

REQUEST FOR PROPOSAL

SOLARIZATION OF UNIVERSITY OF THE PUNJAB, QUAID-E-AZAM CAMPUS, LAHORE ON ESCO MODEL UNDERPOWER PURCHASE AGREEMENT (PPA) ARRANGEMENT



Issued by

UNIVERSITY OF THE PUNJAB, LAHORE

DATE: October 2023

Disclaimer Notice

This Request for Proposal (**RFP**) is provided to the “Potential Bidders” solely for use in preparing and submitting their Technical and Financial Bids in connection with the competitive bidding process for the sale of electricity generated by solar power plant having 2.5MWp capacity to be designed, financed, operated and installed by the Successful Bidder at the University of the Punjab, Lahore (**UOP**), under Power Purchase Agreement (**PPA**) arrangement.

This RFP is being issued by UOP, in consultation with the Punjab Energy Efficiency & Conservation Agency (**PEECA**), solely for use by ESCOs interested in the sale of electricity under a PPA arrangement.

The assumptions, assessments, statements, and information contained in this RFP, may not be complete, accurate, and adequate, or correct for the purposes of Bidders. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability, and completeness of the assumptions, assessments, statements, and information contained in this RFP. The Bidders are required to undertake their independent assessment and to seek independent professional advice on any or all aspects of this RFP. No decision should be based solely based on the information provided in this RFP. Neither any of these entities nor their employees, personnel, agents, consultants, advisors, and contractors, etc. will be liable to reimburse or compensate the recipient for any costs fees, damages, or expenses incurred by the recipient in evaluating or acting upon this RFP or otherwise in connection with this transaction as contemplated herein.

All information submitted in response to this RFP becomes the property of the UOP and UOP does not accept any responsibility for maintaining the confidentiality of the material including any trade secrets or proprietary data submitted to the UOP.

The Bids submitted in response to this RFP shall be on the full understanding and agreement of any and all terms of the RFP and such submission shall be deemed an acceptance to all the terms and conditions stated in this RFP. Any Bid in response to this RFP shall be construed based on the understanding that the Bidder has done complete and careful examination of the RFP (including all annexures), has visited sites of UOP, and has independently verified and satisfied itself regarding all the information received (whether written or oral) from UOP and/or the PEECA (including from their employees, personnel, agents, consultants, advisors, and contractors, etc.).

This RFP does not constitute a guarantee or commitment of any manner on the part of the UOP or PEECA or any of its advisors or consultants that the Bidder shall be selected or agreement for the purchase of electricity will be concluded. Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of any Bid by UOP. UOP is under no obligation to award a contract to any Bidder as a result of this RFP.

UOP reserves right in its full discretion, to modify this RFP and/or its terms and conditions at any time, or to revoke the bidding process at any stage, including after the award to the successful Bidder, in each case with or without assigning any reason and without incurring any liability to reimburse or compensate the recipient or any Bidder for any costs, taxes, expenses or damages incurred by the recipient or any Bidder in such event.

Receipt of this RFP by Bidders or submission of a Bid in response to this Bidding Document, each Bidders and Bidder has certified that it understands, accepts, and agrees to the disclaimers set forth above. Nothing contained in any other provision of this Bidding Document nor any statements made orally or in writing by any person or party shall have the effect of negating or suspending any of the disclaimers set forth in this disclaimer.

[Chief Engineer, Office of the Chief Engineer, Quaid-e-Azam Campus, Lahore]
Tel: 042-99231495; Fax: 042-99230382

Table of Contents

1	Glossary	5
2	Introduction & Background	9
2.1	Background & Objective	9
2.2	About UOP	9
2.3	Energy Price, Bid Price & Tenure	10
2.4	Instructions to the Bidders	11
2.5	Bid Costs	18
2.6	Tentative Schedule	18
3	Bidding Documents	19
3.1	Contents of Bidding Documents	19
3.2	Pre-Bid Conference	19
3.3	Bidders' Comments and Clarifications on Bidding Documents	19
3.4	Amendments of Bidding Documents	20
3.5	Reservation of Rights	20
3.6	Confidentiality	20
3.7	Due- Diligence	20
4	Bid Preparation	21
4.1	Contents of Bid	21
4.2	Technical Bid Documents	21
4.3	Financial Bid Documents	22
4.4	Sealing and Marking of the Bids	23
5	Bids Opening and Bid Evaluation	23
5.1	Evaluation Committee	23
5.2	Opening and Preliminary Examination of Bids	24
5.3	Opening and Evaluation of the Technical Bids	24
5.4	Opening and Evaluation of the Financial Bids	25
5.5	Letter of Award	25
	Annex A: Bid Data Sheet	27
	Annex B: Technical Requirements of the Plant	28
	Annex B-1: the Premises	34

Annex C: Forms for Technical Bid	35
Annex D: Forms for Financial Bid	45
Annex E: Technical Evaluation Criteria	47
Annex F: Financial Evaluation Criteria	49
Annex G: Power Purchase Agreement	52

1 Glossary

Capitalised terms used in this RFP shall bear the meaning ascribed to them in the following glossary or in the body of this RFP or in the PPA appended with this RFP. In absence of availability of definitions in the foregoing references, the capitalized terms shall be interpreted in accordance with the NEPRA Act, 1997 , NEPRA Grid Code or any relevant electricity law, rule or regulations prevalent in Pakistan, as amended or re-enacted from time to time, in that order.

Base Date	As defined in section 2.3 of the RFP.
Bid	The Technical and Financial Bid submitted by a Bidder in response to this RFP.
Bid Price	The price per kWh offered in the Financial Bid, as per the terms of this RFP, for <ol style="list-style-type: none">1) the Debt Period, and2) the Post-debt Period
Bid Security	As described in section 4.2 of the RFP.
Bidder	Bidders submits or intends to submit a bid in response to this RFP. A Bidder can be an entity or a lead partner in a Consortium/Joint Venture that submits a compliant Bid in accordance with this RFP.
Consortium or Joint Venture (JV)	A group of companies or entities that has collectively submitted requisite documents in response to the RFP as a consortium or JV during the evaluation process.
Bidding Documents	As defined in section 3.1 of the RFP.
Calendar	The calendar with tentative key dates for the bidding process is provided in section 2.6 of the RFP.
Commercial Operations Date (COD)	As defined in the PPA.
Consents, Clearances and Permits	All authorizations, licenses, approvals,

	registrations, permits, waivers, privileges, acknowledgments, agreements, or concessions required to be obtained or provided by any concerned authority for the purpose of setting up of the generation facilities and /or to supply and deliver energy under the PPA.
Debt Period	A period of up to 10 (ten) years, after the achievement of COD during which the Seller repays debt procured for the development or construction of the Plant.
Energy Price	The Bid Price, as escalated, indexed, or adjusted from time to time, under the PPA.
Evaluation Committee	As defined in section 5.1 of the RFP.
Exchange Rate	TT & OD selling rate as notified by National Bank of Pakistan
Exchange Rate Benchmark or ERB	Exchange Rate as at the Bid Submission Deadline
Financial Bid	As defined in Section 4.3 of this RFP
Financing Term Sheet	A duly signed indicative offer containing terms & conditions for arrangement of long-term debt financing, issued by a reputable Bank/Financial Institution in favor of the Bidder for undertaking the Project. The period of long-term financing shall not be more than the Debt Period.
LESCO	Lahore Electric Supply Company Limited
Levelized Bid Price	As defined in Annex F. This will only be used for ranking of the Bidders.
LOA	Letter of Award issued to the Successful Bidder.
NEPRA	National Electric Power Regulatory Authority

Non-Project Event	After sunset to before sunrise
PEECA	Punjab Energy Efficiency & Conservation Agency
Performance Security	As defined and as per the format provided in the PPA.
Bidders	The entities, companies, Consortiums/ JVs who will submit the bids as per PPRA rules for issuance of Bidding Documents.
Plant	As defined in PPA, having a nominal rated capacity of 2.5MWp to be established at the Premises and having minimum specifications as defined in Annex -B to this RFP
Premises	The rooftop area marked for the installation of the plant is provided in Annex-B-1 after sunrise to before sunset
Project Event	after sunrise to before sunset
Point of Injection	Localized near transformer (LV side; 400 V) of each building before the metering point of a building.
Post-debt Period	Remaining years of the PPA Term after completion of Debt Period
PPA	Power Purchase Agreement, to be executed between the Successful Bidder and UOP.
PPA Tenure	20 (twenty) years starting from the Commercial Operations Date as defined in the PPA.
PKR	Pakistani Rupee
Plant Value	The initial value of Plant in PKR, specified by the Bidder in the Technical Bid, is to be used for calculation of termination amount, in case of termination of PPA, as provided in section [24] of the PPA under heading “EARLY

