price includes all the taxes.

To be eligible for award of the EPC Turnkey Contract, Bidders shall provide evidence satisfactory to the Employer of their capability and adequacy of resources to fulfill all obligations under this Contract Agreement.

IB.4 COST OF BIDDING

- 4.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

IB.5 PROGRAM

The Employer will, however, give favorable consideration to proposals that achieve an earlier availability date.

Bidders should note that the EPC Turnkey Contract specifies Key Dates to be achieved throughout the Construction Phase and penalties to be imposed for delayed completion.

IB.6 DISCLAIMER

- 6.1 All information, assumptions and projections contained in these Bidding Documents are indicative only and are provided solely to assist in a preliminary assessment of the Project. Nothing in the Bidding Documents or elsewhere shall create any contractual relationship between the Employer and any Bidder, nor shall it commit the Employer to any policy described in the Bidding Documents or elsewhere and neither the Employer nor any of its consultants or advisers will have any liability or responsibility if the information, assumptions and projections contained herein or otherwise in respect of the Project prove to be incorrect. It is the responsibility of the Bidder to verify the information, assumptions and projections contained in the Bidding Documents or otherwise.

IB.7 CONFIDENTIALITY

- 7.1 The Bidder shall treat the Bidding Documents and, if successful, the subsequent Contract Agreement, and everything contained therein as private and confidential. In particular, the successful Bidder shall not publish any information, drawings or photographs concerning the Project or any Ancillary Facilities, without the express permission of the Employer.

IB.8 BRIBERY AND COLLUSION/INTEGRITY PACT

The Employer shall be entitled to terminate the Contract Agreement and recover from the successful Bidder the amount of any loss resulting from such termination if the successful Bidder shall have offered or given to any person any gift or consideration of any kind as an inducement or reward for doing, or forbearing to do, any action in relation to obtaining, or in the execution of the Project or any other contract with the Employer, or for showing favour to any person in relation to the Contract Agreement or any other contract with the Employer, or if any of the like acts shall have been done by any person employed by the successful Bidder or acting on its behalf (whether with or without the knowledge of the successful Bidder), or if the successful Bidder shall have come to any agreement with another Bidder or number of Bidders whereby an agreed quotation or estimate shall be offered as a Bid to the Employer by one or more Bidders.

In addition, in case of GOP financing, the Bidder shall sign an Integrity Pact (Appendix-12 of this document) to remain liable for its undertaking given therein.

B. BIDDING PROCEDURES

IB.9 Contents of Bidding Documents

This Standard Bidding Documents includes the following:

1. Instructions to Bidders
2. Bidding Data
3. General Conditions of Contract
4. Particular Conditions of Contract
5. Specifications-Special Provisions
6. Specifications-Technical Provisions

7. Annexures to Instructions to Bidder
8. Appendices to Contract
9. Form of Bid Security
10. Form of Contract Agreement
11. Form of Performance Security
12. Design/Drawings

IB.10 Qualifications Requirements

The Bidder must meet the qualification requirements independently as bidding company or as a Bidding Consortium with one of the members acting as the lead member of the Bidding Consortium. Bidder will be declared as a qualified Bidder based on meeting the qualification requirement specified in the tender documents by submitting documentary evidence in this regard.

Bidders shall be pre-qualified as per attached Annexure. However, the Contractor's authorized representative and his other professional engineers working at site shall register themselves with the Pakistan Engineering Council. The Contractor's authorized representative at site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the works as per the Contract.

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of the English language. If the Contractor's superintending staff is not fluent in English language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

IB.11 Cost of Bidding

- 11.1 The Bidder shall be responsible for all fees, costs and expenses incurred in preparing and negotiating any proposal submitted by it, and the Employer shall under no circumstances become liable to reimburse any Bidder for any such fees, costs or expenses regardless of the conduct or outcome of the bidding process.

IB.12 Site Visit

- 12.1 The Bidders are advised to visit and examine the site of the works and its surroundings and to obtain for itself on its own responsibility, all information that may be necessary for preparing the Bid and entering into a Contract Agreement. The costs incurred in visiting the site shall be at the Bidder's own expense.

IB.13 Acceptability of Bid

- 13.1 The Bidder is expected to examine carefully all instructions, conditions, forms, terms, specifications and requirements of bid submission. Bids will be at the Bidder's own risk. Bids that are not substantially responsive to the requirements of the Bidding Documents will be rejected, except as provided for under Clause IB 24.

IB.14 Clarification of Bidding Documents

A prospective Bidder requiring any clarification of the Bidding Documents may notify the Employer in writing or by telex, cable or facsimile at the Employer's address given in the Bidding Data

The Employer will respond in writing to any requests for clarification that it receives earlier than 15 days prior to the Bid Submission Date. Written copies of the Employer's response (including an explanation of the query but without identifying the source of the inquiry) will be sent to all prospective Bidders who have received the Bidding Documents.

IB.15 Amendment of Bidding Documents

At any time prior to the Bid Submission Date, the Employer may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by amendment.

The amendment will be notified in writing or by telex, email, cable or facsimile to all prospective Bidders who have received the Bidding Documents, and will be binding upon them.

In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids.

C PREPARATION OF BID

IB.16 Documents Comprising the Bid

The Bid to be prepared by the Bidder shall comprise Single Stage Two Envelope (Technical and Financial sealed in separate envelope respectively) as follows:

Submission of Technical Proposal:

- a) Evidence of Bid Security;
- b) Bidder's Qualification Information and Technical Proposal as required under the Bidding Documents along with Letter of Technical Proposal;
- c) Project Appreciation Statement;
- d) Statement of Technical Requirements;
- e) Statement of Bid Conformity;
- f) Any Other Information as required by the Employer as mentioned in the Bidding Data.

Submission of Financial Proposal:

- a) Statement of Capital and Operating Costs;
- b) Bid Security @2% of Bid Cost.
- c) Proposed Financial Package along with the Letter of Financial Proposal
- d) Financial Analysis of the Project;

- e) Any Other Information as required by the Employer as mentioned in the Bidding Data.

The Bidding Documents shall themselves be deemed to be part of the Bid.

General guidance relating to the information to be provided by Bidders is given in the Annexure/Appendices.

IB.17 Language of Bid

- 17.1 The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Employer, shall be written in English. Supporting documents and printed literature furnished by the Bidder with the Bid may be in Urdu or other languages, provided they are accompanied by an appropriate translation of pertinent passages in the above stated language. For the purpose of interpretation of the Bid, the English language shall prevail.

IB.18 Currency of Bid

- 18.1 All monetary values quoted in the Bid shall be in the equivalent Pakistan Rupees.

IB.19 Bid Validity

- 19.1 The Bid shall remain valid and open for acceptance for a period 90 Days from the date of Bid Submission. In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request Bidders to grant a specified extension in the period of validity. However, the period of extension should not exceed the original period of bid validity. The request and the responses thereto shall be made in writing or by cable, electronic mail or facsimile. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder agreeing to the request will not be required nor permitted to modify its bid, but will be required to extend the validity of its Bid Security correspondingly.

IB.20 Bid Security

The Bid shall be accompanied by a Bid Security @2% of the Bid Cost enclosed in Financial Proposal.

The Bid Security shall be denominated in the currency of the bid and shall be in the form of a cash deposit, a certified cheque, a bank draft, an irrevocable letter of credit or a guarantee from a schedule bank in the Islamic Republic of Pakistan or a bank of a country abroad acceptable to the Employer.

The format of the bank guarantee shall be in accordance with the Sample Bid Security included in these Bidding Documents. No other formats shall be accepted.

Any Bid not accompanied by the required Bid Security, or accompanied by a Bid Security in an amount less than that required, will be rejected by the Employer as non-responsive.

The Bid Securities of all participating Bidders will be discharged/returned as promptly as possible after the successful Bidder has signed the Contract Agreement and has provided the required performance security for Construction Phase as per Bidding Data in favor of the Employer.

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, if it fails within the specified times to
 - i. Furnish the necessary Performance Security for Construction Phase
 - ii. Sign the Contract Agreement; or
 - iii. Achieve Financial Close.
- c) In case of default as expressed in Clause IB 3.

IB.21 Pre-bid Meeting

The Bidders or their authorized representatives are advised to attend a pre-bid meeting.

The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. The Bidders are requested to submit any substantive questions in writing or by cable, e-mail, telex or facsimile to reach the Employer not later than one week before the meeting.

Minutes of the meeting, including copies of the questions raised and responses given, will be furnished expeditiously to all those attending the meeting (and to other prospective Bidders on request), and shall form an integral part of the Bidding Documents, in the form of Addenda.

IB.22 Conformity with the Bidding Documents

- 22.1 The Bidder must submit a Conforming (Bona Fide) Bid that conforms in all respects with the requirements of the Bidding Documents. In addition, the Bidder may submit one or more Alternative Conforming (Bona Fide) Bids, if it so wishes.

IB.23 Conforming (Bona Fide) Bids

A Conforming Bid is a bid that conforms in full, both in engineering and operational terms with the Employer's Conforming Scheme, and in financial, organizational and obligation terms with the General Conditions of Contract, except for minor departures that do not materially affect the design, construction method or operational characteristics of the Project or the financial, organizational or obligation regime under which the Contract will be conducted. All such minor departures, if they exist, must be clearly identified and fully described in the Bid, and in particular the financial, programming and any other practical implications of a departure must be explained. If the Bid contains no deviations from the Conforming Scheme a positive statement to this effect must be made.

The Employer shall determine whether a Bid is a Conforming (Bona Fide) Bid. However, the Employer's decision may be reviewed and bidder's grievances/complaints, that may occur prior to the entry into force of the procurement contract, shall be addressed by the committee constituted by the Employer comprising odd number of persons with proper powers and authorizations.

If more than one Conforming (Bona Fide) Bid (e.g. involving different financial

and commercial terms) is to be submitted, each must be clearly numbered according to the Bidder's preference.

IB.24 Non-Conforming Bids

Alternative designs and alternative proposals in relation to financial, organizational and obligation aspects, which differ in whole or part from the requirements of the Bidding Documents, may be considered by the Employer, at its own discretion. Such Bids will only be considered if they are accompanied by a Conforming (Bona Fide) Bid.

Deleted

Deleted

For the Employer to examine a Non-Conforming Bid the Bidder must demonstrate with full supporting evidence that the proposal is well researched and is technically feasible, that the proposed Work Program is well researched and that there are engineering, financial, programming and/or operational advantages over the proposals set out in the Bidding Documents.

IB.25 Format and Signing of Bids

The Bidder shall prepare, in separate volumes, two (02) copies of the documents comprising Part 1 and Part 2 of the Bid, as described in Clause IB 16.1, clearly marked and numbered 'Part 1' and 'Part 2' and 'Original Bid' and 'two Copies of Bid' as appropriate. In the event of any discrepancy between them, the original shall govern.

The original and copies of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to bind the Bidder to the offer. Proof of authorization shall be furnished in the form of a written Power-of-Attorney, which shall accompany the Bid. All pages of the Bid, except for un-amended printed material, shall be initialed by the person or persons signing the Bid.

The complete Bid shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D SUBMISSION AND OPENING OF BIDS

IB.26 Sealing and Marking of Bids

The Bidder shall seal the Technical Proposal and Financial Proposal, in pursuant to Clauses IB 16.1 and 25.1 in separate envelopes, which must bear the signature of the Bidder's authorized representative.

The original and 02 (two) copies of the Technical Bid shall be sealed into an envelope and shall be:

- a) addressed to the Employer; and
- b) bear the following identification:
 - i. TECHNICAL PROPOSAL

- ii. BID FOR *[mention name of the Project]*
- iii. REF. No *[mention the same number as on Notice for Expression of Interest]*
- iv. The Words “DO NOT OPEN BEFORE *[mention date and time of Bid Opening for Technical Proposal]*”

The original Financial Proposal of the Bid shall be sealed into an envelope and shall:

- a) be addressed to the Employer; and
- b) bear the following identification:
 - i. FINANCIAL PROPOSAL
 - ii. BID FOR *[mention name of the Project]*
 - iii. REF. No *[mention the same number as on Notice for Expression of Interest]*
 - iv. The Words “DO NOT OPEN BEFORE *[mention date and time of Bid Opening for Financial Proposal]*”

The envelopes shall also indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared ‘late’.

If the envelope is not sealed and marked as instructed above, the Employer will assume no responsibility for the misplacement or premature opening of the Bid. Any Bid that is opened prematurely will be rejected by the Employer and returned to the Bidder.

IB.27 Bid Submission Date

Bids for Part-1 and Part-2 for Technical and Financial Proposals must be received by the Employer at the address specified in the Bidding Data not later than the date (s) and time (s) specified in the Bidding Data in accordance with type of bidding procedure as mentioned in the Bidding Data.

The Employer may, at its discretion, extend the deadline for the submission of Bids through the issue of an Amendment in accordance with Clause 15, in which case all rights and obligations of the Employer and the Bidders previously subject to the deadline will thereafter be subjected to the deadline as extended.

IB.28 Late Bids

- 28.1 Any Bid received by the Employer after the specified Bid Submission Date and Time will be returned unopened to the Bidder.

IB.29 Modifications and Withdrawal of Bids

The Bidder may modify and withdraw its Bid after submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the prescribed deadline for submission of Bids.

The Bidder’s modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provision for the submission of Bids. A withdrawal notice may also be sent by telex, e-mail, cable or facsimile but followed

by a signed confirmation copy, postmarked no later than the deadline for submission of Bids.

No Bid may be modified subsequent to the deadline for submission of Bids.

No Bid may be withdrawn in the interval between the Bid Submission Date and the expiration of the period of Bid Validity. Withdrawal of a Bid during this interval may result in the forfeiture of the Bid Security.

Subsequent to the expiration of the period of validity of Bids prescribed by the Employer, a Bidder that has not been notified by the Employer of the award of a Contract may withdraw its Bid without penalty.

IB.30 Opening of Bids

The Employer will open the Bids in two stages, Stage-1 Technical Proposal and Stage-2 Financial Proposal in the presence of Bidders' representatives. The Bidders' representatives who are present shall sign a register evidencing their attendance.

The Employer will examine the Bids to determine whether they are complete, whether the requisite Bid Securities have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order.

The Bidder's names, bid modifications or withdrawals (if any), the presence of the requisite Bid Security and such other details as the Employer at its discretion may consider appropriate, will be announced at the Bid Opening.

The Employer shall prepare minutes of the Bid Opening for its own records.

IB.31 Confidentiality

After the Bid Opening, information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the award of a Contract shall not be disclosed to Bidders, or other persons not officially concerned with such process, until the award of the Contract is announced.

Any effort by a Bidder to influence the Employer in the process of examination, clarification, comparison and evaluation of Bids, or decisions concerning award of a Contract, may result in the rejection of that Bidder's Bid(s).

E. ASSESSMENT OF BIDS

IB.32 Determination of Conformity

Prior to the detailed evaluation of Bids, the Employer will determine whether each Conforming (Bona Fide) Bid is substantially responsive to the requirements of the Bidding Documents.

For the purpose of this Clause, a substantially responsive Bid is one that conforms to all the terms, conditions and specifications of the Bidding Documents without material deviation or reservation. A material deviation or reservation is one that affects in any substantial way, relative to the requirements of the Bidding Documents, the:

- a) form, scope, quality, completion or timing of the Construction Phase of

- the proposed Contract; or
- b) administration, maintenance and operating regime for the Operation Phase of the proposed Contract; or
- c) Deleted

A Conforming (Bona Fide) Bid determined to be substantially non-responsive will be rejected by the Employer and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

The Employer may accept any non-material deviation or reservation provided that the acceptance thereof does not prejudice or affect the relative ranking order of any Bidder in the evaluation of Bids.

IB.33 Consideration of Non-Conforming Bids

- 33.1 The Employer may, at its discretion, take forward any Non-Conforming Bid for evaluation, provided that such Bids are determined by the Employer to satisfy all the requirements of Clause IB 24.

IB.34 Clarification of Bids

To assist in the examination, evaluation and comparison of Bids, the Employer may ask Bidders individually for clarification of any element of their Bid(s). The request for clarification and the response shall be in writing, e-mail, cable, telex or facsimile, but no change in the financial aspects or substance of the Bid shall be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered by the Employer during the evaluation of the Bids.

Bidders will be obliged to respond promptly to all requests for clarification and to provide all clarifications requested within the period mentioned in the requests failing which the Bid may be rejected.

IB.35 Correction of Arithmetical Errors

Bids determined to be substantially responsive and, subject to the discretion of the Employer, Non-Conforming Bids that are determined to satisfy the requirements of Clause 24 will be checked by the Employer for any arithmetical errors in computation and summation.

Errors will be corrected by the Employer as follows:

- a) Where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and
- b) Where there is a discrepancy between the unit monetary values and the total amount derived from either summation or through the multiplication of the unit monetary value by a factoring value, the unit monetary value as quoted will normally govern unless in the opinion of the Employer there is an obviously gross misplacement of the decimal point in the unit monetary value, in which event the total amount as quoted will govern.

If a Bidder does not accept the correction of errors as above, its Bid will be rejected.

IB.36 Presentation by the Bidders

To assist the evaluation of Bids, each Bidder will be required to present its

Technical Proposals to the Employer in a meeting to be arranged at time and date as stated in Bidding Data. These meetings must be attended by the Bidder and its engineers/consultants. The main purpose of these meetings will be:

- a) to provide the Bidder with the opportunity to present the details and merits of the technical and operational aspects of its Bid to the Employer; and
- b) to allow the Employer to seek clarification on any technical and operational matters.

No commercial aspects of the Bid will be discussed at these presentations and no negotiations will take place.

The Technical Scope of the Project will be discussed and Updated during the course of meeting.

F. DETAILED BID EVALUATION
IB.37 Process

- 37.1 The detailed evaluation of the Bids will be carried out with scores being assigned to each Bid during the evaluation. Those Bids that, in the view of the Employer, fail to satisfy minimum requirements of the evaluation will not be taken to financial evaluation process.

IB.38 Bidder's Capability and Technical Proposal

The aim of the evaluation will be to determine the ability of the Bidder to construct the Project, and to evaluate the level of competence shown by the Bidder, in terms of its understanding of the engineering, operational and maintenance aspects of the Project.

The assessment will consider the Bidder's previous experience in projects of this complexity and magnitude. Particular credit will be given to those Bidders who have in-house experience in manufacturing, the engineering design and construction, and particular emphasis will be placed on the robustness of the proposed Works Program, the Project Appreciation Statement and the appropriateness of the proposed operating and maintenance regimes that will be employed during the whole life of the project.

Deleted

In the case of Non-Conforming Bids subject to Sub Clause IB 24.1 the relative technical advantages and disadvantages of any non-conformity will be assessed separately, to be used to off-set any financial disadvantage or advantage that may be gained by the Bidder in the evaluation.