RFP	TERMINATION AND BUYOUT IN CASE OF DEFAULT”.
Contractor/Seller	This Request for Proposal issued by the UOP, including all Sections and attachments hereto. A Successful Bidder whose PPA becomes effective and operative in accordance with its terms.
Successful Bidder	The first ranked Bidder who has been awarded an LOA by UOP pursuant to this RFP.
UOP or Purchaser	University of the Punjab, Lahore

2 Introduction & Background

2.1 Background & Objective

UOP intends to solarize its main campus, with a grid-tied solar system of up to 2.5MWp on rooftops of academic blocks through private investment on an ESCO Model. This provides an equal opportunity of access to identified rooftops for all potential bidders to attain competitive bid prices. The responsibility on the part of UoP is to provide the right to access the building rooftops. The successful bidder will not be allowed to construct any permanent structure on the allocated rooftops and will not claim any right of possession and also will not construct anything apart from the requirements of the plant. The purpose of the process is to provide a renewable energy-based cost-effective solution to UOP through solar energy for sustainable growth and future

The objective of this RFP is to solicit offers from ESCOs for the supply and delivery of electricity to UOP from the Plant under a PPA arrangement. The Bids received from ESCOs will be evaluated based on the evaluation criteria given under this RFP. PPA will be signed with the Successful Bidder for supply and delivery of electricity to UOP at applicable Energy Price during the PPA Tenure.

RFP is being issued to the Potential Bidders interested in submitting Bids for the Solarization of UOP, Lahore. The relevant terms and conditions laid out in the PPA document are to be read in conjunction with this RFP document.

Punjab Energy Efficiency and Conservation Agency (PEECA) is facilitating the development of the Project. PEECA was established by the Government of Punjab through its Energy Department for monitoring, implementing policies, regulations, running behavioral change, public awareness programs, and training of energy management professionals. The monitoring, technical assistance to the University with the preparation of its procurement documents, performance evaluation of the agreed terms in the power purchase agreement will be carried out by PEECA.

2.2 About UOP

University of the Punjab, the largest and the oldest seat of higher learning in Pakistan established in 1882, is among the seven universities of Pakistan placed in QS (Quacquarelli Symonds) World University Rankings and is among very high research output universities with around 55,000 enrolled students. UOP is renowned for its bachelor's level to the post-graduation level programs. UOP offers various specializations in arts and humanities, social sciences, commerce, economics and management sciences, education, engineering and technology, health sciences, Islamic studies, law, life sciences, oriental learning, pharmacy, and science disciplines. The Ph.D. degree program is also currently continuing in many disciplines.

UOP Lahore campus covers an area of Approx. 2000 Acres having Annual energy consumption of approximately 16992000 kWh in the year 2022-23. Major sources of energy for UOP are utility grid (LESCO) and diesel generators. The internal system for transmission of electricity is on 11 kV and the sanctioned load of UOP is 7.05 MW.

A monthly electricity consumption pattern of UOP is summarized in the table hereunder;

S.#	MONTH	MDI (KWh/h)	UNIT CONSUMED (KWh)	BILL PAID (Rs)
1	January -23	3440	1288000	55787479
2	February-23	2480	800000	32735443
3	March-23	2320	824000	40849343
4	April-23	3600	1112000	48134002
5	May -23	6160	1800000	78466056
6	June-23	6080	1920000	84655290
7	July-23	5680	1920000	105406591
8	August-22	6480	2216000	119225991
9	September-22	6320	2096000	98326552
10	October-22	5120	1144000	52372876
11	November-22	2160	808000	36740628
12	December-22	2480	1064000	45883607
	Total		16992000.00	798583858.00
	Average Per Month		1416000.00	66548655.00

2.3 Energy Price, Bid Price & Tenure

A PPA will be signed between UOP and the Successful Bidder and the term of the PPA shall be 20 (twenty) years starting from the Commercial Operations Date as defined in the PPA. UOP shall pay to the seller the Energy Price monthly against energy delivered as per terms and conditions of the PPA calculated pursuant to the Bid Price submitted by the Bidder.

Bid Price

All Bidders are required to submit their Financial Bids by providing Bid Price for both Debt and Post-Debt Periods in US Dollar Cent per kWh. However, at the PPA signing date (the “**Base Date**”), the USD-based Bid Price submitted by the Successful Bidder will be converted into PKR for both periods separately. The conversion will be performed in the following manner;

$$\text{Bid Price in PKR} = \text{Bid Price in USD} \times (\text{ERB} + (\text{Exchange Rate} - \text{ERB}) \times 50\%)$$

Notes: ERB: Exchange Rate as at the Bid Submission Date.

The Exchange Rate is the conversion rate at the date of signing of the PPA.

50%: Expected US\$ requirement of Seller for construction of Plant.

Bid Price in USD: As defined in this RFP

Bid Price Components

The Energy Price will be payable in PKR (local currency) throughout the PPA Tenure as per terms of the PPA.

The Bid Price for both Debt and Post-Debt Periods will have two components i.e. a) fixed component and b) variable component:

- **Variable Component:** The variable component will be subject to annual adjustment for Consumer price indexation (General), as published by Pakistan Bureau of Statistics, on annual basis. The Bid Price will be considered to include PKR 0.50/kWh as a variable component (the 'Variable Component'). No further adjustment or indexation with regard to inflation or increase in costs will be allowed during PPA Tenure.
- **Fixed Component:** The fixed component will be established for both the debt period and Post-debt period at the date of signing of PPA under the following formula:

Fixed Component = Bid Price in PKR. - Variable Component (i.e. PKR 0.50/kWh)

Fixed Component will be established for both the Debt period and Post-debt period at the date of signing of PPA.

In the case where the Bid Price is lower than the Variable Component i.e PKR 0.50/kWh, the following formula shall be used;

Fixed Component = 0, and

Variable Component = the Bid Price in PKR

In such a case, the Specified value of the Variable Component will be reduced to the Bid Price.

2.4 Instructions to the Bidders

Minimum Capacity of the Plant

The capacity of the Plant to be offered shall be two and a half (2.5) MWp i.e. the DC capacity of Solar PV Modules. PV to Inverter ratio must be 1:1 and no under-sizing shall be allowed. The responsibility of the Successful Bidder shall be to supply electricity to UOP, maintain and troubleshoot the plant, all of its interconnection points, and related equipment to the Point of Injection throughout the life of the PPA agreement.

Guaranteed Energy

The Successful Bidder, with whom PPA is executed, shall supply at minimum deliver energy of 3.81 kWh per KWp average per day (Total Energy Delivered per year divided by 365) for first-year (the “Guaranteed Energy”) at minimum, with a maximum allowance of 0.7% for annual degradation. The Actual Energy Generation from the solar PV plant/s will be reported to the purchaser as well as PEECA on monthly basis.

The Successful Bidder, with whom PPA is executed, shall supply minimum deliver energy reflecting the connected load of the buildings, this is classed as guaranteed energy with a maximum allowance of 0.7% for annual degradation.

In case of failure to deliver the Guaranteed Energy, the Successful Bidder shall pay liquidated damages for the shortfall energy per the following formula:

Liquidated Damages for the Shortfall Energy = (the prevailing Off-Peak variable tariff -the prevailing Energy Price) x (Guaranteed Energy - actual energy delivered in kWh).

The liquidated damages for Shortfall Energy shall be calculated and recovered on yearly basis. For example, for 1 MW the bidder has to supply 1,500,000KWh energy and it has supplied 1,459,000KWh energy which is short of 41,000 KWh and if the differential of the prevailing Off-Peak variable tariff and Solar Tariff is Rs.5 then the total penalty will be PKR.205, 000 which will be debited to Energy Ledger. These liquidated damages will be paid by the Seller to the Purchaser for that year. No liquidated damages shall be recovered in case the Off-peak Grid Tariff is less than the prevailing Energy Price.

Deemed Energy

During PPA Tenure, the Purchaser shall procure electricity from the Seller (Successful Bidder, with whom PPA is executed), however in case of Seller could not deliver electric energy (in kWh) from the Plant at the Point of Injection due to no fault of Seller, will be considered as Deemed Energy. The Deemed and Shortfall Energy will be reported to the purchaser and PEECA upon verification towards the end of each month. The term calculations related to the deemed and shortfall energies will be carried out upon the completion of each year.

Deemed Energy will exclude such a power failure which falls under the Force Majeure event, planned outage, and national level power failures. Deemed Energy shall also not include the autonomous shutdown of the equipment, reduce energy output due to environmental factors such as irradiance temperature, weather conditions, soiling losses. Deemed Energy will be calculated as a function of the Deemed Energy number provided by the Bidder in its Bid, which in any case shall not be more than the Guaranteed Energy, for the period (in hours with an exclusion of 30 minutes required to start up the generator sets /invertors / solar plant-related components in case of each load shedding event less than 31min) during which Project Event continued; for example, if there is X hour load shedding during Project Event, then Deemed Energy for that month will be calculated in the following manner:

$3.81\text{kWh per KW} \times 2500\text{KWp of plant size} \div 24 \text{ hours} \times X \text{ hours of load shedding} = \underline{\hspace{2cm}}$ KWh deemed Energy.

If each load shedding event is less than 31min; then $X = 0$; and if each load shedding event is greater than 30min; then $X = \text{load-shedding hours}$

In case, the Plant could not operate partially then the Plant size provided above will be adjusted accordingly.

Furthermore, any maintenance work on the solar plant or its components will be completed by the seller during the non-project event time frame “after sunset to before sunrise.

The price of Deemed Energy to be paid to the Seller (Successful Bidder, with whom PPA is executed) will be based on the relevant prevailing Energy Price applicable for the period in which Deemed Energy is established.

Grid Connectivity

The grid connectivity, interconnectivity, and associated evacuation facilities from the Plant to the Point of Injection will be provided by the Seller that will be near the transformer at the low voltage (LV) section before the metering point of each building as listed in Annex B-1 of this RFP.

The Seller will be solely responsible for connectivity with the Grid. The cost of the interconnection and related equipment to the Point of Injection will be the responsibility of the Seller.

The Seller will be responsible for the design, engineering, financing, supply, construction, maintenance and operation of the Plant throughout the PPA Tenure while safeguarding the already existing electrical components at the interconnection points, distribution systems, gensets, and all other property items of UoP. Dynamic reactive power compensator should be installed either at main PCC or local solar grid PC.

The interconnection/metering point(s) shall be located in substation(s) and the Seller will bear the cost of construction of the interconnection/metering facility up to the point(s) of connectivity. Seller will install NEPRA approved two meters at the point of common coupling (PCC). One meter is for the actual reading and the second one for revalidating the reading. These meters will be read by the Seller’s personnel on the Metering Date in the presence of the authorized representative of Purchaser. Both the Parties will sign a joint meter reading report. In case of any difference observed more than 2%, the seller is liable to calibrate meters from PNAC (Pakistan National Accreditation Council) approved lab or install new NEPRA Approved meters.

The seller though responsible for maintenance and troubleshooting of the solar unit/s and its ancillary components will pay for the optimal amount of water needed to clean the solar unit/s i.e. solar panel etc. at a WASA approved tariff rate upon installation of a WASA approved water meter in addition to any cost spent in alteration of water connections provisions. The used water will be drained properly and roof flooding with water used for solar panel cleaning will be avoided by the seller at all costs.

Cost of RFP

The Bidders interested to participate in the bidding process are required to purchase a complete RFP by sending a written request at its company's letterhead along with a non-refundable fee of PKR.1,000/- (One Thousand Only) in the HBL bank account number 01820000189103 in favor of University of the Punjab.

In the case of a JV/Consortium, one company should be the Lead member having legal authorization from all consortium members to be their Lead member for submission of a bid. However, all the JV/Consortium members will be jointly and severally responsible during the whole bidding process and PPA Tenure.

Site Visit

Representatives of Bidders are encouraged to visit the site through prior coordination with [Engr. Faiz-ul-Hassan Sipra, Chief Engineer of UOP for arranging site visit] and assess the site conditions regarding roofs condition, sub-station, point of connectivity, and distance from the Plant to point(s) of connectivity. The sites can be inspected during working hours after the final approval of the RFP from the competent authority.

Additional Requirements for Consortium

In the case of JV/Consortium, the bid shall contain a legally enforceable JV/Consortium Agreement duly executed by all the members of the JV/Consortium, designating one of the members to be the Lead Member. In the absence of a duly executed JV/Consortium Agreement, the Bid will not be considered for evaluation and will be rejected.

Each member of the JV/Consortium is required to confirm the validity of the JV/Consortium Agreement on its letterhead as at the date of submission of the Bid.

The JV/Consortium Agreement shall not be amended without the prior written approval of UOP.

The Lead Member shall designate one person to represent the JV/Consortium in its dealings with UOP. The person designated by the Lead member shall be authorized through a board resolution to perform all tasks including but not limited to providing information, responding to inquiries, signing of the Bid on behalf of the JV/Consortium, etc. Additionally, the Bid shall also contain Power of Attorney in original as per Format Annex-C Form 2 in the favor of the Lead Member issued by each member of the JV/Consortium.

The bid shall also contain a Board Resolution from each member of the JV/Consortium confirming that the RFP has been read, estimated, and understood and also the Bid has been reviewed and each element of the Bid is agreed to them. Resolution should also authorize a representative of the JV to submit the bid on behalf of JV.

Representative of the Bidder

The Bidders should designate one person to represent the company or the JV/Consortium in its dealings with UOP. The person so designated shall be duly authorized through a Board resolution to perform all tasks including but not limited to providing information, responding to inquiries, signing a Bid on behalf of the Bidder or the Consortium, etc.

Fraud and Corruption

Anticorruption policy prevailing in Pakistan requires that Bidders, suppliers, and contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the UOP:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) “corrupt and fraudulent practice” means the offering, giving, receiving, or soliciting, of anything of value to influence the action of a public official or the contractor in the procurement process or in contract execution to the detriment of the procuring agency; or misrepresentation of facts in order to influence a procurement process or the execution of a contract, collusive practices among bidders (prior to or after bid submission) designed to establish Bid prices at artificial, non-competitive levels and to deprive the procuring agency of the benefits of free and open competition and any request for, or solicitation of anything of value by any public official in the course of the exercise of his duty;
 - (ii) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to achieve a wrongful gain or to cause a wrongful loss to another party;
 - (iii) “collusive practice” means by arrangement between two or more parties to the procurement process or contract execution, designed to achieve with or without the knowledge of the procuring agency to establish prices at artificial, non-competitive levels for any wrongful gain;
 - (iv) “integrity violation” means any act which violates anticorruption policy including corrupt, fraudulent, coercive, or collusive practice, abuse, and obstructive practice;
 - (v) “obstructive practice” by harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract or deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements before investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or acts intended to materially impede the exercise of inspection and audit rights;

- (b) will reject a Bid for an award if it determines that the Bidder recommended for award of the Project has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the PPA;
- (c) will sanction/impose remedial actions on a firm or an individual, at any time in accordance with applicable laws and anticorruption policy including declaring ineligible, either indefinitely or for a stated period of time, to participate as a contractor, nominated subcontractor, consultant, manufacturer or supplier, or service provider; or in any other capacity, if it at any time UOP determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or other integrity violations; and
- (d) will have the right to inspect accounts and records and other documents relating to the Bid submission and PPA performance and to have them audited by auditors appointed by UOP.

Eligible Bidders

- 1 This bidding is open only to the Potential Bidders.
- 2 In the case the bidding firm is a JV:
 - (a) all partners to the JV shall be jointly and severally liable; and
 - (b) the one partner of the JV shall act as the lead partner who shall have the authority to conduct all business for and on behalf of any and all of the partners of the JV during the bidding process and, in the event the JV is awarded the PPA, during PPA execution.
 - (c) In case of any change in JV members submitted to UOP during the bidding stage, the Consortium shall be disqualified.
- 3 After the Bid has been submitted to UOP, the lead partner identified to represent the JV shall not be altered without the prior written consent of UOP. Furthermore, neither the lead partner nor the member entities of the JV can submit another Bid, either in its capacity nor as a lead partner or a member entity of another JV submitting another Bid.
- 4 Proposed contractors, subcontractors, or suppliers for any part of the Plant including related services shall have a nationality of an eligible country. Proposed contractors, subcontractors, or suppliers shall be deemed to have the nationality of a country if they are national or are constituted, incorporated, or registered and operate in conformity with the provisions of the laws of that country. 'Eligible Countries' means all countries of the World with whom the Islamic Republic of Pakistan has commercial/trade relations and those who are not subject to sanctions imposed by the United Nations Security Council.
- 5 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. Without limitation to the generality of the foregoing, a Bidder may be considered to have a conflict of interest with one or more parties in this bidding process if a Bidder participates in more than one bid in this bidding process, either individually or as a partner in a joint venture.