The Technical Proposals are opened at the date and time specified in the Bidding Data. The Technical Proposals shall be evaluated and discussed with the Bidders for clarifications, if necessary.

Any deficiencies, extraneous provisions and unsatisfactory technical features shall be pointed out to the Bidders whose comments are carefully evaluated during a post bid meeting at the date and time set by the Employer. Bids of the Bidders which

are non-conforming to the acceptable technical standard shall be rejected as non-responsive bids.

After the evaluation of Technical Proposals as above, Financial Bids will be opened of the firms securing 70% or above marks as per evaluation criteria provided in Annexure 10.

IB.39 The Financial Proposal

The Financial Proposals are opened at the date and time informed by the Employer.

The Financial Proposals are evaluated by the Employer and its advisers in strict confidence. Subject to Sub-Clause 31.1, the Employer will not provide the assessment results or reasons in support of its assessments to any Bidders or third party.

Deleted

IB.40 Assessment Process

The assessment process will be carried out by the Employer and its advisers in strict confidence. Subject to Sub-Clause IB 31.1, the Employer will not provide the assessment results or reasons in support of its assessments to any Bidder or third party. However; the agreed set evaluation criterion is attached as **Annexure-10**.

Bidders should note that the Employer is not bound to accept any Bid and may at any time, by notice in writing to any Bidders, terminate the bidding and assessment process in relation to their Bids or any proposals contained therein.

IB.41 Signing of Contract Agreement

AUST management shall enter into an EPC based Turnkey Contract Agreement with the selected bidder based on selection of Successful Bidder. The Contract Agreement shall be signed within 30 days of issuance of LOI.

Subsequent to the detailed evaluation of the Financial Proposals and Technical Proposals, the Employer will award the Contract Agreement to the successful Bidder, on the basis of being most beneficial to the Employer.

Upon selection by the Employer the successful Bidder will be required, within a period of 30 (thirty) days or as stated in the Bidding Data, to enter into a Contract Agreement with the Employer, having previously secured a Performance Security for Construction Phase to the value of 10 percent, or as stated in the Bidding Data, of the value of the Project Costs.

Failure to fulfill any of the above requirements within the specified time will, unless otherwise agreed by both parties, result in the forfeiture of the Bidder's Bid Security.

In the event of the successful Bidder forfeiting its Bid Security the Employer may, at its discretion, either invite another Bidder to negotiate or terminate the bidding process.

G. INFORMATION TO BE PROVIDED BY BIDDERS

IB.42 Information to be provided by the Bidders

This section sets out, for the information and guidance of Bidders, the Employer's minimum requirements in terms of the contents of the Bid. It is emphasized that these are minimum requirements that may be supplemented by more detailed information, as deemed necessary by the Bidder.

Bidders should note that the information and guidance provided in this Section has been prepared to assist them in completing their submissions. The Employer reserves the right to request any further information and clarification that it may deem necessary to carry out the detailed evaluation of Bids.

The Bid shall be presented in two parts, namely Part-1 and Part-2. The minimum contents of each Part are to be as follows:

IB.43 Part-1 Submission

General

The Part-1 submission should be divided into sections, which should set out the minimum information indicated in the following sections.

Bid Security

The Bid Security should comply with the requirements of Clauses IB 20.

Bidder's Capability Statement

The Bidder's Capability Statement will set out minimum information concerning the financial and corporate structure, experience and financial standing of the Bidder's organization or consortium as given in the following paragraphs.

Constitution or Legal Status

Copies of original documents defining the constitution or legal status and place of registration of the company or firm or, in the case of a joint venture, of each party thereto constituting the Bidder will be submitted.

Corporate Structure

Where the Bidder is a joint venture of two or more companies or firms, a statement signed by all parties to the joint venture of the proposed administrative arrangements for the management and execution of the Contract, the duties, responsibilities and share of each party, the authorized representative of the joint venture, and an undertaking that the parties are jointly and severally liable to the Employer for the performance of the Contract.

Relevant Experience

Details of the experience and past performance of the Bidder (or of each party to a joint venture) on projects of a similar nature within the past three years (with at least one project more than 50 KW cumulative capacity), and details of current projects in hand and other contractual commitments have to be submitted.

Organizational Structure

A chart indicating the basic organizational structure(s) of the Bidder specifying the responsibilities of each organizational unit of the proposed Company is required.

Key Project Personnel

The qualifications and experience of the key personnel proposed for administration and execution of the project, during the design, construction and operating phases

during liability period.

Audited Accounts

Bidders shall provide audited accounts for a minimum of the latest 5 years, together with the most recently published interim accounts (if available), an estimated financial projection for the next two years, and an authority from the Bidder (or authorized representative of a joint venture) to seek references from the Bidder's bankers, together with a statement giving details of any off-balance sheet liabilities including contingent liabilities.

In the absence of audited accounts, a statement detailing the financial strength of the institutions and/or individuals involved should be provided.

Project Appreciation Statement

Specifications and drawings describing the design and layout of the Employer's Conforming Scheme are included within these Bidding Documents. These are provided for the Bidders' guidance and information.

In considering these proposals the Bidder should note that the Employer, its consultants and its advisers will take no responsibility for the accuracy or practicality of the proposals, and that it is the Bidders' responsibility to verify or replace the information, assumptions and projections that are contained within these Bidding Documents and elsewhere; In the event that errors or omissions are found, to correct and supplement data as appropriate.

In order to demonstrate their understanding of the form, scope and complexity of the Project, Bidders shall prepare a 'Project Appreciation Statement' setting out the construction, operation and maintenance philosophy that is to be adopted for each significant element of the Project. This statement will include, but not be limited to, details of:

- a) The construction method and operations management and maintenance of the project;
- b) The construction methods to be adopted in the construction of all major components of the Infrastructure/Facility.
- c) The construction material requirements of the Project and their availability, the location of borrow pits and spoil areas and the implications of importing any raw or finished materials;
- d) The machinery, Plant and labour needs of the Project and the requirement for associated working and accommodation areas;
- e) Any particular problems that might be experienced during construction and the measures to be taken to overcome these problems.
- f) The operational methodology to be adopted. and
- g) The proposed maintenance regime including the organizational system that will be adopted for routine maintenance and repair, longer-term inspection, monitoring and rectification of identified defects and normal deterioration of Infrastructure/Facility.

Statement of Proposed Technical Changes to the Conforming Scheme

In the event that the Bidder shall conclude, as a result of its 'Project Appreciation

Statement', or otherwise, that it wishes to modify the proposals contained in the Conforming Scheme, either materially or otherwise, the Bidder shall provide supporting drawings and calculations to justify the proposed deviations from the Conforming Scheme.

Such deviations shall be designed and evaluated, by the Bidder, in sufficient detail as to indicate, as a minimum:

- a) Any changes in the layout, line and level for the Infrastructure/Facility or its ancillary features;
- b) Any changes in the land requirements for the proposal;
- c) Any changes in the choice of materials; and
- d) Any consequential changes in terms of the design life, operational characteristics and maintenance needs of the facility.

The results of these studies shall be included, by the Bidder, in a 'Statement of Proposed Technical Changes to the Conforming Scheme'.

In the event that the Bidder should decide to adopt the Conforming Scheme, without amendment, a statement to this effect should be given.

Statement of Land Offered

The Employer offers Roof tops of all Existing Buildings to execute the project. However, the bidder has the option to choose between rooftop and ground. The relevant information in this regard is enclosed in technical provisioning.

All cost relating to any amendment against offered rooftops of the buildings, shifting of utilities (If any), resettlement issues etc. shall be borne by the Bidder. Employer shall however provide all possible assistance in this regard except financial.

Work Programme

The Bidder shall provide a detailed Work Programme, showing in quarterly intervals the anticipated start-up and construction schedule to achieve the Availability Date specified in Clause IB 5.

In preparing this Work Programme, Bidders are advised that it will be a condition of the Contract Agreement that specified sections of the Project are completed and available for use at specified times. Failure to meet these specified targets will result in the imposition of penalties on the Contractors.

Statement of Bid Conformity

The Bidder shall submit a Statement of Bid Conformity, stating whether or not the Bid conforms to all the requirements of the Bidding Documents. The requirements for bid conformity are set out in Clauses IB 32.1 and 32.2. This statement shall include a list of all non-material departures from the Bidding Documents together with any areas of significant non-conformity.

Bidders should note when preparing their submissions that all deviations from the Bidding Documents should be listed. Such deviations may include, but not be limited to:

- a) Any changes to the layout, form or scope of the Conforming Scheme;
- b) Any changes to the Land Requirements Plan; and
- c) Any proposed changes to the Form of Contract Agreement.

IB.44 Part-2 Submission

General

The Submission should be divided into sections as set out below and each section should provide, as a minimum, the information indicated in the following sections:

Statement of Capital and Operating Costs

The Bidder's Statement of Capital and Operating Costs should provide the following minimum information, set out in the format indicated below.

Capital Costs

A Breakdown of capital/construction costs on a quarterly basis, divided into the appropriate sections is to be provided by the Bidder for each section of the Project.

In addition, information should be provided regarding design, consultancy and project management fees, contingency costs and insurance costs.

Deleted

Deleted

Operation and Maintenance Costs

The Bidder shall provide details of estimated Operation and Maintenance Costs during the first and each subsequent year of operation. The following minimum information should be provided:

- a) Operation costs;
- b) Routine monitoring, and allied service costs;
- c) Other administration costs;
- d) Costs associated with routine inspection and maintenance programmes; and
- e) The anticipated cost of periodic maintenance programmes.

General Design Criteria, Operational & Maintenance Requirements are attached at **Appendices to Bid**.

Financial Analysis of the Project

The Bidder shall provide a detailed forecast annual balance sheet and cash flow projections for the Project.

44.6 --

44.6.1 --

44.6.2 --

44.7 --

. 44.8 OTHER INFORMATION

Any other information that is needed to provide a clear understanding of the Bidder's financial analysis should be included in this section of the submission.

44.9 Letter of Financial Proposal

A definitive summary of the key elements of the Bid shall be provided by the Bidder.

MISCELLANEOUS

IB.45 Bidders to be Careful

Bidder should take care of local laws, statutes, regulations, Government investment policies in order to make the bids complying with Country regulation.

Employer shall not assume any responsibility and shall stand indemnified against any or all information provided in the Bidding Documents as far as the Project data and figures are concerned. The Bidders are instructed to carry out their own detailed studies to confirm the Project viability and submit the bids accordingly. The Project documents merely provide information which is deemed useful by Employer for the Bidders to initiate study of the Project. It may be further understood that Employer is providing this information with best of intents and has tried its best to provide as correct as possible information.

If there arises any further need of addition to the existing Bidding Documents, the same shall be attended through addendum. All such addenda shall form part of the Bidding Documents.

The documents as mentioned in this Bidding Documents shall form the integral part of the overall Agreement and all the conditions contained shall prevail, unless specifically amended or changed or added or deleted through mutual agreement of the Employer and the successful Bidder.

Strict action will be taken in case of fake documents.

**ANNEXURES
TO
INSTRUCTIONS TO BIDDERS**

Annexure-1

General Information

All individual firms and each partner of a joint venture are requested to complete the information in this form. Nationality information should be provided for all owners or applicants who are partnerships or individually-owned firms.

1.	Name of firm	
2.	Head office address	
3.	Telephone	Contact
4.	Fax	Telex
5.	Place of incorporation / registration	Year of incorporation / registration

<i>Nationality of owners¹</i>		
	<i>Name</i>	<i>Nationality</i>
1.		
2.		
3.		
4.		
5.		

¹ To be completed by all owners of partnerships or individually-owned firms.

Annexure-2

General Experience Record

Name of Bidder or partner of a joint venture
--

All individual firms and all partners of a joint venture are requested to complete the information in this form. The information supplied should be the annual turnover of the Applicant (or each member of a joint venture), in terms of the amounts billed to clients for each year for work in progress or completed, in Rs. Million.

Use a separate sheet for each partner of a joint venture.

Annual turnover data (construction only)		
Year	Turnover (Rs. Millions)	Remarks
1.		
2.		
3.		
4.		
5.		

- Note:
- 1) Certified copies of Audit report from a Chartered Accountant or Income Tax Department should be enclosed.
 - 2) Testimonials, Certificates and publicity material should not be enclosed; they will not be taken into account in the evaluation of qualification and will be discarded.

Annexure-3

Joint Venture Summary

<i>Names of all partners of a joint venture</i>						
1. Lead partner						
2. Partner						
3. Partner						
4. Partner						
5. Partner						
6. Partner						

<i>Annual turnover data (construction only; Rs. Millions)</i>						
<i>Partner</i>	<i>For</i>	Year 1	Year 2	Year 3	Year 4	Year 5
<i>1. Lead partner</i>						
<i>2. Partner</i>						
<i>3. Partner</i>						
<i>4. Partner</i>						
<i>5. Partner</i>						
<i>6. Partner</i>						

*FOREIGN COMPANIES, DULY REGISTERED WITH PEC, CAN ALSO PARTICIPATE IN COLLABORATION WITH LOCAL ELIGIBLE BIDDERS

Annexure-4

Details of Contracts of Similar Nature, Single Units Size and Complexity

Name of Bidder or partner of a joint venture
--

Use a separate sheet for each contract.

1.	Number of contract	
	Name of contract	
	Country	
2.	Name of Employer	
3.	Employer address	
4.	Nature of works and special features relevant to the contract for which the Bidder wishes to bid	
5.	Contract role (check one) <div style="display: flex; justify-content: space-around; font-size: small;"> Sole contractor Management Contractor Subcontractor Partner in a joint venture </div>	
6.	Value in specified currencies at completion, or at date of award for current contracts,	
	* Total Contract Amount: _____ (Rs. Millions)	
	* Sub-Contract Amount (if the role was sub contractor): _____ (Rs. Millions)	
	* Responsible Contract Amount (if the role was partner in a joint venture): _____ (Rs. Million) _____ (percentage of share)%	
7.	Rs. Million	
8.	Date of award	
9.	Date of completion	
10.	Contract/subcontract duration (years and months) <div style="display: flex; justify-content: space-between; font-size: small;"> _____ years _____ months </div>	
11.	Specified requirements ²	

² The Applicant should insert any specific contractual criteria required for particular operations, such as annual volume of earthmoving, underground excavation, or placing concrete.

Annexure-5

Summary Sheet

Current Contract Commitments / Works in Progress

Name of Bidder or partner of a joint venture

Bidders and each partner of a joint venture should provide information on their current commitments on all contents that have been awarded or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

<i>Name of contract with size of the project</i>	<i>Value of Total/outstanding work (Rs. Millions)</i>	<i>Estimated completion date</i>
1.		
2.		
3.		
4.		
5.		
6.		

Annexure -6

Personnel Capabilities*

Name of Bidder

For specific positions essential to contract implementation, Bidders should provide the names of at least two candidates. The data on their experience should be supplied in separate sheets using this Form for each candidate.

1.	Title of position
	Name of prime candidate
	Name of alternate candidate
2.	Title of position
	Name of prime candidate
	Name of alternate candidate
3.	Title of position
	Name of prime candidate
	Name of alternate candidate
4.	Title of position
	Name of prime candidate
	Name of alternate candidate

*WITH EVIDENCE OF PAYMENT OF MONTHLY SALARY TO SUCH EXPERTS

Annexure-7

Candidate Summary

Name of Bidder

Position (engineers dedicated for the project)		Candidate Prime Alternate	
<i>Candidate information</i>	1. Name of candidate	2. Date of birth	
	3. Professional qualifications		
<i>Present employment</i>	4. Name of Employer		
	Address of Employer		
	Telephone	Contact (manager / personnel officer)	
	Fax	Telex	
	Job title of candidate	Years with present Employer	

Summarize professional experience over the last 10 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the Project.

<i>From</i>	<i>To</i>	<i>Company / Project / Position / Relevant technical and management experience</i>

Annexure-8

Equipment Capabilities

Name of Bidder

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for each and all items of equipment required to perform the works.

Item of solar power related equipment	
<i>Equipment information</i>	1. Name of manufacturer
	2. Model and power rating
	3. Capacity
	4. Year of manufacture
<i>Current status</i>	5. Current location
	6. Details of current commitments
<i>Source</i>	7. Indicate source of the equipment Owned Rented Leased Specially manufactured

Omit the following information for equipment owned by the Applicant or partner.

<i>Owner</i>	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and title
	Fax	Telex
<i>Agreements</i>	Details of rental / lease / manufacture agreements specific to the Project	

Annexure-9

Financial Capability

Name of Applicant or partner of a joint venture

Bidders, including each partner of a joint venture, should provide financial information to demonstrate that they meet the requirements of the proposed project. Each Bidder or partner of a joint venture must fill in this form. If necessary, use separate sheets to provide complete banker information. A copy of the audited balance sheets and statement of profit and losses should be attached.

Banker	Name of banker	
	Address of banker	
	Telephone	Contact name and title
	Fax	e mail

Summarize actual assets and liabilities in Rs. Million equivalent (at the rates of exchange current at the end of each year) for the previous five years.

Financial information in Rs. Million	Actual: previous five years				
	1.	2.	3.	4.	5.
1. Total assets					
2. Current assets					
3. Total liabilities					
4. Current liabilities					
5. Sales					
6. Ordinary Profits					
7. Profits before taxes					
8. Profits after taxes					
<i>Specify proposed sources of financing to meet the cash flow demands of the Project, net of current commitments for other contracts.</i>					

Source of financing	Amount (Rs. Millions)
1.	
2.	
3.	
4.	

Attach audited financial statements for the last five years (for the individual Bidders or each partner of a joint venture). Firms owned by individuals, and partnerships, may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns, if audits are not required by the laws of their countries of origin.

Annexure-10

Evaluation Criteria

(The Bidder who fulfills the Eligibility Requirement as stated in IB-3 shall be further evaluated as per following criteria)

S. No.	Description	Marks
1	PEC Registration and Foreign Qualified Staff	5
	a) Registered in C4 or above	3
	b) AEDB Certification	2
2	General Experience of Projects	30
	a) Ongoing projects (10 Marks)	
	- More than 100 kW	7
	- Greater than 50 kW and less than 100 kW	3
	b) Completed Projects locally or internationally single site (20 Marks)	
	- Above 100 KW	20
	- Greater than 50 KW and less than 100 KW	10
3	Execution Team Composition	5
	Team Composition with responsibility indicators	3
	Experienced Staff with Evidence of MW project Execution	2
4	Status of firm	10
	Letter for Manufacturer or sole distributor of solar panels	3
	- Letter for Manufacturer or Sole Distributor of inverters	3
	- Letter for Authorized dealer of solar panels	2
	- Letter for Authorized dealer of inverters	2
5	Complete Plant Electrical Design	5
6	Maintenance Schedule/ Methodology of fault rectification and timelines	5

7	Tier 1 company inverters, quality of equipment, brand, country of origin and reputation of manufacturer/product rating in market (50 KW or above)	10
8	SGS OR TUV certified solar panels, testing certificate provided	5
9	Financial Position	25
	a) Annual turnover of the company greater than Rs 200 million	25
	b) Annual turnover of the company greater than Rs. million 150 and less than Rs. 200 million	15
	c) Annual turnover of the company greater than Rs. million 100 and less than Rs. 150 million	10
	d) Annual turnover of the company greater than Rs. million 50 and less than Rs. 100 million	6
	e) Annual turnover of the company greater than Rs. million 40 and less than Rs. 50 million	4

Note: The Firm who secure 60 or above marks will be considered for next stage (Financial)

Annexure-11

Litigation History

Name of Bidder or partner of a joint venture

Bidders, including each of the partners of a joint venture, should provide information on any history of litigation or arbitration resulting from contracts executed in the last 5 years or currently under execution. A separate sheet should be used for each partner of a joint venture.

<i>Year</i>	<i>Award FOR or AGAINST Applicant</i>	<i>Name of client, cause of litigation, and matter in dispute</i>	<i>Disputed amount (current value, Rs. Millions)</i>

PROJECT INFORMATION
APPENDICES TO COMPETITIVE BIDDING

Appendix-01

SPECIFICATIONS

TECHNICAL INFORMATION AND SPECIFICATION FOR SOLAR POWER GENERATION SYSTEM TO BE REQUIRED

SITE TECHNICAL INFORMATION

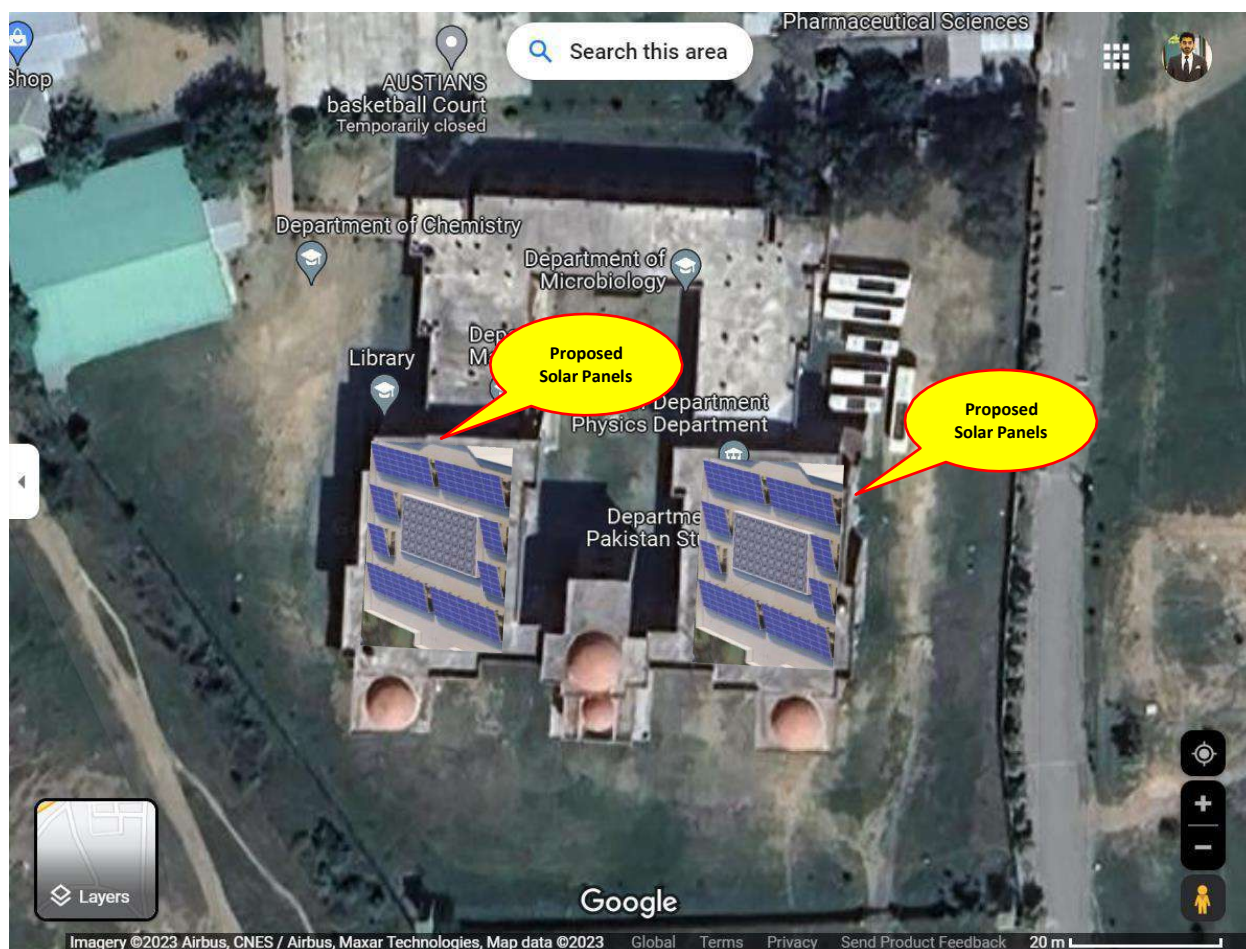
The necessary technical information about the project site is discussed below. However, any query about site information would be available on request within bidding time.

Site Introduction:

The suggested location for execution of Solar Based Power Project is at roof top buildings of AUST and is located in Havelian, District Abbottabad, Province Khyber Pakhtunkhwa.

Site Location:

Geographically Abbottabad University of Sciences and Technology (AUST) is located at Latitude $34^{\circ}.06594''$ N and Longitude: $73^{\circ}.15020$



Currently the AUST management is interested to installed Solar based Power Plant on following main buildings and Power Control Room: -

1. Academic Block
2. Administration Block

These buildings are identical and comprising two stories (Ground plus 1).



Building Locations.

The locations of blocks considered for installation of 50 KW plant is as under:

<u>Sr. No.</u>	<u>Building Name</u>	<u>Latitude</u>	<u>Longitude</u>
1	Quaid-e-Azam Block		
2			
3			
4			

Power & Control Room

The Solar Power Electrical Unit is suggested to place in existing Power & Control Room for each building.

<u>Sr. No</u>	<u>Blocks</u>	<u>Distribution Boxes</u>
1	Quaid-e-Azam Block	Ground Floor
2		Ground Floor
3		Ground Floor
4		Ground Floor



Existing Power Supply Arrangements:

Load at AUST is currently being powered through following supply sources: -

- a) **Main Power Supply**
Electrical Power requirement for the AUST is met from National Grid.
 - PESCO-
- b) **Emergency Power Supply**
Generators capacities have been installed for providing back up supply to critical load.

Note: The Bidder is required to visit the site for the assessment of existing power supply arrangement for proper synchronization of solar inverter with the national grid and diesel generator sets.

Site Area Availability for Solar PV Modules:

As discussed above, the available area for installation of PV Modules for subject four buildings at AUST i.e. Administration Block, Academic Block. The cumulative total available roof area for installation of Solar Based Power Plant is approximately 7446 Sqft Summary in this regards is as under:-

Table: Available Roof Top Area for Solar Based Power Plant

Sr. No	<u>Blocks</u>	<u>Area for the installation of PV Solar Modules (sq.ft)</u>
1	Quaid-e-Azam Block	7446 sq.ft
2		
3		
4		
	Total	

Note: The detailed drawings for each building roof top are enclosed in drawings.

2.0 TECHNICAL REQUIREMENT

Based on the data presented, AUST management desires to construct an expected/ estimated KW Solar Based Power Plant with following deliverables on currently available Area:-

- Designing of Solar Based Power Plant
- Supply of Solar Based Power Plant
- Installation of Solar Based Power Plant
- Testing & Commissioning of Solar Based Power Plant

Strength/ Configuration of Roof:

It is important to mention here that the roof tops of each building comprise following configuration: -

1. 6.0” RCC Slab
2. Water Proofing & Insulation Treatment

Now it is assumed that PV modules along with structure and base will enhance surplus weight of 50 Kg/m² on the roof and the building is in good condition to bear that weight. However, the Bidder must share its civil work for subject Roof so that the Works Department reviews the design proposed and play a role for technical scoring during Bid evaluation process.

Base Structure:

The fixed based mechanical structure (adjustable) has been recommended to install with appropriate angle on the space available at site. It has also informed that Water Proofing Treatment is also expected on the roofs. To install the Solar PV modules, a good concrete structure of appropriate size would be paved on which mechanical structure for solar PV modules will be screwed. Proper civil work will be done so as to cater wind speed of up to 130 Km/hr which is well above the maximum recorded wind speed of 45 Km/hour during the last few years.

Mounting Structure:

The fixed based P-1 structure has been suggested to be installed with an angle of 30° Degree on the space available at site. Mechanical Structure should be Hot Dip Galvanized iron material with vertical posts supported by concrete foundations base 12 inches above roof top level. It has also informed that the Faculty Block building roof is RCC. To install the Solar PV modules, concrete of size 1 cubic feet would be paved on which structure for solar PV modules will be screwed. Proper civil work will be done so as to cater wind speed of up to 130 Km/hr which is well above the maximum recorded wind speed of 45 Km/hour during the last few years. 2D layout is attached as Appendix-2.

Placement of Power Inverter:

The Bidder should clearly indicate the number of quantities placement of Power Inverters for each Building so that the aesthetics & cosmetic beauty of the building is not compromised.

Using of Cable Trays/ Tranches

The Bidder must ensure proper dressing of each cable using hot dip galvanized iron cable trays across the building. The further requirement for execution of the project is covered in Scope of work as discussed below: -

Scope of Work/Services:

The scope covers supply, installation; testing, commissioning and performance testing of expected 50 KW Grid interactive roof top solar photovoltaic systems at AUST. The Scope of work includes, but not limited to that, is as follows: -

- The Scope of Services includes PV modules, On-Grid inverters, junction boxes, AC, DC distribution boards and cables, DC/AC Earthing, Lightening Arrestors with complete scope, net metering, communication interface, SCADA System with display Units, Weather Station and any other equipment necessary like OCPD, GFPD etc. for safe and efficient operation of the system.
- The scope of Services also includes interconnection of installed PV System with the national grid and separate energy meters for each building for billing.
- Comprehensive insurance, storage & in transit transportation is also the responsibility of successful bidder.
- The civil works for installation of complete system should also be in scope of successful bidder.
- The scope of Services should also include operation and maintenance of the Solar Power Generation System for agreed warranty Period.
- The scope of supply should also include essential spares necessary for operation, routine maintenance and testing of equipment supplied for agreed time period.
- The equipment offered should conform in all respects to high standards of engineering, design and workmanship and be capable of performing in commercial operation.
- All the fittings and accessories that might not have been mentioned specifically in the specification but are necessary for equipment's of the plant, should be deemed to be included in the scope of specification and shall be supplied and furnished by the installer without any extra charges.
- Successful Bidder must obey the guideline given by the AUST Management.
- It should be responsibility of the successful Bidder to ensure all the works as per scope of the specification are completed for safe and efficient working of the system by following BS OHSAS/ ISO standards. Health & Safety expert would be responsible to restrict Client to follow safety standards.
- The AUST management is authorized to interpret during installation and authorized to verify equipment, detailed drawings, specification and should have

the power to reject any work or materials, which in his judgment are not in full accordance therewith.

SOLAR PV SYSTEM SPECIFICATION TO BE REQUIRED

Solar PV system should consist of following equipment:

- i. PV Modules should have a minimum of 21.3% module efficiency (η) or higher and a linear warranty of 25-years with minimum 80% efficiency. Technology must be mono PERC N-type.
- ii. Efficient Grid Tie Inverters
- iii. SCADA System
- iv. Mounting structure
- v. Cables and associated infrastructure/hardware.
- vi. Civil/ Mechanical Works
- vii. Miscellaneous Item
 - a. Junction box and distribution boxes
 - b. Earthing & Lightening Protection System with Earthing kit
 - c. Lightning arrestors
 - d. PVC pipes and accessories
 - e. Tool kit
- viii. Spares for smooth operation

The following are some of the technical measures required to ensure quality of equipment used in grid connected solar photovoltaic power projects:

PV MODULE

- (i) The total PV capacity should not be less than allocated capacity (50 KW). The provided PV Module should be of Tier-1 quality. The PV Module should have a minimum of over twenty one percent (21%) module efficiency.
- (ii) The PV module(s) shall contain Mono crystalline (PERC-N) silicon solar cells.
- (iii) The PV module have an ability to work well with high-voltage input Inverters/ charge controllers
- (iv) The PV Panel must have clear anodized aluminum frame with Anti-reflection cover glass
- (v) The terminal box on the module should have a provision for opening for replacing the cable, if required and it should be waterproof
- (vi) The Solar Panel shell meet the requirement set in IEC 61215:2000, IEC61730, IEC TS 62941. All the supportive valid, genuine and traceable documents must be provided.
- (vii) The modules to be used in a highly corrosive atmosphere throughout their lifetime must qualify to IEC 61701.
- (viii) The PV module(s) should have an ability to work well with high-voltage input Inverters.
- (ix) PV Module(s) should be provided with MC-4 Cable and Connector and IP-67 Rated.
- (x) The terminal box on the Module(s) should have a provision for replacing the cable and it should be waterproof
- (xi) A strip containing the following details should be laminated inside the module so as to be clearly visible from front side.
 - (a) Name of the manufacturer of PV Module(s) or distinctive logo.

- (b) Name of the manufacturer of Solar Cell
- (c) Model or Type No.
- (d) Serial number
- (e) Year of manufacturing
- (f) Peak Watt Rating
- (g) Voltage and Current at Peak Power
- (h) Open Circuit Voltage
- (i) Short Circuit Current
- (j) Maximum input voltages
- (k) Module(s) deployed must use a RF identification tag.
- (xii) Solar panel be packed for safe transportation on non-metallic roads.
- (xiii) The PV Module should have at least ten-year workmanship warranty.
- (xiv) Limited performance guarantees: panel power, in standard conditions, will not be less than 90% of nominal power for first 10 years of operation and at least 80% for the next 15 years of operation with 25-year limited power warranty.
- (xv) Bidder should carefully design and accommodate requisite number of module(s) to achieve the rated power as per design under NOCT as well.

Note: Bidder should justify the specs with appropriate lab test reports/certifications from the principal manufacturer.

GRID TIED INVERTER

The DC power produced is fed to inverter for conversion into AC. In a grid interactive system AC power should be fed to the grid at three phase 415 AC bus. Inverter should comply with IEC 61727, IEC 61000-6-1, IEC 610006-2, IEC 62109 and IEC 62116 standards. IEC 61683/IS 61683 for efficiency and Measurements and should comply IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Standard for environmental testing. Inverter should supervise the grid condition continuously and in the event of grid failure (or) under voltage (or) over voltage.

Other important Features/Protections required in the INVERTER

- i) The grid-connected inverters shall comply with UL 1741 standard.
- ii) Power generated from the solar system during the daytime should be utilized fully by powering the critical building loads and feeding excess power to the grid as long as grid is available. In cases, where solar power is not sufficient due to more demand or cloud cover etc. the building loads should be served by drawing power from the grid. The inverter should always give preference to the Solar Power and will use Grid/DG power only when the Solar Power is insufficient to meet the load requirement.
- iii) The output of the inverter must synchronize automatically its AC output to the exact AC voltage and frequency of the grid/DG Set
- iv) Inverter equipped with array ground fault detection option.
- v) On-grid Inverters should have anti-islanded features built in and should continuously monitor the condition of the grid and in the event of grid failure; The solar system should be resynchronized with the grid within two minutes after the restoration of grid or DG set.
- vi) Grid voltage should also be continuously monitored and in the event of voltage going below a pre-set value and above a pre-set value, the solar system should be disconnected from the grid within the set time. Both over voltage and under voltage relays should have adjustable voltage (50% to 130%) and time settings (0 to 5 seconds).
- vii) The inverter control unit should be so designed so as to operate the PV system near its maximum Power Point (MPP), the operating point where the combined values of the current and voltage of the solar modules result in a maximum power output.
- viii) The inverter should be a true sine wave for a grid interactive PV system.
- ix) The degree of protection of the outdoor inverter panel should be at least IP-65.
- x) Typical technical features of the suggested inverters must mention as per following sequence.
 - Continuous output power rating (1.1 times for 60seconds)
 - Nominal AC output voltage and frequency
 - Accuracy of AC voltage control $\pm 1\%$
 - Accuracy of frequency control $\pm 0.5\%$
 - Grid Frequency Control range ± 3 Hz
 - Maximum Input DC Voltage range
 - MPPT Range DC
 - Ambient temperature -10 deg C to 55 deg C
 - Humidity 95 % non- condensing
 - Protection of Enclosure IP-65 (minimum)
 - Grid Voltage tolerance -20 % and + 15 %
 - Power factor control 0.95 inductive to 0.95 capacitive

- No-load losses < 1% of rated power
 - Inverter efficiency (minimum) plus 97%
 - Liquid crystal display should at least be provided on the inverters front panel or on separate data logging/display device to display following
 - a. DC Input Voltage
 - b. DC Input current
 - c. AC Power output(kW) and Energy harnessed in kWh
 - d. Current time and date
 - e. Time active
 - f. Time disabled
 - g. Time Idle
 - h. Temperatures (C)
 - i. Converter status
 - Following should also be displayed like Protective function limits, over voltage, AC under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay over frequency, ground fault delay, PV starting delay, PV stopping delay.)
- xi) Nuts & bolts and the inverter enclosure should have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- xii) Dimension and weight of the inverter should be indicated by the bidder in the offer.
- xiii) All doors, covers, panels and cable exits should be gasketed or otherwise designed to limit the entry of dust and moisture.
- xvi. Operation Mode:
- a. Night or sleep mode: where the Inverter is almost completely turned off, with just the timer and control system still in operation, losses shall be less than 2 W per 5 kW.
 - b. Standby mode: where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10 W).
 - c. Operational of MPP tracking mode: the control system continuously adjusts the voltage of the generator to optimize the power available. The power conditioner should automatically re-enter standby mode input power reduces below the standby mode threshold. Front panel should provide display of status of the inverter.
- xvii. The offered inverter must comply with following standards.
 UL1741, IEEE1547, UL 1998, CE, EN 50178, EN 62109-1, EN 62109-2, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, FCC Part 15, NEMA3R/ NEMA 3R, DIN VDE V 0126-1-1, ENEL Guidelines (DK 5940) AS 4777, RD 1663/2000, RD 661/2007, EN 50178, IEC 62103, EN 55011, IEC 61000-3-11, IEC 61000-3-12, IEC 61000-6-3

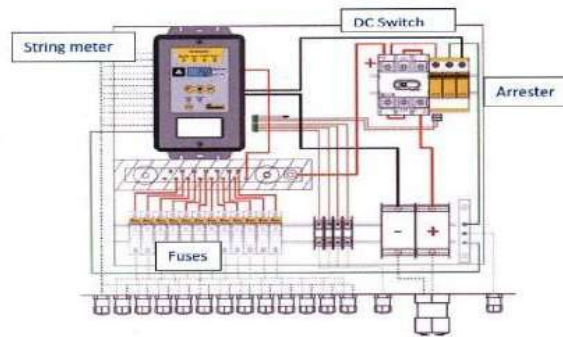
Note: Bidder should justify the specs with appropriate lab test reports/certifications from the principal manufacturer.