This will result in the disqualification of all Bids in which it is involved. However, this does not limit the participation of a Bidder as a contractor or subcontractor in another bid or of a firm as a contractor or subcontractor in more than one bid. In the event of any uncertainty in the interpretation of what is potentially a conflict of interest, Bidders must disclose the condition to the UOP and seek UOP's confirmation on whether or not such conflict exists.

Similarly, the Bidders must disclose in their Bid their knowledge of the following:

- (a) that they are owners, part-owners, officers, directors, controlling shareholders, or they have key personnel who are family of UOP's staff involved in the procurement functions and/or the Government receiving services under this Bidding Document; and
- (b) all other circumstances that could potentially lead to an actual or perceived conflict of interest, collusion, or unfair competition practices.

Failure to make such disclosure may result in the rejection of the Bid or Bids affected by the non-disclosure.

Assignment and Subcontracting

The successful bidder shall not assign the contract or any part thereof or any benefit or interest therein or there under without the prior written consent of the Engineer-in-charge. The successful bidder shall not sublet the works or any part thereof except where otherwise provided by the contract, without the prior written consent of the Engineer-in-charge and such consent, if given, shall not relieve the successful bidder from any liability or obligation under the contract and he shall be responsible for the acts, defaults and negligence of any sub-contractor, his agents, servants or workmen as if they were the acts, defaults or neglects of the successful bidder, his agent, servants or workmen, provided always that the provision of labor on piece-work basis shall not be deemed to be subletting under the clause. The successful bidder or sub-contractor after approval will be bound to carry out the assigned work to comply with the terms and conditions of both RFP and PPA documents. Furthermore, any such consent from UOP shall not relieve the successful bidder/sub-contractor from any liability or obligation under the RFP, PPA documents.

Eligible Plant and Services

The plant and services to be supplied under the PPA shall have their origin in Eligible source Countries as defined above and all expenditures under the PPA will be limited to such plant and services.

For purposes of above, "origin" means the place where the plant or component parts thereof are mined, grown, produced, or manufactured, and from which the services are provided. Plant components are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that are substantially in its basic characteristics or in purpose or utility from its components.

Integrity Pact

Each Bidder shall be required to provide an integrity pact in the format provided at Form 3 of Annex C (Integrity Pact) as part of its Technical Bid.

2.5 Bid Costs

All costs associated with the preparation and submission of the Bid and the Bidder's participation in the bidding process including, without limitation, all costs, and expenses related to participation in the pre-bid conference, preparation, and submission of the Bids, the provision of any additional information, conducting due diligence of UOP, site visits, engagement of consultants, advisors, and contractors, etc. and in discussion with the UOP, PEECA or their advisors or consultants, the provision of any additional information, preparation of questions or requests for clarification to UOP, preparation of Bidders' questions during the clarification process and discussions on the PPA, if any (the "Bid Costs") shall, in each case, be borne exclusively by the Bidder. UOP, PEECA, or their advisors or consultants shall not be responsible or liable to pay any Bid Cost of any Bidder, regardless of the conduct or outcome of the bidding process.

2.6 Schedule

The key dates for each stage are given below:

No	Milestone	Dates
1.	RFP and PPA	22-09-2023
2.	Pre-Bid Conference	02-10-2023
3.	Clarifications /comments Deadline	05-10-2023
4.	Date of submission of bids/ opening of Technical bid	20-10-2023
5.	Opening date of Financial bids	16-11-2023
6.	Approval of Acceptance	01-12-2023
7.	Letter of Award	11-12-2023

UOP may, in its sole discretion and without prior notice, amend the above timetable, UOP shall not incur any liability whatsoever arising out of amendments to the above timetable.

3 Bidding Documents

3.1 Contents of Bidding Documents

The details of transaction structure, bidding procedures, contract terms, and technical requirements, etc. are prescribed in the bidding documents, which include the following (collectively, the "**Bidding Documents**"):

No.	Description
1.	Request for Proposal (RFP)
2.	Annexes to Request for Proposal
3.	Power Purchase Agreement (PPA)

Each Bidder shall examine all instructions, terms and conditions, forms, specifications, and other information contained in the Bidding Documents. If the Bidder:

- (a) fails to provide all documentation and information required by the Bidding Documents;

OR

- (b) submits a Bid which is not responsive to or fully compliant with the terms and conditions of the Bidding Documents,

such action shall be at the Bidder’s risk and UOP or Evaluation Committee may determine that the Bid is nonresponsive to the Bidding Documents and may reject it.

3.2 Pre-Bid Conference

UOP will organize a Pre-Bid Conference on the date as specified in the Data Sheet in order to discuss any comments the Bidders might have with respect to the transaction structure and the Bidding Documents.

UOP however, reserves the right to call additional Pre-Bid Conferences, if it deems appropriate.

3.3 Bidders’ Comments and Clarifications on Bidding Documents

A Bidder requiring any clarification on the Bidding Documents may send a written request for clarification to UOP. Any request for clarification shall be sent by e-mail or through courier to UOP at the contact details provided in the Data Sheet at Annex-A.

Any such clarification request shall be addressed before 14:00 (Pakistan time) on the clarification/ comments deadline on time and date specified in the Data Sheet at Annex-A. UOP shall endeavor to provide response to such queries as soon as possible.

Electronic copies of the response, including an explanation of the query but not the identification of its source (the **Response to Questions Document**), shall be sent to all Bidders. If similar or repeated queries are made by a Bidder, those queries may be listed as one query and UOP may respond to such query only once.

UOP reserves the right not to consider any such comments or amendments of the Bidding Documents. Any proposed changes that substantially affect the structure of the Bidding Documents or the transaction structure shall in no case be taken into consideration.

3.4 Amendments of Bidding Documents

The Bidding Documents shall be deemed amended to the extent UOP makes a statement to this effect in the Response to Questions Document and, in the absence of such express statement by UOP, the Response to Questions Document shall not have the effect of amending or modifying the Bidding Documents by implication.

No other communication of any kind whatsoever shall be deemed to modify the Bidding Documents by implication.

3.5 Reservation of Rights

UOP reserves the right to reject any or all the Bids or the Bidders without assigning any reason.

3.6 Confidentiality

UOP recognizes that certain information contained in Bids submitted may be confidential and may represent competitive information or business strategy. The Bidders are responsible for identifying those portions of their Bid which they consider confidential. The Bids in their entirety may be shared by UOP with relevant government ministries and agencies for appropriate purposes.

3.7 Due- Diligence

Each Bidder is solely responsible for conducting its independent research, due diligence, and any other work or investigations and for seeking any other independent advice necessary for the preparation and submission of Bids and the subsequent sale and supply of electricity. The Bidders are expected to have a full understanding of the project including obtaining necessary Consents, Clearances, and Permits, whenever and wherever required, for implementation of the project.

Bidders may find it useful to visit the site before or at the date of the pre-bid meeting. Please refer to the contact details in Data Sheet at Annex-A for this purpose.

No representation or warranty, express or implied, is made and no responsibility of any kind is accepted by UOP, PEECA, or its advisors, employees, consultants or agents, for the completeness or accuracy of any information contained in the Bidding Documents or the Response to Questions Document or provided during the bidding process or during the term of the PPA. UOP, PEECA and its advisors, employees, consultants, and agents shall not be liable to any person or entity as a result of the use of any information contained in the Bidding Documents or the Response to

Questions Document or provided during the bidding process or during the PPA Tenure.

Any Bids submitted in response to this RFP will be submitted upon a full understanding and agreement of terms of this RFP and, therefore, the submission of Bids in response to this RFP would be deemed as acceptance of the said terms.