Junction Boxes

SMART Junction boxes with the multi-function of string monitor to detect each string's voltage, current, and power, plus fault detection and surge protection function. The array junction box has been suitably designed to be integrated into the PV plant. The junction boxes shall have suitable arrangement for the followings.

- Provide arrangement for disconnection for each of the groups.

- Provide a test point for each sub-group for quick fault location.
 - To provide group array isolation.
 - The current carrying ratings of the junction boxes shall be suitable with adequate safety factor to inter connect the Solar PV array.
 - To include data collector for Monitoring System.
- A DC string meter is integrated into a DC box to provide the capability of collecting the required data/information of string level.
- The system diagram of junction box is shown below.



Monitoring & Data Logging

A state-of-the-art data monitoring/logging system, capable of local and remote monitoring so as to provide timely and accurate performance of the plant on continuous basis is required on site. All monitoring data will be transmitted to the control room for logging and monitoring of the performance of each inverter. Data logging software is employed for automatic storage of the measured data from PV Plant over a prolonged period of time. Control room shall have a control panel containing all the measuring instruments such as voltmeter, ammeter, frequency meter and electronic energy meter for measuring the deliverable units sold to utility grid. Block diagram of monitoring system is given below:

Standard System Layout

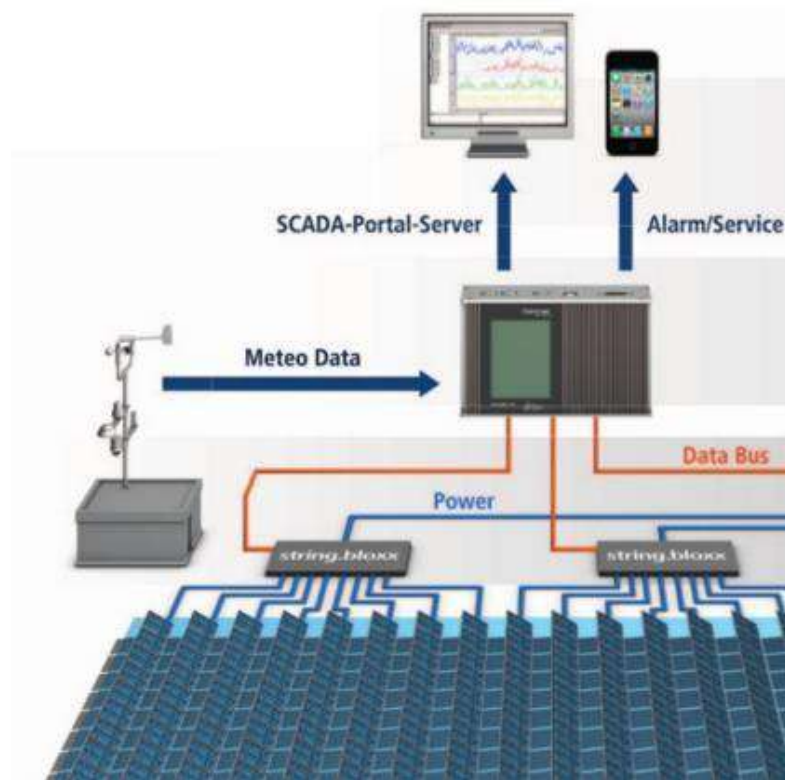


Figure 1 Monitoring & Data

A. Technical Specifications

- Data Monitoring : Local & Remote up to string level (Access to live data every 10 minutes)
- Irradiation Meter : 2 units with D/A Translation card
- Temperature Meter : 6 units with D/A Translation card
- PC + Monitor : 2 sets of PC + 21" monitor and 42" LCD TV Display, 1 set of server-grade hardware
- Sensors : 1- Irradiance,
2- Temperature,
3- Power,
4- AC/DC current
5- AC/DC voltage meters,
6- Electrical parameters,
7- Wind speed meter
- Software : Compatible
- PC Based : MS Excel compatible
- Data desk : MS Excel compatible.
Graphic and tabular form
- Communication : SCADA Portal-Interface
- Interface : SCADA Portal-Interface
- Data Logging and : SCADA Portal-Interface
- Accusation : Ambient temperature near array field, Module temperature, Acquisition Solar irradiance, grid

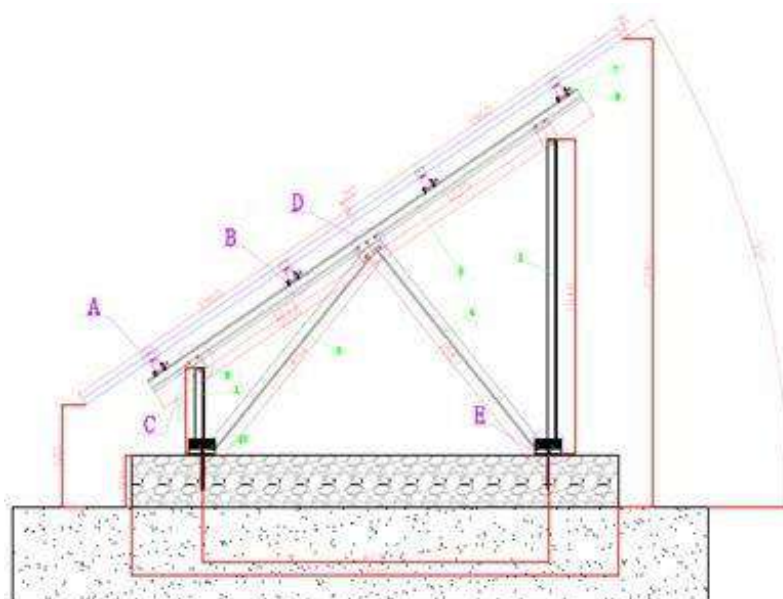
Frequency, DC bus output, energy delivered to the grid in kWh, Wind speed for tracker.

- Data Recording / Logging : Continuous logging with data logging software capable to generate daily, monthly, quarterly and annual performance reports.
- Data Storage
- Capacity : 3 years
- Control Room System : Computerized data acquisition system

Mounting Structure

Fixed Mounting Structure

- (i) The main mounting structure will be fixed/adjustable, tilted at an appropriate angle, facing south and will be made of Aluminum or Steel Hot Dip Galvanized material with vertical posts supported by concrete foundations base 3 inches above roof top level. However, Tilt angle should be optimum for summer and winter seasons. Mechanical provisions should be provided in the structure to shift the tilt angles to the seasonal optimum values.
- (ii) The mounting structure must be engineered for wind resistance of 130km/h
- (iii) Module should be fixed with the frame through pure SS rawal bolts. The bolts should be tightened at the required angle.
- (iv) The Nuts, Bolts & Washers/Spring Washers for modules & Mounting structures must be stainless steel material with appropriate gauge (14 or plus)
- (v) The entire mechanical structure should be made of aluminum/steel hot dip galvanized with appropriate rating for longer life of the structure.
- (vi) Shading shall be avoided all over the year (around) from 30 minutes after the sunrise to 30 minutes before sunset (For installation purpose only).
- (vii) To allow regular cleaning of the solar modules, they should be easily accessible for personnel (For installation purpose only). Therefore, no more than 75% of a given space, may be utilized panel installation. The remaining 25% space provide for cleaning and safety personnel in case of emergency.
- (viii) Each panel frame structure shall be so fabricated as to be grouted using rawal bolts in cement concrete foundation with steel frame structure at the site
- (ix) Foundation/mounting structure should be fabricated and installed to achieve full life of 25 years under the local climatic conditions.



Wires & Cables

- i) The main cable and LT cables of appropriate sizes from transformer/PESCO (Changeover switch) supply of all buildings to inverter rooms shall be 1.1 grade, heavy duty, stranded copper conductor, PVC type A insulated, galvanized steel wire/strip armored, flame retardant low smoke (FRLS) extruded PVC type ST-1 outer sheathed. The cables shall, in general conform to IS-1554 P+I & other relevant standards.
- ii) External cables should be specifically adapted to outdoor exposure (see IEC 60811). Especially the outer insulation must be sunlight (UV)-resistant, weatherproof and designed for underground installation. Preferably tin coated copper UV resistant DC cables shall be used.
- iii) The temperature resistance of all interconnecting wires and cables should be $> 75^{\circ}\text{C}$. The minimum acceptable cross-section of the wire in each of the following sub-circuits is as in ISO IEC prescription:
- iv) All wiring should be color-coded (and/ labeled in case of service providers.)
- v) All supplied wires must be in UV-resistant conduits or be firmly fastened to the building and/or support structure. Cable binders, clamps and other fixing material must also be UV-resistant, preferably made of polyethylene (for the case of service providers)
- vi) All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed.
- vii) The cable rating should be explicitly mentioned in the technical document i.e. the size, current rating & voltage rating and ohmic drop information etc.
- viii) GI cable trays for DC, earth and communication cables to be placed on rooftops as well are required.

Protections and Control

- i. PV system software and control system should be equipped with islanding protection as described above. In addition to disconnection from the grid (islanding protection i.e. on no supply) , under and over voltage conditions , PV systems

- should be provided with adequate rating fuses, fuses on inverter input side (DC) as well as output side (AC) side for overload and short circuit protection and disconnecting switches to isolate the DC and AC system for maintenance as needed. Fuses of adequate rating should also be provided in each string of solar module to protect them against short circuit.
- ii. A manual disconnect switch beside automatic disconnection to grid should also be provided at utility end to isolate the grid connection by the utility personal to carry out any maintenance. This switch should be locked by the utility personal.
 - iii. Emergency switch should be part of scheme to disconnect the entire PV plant in case of emergency.
 - iv. The solar plant should be able to supply power to all faculties during the WAPDA outage.

Grid Location and Connection

- i. Synchronization: Available in the Inverter
- ii. All Safeties: Available in the Inverter

Earthing & Protection System from Lightning

Earthing is essential for the protection of the equipment & manpower. Two main grounds used in the power equipment are:

- System earth
- Equipment earth

The complete set suitably designed Lightning protection and earthing system should be installed for 1.0MW solar power plant. For this purpose, appropriate units of lightning arrestor shall be set up to sufficiently cover the radius of the power plant (as per site map) for its protection from lightning. These shall operate by acting as receptors capturing the lightning and defusing it before it reaches the PV or other sub-system components.

- i. System earth is earth which is used to ground one leg of the circuit. For example, in AC circuits the Neutral is earthed.
- ii. In case of equipment earth all the non-current carrying metal parts are bonded together and connected to earth to prevent shock to the man power & also the protection of the equipment in case of any accidental contact.
- iii. To prevent the damage due to lightning the one terminal of the lightning protection arrangement is also earthed. The provision for lightning & surge protection of the SPV power source is required to be made.
- iv. In case the SPV Array cannot be installed close to the equipment to be powered & a separate earth has been provided for SPV System, it shall be ensured that all the earth's are bonded together to prevent the development of potential difference between two earths.
- v. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earth's are bonded together to make them at the same potential.
- vi. The Earthing conductor should be 1.56 times the short circuit current. The area of cross-section shall not be less than 1.6 sq mm in any case.

- vii. The array structure of the PV modules shall be grounded properly using adequate numbers of earthing pits. All metal casing/ shielding of the plant shall be thoroughly grounded to ensure safety of the power plant.

Civil Works

The following civil works should be carried out with AUST Management:

- i. Cutting and clearing of trees/plantation to remove the shadow.
- ii. Cast-in-situ RCC foundation for mounting PV module/solar panels are preferred. Height of the mounting structures should not be limited to 3 inches.
- iii. Rooftop load bearing should be reviewed in conjunction in civil design for mounting of solar panels.
- iv. Lying of earthing equipment /structures and connecting to the main ground mat as per the statutory requirements.
- v. Construction work where necessary to be in consultation with works Department.

Net Metering Configuration Options

- i. Details of Net Metering scope clearly mentioning the documentation formalities, installation of HT meter with isolator switch and CTs etc. would be included in scope of EPC.
- ii. Synchronization and interlocking details with PESCO and generators.
- iii. Load flow analysis to be carried out by EPC Contractor. The metering system for Billing should be of good quality and from WAPDA certified Companies.
- iv. The utility meter (Net-meter) has to be bi-directional meter to register both import grid electricity amount as well as export solar electricity amount.

Miscellaneous Items for Installation

a) Wiring PVC/GI Channel Ducts

A product of good quality standard material with suitable size to be provided / used.

b) Flexible PVC Pipe

The flexible PVC pipe should be of good quality material with suitable size.

c) Combiner Box

Combiner Box should be manufactured through GI material with 100% copper strip in it for termination of PV Arrays.

Other Features:

- (i) The PV Module(s) should be warranted for a minimum period of 25 years from the date of supply, inverter with five years from the date of installation. The warranty card to be supplied with the system must contain the details of the system. The manufacturers can also provide additional information about the system and conditions of warranty as necessary.
- (ii) Adequate space should be provided behind the PV module/array for allowing unobstructed airflow for passive cooling.
- (iii) All wiring should be in proper conduit of capping casing. Wire should not be hanging loose.
- (iv) Instruction and O&M manuals

- ✓ Two copies of Instruction and Operation and Maintenance Manual in English and local language should be provided with the system.
- ✓ The manual shall be furnished at the time of dispatch of the equipment and shall include the following aspects:
 - a. Precautions during unpacking
 - b. Instructions for handling at site.
 - c. Erection drawings with written assembly instructions that would enable the Employer to carry out erection with his own personnel if opted by him.
 - d. Detailed instructions and procedures for the installation operation and maintenance.
 - e. Pre-commissioning tests.
 - f. About solar PV system – its components and expected performance.
 - g. Clear instructions about mounting of PV module (s)
 - h. About electronics
 - i. DO's and DONT's
 - j. Principle of Operation of various equipment
 - k. Safety and reliability aspects
 - l. Metering scheme
 - m. About power conditioning units' software and controls
 - n. Clear instructions on regular maintenance and troubleshooting of solar power plant.
 - o. Name and address of the person or service center to be contacted in case of failure or complaint.
 - p. Outline dimension drawings showing relevant cross-sectional views, earthing details, constructional features. Rated voltages and current etc.

Harmonics Standard:

As per the standard of IEEE 519, the permissible individual harmonics level shall be less than 3% (for both voltage and current harmonics) and Total Harmonics Distortion (THD) for both voltage and current harmonics of the system shall be less than 5%.

Performance Monitoring:

All grid solar PV power projects must install necessary equipment to continuously measure solar irradiance, ambient temperature, wind speed and other weather parameters and simultaneously measure the generation of DC power as well as AC power generated from the plant. They will be required to submit this data to Procurer or any other designated agency online and/or through a report on regular basis every month for the entire duration of CONTRACT. In this regard they shall mandatorily also grant access to Procurer or any other designated agency to the remote monitoring portal of the power plants on a 24X7 basis.

Water Cleaning Network

- i. Panel water cleaning system, its design and BOQ to be provided
- ii. Access to solar panels for cleaning/maintenance should be catered for in design.

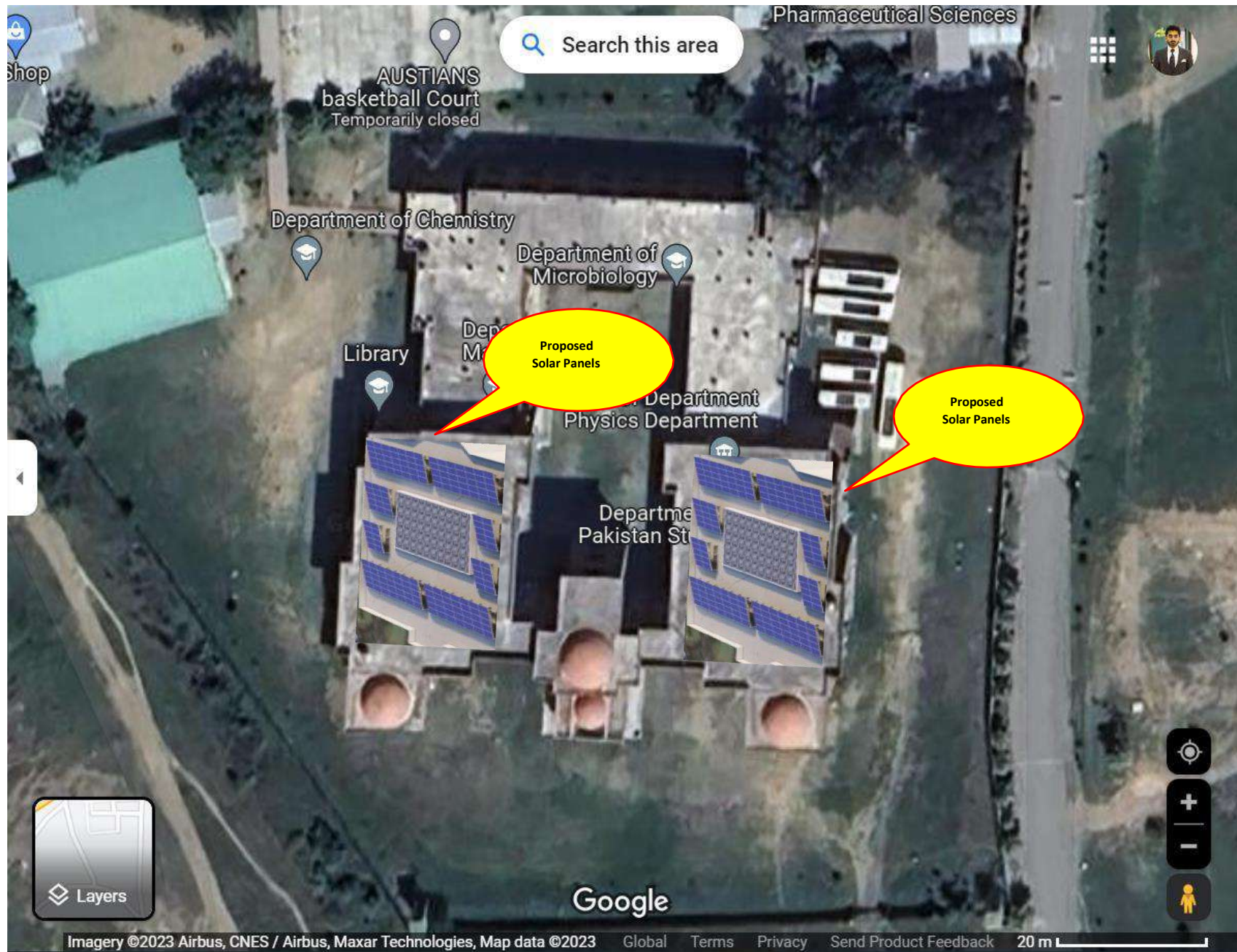
Tools and Spares

- List of tools & machinery to be provided along with a complete list of commissioning and O&M spares should be part of quotation.

Appendix-2

Building Drawings

The offer layout for *panel placement*





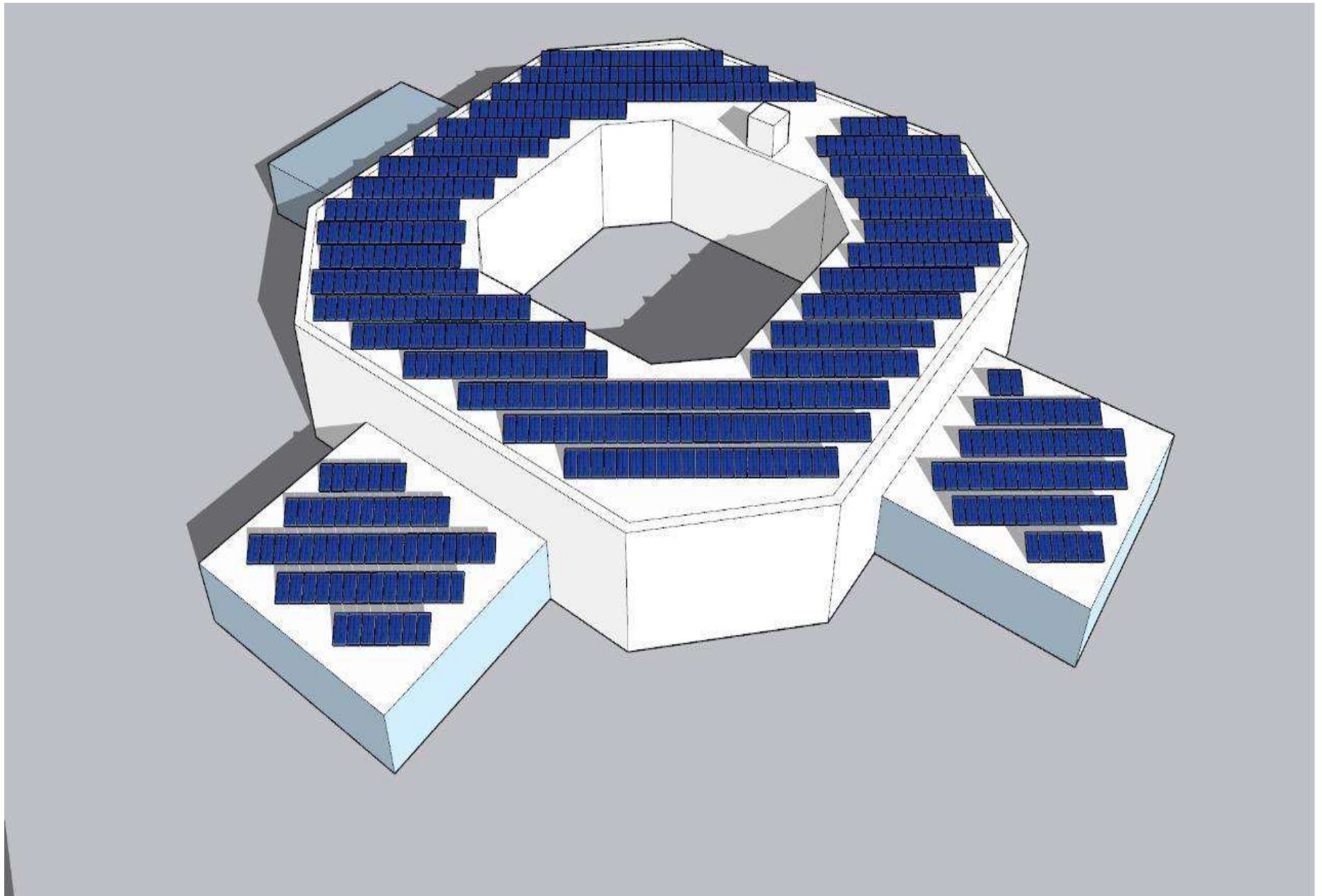


Figure:3-D view of Panel Placement

TECHNICAL PROPOSAL

APPENDICES TO CONTRACT

Appendix-03

Project Conceptual Design, Design Criteria & Technical Details and Implementation Schedule

[To be completed by the Bidder]

Appendix-04

Method of Performing the Work

[To be completed by the Bidder]

Appendix-05

Project Management Facilities

[To be completed by the Bidder]

Appendix-06

List of Proposed Contractors/Subcontractors

[To be completed by the Bidder]

Appendix-07

Organization Chart for the Supervisory Staff & Labor

[To be completed by the Bidder]

Appendix-08

Operation and Tariff collection

[To be completed by the Bidder]

Appendix-09

Operation and Maintenance Methods

[To be completed by the Bidder]

Appendix-10

Funding/Financial Arrangements

[To be completed by the Bidder]

Appendix-11

Financial Offer

[To be completed by the Bidder]

Financial Offer (For each Building)

S. Nos	Description	Unit Price	Qty	UoM	Total Price	Sub Total
1.0	PV Modules & System					
1.1	Solar Module (50 KW) or plus			Nos		
1.2	Inverter (Grid-Tied) KW			Nos		
1.3	PV-Genset Controller			Job		
1.4	Cable for Interconnection (DC)			Job		
1.5	DC Breakers for string protections			Job		
2.0	AC Termination & Accessories					
2.1	LT Termination					
2.1.1	Secondary Comprehensive Protection Cabinet			Nos		
2.1.2	Low Voltage Switchgear Cabinet			Nos		
2.1.3	AC Combiner Breakers for MCCB			Nos		
2.1.4	AC Combiner Breakers for ACB			Nos		
3.0	Fabricated Items					
3.1	Mounting Structure			Job		
3.2	Cable Tray			Job		
3.3	Distribution Boxes			Job		
4.0	Cable & Accessories					
4.1	AC Cables for Inverter Interconnection xx sqmm,4 core, Armored			Meters		
4.2	AC Cable for Combined Output xx sqmm,4 Core, Armored			Meters		
4.3	Installation Material					
5.0	Earthing/ Grounding System					
5.1	Component Grounding Cable			PCS		
5.2	Grounding Pits & Cables			Nos		
5.2.1	Yellow Green Grounding Cable (xxmm2) for Inverter Grounding			Meters		
5.2.4	Grounding Flat Iron Grounding Network for the plant Area, Power distribution Room, HV power Distribution room			Meters		
5.2.5	Earthing Poles GND Network & GND Electrode			Nos		
5.2.6	OT Copper Nose for Cables			Lot		

6.0	Monitoring & Data Acquisition System					
6.1	Video Monitoring System			Sets		
6.2	Meteorological Monitoring Devices			Sets		
6.3	Data Monitoring System			Sets		
7.0	Services					
7.1	Project Design & Execution			Job		
7.2	Erecting of Mechanical Mounting Structure			Job		
7.3	Installation, testing and Commissioning of Solar System			Job		
7.4	Operations and Maintenance "O&M" Services (5 Years)			Job		
7.5	Load Flow Study (Required for Net-Metering)			Job		
7.6	Net-Metering Process (Including Equipment, Fee, Approvals, Documentation, Inspection)			Job		
8.0	Transportation					
8.1	Charges			Job		
A	Total Project Cost Solar Based Power Solution					
	Total Project Cost/Watt					

Contract will be finalized with the firm technically qualified firm having criteria of 80 (Technical) 20 (Financial) as prescribed in tender documents shall be deemed successful highest scorer bidder

Appendix-12

Integrity Pact

[To be filled and signed by the Bidder]

**DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.
PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN
CONTRACTS WORTH RS. 10.00 MILLION OR MORE**

Contract No. _____ Dated _____

Contract Value: _____

Contract Title: _____

..... [Name of Supplier] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

[name of Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

Name of Buyer:

Signature:

[Seal]

Name of Seller/Supplier:

Signature:

[Seal]

FORMS

Form-01

Letter of Technical Proposal

Bid Reference No: _____
[should be same as mentioned on Notice for Expression of Interest]

Name of Project/Infrastructure/Facility: _____
[mention name of the Project/Infrastructure/Facility]

To: _____
[Bidder to insert name and address of the Employer]

Gentleman,

1. Having examined the Bidding Documents including Instructions to Bidders, Bidding Data, Conditions of Contract, general design criteria, operation/maintenance requirements and Addenda Nos. _____ (if any) for designing, execution and operation/maintenance of the above-named Works, we, the undersigned, offer our Technical Proposal to design, execute, complete and operate/maintain such Works in conformity with the Conditions of Contract, general design criteria, operation/maintenance requirements and Addenda (if any).
2. We understand that all the Annexures/Appendices attached hereto form part of this Financial Proposal.
3. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a Bid Security in the amount of Rupees _____ (Rs. _____) drawn in your favor or made payable to you and valid for a period of _____ days beginning from the date Bids are opened.
4. We agree to abide by this Bid for the period of _____ days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period or any extended period as per Bidding Documents.
5. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
6. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
7. We do hereby declare that the Technical Proposal is made without any collusion, comparison of figures or arrangement with any other bidder for the Works.
8. We understand that you are not bound to accept the Technical Proposals you may receive.

Dated this _____ day of _____ 20 _____

Signature: _____

in the capacity of _____ duly authorized to sign Bids for and on behalf of

(Name of Bidder in Block Capitals)
(Seal)

Address: _____

Witness:

Signature: _____
Name: _____

Address. _____

Occupation _____

Form-02

Letter of Financial Proposal

Bid Reference No: _____
[should be same as mentioned on Notice for Expression of Interest]

Name of Project/Infrastructure/Facility: _____
[mention name of the Project/Infrastructure/Facility]

To: _____

Gentleman,

1. Having examined the Bidding Documents including Instructions to Bidders, Bidding Data, Conditions of Contract, general design criteria, operation/maintenance requirements, our Technical Proposal and Addenda Nos. _____ (if any) for designing, execution and operation/maintenance of the above-named Works, we, the undersigned, offer our Financial Proposal to design, execute, complete and operate/maintain such Works in conformity with the Conditions of Contract, general design criteria, operation/maintenance requirements, our Technical proposal and Addenda (if any), for the Tariff of Rs. _____ (Rupees _____) or such other sum as may be ascertained in accordance with the said conditions.
2. We understand that all the Annexures/Appendices attached hereto form part of this Bid.
3. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a Bid Security in the amount of Rupees _____ (Rs. _____) drawn in your favor or made payable to you and valid for a period of _____ days beginning from the date Bids are opened.
4. We undertake, if our Bid is accepted, to commence the Works and to complete the whole of the Works comprised in the Contract within the time stated in Appendix-A to Bid.
5. We agree to abide by this Bid for the period of _____ days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
7. We do hereby declare that the Financial Proposal is made without any collusion, comparison of figures or arrangement with any other bidder for the Works.
8. We understand that you are not bound to accept the lowest or any Financial Proposal you may receive.

Dated this _____ day of _____, 20____

Signature: _____

in the capacity of _____ duly authorized to sign Bids for and on behalf of

(Name of Bidder in Block Capitals)
(Seal)

Address: _____

Witness:

Signature: _____

Name: _____

Address: _____

Occupation _____

Form 03

BID SECURITY
(Bank Guarantee)

Security Executed on _____
[Date]

Valid up to _____
[Date]

Name of Surety (Bank) with Address: _____
[Scheduled Bank in Pakistan]

Name and Address of Principal (Bidder) _____

Penal Sum of Security Rupees _____ (Rs. _____)
[Amount in words] [Amount in figures]

Bid Reference No. _____
[should be same as mentioned on Notice for Expression of Interest]

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal (Bidder) we, the Surety above named, are held and firmly bound unto [mention name and address of the Employer] (hereinafter called the 'Employer') in the sum stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Bidder has submitted the accompanying Bid dated _____ for Bid Reference No. _____ for _____ [mention Particulars of Bid] to the said Employer; and

WHEREAS, the Employer has required as a condition for considering said Bid that the Bidder furnishes a Bid Security in the above said sum from a Scheduled Bank in Pakistan or from a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan, to the Employer, conditioned as under:

- (1) that the Bid Security shall remain in force up to and including the date 28 days after the deadline for validity of bids as stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Surety is hereby waived;
- (2) that the Bid Security of unsuccessful Bidders will be returned by the Employer after expiry of its validity or upon signing of the Contract Agreement by the successful Bidder and providing the Performance Security; and
- (3) that in the event of failure of the successful Bidder to execute the proposed Contract Agreement for such work and furnish the required Performance Security, the entire said sum be paid immediately to the said Employer pursuant to Clause 20.6 of the Instruction to Bidders for the successful Bidder's failure to perform.
- (4) that in the event of a Bidder withdraws its bid during the period of bid validity, the entire said sum be paid immediately to the said Employer pursuant to Clause 20.6 of the Instruction to Bidders.

NOW THEREFORE, if the successful Bidder shall, within the period specified therefore, on the prescribed form presented to him for signature enter into a formal Contract with the said Employer in accordance with his Bid as accepted and furnish within *[insert period for furnishing the Performance Security]* days of being requested to do so, a Performance Security with good and sufficient surety, as may be required, upon the form prescribed by the said Employer for the faithful performance and proper fulfillment of the said Contract or in the event of non-withdrawal of the said Bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

PROVIDED THAT the Surety shall forthwith pay the Employer the said sum upon first written demand of the Employer (without cavil or argument) and without requiring the Employer to prove or to show grounds or reasons for such demand, notice of which shall be sent by the Employer by registered post duly addressed to the Surety at its address given above.

PROVIDED ALSO THAT the Employer shall be the sole and final judge for deciding whether the principal (Bidder) has duly performed his obligations to sign the Contract Agreement and to furnish the requisite Performance Security within the time stated above, or has defaulted in fulfilling said requirements and the Surety shall pay without objection the said sum upon demand from the Employer forthwith and without any reference to the principal (Bidder) or any other person.

IN WITNESS WHEREOF, the above bounden Surety has executed the instrument under its seal on the date indicated above, the name and seal of the Surety being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

SURETY (Bank)

WITNESS:

Signature _____

1. _____

Name _____

Title _____

Corporate Secretary (Seal)

Corporate Guarantor (Seal)

2. _____

Name, Title & Address

Form-04

**Performance Security for Construction Phase
(Bank Guarantee)**

Guarantee No. _____

Executed on _____

Expiry date _____

[Letter by the Guarantor to the Employer]

Name of Guarantor (Bank) with address: _____

[Scheduled Bank in Pakistan]

Name of Principal (Company) with address: _____

Penal Sum of Security *[to be express in words and figures]* _____

Letter of Acceptance No. _____ Dated _____

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the _____ (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal has accepted the Employer's above said Letter of Acceptance for *[name and number of the Contract]* for the *[name of the Project]*.

NOW THEREFORE, if the Principal (Company) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of relevant Clauses of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

We, _____ (the Guarantor), waiving all objections and defenses under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and

without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall be the sole and final judge for deciding whether the principal (Company) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Witness:

1. _____

Corporate Secretary (Seal)

1. _____

Name, Title & Address

Guarantor (Bank)

Signature _____

Name _____

Title _____

Corporate Guarantor (Seal)

Form-05

Performance Security for Operation Phase

*[Performance Security Form for Construction Phase may be used with necessary modifications
in respect of validity of Performance Security for Operation Phase]*

PART-I

**GENERAL CONDITIONS
OF
CONTRACT**

PART I - GENERAL CONDITIONS OF CONTRACT

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1.0 DEFINITIONS & INTERPRETATION

For all purposes of this Agreement, the following words and expressions shall have the respective meanings set forth below: -

Agreement	shall mean this Agreement executed hereof, including the schedules hereto, amendments, modifications and supplements made in writing by the mutual consent of parties from time to time.
Actual Electricity Generation	for a calendar month, the amount of electricity (expressed in KWh) generated by the solar PV system stated in the invoice for the Energy Charge payable for that calendar month.
Applicable Law	means any part of the constitution of Pakistan in force, or any law, legislation, statute, act, decree, rule, ordinance, judgment, order, treaty, regulation, directive, requirement, other governmental restriction or announcement or any interpretation thereof enacted or issued by any Government Authority (including without limitation labor laws, immigration, trade and customs, and road laws) which necessarily relate to or impact upon the transactions contemplated under this Agreement.
Ancillary Facilities	those facilities listed in Appendix to Bid and any other commercial facilities which the Company shall erect or carry out upon the Site Area;
Availability Date	the date, occurring not later than construction completion period (in months) after the Effective Date, in respect of any completed section of construction works or in respect of the entire Project, when the facility is available for use, as determined in accordance with relevant clause.
Base Year Revenue	the Revenue rate in Rupees in the year as stated in the Particular Conditions of Contract Agreement (for each vehicle category or other units as the case may be), to be used as the basis for determining future year Revenue, all as further specified in Appendix to Bid;
Billing Period	means the calendar month ending with the metering date which is hrs of first day of every month. The first Billing Period shall commence with the Commercial Operation Date and end with the Metering Date corresponding to the month in which commercial operation date occurs.
Business Day	Shall mean with respect to EPC CONTRACTOR & AUST, a day other than Sunday statutory holiday on which the Banks remain open for business in Pakistan
Certificate of Completion	the sectional certificate or final certificate issued by the Employer in accordance with relevant clause.
Change in Law	(a) the adoption, promulgation, modification or reinterpretation after the date of this Agreement by any Public Sector Entity of any Law of Pakistan, or (b) the imposition by a Public Sector Entity of any material condition in connection with the issuance, renewal, extension, replacement or modification of any Consent after the date of Contract Agreement, that in either case establishes requirements for the construction, operation or maintenance of the Project that are materially more restrictive than the most restrictive requirements (i) in effect as of the date of Contract Agreement, (ii) specified in any applications, or other documents filed in connection with such applications, for any Consent filed by the Company on or before the Construction Completion Date, or (iii) agreed to by the Company in any agreement in the Security Package;
Commercial Operation Date” (COD)	means the date(s) on which the Project

achieves the commercial operation and such date as specified in a written notice given to AUST at least 60 days in advance.