4 Bid Preparation

4.1 Contents of Bid

Bidders must prepare and submit their Bids in full compliance with the requirements of this RFP together with the submission of the documents, forms, and instruments required for submission under this RFP. The single stage two envelop procedure will be adopting for selection of seller as per PPRA rules 2014 updated Clause 38(2)(a). Each Bidder shall submit the following documents (together with the "Bid"):

1. Technical Bid
2. Financial Bid

Bidders are requested to submit the required Technical and Financial Bid in such number as indicated in "Bid Data Sheet" (Annex-A). The Bid shall be written in the English language. The authorized representative of the Bidder appointed pursuant to the Bidder's Power of Attorney (the **Bidder's Attorney**) shall complete and sign the Technical and Financial Bids and initial each page thereof.

4.2 Technical Bid Documents

Each Bidder shall submit a technical proposal (the "**Technical Bid**") containing information required under this RFP and by completing the following documents (collectively, the "Technical Documents"):

No.	Description	Relevant Annexes
1.	Technical Bid Form	Annex C, Form-1
2.	Power of Attorney	Annex C, Form-2
3.	Technical Proposal	Annex C, Form-3
4.	Integrity Pact	Annex C, Form-4
5.	Bid Security (Bond)	Annex C, Form-5
6.	Additional Documents	As stated in the paragraphs below

The Technical Documents are self-explanatory. However, the Bidders may seek clarifications in the Pre-Bid Conference if required.

The Power-of-Attorney is to be duly stamped and notarised.

Bidders shall also attach the PPA duly accepted by putting their initials at the bottom of each page by the Bidders' Attorney without any amendments thereto, signifying the Bidders' acceptance of the terms of the PPA in its entirety with the Technical Bid.

Each Technical Bid shall be prepared in conformity with the requirements specified in the Bidding Documents and must adhere to the formats wherever prescribed.

Each Bidder may submit any supporting information or documentation (other than mentioned above), which shall not exceed five (5) pages, that may assist the Evaluation Committee in the evaluation process and the same may be annexed to the Technical Bid.

The Additional Documents to be provided under the Technical Bid will also include applicable documents as mentioned in section 2.4 above, depending upon the structure of the Bidder (i.e JV/Consortium or otherwise).

Bid Security

The Bid Security of Rs. 10,625,000/- @2.5% of PEECA suggestive price of the plant to be submitted with the Technical bid as per the format provided in Form 5 of Annex C, which shall remain valid minimum till the Bid validity date stated in the Bid Data Sheet at Annex-A and will be extended if required by UOP. The Bid Security shall be provided in the form of a Bank Guarantee issued by a reputable local Bank or a pay order in favor of “[Chief Engineer, UOP]”. Bid Security must be placed in Technical Proposal and not in Financial Proposal envelop.

The Bid Securities of the unsuccessful Bidders will be released upon execution of PPA with the successful Bidder as per section 5.5 below.

The Bid Securities of the Successful Bidder will be released on submission of valid Performance Security to be read in conjunction with Clause 11 of the Power Purchase Agreement (Appendix G)

4.3 Financial Bid Documents

- 1) The Financial Bid shall not be made conditional with regard to any matter in any manner.
- 2) All costs for implementing the project at the site of UOP, if any, shall be borne by the Seller.

3) **Financial Bid**

- a) The Financial Bid shall be submitted in the Form of Financial Bid provided at Annex-D.
- b) The Financial Bid is to be made on US Cents per kWh basis in the manner described in section 2.3 above.
- c) The Financial Bid will be submitted on the Bidder's letterhead signed by the Bidder's Attorney.

4.4 **Sealing and Marking of the Bids**

Each Bidder shall submit one original technical proposal and one original financial proposal and the number of copies of the technical proposal as indicated in the "Bid Data Sheet" (Annex A). Each Technical Bid shall be in a separate envelope indicating the Bid as original or copy clearly marked as "ORIGINAL" and "COPY", as appropriate. All copies of the Technical Bid shall be placed in a sealed envelope/box clearly marked "TECHNICAL BID" (the "Technical Bid Envelope") and the Financial Bid in the sealed envelope clearly marked "FINANCIAL BID" (the "Financial Bid Envelope"). These two envelopes and/or boxes, in turn, shall be sealed in an outer envelope/box bearing the address and information indicated in the "Bid Data Sheet" (Annex-A). The envelope/box shall be clearly marked: "DO NOT OPEN, EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE".

Each Bidder can submit only one Bid.

Each page of the Technical and Financial Bid shall be initialed or signed by the Bidder's Attorney. In case of any inconsistency between original and copy, the original will prevail.

The inner envelopes/boxes shall each indicate the name and address of the Bidder so that the Bid can be returned unopened in case it is declared "late".

If the outer envelope/box is not sealed and marked as required above, UOP will assume no responsibility for the Bid's misplacement or premature opening. If the outer envelope/box discloses the Bidder's identity, UOP is not responsible for the disclosure of the Bidder, however, this disclosure will not constitute grounds for Bid rejection. The Technical Bid Envelope and the Financial Bid Envelope shall each indicate the name and address of the Bidder.

5 Bids Opening and Bid Evaluation

5.1 **Evaluation Committee**

UOP and PEECA shall set up a special-purpose committee, which shall be responsible for assessing the Bids (**Evaluation Committee**). The members of the Evaluation Committee shall be prohibited from participating directly or indirectly in the preparation and/or submission of any Bid, and shall be prohibited from providing any assistance to any Bidder for the purposes thereof, except as may be expressly provided herein.

5.2 Opening and Preliminary Examination of Bids

The Evaluation Committee shall open the Bids of each Bidder, in the presence of Bidders' designated representatives who choose to attend, at the time, date, and location stipulated in the Bid Data Sheet (refer Annex-A). The Bidders' representatives shall bear identification and authorization documents issued by the Bidder. The Bidders' representatives who are present shall sign a register evidencing their attendance.

The Evaluation Committee shall open the outer envelopes/boxes, one at a time, in the order in which the Bids were received, and take out the inner envelopes/boxes containing the Technical Bids and the Financial Bids (individually identified). These inner envelopes/boxes shall be placed on a table in open view of the attendees, the technical bids will be opened and duly signed by all the members of the technical committee but the financial bids shall remain sealed. The Evaluation Committee shall then declare the Bids opening proceedings ended and shall dismiss the Bidders' representatives present for this purpose.

No Bid shall be rejected at the bid opening except for late Bids.

The Bidders' names and any other details the Evaluation Committee may consider appropriate shall be announced by the Evaluation Committee at the opening of each Bid.

The Evaluation Committee shall prepare minutes of the Bids opening, including the information disclosed to those present. The Evaluation Committee shall then proceed to the evaluation of the Technical Bids. Any minor deficiencies or errors in a Bid will not result in its automatic rejection. In case the Evaluation Committee determines that the Technical Bid is subject to minor deficiencies or certain errors or omissions, it may request for such clarifications from the Bidders in writing which do not change the substance of their bid to correct such deficiencies and submit the cured Technical Documents to the Evaluation Committee in accordance with the requirements set out in this RFP.

5.3 Opening and Evaluation of the Technical Bids

The Evaluation Committee shall evaluate the Technical Bids based on the "Technical Evaluation Criteria" set out in Annex-E. The Evaluation Committee's determination shall be based on the contents of the Technical Bid itself without recourse to extrinsic evidence. All the substantially responsive Technical bids will be selected based on the "Technical Evaluation criteria" set out in Annex-E.

The Evaluation Committee may waive upon confirmation from the technical committee any minor informality, non-conformity or irregularity in a Bid that does not constitute a material deviation, and that does not prejudice or affect the relative ranking of any Bidder as a result of the Technical Bid and Financial Bid evaluation.

For purposes of this determination, substantially responsive Technical Documents are those that conform to the minimum technical requirements set out in Annex B and all other terms and

conditions of the Bidding Documents without material deviations, objections, conditionality, or reservations. A material deviation, objection, conditionality, or reservation resulting in a failure of Technical Bid can relate to issues: (i) that affect in any way on the terms envisaged under the PPA; (ii) that limits in any substantial way, inconsistent with the Bidding Documents, UOP's rights or the Successful Bidder's obligations under the PPA; or (iii) that relate to material errors or deficiencies whose rectification would unfairly affect the competitive position of other Bidders who are presenting substantially responsive Technical Documents.

Bids for which the Technical Documents have been determined to be as not substantially responsive or which do not achieve the minimum qualifying marks as required under the technical evaluation criteria below under Annex-E shall be rejected, and the unopened Financial Bid Envelope of that Bid shall be returned to the representatives of such Bidder.