Commissioned	grammatical variations, means the commissioning of the Project in accordance with the procedures as are approved by the Employer from time to time;
Company	a public limited Company incorporated and having its registered office and its successors and permitted assigns;
Company Auditor	the certified public accountant(s) appointed by the Company pursuant to Clause 8;
Contracted Capacity	shall mean AC Capacity in 50 KW of Power contracted with AUST for supply by the solar power generator to AUST at Delivery point from solar power project.
Contract Year	shall mean the period beginning on the Commercial Operation date and ending on the immediately succeeding March 31 and thereafter each period of 12 months beginning on April 1 and ending on March 31 provided that the last Contract Year shall end on the last day of the term of the CONTRACT;
Contracted Energy	shall mean the Net Energy in MUs corresponding to the contracted capacity and declared CUF at the delivery point.
Contract Performance Guarantee (CPG)”	
Consents	all such approvals, consents, authorizations, notifications clause, acknowledgements, agreements, licences, permits, decisions or similar item required to be obtained from any Relevant Authority for the Contract;
Construction Completion Date	the date occurring not later than construction completion period (in months) after the Effective Date as evidenced by the issuance of the Certificate of Completion;
Construction Contractor	Contractor appointed by the company for construction and any successor thereto appointed by the Company and approved pursuant to these Conditions;
Construction Phase	the period commencing on the Effective Date and ending on the final Construction Completion Date;
Construction, Procurement and Erection Contracts	the approved agreements to be entered into between the Company and the Construction Contractor for the design, engineering, construction, supply and erection of works and equipment, completion and testing of the Project;
Continuing Contracts	contracts/agreements signed by the Company with business, trade, employees and labour which included periods after the Expiry date;
Contractors	the Construction Contractor and O & M Contractor and any of their direct sub-contractors integrally involved in the construction, operation and maintenance of the Project;
Customs Duties	customs duty levied under the Customs Act, 1969, as amended from time to time;
Design	the Outline Design and Detailed Design;
Delivery Point	shall be the interconnection point at which solar power developer (EPC CONTRACTOR) shall deliver the power to the Project Point i.e., AUST
Delivered Energy	means the kilowatt hours of electricity actually fed into the Grid system of the AUST and measured by energy meters at the delivery point, in a billing period.
Duration of the Agreement	Means 180 days from the date of Commissioning of the project

Detailed Design	the technical specifications, construction drawings and other information relevant to the design of the Works, as provided in the Appendix to Bid;
Effective Date	being the date of execution of the Contract Agreement;
Employer Auditor	the person or persons appointed by the Employer
Electricity Authority	means any legal entity which produces and sells electricity to the Employer at any time, whether such entity is a limited company, government authority, state-owned enterprise or organization which has the legal right to perform such tasks.
Electricity Authority Tariff Rate	means, the NEPRA/PESCO electricity user category rate as applicable to the Employer
Employer Manual	the current version of the ‘Employer Manual of Rules and Regulations for Management and Control of the Employer System’, as Notified in the Official Gazette of Pakistan, or as supplied to the Company on date as mentioned in the Contract Agreement;
Employer Representative	the person appointed by the Employer.
Expiry Date	the last day of the Contract Period or any extension thereof pursuant to this Agreement;
Effective Date	means the date of signing this Contract.
Electricity	shall mean the electrical energy in kilowatt hours.
Force Majeure Event	shall have the meaning set forth in Article 17 of this Contract.
GoP	the Government of the Islamic Republic of Pakistan;
Firm/Company/Generator/EPC CONTRACTOR	means M/s -----
Key Date	a date by which specified works are to be completed or obligations fulfilled, pursuant to the penalties
kV	means kilo Volt.
kWh	means Kilowatt-hour.
Land Rights	the rights in, under and over the Roof Top Area;
Laws of Pakistan	all Federal, Provincial and Local laws of Pakistan and all orders, rules, regulations, statutory regulatory orders (SROs), executive orders, decrees, policies, judicial decisions, notifications or other similar directives made pursuant thereto issued by any competent executive or administrative, legislative or judicial authority or any one or more of them and which may be amended from time to time;
Lenders	all persons for the time being providing, raising or making available, directly or indirectly, finance or refinance (and for the avoidance of doubt ‘finance’ and ‘refinance’ shall not include amounts subscribed

	for equity share capital by the shareholders of the Company) for the performance of the Works, their respective successors in title and assigns;
Loss	any loss, damage, liability, payment and obligation (excluding any indirect or consequential loss, damage, liability, payment or obligation), and all expenses (including without limitation reasonable legal fees);
Metering Date	At 00.00 hrs. on the 1st day of every month.
Metering Point	for purposes of recording of Delivered Energy will be same as Delivery Point.
AUST	Means Abbottabad University of Science & Technology
Monthly Energy charges	means the charges payable by the AUST for the energy delivered at the delivery point for the billing period at fixed tariff.
MW	means Megawatts
O & M Agreement	the Approved Agreement, between the Company and the O & M Contractor for the operation and maintenance of the Project, as amended or superseded from time to time;
O & M Contractor	O&M Contractor and any successor appointed by the Company and approved by the Employer in accordance with these Conditions;
O & M Manager	the operations consultant or team of in-house professionals responsible for managing the Operations Phase of the Works appointed
Operations Phase	the period commencing on the Availability Date and ending on the Expiry Date;
Ordinary Share Capital	any shares of the Company and any securities of the Company that are convertible into such shares at the option of the holder;
Outline Design	the characteristics and performance specifications of the Works as set out in Appendix to Bid;
Pakistan	means the Islamic Republic of Pakistan;
Party/Parties	either the Employer or the Company or both, as the case may be;
Prescribed Fee	with respect to any particular Consent, the charge or fee, if any, prescribed by the Laws of Pakistan;
Prescribed Form	with respect to a particular Consent, the form, if any (including all information and details) prescribed by the Laws of Pakistan for the application for, or renewal of, such Consent;
Project	Infrastructure/Facility works that are covered by the Contractor, and such equipment thereon which is covered by the Contractor;
Project Engineer	the Approved consulting engineers appointed
Project Manager	the company or team of professionals appointed
Project	the Project and Ancillary Facilities;
Public Utility	water supply, electricity supply, telecommunication system, sewerage system, petroleum gas supply and other utilities and amenities for the benefit of the public;
Relevant Authority	the department, authority or agency from which a Consent is to be obtained, and any authority or other person having jurisdiction under the Laws of Pakistan with respect to the Company and the financing, design, construction, operation or maintenance of the Project;
Right of Way (ROW)	land acquired for the purpose of construction, operation and maintenance of the Project;
Rupees or Rs	shall mean Pakistani rupees, the lawful currency of Pakistan

a)

Solar PV	shall mean the solar photovoltaic crystalline power project that uses sunlight for direct conversion into electricity and that is being set up by the company to provide Solar Power to AUST.
Scheduled Date of Completion (SCOD)	shall mean the date on which the Project is scheduled to deliver contracted energy to AUST at the Delivery Point after completion of all the required tests.
EPC CONTRACTOR Standards	Means Solar Project Developer the codes and standards to be applied by the Company to design, construct, manufacture, procure, operate and maintain the Project as are more particularly described in Appendix to Bid;
Termination Date	the date of termination of this Contract Agreement pursuant to early termination.
Voltage of Delivery	means the voltage at which the electricity generated by the project is proposed to be delivered to AUST
Works	the construction, improvement, reconstruction etc. of the Project, and the supply and installation of tolling and other equipment, and the operation and maintenance of the Project as specified in this Agreement.

INTERPRETATION

In this agreement, unless the context otherwise requires (i) the singular shall include plural and vice versa (ii) a reference to any party includes that party's successors and permitted assigns.

A time of day shall, save as otherwise provide in any agreement or document be construed as a reference to Pakistan Standard Time.

Different Part of this Agreement are to be taken as manually explanatory and Supplementary to each other and if there is any inconsistency between or among the parts of this Agreement, they shall be interpretation in a harmonious manner so as to give effect to each part.

The words "hereof" or herein", if and when used in this Agreement shall mean a reference to this agreement.

If any Bidder conceals any material information or makes a wrong statement or misrepresents facts or makes a misleading statement at any time, AUST reserves the right to encash whole Performance Guarantee and cancel the Contract Agreement.

All the relevant Term and Conditions of the Request for Proposal (RfP) shall be construed as part of CONTRACT.

3.0 CONDITIONS SUBSEQUENT

Deleted

CONTRACT AGREEMENT

Deleted

The AUST shall pay agreed Contract Price arrived through competitive bidding based on the bidding guidelines issued vide RFP

The Contract Price payable by the AUST will be inclusive of all taxes, duties and levies, to be borne by the EPC Contractor.

The EPC Contractor shall be free to undertake expansion of the Project considering the agreed energy commitment, provided that the rights and obligations under this agreement shall remain unaffected.

EPC Contractor shall evaluate agreed energy generation. The EPC Contractor will be liable to pay to the Employer, penalty for the shortfall in availability below such committed Energy. The amount of such penalty will be in accordance with the terms of the contract mutually agreed. However, this penalty shall not be applicable in events of Force Majeure identified under the contract, affecting supply of solar power by EPC Contractor.

All regulations of NEPRA/PESCO & Amendments thereto from time to time shall be applicable.

5.0 ENERGY COMMITMENT

The readings of the meters (supplying power to Buildings) and data generated by SCADA system would be verified jointly by representatives of AUST and EPC Contractor at the end of first year.

SYNCHRONIZATION AND COMMERCIAL OPERATIONS

Synchronized and Integrated Operations

The AUST shall allow the EPC Contractor to interconnect its generating system at its switch yard and operate it in synchronization with the NEPRA/PESCO's system subject to the terms and provisions of this agreement. The EPC Contractor will run the plant as a part of integrated system to generate power in synchronization with the grid and shall inject three phase 50 Hz (nominal) AC Supply into the AUST'S Buildings at an appropriate voltage level .

The responsibility of getting connectivity with the transmission system owned by the AUST will lie with the Project Developer.

The entire cost of transmission including cost of construction of line, metering and protection system etc. along with any applicable charges, losses etc. will be borne by the EPC Contractor.

Construction and operation/maintenance of evacuation system up to delivery point shall be the responsibility of EPC Contractor.

The display Unit of SCADA system shall be located at the appropriate location as committed by both parties.

The EPC Contractor shall give the concerned department of AUST at least seven (07) days advance of written notice, of the date on which it intends to synchronize the Project to the grid system. The EPC Contractor will specify the written notice to the AUST that:

- a. The plant is constructed in accordance with this agreement and is ready to deliver solar power in accordance with the terms hereof;
- b. All permissions and approvals required for the Solar based power plant to interact with national grid under this agreement have been obtained by EPC Contractor and.
- c. All interconnection facilities are available to receive solar power from the plant.

The Project may be synchronized by the EPC Contractor to the grid system when it meets all the connection conditions prescribed in applicable Grid Code then in effect and otherwise meets all other requirements for synchronization to the grid system.

SYNCHRONIZATION AND INTERCONNECTION FACILITIES:

The synchronization equipment will be installed by the EPC Contractor at AUST. The EPC Contractor shall synchronize its system with the AUST's Grid only after the grant of approval of synchronization scheme by competent authority of AUST and after checking/verification of the system. The EPC Contractor has delivered a list of plant equipment showing the make, model, serial number and certified the installed capacity of the plant before synchronization.

EPC Contractor shall inform all building managements to which the solar based power plant is electrically connected in accordance with applicable grid code.

The EPC Contractor shall provide Grid Tie Inverter, panels, protection & metering equipment at the generation facility and fully equipped line switching system for termination of interconnecting transmission line(s) of the NEPRA/PESCO. EPC Contractor shall also provide proper & reliable communication between the generation facility & Grid, to ensure better data transfer, the cost of these works will be borne by the EPC Contractor.

Notwithstanding the provisions of this agreement, the AUST will not be responsible for any damage that may occur to the EPC Contractor's generation system for any reason whatsoever.

EPC Contractor shall intimate to AUST about the installation of solar power plant as per Format placed at Annexure I titled Installation Report prior to 07 days in advance from the date of synchronization. If the plant is synchronized without the submission of Installation Report to AUST, then the plant will not be considered to have been commissioned.

GENERATION FACILITIES – CONSTRUCTION & DEVELOPMENT OF THE PROJECT

Company's Obligations

The company undertakes to be responsible, at company's own cost and risk, for:

- a. obtaining all Consents, Clearances and Permits other than those obtained under content 3.1 and maintaining all Consents, Clearances and Permits in full force and effect during the Term of this Agreement; and
- b. designing, constructing, erecting, commissioning, completing and testing the Power Project in accordance with the applicable Law, the Grid Code, as per the terms and conditions of this Agreement and Prudent Utility Practices; and
- c. Achieving Commercial Operation Date within 180 days from the date of signing of the agreement.
- d. connecting the Power Project with the Interconnection Facilities at the Delivery Point; and
- e. owning the Power Project throughout the Term of Agreement free and clear of encumbrances, except those expressly permitted and
- f. fulfilling all obligations undertaken by the company under this Agreement.
- g. Company will coordinate with AUST management to ensure compliance of installation of plant & equipment as per prudent utility practices.

GENERATION FACILITIES – OPERATION & MAINTENANCE

The EPC Contractor shall be responsible for obtaining and keeping in force at its own cost, all consents, clearances, insurances and permits required for establishing and operating the generation facility.

The Company shall be responsible at its own expense for ensuring that the Power Plant is operated and maintained in accordance with all legal requirements including the terms of all consents/clearances/permits/ insurances and prudent utility practices

within the acceptable technical limits so as not to have an adverse effect on the Grid system or result in violation of any rules/Law.

EPC Contractor shall meet with all statutory laws as applicable.

AUST shall have the right to designate from time to time its officers/official who shall be responsible for inspecting the Solar Power Plant for the purpose of verifying progress of EPC Contractor.

AUST shall be informed by the EPC Contractor but in no event less than 15 (fifteen) days prior to the scheduled date of synchronization.

- a) Detailed procedure for synchronization of the Plant with national grid under different conditions of operation.
- b) Shut-down and start up procedures.

The EPC Contractor shall install and whenever required augment the equipment at its own cost to match it with the fault level of utility system during the tenure of this Contract.

The Company shall carry out regular maintenance and overhauls of its plant as per recommended schedules and procedures of the equipment suppliers.

AUST shall not be responsible for any damage, whatsoever, that may be caused to any equipment installed by EPC Contractors on account of any fault in the system and shall not be responsible to pay any compensation for such damage.

PROTECTIVE EQUIPMENT & INTERLOCKING

The EPC Contractor shall provide necessary protective equipment and interlocking devices at generating system (like inverter with anti-islanding etc.), so that no adverse effect is caused to the Grid system.

The Company shall energize its equipment/synchronizing scheme only after the approval of AUST and thereafter and rectification of the defects/observations pointed out by Employer's representative.

Testing charges shall be borne by the EPC Contractor for commissioning as well as routine checking.

Notwithstanding such checking/verification in any event, the AUST shall not be responsible for any damage caused to the Generating facility on account of any mistake in such checking/verification.

PENALTIES IN CASE OF DELAYED COMMISSIONING

Commissioning / Schedule Delivery Date

The Commissioning / Commercial Operation date of Solar PV Power Plant shall be within 06 months from the date of signing of Contract.

Delay in Commissioning of Power Plant

For not achieving Commercial Operation Date, AUST shall encash the Bank Guarantee (BG) in the following manner:

- i. Delay up to one (1) month - 10% of the total Contract Performance bankguarantee.
- ii. Delay of more than One (1) month and up to two (2) months - 20% of the total Performance Bank Guarantee in addition to BG in clause-i above.
- iii. Delay of more than Two (2) months and up to three (3) months - 30% of the total Performance Bank Guarantee in addition to BG in clause- i & ii above.
- iv. Delay of more than three (3) & up to four (4) months - the remaining Performance Bank Guarantees.
- v. Delay in the timelines for over and above four (4) months will lead to create the necessary grounds for AUST for termination of Contract.

Verification of solar power

Third party sale, banking and wheeling of power is not permitted.

The project developers will maintain a record of power generation, incident solar radiation on the PV array surface, Capacity Utilization Factor and other technical features of the power plant for the O&M period. Copy of the data should also be available in electronic form and sent to AUST monthly. This record will also be made available readily for verification/audit purposes, if required.

RESOLUTION OF DISPUTES

Both the parties shall comply with the provisions of this Agreement and discharge the respective obligations. In the event of disagreement, a meeting shall be held between authorized representatives of the EPC Contractor and AUST to resolve the issue. In case **the issue** is still unresolved, provisions of this clause shall apply.

Amicable Settlement

If any dispute or difference of any kind whatsoever shall arise between the Employer and the Company in connection with or arising out of this Agreement, the Parties shall attempt to settle such dispute in the first instance within thirty (30) days, or as specified in Particular Conditions of Contract, by mutual discussion between the Company and the Employer.

If the dispute cannot be settled by mutual discussion, the dispute shall be dealt with in accordance with this Clause.

Expert Determination

If the dispute is, or relates to, whether:

- (a) (but only where the Employer and the EPC Contractor have agreed that this Clause shall apply to such dispute) the EPC Contractor is undertaking the Works in a proper and workmanlike manner, using good quality materials, plant and equipment or in accordance with the requirements of these Conditions; or
- (b) (but only where the Employer and the EPC Contractor have agreed that this Clause shall apply to the dispute) the Outline Design, Design Proposal or Detailed Design diverge from statutory requirements; or
- (c) to any other dispute which the parties agree should be dealt with under this Clause; the dispute shall be determined by one independent expert

in the relevant field or by an independent expert in each of the relevant fields (if there is more than one field) as agreed upon and appointed jointly by the Parties. In the event that the Parties hereto cannot agree on such appointment, upon the application of either party the independent expert(s) shall be appointed by [*Pakistan Engineering Council*].

The decision of the independent expert shall be made as an expert and not as an arbitrator and shall be final and binding on the Parties and the EPC Contractor and the Employer shall share equally the costs incurred by any such expert in making the determination unless otherwise awarded by the expert.

Arbitration and Governing Law

If any dispute or difference shall arise between the Parties hereto touching any Clause, matter or thing whatsoever herein contained or the operation or construction thereof or any matter or thing in any way connected with this Agreement or the rights duties or liabilities of either of the Parties under or in connection with this Agreement and such dispute or difference cannot be settled through mutual discussion or expert determination then, and in every such case, the dispute or difference shall be referred to arbitration under the following provisions:

- (a) The rights and obligations of the Parties under or pursuant to these Conditions shall be governed and construed according to the Laws of Pakistan.
- (b) The dispute shall be referred to arbitration and finally settled in Islamabad in accordance with the Pakistan Arbitration Act, 1940, and any amendment or substitution thereof. If the Parties cannot agree to the appointment of a sole arbitrator each Party shall appoint an arbitrator and the arbitrators shall, before entering upon the reference, jointly appoint an umpire. The decision of the arbitrator(s) shall be final and shall not be challenged or assailed in any court on any ground whatsoever.
- (c) Not with standing any provision under (a) and (b) above, (i) the Company undertakes to continue the construction, development, operation, maintenance and transfer of the Project and (ii) the Employer undertakes to continue to perform its services and obligations under this Agreement, in either case without any stoppages/impediments during the discussions between the Parties and pending any arbitration proceeding.
- (d) To the extent that the Employer may be entitled in any jurisdiction to claim for itself or its assets immunity in respect of its obligations under this Agreement from any suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process or to the extent that in any jurisdiction there may be attributed to itself of its assets such immunity (whether or not claimed), the Employer unconditionally and irrevocably agrees not to claim, and hereby expressly waives, such immunity to the fullest extent permitted by the laws of such jurisdiction.

13.0 DURATION:

This agreement shall become effective upon the execution and delivery thereof by the Parties hereto and unless terminated pursuant to other provisions of the Agreement, and shall continue to be in force for a period of 5 years from Date of Commissioning, which can be extended on the Terms and Conditions mutually agreed by both the parties after taking approval from AUST.

14.0 EVENTS OF DEFAULT AND TERMINATION:

Events Of Default Of Company

The occurrence or combination of the following events at any time during the term of this agreement shall constitute events of default by the company.

- a. The failure to commence supply of power up to the Contracted Capacity, relevant to the Scheduled Commissioning Date i.e. 6 months from the date of signing of Contract.
- b. Failure on the part of the Company to use reasonable diligence in operating, maintaining or repairing the Company's facility such as safety of persons & property and service to others is adversely affected.
- c. Failure or refusal by the Company to perform its material obligation under this agreement.
- d. Failure to use GOP/State Policy for promoting Generation of Electricity through Solar as notified by NEPRA/PESCO/AEDB.
- e. Abandonment of its generation facilities by the Company or discontinuance by the Company of services covered under this Agreement without any reasonable cause.
- f. Occurrence of any other event which is specified in this Agreement to be a material breach/ default of the EPC Contractor.

Events Of Default Of AUST:

The occurrence of any of the following at any time during the term of this Agreement shall constitute Events of Default by the AUST:

- a. Failure to pay to the company any amount payable and due under this agreement within Ninety (90) calendar days after receipt of invoice.
- b. Failure or refusal by AUST to perform its material obligations under this Agreement.
- c. Occurrence of any other event which is specified in this Agreement to be a material breach/default of AUST.

If any Event of Default by either party extends for a period of Ninety (90) Calendar days after the receipt of written notice of such event of Default from the non-defaulting party, then the non-defaulting party may, at its option, terminate this agreement by delivering 15 days written notice of such termination to the party in default.

Failure by either the AUST or the Company to exercise any of these rights under this Agreement shall not constitute a waiver of such rights. Neither party shall be deemed to have waived any failure to perform by the other unless it has made such waiver specifically in writing.

FORCE MAJEURE

If any party hereto is wholly or partially prevented from performing any of its obligations under this Agreement by reason of or through such as lightning, earthquake, drought, volcanic eruption, landslides, typhoon or tornado, radioactive contamination, fire, floods, invasion, insurrection, rebellion, mutiny, tidal wave, civil unrest, riot, epidemics, explosion, the order of any court, judge or civil authority,

change in state or national law, war, any act of God or the public enemy or any other similar cause beyond its exclusive control and not attributable to its neglect or any failure or non-available of the Grid, not attributable to a default or negligence of the buyer then and in any such event, such party shall be excused from whatever performance is prevented by such event to the extent so prevented and such party shall not be liable for any damage, sanction or any claim for any loss resulting there from.

Force Majeure Exclusions

Force Majeure shall not include (i) any event or circumstance which is within the reasonable control of the Parties and (ii) the following conditions, except to the extent that they are consequences of an event of Force Majeure:

- a. Unavailability, late delivery, or changes in cost of the plant, machinery, equipment, materials, spare parts or consumables for the Power Project;
- b. Delay in the performance of any contractor, sub-contractor or their agents;
- c. Non-performance resulting from normal wear and tear typically experienced in power generation materials and equipment;
- d. Strikes at the facilities of the Affected Party;
- e. Insufficiency of finances or funds or the agreement becoming onerous to perform; and
- f. Non-performance caused by, or connected with, the Affected Party's:
 - i. Negligent or intentional acts, errors or omissions;
 - ii. Failure to comply with an Pakistani Law; or
 - iii. Breach of, or default under this Agreement.

The party invoking this clause shall satisfy the other party of the existence of such an event and give written notice within Seven (7) days to the other party and take all possible steps to revert to normal conditions. In case of failure to intimate within specified period, the event shall not be treated as force majeure event.

To the extent not prevented by a Force Majeure Event pursuant to Article 17.1, the Affected Party shall continue to perform its obligations pursuant to this Agreement. The Affected Party shall use its reasonable efforts to mitigate the effect of any Force Majeure Event as soon as practicable. The affected party shall give the other party regular reports on the progress of those remedial measures & such other information as the other party may reasonably request about the force majeure event.

If the force majeure event or its effect continues to be present beyond a period of 12 months, either party shall have the right to cause termination of agreement. In such an event, this agreement shall terminate on the date of termination notice without any further liability to either party from the date of such termination.

17.0 TECHNICAL REQUIREMENTS FOR GRID CONNECTED SOLAR PV POWER PLANTS

The following are some of the technical measures required to ensure quality of equipment used in grid connected solar photovoltaic power projects:

17.1. SPV Modules

The SPV modules used in the grid solar power projects must qualify to the latest edition of any of the following IEC PV module qualification test or equivalent BIS standards.

Crystalline Silicon Solar Cell Modules IEC 61215

Thin Film Modules IEC 61646

Concentrator PV modules IEC 62108

In addition, SPV modules must qualify to IEC 61730 for safety qualification testing at 1000V DC or higher. The modules to be used in a highly corrosive atmosphere throughout their lifetime must qualify to IEC 61701.

17.2 Power Conditioners/ Inverters

The Power Conditioners/ Inverters of the SPV power plants must conform to the latest edition of IEC/ equivalent Standards as specified below:

Efficiency Measurements IEC 61683

Environmental Testing IEC 60068 -2/IEC 62093

EM Compatibility (EMC) IEC 61000-6-2, IEC 61000-6-4

& other relevant parts of IEC 61000

Electrical safety IEC 62103/ IEC 62109-1&2

Anti-Islanding Protection IEEE 1547/IEC 62116/UL 1741 or equivalent

Standards

Other Sub-systems/ Components:

Other subsystems/components used in the SPV power plants (Cables, Connectors, Junction Boxes, Surge Protection Devices, etc.) must also conform to the relevant international/national Standards for Electrical Safety besides that for Quality required for ensuring Expected Service Life and Weather Resistance. It is recommended that the Cables of 600-1800 Volts DC for outdoor installations should comply with the BS EN 50618:2014/2pfg 1169/08.2007 for service life expectancy of 25 years.

Authorized Test Centers

The PV modules/Power Conditioners deployed in the power plants must have valid test certificates for their qualification as per above specified IEC/ BIS Standards by Accredited Test Laboratories.

17.5 Warranty

PV modules used in grid solar power plants must be warranted for output wattage, which should not be less than 90% (ninety per cent) at the end of 10 (ten) years and 80% (eighty per cent) at the end of 25 (twenty-five) years.

Identification and Traceability

Each PV module used in any solar power project must use a RF identification tag. The following Information must be mentioned in the RFID used on each module (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions.)

- i. Name of the manufacturer of PV Module
- ii. Name of the Manufacturer of Solar cells
- iii. Month and year of the manufacture (separately for solar cells and module)
- iv. Country of origin (separately for solar cells and module)
- v. I-V curve for the module at Standard Test Condition (1000 W/m², AM 1.5, 25°C)
- vi. Wattage, Im, Vm and FF for the module
- vii. Unique Serial No and Model No of the module
- viii. Date and year of obtaining IEC PV module qualification certificate
- ix. Name of the test lab issuing IEC certificate
- x. Other relevant information on traceability of solar cells and module as per ISO 9000

Site owners would be required to maintain accessibility to the list of Module IDs along with the above parametric data for each module.

Performance Monitoring:

All grid solar PV power projects must install necessary equipment to continuously measure solar radiation, ambient temperature, wind speed and other weather parameters and simultaneously measure the generation of DC power as well as AC power generated from the plant. They will be required to submit this data to Procurer or any other designated agency on line and/or through a report on regular basis every month for the entire duration of CONTRACT. In this regard they shall mandatorily also grant access to Procurer or any other designated agency to the remote monitoring portal of the power plants on a 24X7 basis.

COMMISSIONING PROCEDURE

The EPC Contractor shall submit the status of installation of equipment to AUST as per prescribed format Annexure-I, at least 15 days prior to the synchronization.

EPC Contractor shall ensure Connectivity to the grid from concerned department. The report of the concern department shall be made a part of the commissioning certificate. It would be the responsibility of the EPC CONTRACTOR to collect the certificate and submit the same to AUST.

Synchronization and Commissioning Certificate as per prescribed format and will be issued by respective department for ascertaining injection of power into grid and after verification of technical parameters of the project.

EPC CONTRACTORS shall give to the concerned at least fifteen (15) days advance preliminary written notice, of the date on which it intends to synchronize the Power Project to the Grid System. EPC CONTRACTOR shall be solely responsible for any delay or non-receipt of the notice by the concerned agencies, which may in turn affect the Commissioning Schedule of the Project.

A solar PV project will be considered as commissioned if all equipment as per rated project capacity has been installed and energy has flown into the grid.

EPC CONTRACTOR shall ensure that equipment up to the rated capacity has been installed and completed in all respects before scheduled commission date. The same shall be verified by competent authority nominated by AUST during their visit to project and documented as per prescribed format (Annexure-II)

Electrical inspector report shall be made a part of commissioning certificate. It would be the responsibility of EPC CONTRACTOR to collect the certificate and submit the same to the AUST

- 18.9 A snapshot of the plant from various angles shall be taken for covering installation of important components of solar power plants and made part of installation report.

APPLICABLE LAW

The Contract Agreement shall be governed by and construed in accordance with the Laws of Pakistan.

The Parties bind themselves and acknowledge and accept as final in all respects any decision or award of an arbitration.

In the event of a conflict of provincial and Federal Law, the Federal Law shall prevail for purposes of interpretation of these Conditions of Contract under

Contract Agreement, unless such conflict shall be expressly waived by the Parties in writing.

If any provision of these Conditions is held to be illegal or invalid under present or future laws or regulations effective and applicable during the currency of the Agreement, such provision shall be fully severable and the Contract Agreement shall be construed as if such illegal or invalid provision had never comprised a part of the Contract Agreement and the remaining provisions of these Conditions shall remain in full force and shall not be affected by the illegal or invalid provision or by its severance from these Conditions.

The Company shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design, trademark or name or other protected rights, in respect of any equipment, machine, work or material used for or in connection with the Contract and from and against all claims, proceedings damage, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

Changes in Law

In the event a Change in Law results in any adverse financial loss/ gain to the Solar Power Generator then, in order to ensure that the Solar Power Generator is placed in the same financial position as it would have been had it not been for the occurrence of the Change in Law, the Solar Power Generator/ Procurer shall be entitled to compensation by the other party, as the case may be, subject to the condition that the quantum and mechanism of compensation payment shall be determined and shall be effective from such date as may be decided by the Appropriate Commission.

The term Change in Law shall refer to the occurrence of any of the following events after the last date of bid submission, including (i) the enactment of any new law; or (ii) an amendment, modification or repeal of an existing law; or (iii) the requirement to obtain a new consent, permit or license; or (iv) any modification to the prevailing conditions prescribed for obtaining an consent, permit or license, not owing to any default of the Solar Power Generator; or (v) any change in the rates of any Taxes which have a direct effect on the Project. However, Change in Law shall not include any change in taxes on corporate income or any change in any withholding tax on income or dividends.

Language

All communication between the parties shall be conducted in the English language and all notices if in any other language shall be accompanied by a translation in English. In the event of a conflict between the English text and the text in any other language, the English text shall prevail.

Confidentiality

The Agreement and all matters pertaining hereto shall be considered a confidential matter and shall not be disclosed to any third party without prior mutual agreement. (Save as required by Law or appropriate regulatory authorities or to prospective Lenders or Investors or professional advisers of the Parties hereto).

Bribery and Collusion/Integrity Pact

The Employer shall be entitled to terminate the Contract Agreement and recover from the Company the amount of any loss resulting from such termination if the Company shall have offered or given to any person any gift or consideration of any kind as an inducement or reward for doing, or forbearing to do, any action in relation to obtaining, or in the execution of the Contract or any other contract with the Employer, or for showing favor to any person in relation to the Contract or any other contract with the Employer, or if any of the like acts shall have been done by any person employed by the Company or acting on its behalf (whether with or without the knowledge of the Company), or if the Company shall have come to any agreement with another Bidder or number of Bidders whereby an agreed quotation or estimate has been offered as a Bid to the Employer by one or more Bidders.

In addition, in case of GOP financing, the company shall remain liable for its undertaking given in the Appendix to Bid for Integrity Pact

MISCELLANEOUS

Liaisoning With & Assistance from the AUST

The EPC Contractor shall keep a close liaison with the designated officers/officials of the AUST during the period this agreement.

The company shall coordinate with AUST for testing & commissioning of the protection system at least 10 days in advance before synchronization.

Assignment:

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns. This Agreement shall not be assigned by any Party except to project lender or lender representative as security for their debt under the Financing Agreements, other than by mutual consent between the Parties to be evidenced in writing. Provided further that any successor(s) or permitted assign(s) identified after mutual agreement between the Parties may be required to execute a new agreement on the same terms and conditions as are included in this agreement only after the approval of AUST.

Indemnification:

1. The EPC CONTRACTOR shall indemnify, defend and hold harmless the AUST and its members, Directors, Officers, employees and agents and their respective heirs, successors, legal representatives and assigns from and against any and all liabilities, damages, costs expenses (including attorney's fees), losses, claims, demands, action, cause of action, suits and proceedings of every kind, including those for damage to property of any person of entity (including the EPC CONTRACTOR) and/or for injury to or death of any person (including the EPC CONTRACTOR's employees and agents) which directly results from partial/total grid failure or arise out of or in connection with negligence or willful misconduct of the Company.
2. The AUST shall indemnify and hold harmless the EPC CONTRACTOR/Company and its Directors, Officers, Employees and Agents

and their respective heirs, successors, legal representatives and assigns, from and all liabilities, damages, costs, expenses (including outside attorneys fees), losses, claims, damage to the property or any person or entity(including the AUST) and/or injury to or death person (including the AUST's employees and agents) which directly or indirectly result from or arise out of or in connection with the negligence or willful misconduct of the AUST.

Amendments:

Any waiver, alteration, amendment or modification of this Agreement or any part thereof shall not be valid unless it is in writing and signed by the parties.

Binding Effect:

This agreement shall be binding upon and ensure to the benefit of the parties hereto and their respective successors, legal representatives and permitted assigns.

Confidentiality:

The Parties undertake to hold in confidence this Agreement and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

- a. To their professional advisors.
- b. To their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities or
- c. Disclosures required under Law. Without prior written consent of the other parties.

Severability:

The invalidity or unenforceability, for any reason, of any part of this Agreement shall not prejudice or affect the validity or enforceability of the remainder of this Agreement, unless the part held invalid or unenforceable is fundamental to this Agreement.

Authority to Execute:

Each respective party represents and warrants as follows:

- i. Each respective party has all necessary rights, powers and authorities to execute deliver and perform this Agreement. The execution delivery and performances of this Agreement by each respective party will not result in a violation of any law or result in a breach of any government authority or conflict which result in a breach of or cause a default under any agreement or instrument to which either respective party is a party or by which it is bound
- ii. No consent of any person or entity not a party to this Agreement, including any governmental authority is required for such execution, delivery and performance by each respective party.

Notices:

- i. Any written notice provided hereunder shall be delivered personally or sent by registered post acknowledgement due or by courier for receipted delivery with postage or Courier charges prepaid to the other party at the following address:

AUST: **Director Projects/Works**

(Employer)
EPC CONTRACTOR :

- ii. Notice delivered personally shall be deemed to have been given when it is delivered at the address set forth above and when it is actually delivered to such person or left with a responsible person in such office. Notice sent by post or courier shall be deemed to have been given on the date of actual delivery as evidenced by the date appearing on the acknowledgement of delivery.
- iii. Any party hereto may change its address for written notice by giving written notice of such changes to the other party hereto.

21.0 SECURITIES

The Company has, prior to the Effective Date, provided the Employer with an unconditional, irrevocable and without recourse performance security in a form acceptable to the Employer and from a scheduled bank or an international prime bank approved by the Employer ('the Bank'). Such performance security shall be in the amount equivalent to five percent (5%) of the Project cost or as stated in the Particular Conditions of Contract, as adjusted from time to time, to secure all the Company's obligations, liabilities, warranties, indemnities, representations, guarantees and responsibilities under this Agreement for this Project including the integrity and quality of the Company's workmanship, the erection work/activities performed by the Company and for equipment procured and provided by the Company and all other works and services to be provided by the Company under the Agreement.

PROVISION OF DOCUMENTS

Documents to be Submitted to the Employer

The Company shall submit to the Employer for approval the following documents in five copies on or before the dates specified:

- (a) All designs and specifications of civil works, services relocation, and equipment as specified in Appendix to Bid for approval by the Employer before construction/procurement in accordance with the implementation schedule given in Appendix to Bid;
- (b) At least sixty (60) Days, or as stated in Particular Conditions of Contract.
- (c) At least Sixty (60) Days, or as stated in Particular Conditions of Contract, before Financial Close, copies of **(i)** the Construction, Procurement and Effective Contracts as executed for the Project, plus all amendments executed on or before Financial Close, including all schedules thereto, and **(ii)** a complete set of signed and scale final plans and specifications for the construction and equipping of the Project and **(iii)** the Financial Plan;
- (d) As soon as available but in no event later than the commencement of the civil works, the proposed schedule for the manufacture and supply, system control, toll collection and communications equipment for the Project;

- (e) On or before the commencement of the civil works, a copy of the contractors all risks insurance policies.
- (f) Beginning within thirty (30) Days of the Effective Date and ending on the Construction Completion Date, monthly progress reports in the format approved by the Employer; and
- (g) On or before the first Availability Date, a copy of the insurance policies.

Copy Drawings

The Company shall ensure that the Employer is provided with a complete set of “as built” drawings and final Right of Way drawings. Such drawings shall become the property of the Employer.

All costs incurred in the preparation of the “as built” drawings and final Right of Way drawings shall be borne by the Company.

23.0 NOTICES

Any notice, approval, consent, request or other communication required or permitted to be given or made under these Conditions of Contract shall be in writing in the English language and delivered to the address or sent to the facsimile number of the Employer or the Company, as the case may be, as mentioned in the Contract Agreement, or facsimile number as either party may have notified the sender and shall be deemed to be duly given or made when delivered to the recipient at such address or facsimile number which is duly acknowledged.

to the Employer : Name/Address

to the Company : Name/Address

24.0 EFFECT OF SECTION HEADINGS

The headings or titles of the several sections hereof are for convenience of reference and shall not affect the construction or interpretation of any provision of this Agreement.