5.4 Opening and Evaluation of the Financial Bids

Opening of Financial Bid

The Evaluation Committee shall open the Financial Bid Envelopes of those Bidders whose Technical Bids have achieved marks above the threshold set out in Annex E in the presence of Bidders' designated representatives who choose to attend, at the time, date, and location communicated through a letter.

The Financial Bids that are either conditional or missing Financing Term Sheet will be rejected by the Evaluation Committee.

The Evaluation Committee shall prepare minutes of the Financial Bid opening, including the information disclosed to those present in the Bid-opening meeting.

Evaluation of Financial Bid

The Financial Bids will be evaluated as per Financial Evaluation Criteria as provided in Annex F and all the Financial Bid will be ranked in ascending order as provided thereunder.

5.5 Letter of Award

UOP will then issue the Letter of Award (LOA) to the first ranked Bidder and invite such bidder to sign the PPA within fifteen (15) days of the date of the LOA.

If the first ranked Bidder declines or fails to sign the PPA within the stipulated time, or fails to provide Performance Security, or otherwise becomes ineligible or is rendered unable for any reason to proceed with signing or performing the PPA, UOP is entitled to encash its Bid Security forthwith. UOP may consider to issue the LOA to the second-ranked bidder in case of failure of the first ranked bidder.

LIST OF DOCUMENTS ISSUED WITH RFP

Following information has been issued with the RFP:

- ❖ Annex A: Bid Data Sheet
- ❖ Annex B: Technical Information about UOP
- ❖ Annex C: Forms for Technical Bid
- ❖ Annex D: Forms for Financial Bid
- ❖ Annex E: Technical Evaluation Criteria
- ❖ Annex F: Financial Evaluation Criteria
- ❖ Annex G: Power Purchase Agreement

Annex A: Bid Data Sheet

DATA SHEET

Project Title	Solarization of UOP, Lahore on ESCO Model
Project Sponsor	University of the Punjab, Lahore (UOP)
Project Facilitator	Punjab Energy Efficiency & Conservation Agency (PEECA)
RFP Date	22-09-2023
Pre-bid Conference	02-10-2023 in the committee room of the Institute of Energy and Environmental Engineering, University of the Punjab at 11:00 am
Clarifications /comments deadline	05-10-2023 at the office of the Chief Engineer, New Campus Punjab University Lahore at 03:00 pm
Contact details of UOP representative for the site visit	[Chief Engineer: +92-[42-99231495]
Validity of Bid	Six Months from Bid Submission Deadline
Copies of Bid Required	01 Original Hard Copy, 04 Copies and 1 soft copy in DVD or USB
Bid Submission Address	[Office of The Chief Engineer, New Campus Punjab University Lahore] +92-[42-99231495] [chiefengineer@pu.edu.pk]
Bid Submission Deadline	20-10-2023 at the office of the Chief Engineer, New Campus Punjab University Lahore at 11:00 am
Place and Time of Technical Bid Opening	20-10-2023 at the office of the Chief Engineer, New Campus Punjab University Lahore at 11:30 am
Place and Time of Financial Bid Opening	16-11-2023 at the office of the Chief Engineer, New Campus Punjab University Lahore at 11:30 am
Letter of Award to the successful bidder	11-12-2023 at the office of the Chief Engineer, New Campus Punjab University Lahore
Contact details of UOP for clarifications on the Bid Documents sought by the prospective Bidders	Chief Engineer +92-[42-99231495] [chiefengineer@pu.edu.pk]

Annex B: Technical Requirements of the Plant

Grid Connected Solar PV system without Energy Storage of two and half (2.5) MWp (DC Capacity at standard test conditions) on PPA Basis to be installed at locations as per Annex B-1 with roof mounted PV modules installations as per following minimum technical requirements.

1. Photovoltaic Module

Parameters	Min. Specifications required
Module Make	Brand should be verifiable, Tier 1 rated by Bloomberg
PV Module model No	Verifiable
PV Module Capacity	480watt or above (as per design)
PV Module Type	Mono/ Perc
Cell Quality	A Grade
Power tolerance	3%
Certification	TUV certified as per IEC 61215, IEC 61730 or equivalent Modules should be free of PID and must include PID-free certificate from TUV.
Junction Box	IP 66 with 1000 V (IEC) insulation class or above (must comply with safety standards concerning to system i.e. connecting wire insulation class etc.
Cable	1000 V (IEC) insulation class or applicable
Warranty	10 years product replacement warranty 10years for 90% of warranted min. power 25years for 80% of warranted min. power.

2. Solar Grid inverters and control

The overall system must have a reverse power blocking feature as a power junction point i.e. Grid, Gen-Set coupling point, that can be controlled/ configured.

Gen-Set Synchronization, stability, and overload/underload protection must be kept in view while installation.

Parameters	Min. Specifications required
Inverter Make	Brand should be verifiable, Critical components used in inverter like capacitor must be used from Tire 1 rated brand by Bloomberg

Parameters	Min. Specifications required
Operating Conditions	String Type preferred IP 65 or more , Having must Anti Islanding feature Maximum efficiency of 98.0 % DC input voltage of up to 1500 V(IEC compliance) or as per design Multistring capability for optimum system design Multiple MPP ranges Data logging Remote access
Performance guarantee	5 years Replacement + 5 extended warranty= 10 years
Certification	Equaling or applicable standards such as IEC 62109-1/-2, IEC 62116, IEC 61727,

3. Cabling

1. All exposed wiring (with the possible exception of the module interconnects) must be covered in conduits/duct. Wiring through roofing, walls and other structures must be protected through the use of bushings. Wiring through roofing must form a waterproof seal (applicable for wiring only).
2. Field installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed. The rated current carrying capacity of the joint must not be less than the circuit current rating. All connections must be made in junction boxes with IP 66 Rated if open and IP 65 Rated if used under shed. Fittings for light switches, and polarity sensitive socket outlets may be used as junction boxes where practical.
3. Installation including wiring shall meet the requirement and recommendations given in 8.3 of IEC 62124 ed 1.
4. The commissioning and acceptance will be subject to the fulfillment of all requirements specified in the above-mentioned paragraphs of IEC 62124 ed.1 and additional requirements as detailed below.
 - a. No conduit or fitting shall be attached directly to thatch or any other non-supportive surface
 - b. Especially avoid installing the conduit direct over the roof; there must be distance not less than 3 inches between the roof surface and conduit/duct.
 - c. Cables must be joined by the use of unction boxes, screw-connectors, and block connectors.

- d. All wires must be terminated with proper end sleeves and wire thimbles with different colors for positive and negative polarity.
 - e. Field-installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed.
 - f. The rated current carrying capacity of the joint must not be less than the circuit current rating.
 - g. Fittings for PV must be with polarity-sensitive socket outlets to avoid short-circuiting.
 - h. Size, voltage grade, and manufacturer name should be printed on every cable
5. Cable specifications are as followed with BS/IEC standards compliance.

1. PV to inverter:	99.9% pure copper (Stranded and flexible) with voltage drop less than 2%, UV resistive cladding
2. Grid to Inverter	99.9% pure copper (Stranded) with voltage drop less than 2% , UV resistive cladding
3. Inverter to Load D.B:	99.9% pure copper (Stranded) with voltage drop less than 2%, UV resistive cladding

4. Breakers for AC and DC Power:

- Circuit Breaker Voltage rating must be greater than the maximum circuit voltage and the current rating must be between 125% - 150% of the maximum design current for the circuit.
- Breakers Must have a clear visual indication of their state (ON/OFF or I/O) and marking.

5. Surge Arrester

Parameters	min. Specifications required
Impulse current (I_{imp})	min. 25kA (10/350 μ sec.)
Response time	≤ 50 nsec
Leakage current	≤ 1 mA
Dielectric strength	2000 V AC @ 1 minute
Protection Class	Class 1(Type1)
Discharge voltage	As per design
Ingress Protection	IP20 or above
Short circuit withstand capacity	min. 30kA

6. Lightning arresters & Surge Protection System accessories

The calculation must be done in accordance with the rolling sphere method or equalling (share the calculation at the time of execution)

Parameters	Min. Specifications Required
Air termination rod material	Copper
Air termination rod length	As per design
Air termination rod diameter	As per design
Air termination rod	As per design
Cable for interconnecting metal structure and SPD*.	16mm ² or higher, 99.99% pure copper or higher (1 core) or equaling strip for grounding
Insulated Spacer	As per design
Cable Bracket	As per design
Stand – Fang Fix system	As per design Earthing of 2.5 ohm or less (with standard earthing pit)
Compliance	Applicable standards that may include ICE 62305-3 (EN62305-3) IEC62305-3 (EN 62305-3) DIN VDE 0151 and DIN 18014

7. PV Mounting Structure

Wind loading	The mounting system should be able to allow air circulation for cooling in high temperatures and withstand wind speed of 150 Km/ hour at 3-sec gust
Mounting structure	Suitable angle adjustment Roof top treatment should be done to avoid seepage and water drainage should be maintained Structure, nuts and bolts should be hot-dip galvanized
Certification	Vetted by a certified structural engineer for roof stability, structure stability, life etc. for all roof all installations Life grantee of 20 years

8. Reactive power compensator

At each point of common coupling (meter placement point), Reactive power compensation must be installed to maintain the power factor (PF) of (leading/lagging) 0.92. The calculation and sizing of PF is the responsibility of the contractor/seller.

9. Monitoring of PV Plant

Online and remote monitoring, data must be available online, locally stored on hard drive, and displayed on 50in LED screen with customized GUI as per site requirement. PC with min core i3, 1 TB HDD, 8 GB RAM & 50 inches HD-LED screen along with networking hub is part of BoQ.

The following functionality is expected:

1. Generation data must be logged and available online for future access.
2. Solar Irradiance data and air temperature data must be integrated in GUI.
3. Generation data must be logged and secured off-line with time tracks.
4. Automated frequent data collection, analysis, and display of the fundamental parameters of the system output (especially Inverter's all parameters)
5. Alarms/alerts and timely notification of key performance indicators
6. Daily, Monthly, quarterly, and yearly reporting of deviations from the guaranteed PR
7. Data must be readily available for the fulfillment of all warranties and performance guarantees
8. Equipment condition monitoring
9. Separate inverter parameters monitoring and Data logging.

10. Dynamic Genet Controller, compatible with Gen-Set & Inverter

PV Gen-Set Synchronizer (Generator Ratings must-visit power house for understanding)

(For Generator Ratings must-visit sites for understanding)

1. **Integrates locally available energy analyzers for specified inverter**
 2. **Integrates mains sync controllers for Zero Injection Controller application**
 3. **Can control up to string of the designed/selected inverter**
 4. **Must Act as PV Zero Export controller**
 5. **Webserver + Zero Export Controller + DG Protection Controller + Data-logger must be provided in one GUI/Package**
 6. **Flexible control to Prevents/allow power feed-in to the grid**
 7. **Prevents generator running in an under loaded condition**
-

-
- 8. **Protects generator from reverse power conditions from the on grid solar inverters**
 - 9. **Ensures availability of sufficient power to meet load demands**
 - 10. **Ensures optimized fuel consumption**
 - 11. **Prevents over limiting of the solar inverters**
-

Certificates and compliance with standards

Compliance of applicable Safety regulations for electrical measuring, control, regulation and laboratory equipment such as but not limited to EN 61010-1:2010, electromagnetic compatibility EN 61000-6-2:2005, EN 61000-64:2011 or equaling.

11. AMI based Meters

AMI meters Qty

Must be installed at each energy coupling point
Data should be sent/received for on cloud and available online

Testing & calibration

(Approved by M&T or LESCO & NTDC rules)
 Should be class 1 with an accuracy of + or - 0.5
 Calibration should be done after 2 years every time.

Annex B-1: the Premises

UOP, Lahore

Sr.	Departments allocated for 2.5MWp Installation of solar Power plant	Roof Top Area (Sft)
1.	Admin Block	56000
2.	Undergraduate Block	38000
3.	CHEP	16000
4.	IBA	48500
5.	CEES	38000
6.	IEEE	41500
7.	ISCS	22000
8.	IAS	62400
9.	Chief Engineer office	7500
10.	Botany and Zoology	51104
11.	Two suitable Hostels (Boys and Girls)	12000
	Total Covered Area	393004 Sqft

Annex C: Forms for Technical Bid

Form 1 Technical Bid Form

To: [Insert Name]
[Designation]
[Address]
[University of the Punjab, Lahore]
[Address]

Re: **TECHNICAL BID - RFP for Solarization of UOP, Lahore on ESCO Model**

Ladies and Gentlemen,

1. Terms & Expressions

Unless the context indicates otherwise, all capitalized terms and expressions used herein and in our Bid have the meaning given to them in the document entitled 'Request for Proposal' dated [●] issued by UOP bearing the title given in the caption to this letter (as amended and/or supplemented from time to time, the **RFP**).

2. GENERAL

We, the undersigned, acknowledge, confirm and agree that:

A) we have carefully examined, read and understood and agreed to the terms of the Bidding Documents, including the RFP with its Annexes and the PPA;

B) we have satisfied ourselves that we have full and complete understanding of the nature and dynamics of the project referenced above and general and local conditions to be encountered in the implementation of the said project thereof including obtaining Consents, Clearances and Permits, if required any, for sale/supply of energy under the PPA; and

C) we, the undersigned, offer to design, engineer, finance, install and operate & maintain the Plant *for the duration of the PPA* and will be bound by the obligations provided in the Bidding Documents.

3. Bidders's Capability to Implement the Project

We declare that we are capable of implementing the project, as per terms of the RFP and the PPA and of supplying the Guaranteed Energy during the PPA Tenure as per terms stated in the RFP & PPA.

4. BID COMPLIANT WITH SUBMISSION REQUIREMENT

We declare and confirm that our Bid satisfies and complies with the submission requirements indicated in the RFP. We also undertake that no circumstances exist that would materially and adversely affect our ability to implement the Project as per our Technical and Financial Bid that conforms to the requirements of the Bidding Documents.

5. FIRM AND IRREVOCABLE BID

We agree to abide by this Bid, which consists of our Technical Bid and Financial Bid (each as defined in the Bidding Documents), for a period of six months from the Bids Submission Deadline as set forth in the Bidding Documents, and that it is irrevocable and shall remain binding on us and may be accepted by you at any time before the expiration of that period. Our Bid Security is enclosed herewith.

We hereby confirm that the following values shall be used in the PPA under the respective headings;

- 1) Guaranteed Energy will not be lower than [Insert Guaranteed Energy in kWh/KW]
- 2) Deemed Energy will not be higher than [Insert Deemed Energy in kWh/KW]
- 3) Annual Degradation will not be higher than: [insert annual degradation %age]
- 4) The initial Plant Value will not be higher than: [insert initial Plant Value in PKR]

6. UNDERTAKING

We undertake that we will provide in a timely and accurate manner all information concerning our company, equipment and facilities, as may be required from time to time by UOP for the purposes of this RFP and/or the PPA.

We further undertake that the supply of all energy generated by the designed system with basic components, interconnections, i.e. will result in the overall electricity-related cost savings for the UOP when compared to LESCO supplied mode for respective buildings.

We further undertake in the event of an improvement in technology, we will upgrade the equipment to improve the plant efficiency at our own cost.

We further undertake that, subject to the terms of the PPA, we will supply all energy generated by the Plant on a daily basis up to the Guaranteed Energy.

We further undertake that, our Technical Bid and appended Financial Bid is based on the supply, installation and commissioning of new equipment for the Plant.

7. FURTHER WARRANTIES

We hereby represent and warrant that all information, data and material of any nature whatsoever provided by us in the Bid is true and accurate and not misleading in any manner and any further information as may be provided by us to UOP in connection with this RFP and/or the PPA shall be accurate and not misleading in any manner.

We have made complete and careful examination of the RFP and have received all the relevant information as required by us at our sole risk and cost for the purposes of submission of the Bid. We further warrant that we have verified and understood all the information required in connection with the RFP. To the extent that any provision in our Bid conflicts with the terms and conditions of the Bidding Documents, such provision is hereby withdrawn.

We understand that you are not bound to accept any Bid you may receive.