25.0 RELATIONSHIP OF THE PARTIES:

Nothing in the Agreement shall be deemed to constitute either party hereto as partner, agent or representative of the other party or to create any fiduciary relationship between the parties.

26.0 GOVERNING LAW:

This agreement shall be governed by and construed in accordance with the prevailing laws.

27.0 NO PARTY DEEMED DRAFTER

The parties agree that no party shall be deemed to be the drafter of this agreement and that in the event of this agreement is ever construed by arbitrators or by court of

law, they shall not construe this agreement or any provisions hereof against either party as the drafter of the agreement, the AUST and the society acknowledging that both parties have contributed and materially to the preparation of this agreement.

28.0 APPROVALS

Wherever either AUST or Company approvals are required in this agreement, it is understood that such approvals shall not be unreasonably withheld.

29.0 NON WAIVER

No delay or forbearance by either party in the exercise of any remedy or right will constitute a waiver thereof, and the exercise or partial exercise of a remedy or right shall not preclude further exercise of the same or any other remedy or rights.

IN WITNESS WHEREOF, the AUST and the Company have executed this Agreement as on day of in the year 2022.

For the Company

By

Its

Witnesses by

Name

Designation

Address

For the AUST

By

Its

Witnesses by

Name

Designation

Address

Annexure-I

To be provided by EPC CONTRACTOR and to be submitted at least 15 days prior to synchronization)

Status - Installation Report

Sr. No	Description	Response
	Capacity of Plant (KW)	
	Capacity commissioned (KW)	
i.	Technology used (Mono/Multi Crystalline/thin film/Others; please specify along with capacity of each type)	
ii.	Rating of each module(Wp)	
iii.	Angle from horizontal at which array is installed	
iv.	Number of modules installed of each type	
v.	Sources(S)of the cells installed of each type	
vi.	Sources(S)of the Modules installed of each type	
vii.	Number of PCUs/Inverters installed	
viii.	Sources of PCUs/Inverters (Name of supplier with address)	
ix.	Rating of PCUs/inverters	
x.	Status of completion of work as on date ,	
	Capacity of PV array	
	PCUs	
	Transformer	
	likely date of completion of the above activities	

PART- II

**PARTICULAR CONDITIONS
OF
CONTRACT**

PART II - PARTICULAR CONDITIONS OF CONTRACT

(Instructions are provided, as needed, in italics which should be filled in or added or modified as required meeting the project specific requirements by the Employer before issuance of the Bidding Documents.)

General Conditions of Contract

Clause Reference

1 DEFINITIONS

The Employer is *[insert name and complete address of the Employer]*.

“Bidder or Tenderer” means any person or persons, company, corporation, firm or joint venture submitting a Bid or Tender.

The word “Tender” is synonymous with “Bid” and the word “Tender Documents” with “Bidding Documents”.

2 CONTRACT

The Contract Period shall be a period of *6 months* from the Effective Date. Add the following Sub Clause;

Priority of Contract Documents

1. The Contract Agreement (if completed);
2. The Letter of Intent (LoI);
3. Summary of the Financial Bid Offer;
4. Final Summary of the Project;
5. Employer’s Manual of Rules and Regulations;
6. The Particular Conditions of Contract – Part II;
7. The General Conditions of Contract – Part I;
8. The completed Appendices to Bid (1 to 15) and the Forms
9. The Drawings;
10. The Specifications (Special Provisions and Technical Provisions); and
11. Any other document

3 MANAGEMENT AND SUPERVISION

Add the following Sub Clauses;

The Project Manager and Contractor’s authorized representative and his other professional engineers working at Site shall register themselves with the Pakistan Engineering Council.

The Contractor's authorized representative at Site shall be authorized to exercise adequate administrative and financial powers on behalf of the Contractor so as to achieve completion of the Works as per the Contract.

Language Ability of Contractor's Representative

The Contractor's authorized representative shall be fluent in the English language. Alternately an interpreter with ability of English language shall be provided by the Contractor on full time basis.

Language Ability of Superintending Staff of Contractor

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of the English language. If the Contractor's superintending staff is not fluent in English language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Project Engineer.

Employment of Local Personnel

The Company is encouraged, to the extent practicable and reasonable, to employ staff and labour from sources within Pakistan.

Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages and observe conditions of labour not less favourable than those established for the trade or industry where the work is carried out. In the absence of any rates of wages or conditions of labour so established, the Contractor shall pay rates of wages and observe conditions of labour which are not less favourable than the general level of wages and conditions observed by other Employers whose general circumstances in the trade or in industry in which the Contractor is engaged are similar.

Employment of Persons in the Service of Others

The Contractor shall not recruit his staff and labor from amongst the persons in the services of the Employer or the Project Engineer; except with the prior written consent of the Employer or the Project Engineer, as the case may be.

Housing for Labour

Save insofar as the Contract otherwise provides, the Contractor shall provide and maintain such housing accommodation and amenities as he may consider necessary for all his supervisory staff and labor, employed for the purposes of or in connection with the Contract including all fencing, electricity supply, sanitation, cookhouses, fire prevention, water supply and other requirements in connection with such housing accommodation or amenities. On completion of the Contract, these facilities shall be handed over to the Employer or if the Employer so desires, the temporary camps or housing provided by the Contractor shall be removed and the Site reinstated to its original condition, all to the approval of the Employer.

Health and Safety

Due precautions shall be taken by the Contractor, and at his own cost, to ensure the safety of his staff and labour at all times throughout the period of the Contract. The Contractor shall further ensure that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements.

Epidemics

In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the local medical or sanitary authorities, for purpose of dealing with and overcoming the same.

Supply of Water

The Contractor shall, so far as is reasonably practicable, having regard to local conditions, provide on the Site, to the satisfaction of the Employer or his representative, adequate supply of drinking and other water for the use of his staff and labour.

Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his Subcontractors, agents, staff or labour.

Arms and Ammunition

The Contractor shall not give, or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.

4 LAND/SITE

The Employer shall make available the land/site so required not later than a period of *30 days* before the commencement of work.

5 DESIGN AND CONSTRUCTION

Within *4 weeks* after the Effective Date the Company shall submit the Design Proposal of the Works to the Employer for approval

The Company shall subsequently submit the Detailed Design including the design of temporary works to the Employer for approval (which approval shall not be unreasonably withheld) within *30 days after* the Effective Date.

The Company shall commence the construction works within 2 weeks after approval of the detailed design.

Add the following Sub Clause:

Construction Schedule and Monthly Progress Report

- (a) For purposes of Sub Clause 11.6, the Company shall submit to the Employer a detailed construction schedule for the following:
 - i. Execution of Works;
 - ii. Labour Employment;
 - iii. Local Material Procurement;
 - iv. Material Imports, if any; and
 - v. Other details as required by the Employer's Representative
- (b) During the Construction Phase, the Company shall submit to the Employer's Representative not later than the 8th day of the following month, 10 copies each of monthly Progress Reports covering:
 - i. A Construction Schedule indicating the monthly progress in percentage;
 - ii. Description of all work carried out since the last report;
 - iii. Description of the work planned for the next *56 days* sufficiently detailed to enable the Project Engineer to determine his programme of inspection and testing;
 - iv. Monthly summary of daily job record;
 - v. Photographs to illustrate progress ; and
 - vi. Information about problems and difficulties encountered, if any, and proposals to overcome the same.
- (c) During the construction phase, the Company shall keep a daily record of the work progress, which shall be made available to the Project Engineer as and when requested. The daily record shall include particulars of weather conditions, number of men working, deliveries of materials, quantity, location and assignment of Contractor's equipment.

The Company shall complete the works within *[Insert construction completion period]* months after the Effective Date or (continued)

Any claim by the Company which it is agreed shall be compensated by the Employer shall be accompanied by a joint certificate from the Operations Auditors setting out the amount payable and including detailed calculations of the same. The amounts so certified shall be paid to the Company by the Employer within *[Insert sixty (60) or as deemed appropriate]* days after the date of receipt of the joint certificate from the Operations Auditors by the Employer

The Company, if it fails to achieve a Key Date, shall pay to the Employer an amount of *[insert amount both in figures and words]* for every day of delay on account of the Company's default.

Shop Drawings

The Company shall submit to the Employer for review 3 copies of all shop and erection drawings applicable to Construction of Works.

Review and approval by the Employer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory and that the Employer's review or approval shall not relieve the Company of any of his responsibilities under the Contract.

Safety Precautions

In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the Safety Requirements of the Government of Pakistan with such modifications thereto as the Project Engineer may authorize or direct and the Company shall take or cause to be taken such further measures and comply with such further requirements as the Employer may determine to be reasonably necessary for such purpose.

The Company shall make, maintain and submit reports to the Project Engineer concerning safety, health and welfare of persons and damage to property, as the Employer may from time to time prescribe.

Lighting Work at Night

In the event of work being carried out at night, the Company shall at his own cost, provide and maintain such good and sufficient light as will enable the work to proceed satisfactorily and without danger. The approaches to the Site and the Works where the night-work is being carried out shall be sufficiently lighted. All arrangement adopted for such lighting shall be to the satisfaction of the Employer's Representative.

Festivals and Religious Customs

The Company shall in all dealings with his staff and labor have due regard to all recognized festivals, days of rest and religious and other customs.

Disorderly Conduct

The Company shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst staff and labor and for the preservation of peace and protection of persons and property in the neighborhood of the Works against the same.

Records of Safety and Health

The Company shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Employer may from time to time prescribe.

Reporting of Accidents

The Company shall report to the Employer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Company shall, in addition, notify the Project Engineer immediately by the quickest available means.

6 OPERATING PRACTICES

Employer may modify these Sub-Clauses by incorporating necessary provisions relevant to the specific sector of the Project.

7 REVENUE COLLECTION POLICY

Subject to the terms and conditions of the Agreement the Base Year for Tolls/fees shall be *[insert Base Year]*.

The Company has the right, but not the obligation, to offer and negotiate toll packages with regular users of the Project (individuals, companies, government authorities and other bodies).

8 MAINTENANCE

Throughout the Contract Period an amount equivalent to *[10% or as deemed appropriate]* of gross annual revenue shall be set aside annually in a Rehabilitation Escrow Account, to provide funds to be used for the maintenance of the Project, including any heavy repair as may be required over and above programmed structural overlay or any other requirement.

9 CUSTOM DUTIES AND IMPORT CONTROLS

The Employer may, as provided by the Laws of Pakistan, at any time require the Company to re-export any items or equipment used in the construction of the Project that are not reasonably required for the Company to operate and maintain the Project, unless the company agrees promptly to pay the normal customs duties for those items and equipment. The Company shall be afforded *[Insert three(3) or as deemed appropriate]* months following notification by the Employer, to re-export any such items or equipment required to be re-exported by the Employer.

10 FINANCE

The Company shall achieve Financial Close within *[Employer to insert period in months as appropriate]* months after the Effective Date.

The Company shall from the outset and at all times maintain an equity in the Project of at least *[Insert thirty (30) or as deemed appropriate]* percent.

Employer encourages participation of local investors in the Project, the Company shall be obliged to associate with local partners where equity holding of local partners shall not be less than *[Insert forty (40) or as deemed appropriate]* percent.

The Company will share *[Employer to insert figure]* percent of the Gross Revenue with Employer for initial years. The annual sharing of Gross Revenue thereafter shall be *[Employer to insert figure]* percent.

During the period at least *[Employer to insert period]* months and not more than *[Employer to insert period]* months before the Expiry Date, either Party may require the other to negotiate with a view to replacing the Contract on the Expiry Date on mutually acceptable terms with an operating and maintenance contract.

Save as otherwise provided in this Agreement if:

- (a) the Company fails to achieve Financial Close within *[Employer to insert period]* months after the Effective Date;

If the Employer without reasonable cause fails to perform or fulfill any of its obligations hereunder which adversely affect the right and authority of the Company to collect and retain tolls or results in a nonpayment of any amount payable to the Company by the Employer under this Agreement, the Company may give notice in writing to the Employer specifying the default and requiring the Employer to remedy the said default within *[Insert three (3) or as deemed appropriate] months* after the date of the notice or such further period as the Company and the Employer may mutually agree on. If the Employer fails to remedy such default within the stipulated period the Company may terminate this Agreement by serving on the Employer a written notice to this effect.

11 TRANSFER UPON EXPIRY

The Company shall, not later than *[Insert one (1) or as deemed appropriate]* months prior to the expiry of the Contract, provide to the Employer an inventory of all its equipment and materials and fixtures on the Project and shall not remove such equipment and materials or fixtures there from without the prior approval of the Employer but, subject thereto, shall remove there from such equipment and materials and fixtures as the Employer may then specify. *[Insert nine (9) or as deemed appropriate]*

[Insert sixty (60) or as deemed appropriate] days before the Expiry Date, the Employer shall, at its sole cost and expense, appoint an independent engineer to inspect the physical assets of the Company including all civil works, installations, equipment and facilities. The engineer together with the Operations Auditors shall make a joint inspection of the Project and all its assets.

The Project shall be deemed to be in an acceptable condition only if the independent engineer is satisfied that all elements of the Project are of an adequate condition such that, in his professional opinion: *[Employer may amend the following sub paragraphs (a),(b) and (c) to suit the specific sector of the project]*

- (a) no heavy repairs to major components of the Project or structural overlay to the pavement will be required within *[5 years or as deemed appropriate]* from transfer;
- (b) no major replacement or rehabilitation of major plant/equipment such as toll collection, lighting or traffic management equipment, generators etc. will be required within *[5 years or deemed appropriate]* from transfer;

- (c) no heavy repairs to structures will be required within *[10 years or as deemed appropriate]* from transfer; and
- (d) *[Any other requirement]*

The Company shall on the Expiry Date cease to operate and maintain the Project and shall remove from the Project all its workmen, employees, servants, agents and contractors and vacate the Project completely within *[Insert three (3) or as deemed appropriate]* weeks after the Expiry Date.

12 TRANSFER UPON EARLY TERMINATION

If:

- (a) the Contract is terminated by the Company pursuant to relevant clause of the bidding documents;
- (b) the GoP expropriates or nationalizes the Company pursuant to relevant clause of the bidding documents;

the Employer shall pay to the Lenders *[Insert six (6) or as deemed appropriate]* months after the Termination Date or the date of expropriation (as the case may be) an amount equal to the aggregate amount owing to the Lenders at the date of payment (having taken into account the value of any security, including any tolls, at that time, held by the Lenders) or shall otherwise assume the liabilities and obligations of the Company to the Lenders within such period as aforesaid.

an amount equal to the amount of interest which would have occurred on the moneys invested in the Company by the shareholders of the Company as if interest had occurred on such amounts from the relevant dates of payment to the date of payment by the Employer on an annual basis at a rate of *[Insert twelve (12) or as deemed appropriate]* percent per annum less any net dividends or interest received by the shareholders of the Company. Such amount to be determined as aforesaid by the Operations Auditors and to be agreed between the parties hereto or, in the absence of such agreement, referred to arbitration.

In the case of termination of the Contract prior to the completion of the Project, the Company shall cease all construction works and remove from the site of the construction works all its workmen, employees, servants, agents and contractors and vacate the site of the construction works completely within *[Insert two (2) or as deemed appropriate]* weeks after the Termination Date.

If the Company is operating and maintaining the Project, the Company shall forthwith cease to operate and maintain the Project and the Company shall remove from the Project all its workmen, employees, servants, agents and contractors and vacate the Project completely within *[Insert two (2) or as deemed appropriate]* weeks after the Termination Date.

13 RESOLUTION OF DISPUTES

If any dispute or difference of any kind whatsoever shall arise between the Employer and the Company in connection with or arising out of this

Agreement, the Parties shall attempt to settle such dispute in the first instance within *[Insert thirty (30) or as deemed appropriate]* days by mutual discussion between the Company and the Employer.

14 SECURITY

The Company has, prior to the Effective Date, provided the Employer with an unconditional, irrevocable and without recourse performance Security in a form acceptable to the Employer and from a scheduled bank or an international prime bank approved by the Employer ('the Bank'). Such performance Security shall be in the amount equivalent 10 percent of the Project cost, as adjusted from time to time, to secure all the Company's obligations, liabilities, warranties, indemnities, representations, guarantees and responsibilities under this Agreement for this Project including the integrity and quality of the Company's workmanship, the erection work/activities performed by the Company and for equipment procured and provided by the Company and all other works and services to be provided by the Company under this Agreement.

The Company shall provide the Employer with an unconditional, irrevocable and without recourse performance Security in a form acceptable to the Employer from the Bank. Such performance Security shall be fully valid from the Availability Date and shall be in the amount of *[insert amount both in figures and words]* to secure all the obligations, liabilities, warranties, indemnities, representations, guarantees and responsibilities under this Agreement of the Company and its contractors in relation to the operation and maintenance of the Project and all other works and services to be provided under this Agreement during the Operations Phase.

The Company shall provide the Employer with an unconditional, irrevocable and without recourse performance Security in a form acceptable to the Employer from the Bank. Such performance Security shall be fully valid from the Effective Date and shall be in the amount of *[insert amount both in figures and words]* to secure the Company's obligations, liabilities, warranties, indemnities, representations, guarantees and responsibilities under this Agreement in relation to the transfer of the Project in accordance with this Agreement.

The Company hereby undertakes that, if a demand is made under any Construction Phase Security with a result that the amount (if any) available under that performance Security is less than 5 percent of the contract value of the works at that time remaining to be performed, the Company will ensure that a further performance Security will be issued to the Employer in accordance with this Article 30 before continuing with further construction of the work to the intent that the Employer then holds a performance Security or Security having an aggregate value of not less than 5 percent of the contract value of the construction works at that time remaining to be performed.

The Company hereby undertakes that, if a payment is made under any Operations Phase Security a further security in the form of a performance

Security in an amount not less than the amount so paid shall be issued to the Employer within 3 weeks of the date of such payment.

15 NOTICES

15.1

For the purposes of this Sub-Clause, the respective address are:

a) The Employer :

(to be filled in by the Employer as appropriate)

b) The Company:

(to be filled in by the Company as appropriate)

16 MISCELLANEOUS PROVISIONS

Use of Pakistani Materials and Services

The Contractor shall , so far as may be consistent with the Contract, make the maximum use of materials, supplies, plant and equipment indigenous to or produced or fabricated in Pakistan and services, available in Pakistan provided such materials, supplies, plant, equipment and services shall be of required standard.

SPECIFICATIONS
SPECIAL PROVISIONS

*[To be prepared and incorporated by the Company and approved by the
Employer]*

**SPECIFICATIONS
TECHNICAL PROVISIONS**

*[To be prepared and incorporated by the Company and approved by the
Employer]*

DESIGN/DRAWINGS

[To be prepared and incorporated by the Company and approved by the Employer]