8. CONFIDENTIALITY

In connection with the transaction contemplated by the RFP, the Bidder has been (or will be) given access to information regarding the Project, including, but not limited to, financial data, agreements, business plans, software, reports, data, records, forms and other information regarding UOP, as well as information provided by the UOP in physical or digital form (all such information being referred to as "Confidential Information"). The Bidder hereby agrees and warrants that to the extent it receives Confidential Information, the Bidder and its affiliates, controlling and related persons and agents (collectively, the "Recipient"), the Recipient shall:

- a) keep and maintain the Confidential Information strictly confidential;
- b) disclose such Confidential Information (if at all) only to its controlling persons, its attorneys and professional advisors, and to such employees who have a reasonable need to know such Confidential Information (subject, in each case, to such persons' agreement to make no further disclosure), or as may be required by law;

- c) use such Confidential Information solely for the purpose of determining whether to enter into the transaction contemplated hereby; and
- d) promptly upon request of UOP disclosing Confidential Information following the abandonment of the transaction contemplated by the RFP, return such Confidential Information (and all copies thereof) to UOP.

9. ADDITIONAL DOCUMENTS

In addition to the Technical Bid Form, we have submitted all the information identified in the RFP and the Bidding Documents.

We acknowledge and agree that UOP, PEECA, or its advisors and consultants will not be responsible for any errors or omissions in relation to the Bidding Documents or the transactions contemplated thereunder, and we shall indemnify UOP, PEECA, and its advisors and consultants fully in connection therewith.

Capitalized terms used in this Technical Bid bear the meaning ascribed to them in the aforesaid RFP.

(signature)

In the capacity of

(insert position)

Authorized to sign this Bid Form of

(name of Bidder)

Pursuant to the Power of Attorney being submitted along with this letter.

Form 2 Power of Attorney

NOTES FOR EXECUTION OF POWER OF ATTORNEY

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
- The Power of Attorney should be duly notarized, indicating that the person(s) signing the Bid has (have) the authority to sign the Bid and thus that the Bid is binding upon the Bidder(s) during the full period of its validity.
- This Power of Attorney shall be notarised with the Notary Public.
- Please find below the form and substance of the Power of Attorney.

FORM OF POWER OF ATTORNEY

On this.....day of
Before me
The Notary in this office

The undersigned

Mr./Ms. _____, duly authorised vide [*Board Resolution; power of attorney, dated • of {name of Bidder}*]

In his capacity as

Nationality

Holder of Passport or ID no.

Issued from _____

Dated _____

Residing at _____

Hereby appoints Mr. /Ms. _____ in his capacity as _____, to:

(a) Execute under hand, or under seal, and deliver to the competent authorities all the documents listed in Schedule 1 attached hereto;

(b) Deliver and receive any document or instrument in relation to the documents listed in Schedule 1 attached hereto; and

(c) Do all the things necessary and incidental in respect of the matters set out herein including to do, execute and perform any other deed or act ought to be done executed or performed to perfect or otherwise give effect to the documents listed in Schedule 1,

And hereby confirm that all acts and deeds done by the said attorney in pursuance of these presents shall bind *{name of Bidder}* and shall if so required be ratified by the *{name of Bidder}*.

SCHEDULE 1

A. DATED: [INSERT DATE OF EXECUTION]
B. THE GRANTOR: [INSERT NAME OF BIDDER]
C. THE ATTORNEY: [INSERT NAME OF REPRESENTATIVE]
D. PLACE IN WHICH DOCUMENTS ARE TO BE EXECUTED AND DELIVERED: [Project Director Office, UoP, Lahore]

TEL: [042-99231124 - 99231125]

E. DOCUMENTS: THE GRANTOR'S BID AND ALL DOCUMENTS RELATED THERETO IN RESPECT OF THE REQUEST FOR PROPOSAL FOR SOLARIZATION OF UOP LAHOREON ESCO MODEL UNDER A PPA ARRANGEMENT

IN WITNESS WHEREOF the Grantor has executed this Power of Attorney (**under seal**) on the date set out above.

[SEAL])

)
)
)

[Name / Title of Grantor representative]

WITNESSES:

WITNESS 1:

NAME:

CNIC / PASSPORT NUMBER:

ADDRESS:

WITNESS 2:

NAME:

CNIC / PASSPORT NUMBER:

ADDRESS:

ACCEPTED & AGREED [NOTARISED]

.....

Form 3 Technical Information

Sr.#	Description	Documentary Evidence
1	Energy Yield (adhere to units requirement as per software simulation)	Provide document
2	Overall system design with basic components and functionality	Provide document
3	Software Simulation with annual energy yield commitment	Department/Building wise design and simulation
4	Building/Premises wise SLDs	Detailed SLDs building wise indicating all components and system design approach
5	Solar Panel	Technical data required
6	Inverter	Technical data required
7	Mounting Structure and civil works	Technical data required
8	Mounting Structure drawings, design ensuring rooftops are secure and water drainage	Design and drawings
9	SCADA	Technical data required
10	Dynamic Gen-set Controller	Technical data required
11	Irradiance and Weather meter with the dataset	Technical data required
11	Project Organogram including CVs of the technical team	Organogram indicating actual project team and personnel
12	Project Planning and Presentation	<u>Project execution methodology along with presentation</u> shall be provided. Also, Bidder Shall has to present the execution plan to the Technical Committee
13	Timeline with COD	Detailed timeline indicating all activities and deliverables
14	Adherence to timeline in completion of work Non-adherence without just cause shall result in the imposition of penalty	Undertaking on Stamp Paper that the Bidder shall, at the time of submission of Financial Proposal, provide the schedule of activities according to the timeline given in the Bidding Documents and shall adhere to it, otherwise liable to imposition of penalty as per RFP and PPA clause.

Form 4 Integrity Pact

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

Re: 'Bidding Document for Design, Supply, Installation, Testing, Commissioning, Operation and Maintenance of Grid Connected Rooftop Solar PV Power System on Energy Services Companies (ESCO) Model at Government Institutes in Punjab, Pakistan'

..... [name of Bidder] 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), Government of Punjab (GoPb) or any administrative subdivision or agency thereof or any other entity owned or controlled by GoP or GoPb through any corrupt business practice.

Without limiting the generality of the foregoing, [name of Bidder] 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 or GoPb, except that which has been expressly declared pursuant hereto.

[name of Bidder] 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 GoPb and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[name of Bidder] 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 or GoPb under any law, contract or other instrument, be voidable at the option of GoP or GoPb.

Notwithstanding any rights and remedies exercised by GoP or GoPb in this regard (as may be applicable), [name of Bidder] agrees to indemnify GoP or GoPb for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP or GoPb in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [name of Bidder] 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 or GoPb.

Name of Bidder:

Signature:

[Seal/ Stamp]

Form 5 Bid Security

Bank Guarantee (the Bond)

Guarantee No. _____

Executed on _____

Expiry date _____

[Letter by the Guarantor to UOP]

Name of Guarantor (Bank) with address: _____

Name of Principal (Bidder) with address: _____

Guaranteed Amount (express in words and figures): _____

Bid Reference No.: _____ Date of Bid: _____

The above premised, we [*insert name of the Guarantor*] hereby undertake irrevocably and unconditionally on demand to pay to the University of the Punjab Lahore (UOP), without any notice, reference or recourse to the Bidder or to any other entity or without any recourse or reference to any document, agreement, instrument or deed, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

[●] [●]/- ([●][●])

(the **Guaranteed Amount**)

at sight and immediately, however not later than [●] business days from the date of receipt of the UOP's first written demand (the **Demand**) at the Guarantor's offices located at [●] or through SWIFT instructions transmitted by the UOP's bank (i.e. [●]), on behalf of UOP, to the Guarantor, such Demand stating:

- (a) that the Bidder is in breach of its obligations towards the UOP
- (b) the total amounts demanded
- (c) the details of the account in which the total amounts demanded are to be credited.

A Demand shall only be honored by us (i) in the case of a written Demand, if it is made by and bears the signature of an authorized officer or another representative of UOP, as duly verified to us by the UOP's bank (i.e. [●]); or (ii) in the case of a Demand transmitted through SWIFT, if it is transmitted through authenticated SWIFT instructions by UOP's bank (i.e. [●]), on behalf of the UOP.

We, the Guarantor, shall unconditionally honour a Demand hereunder made in compliance with this Bond at sight and immediately on the date of receipt of your Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of this Bond, free and clear of and without any set-off or deduction for or on account of any present or future levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

Such demand must be received by us on or before the [●] (the “expiry date”), when this Bond shall expire and shall be returned to us.

We have been informed that UOP may require the Bidder to extend this Bond if the Performance Security has not been issued by the date [30] days prior to such expiry date. We undertake to immediately pay you such guaranteed amount upon receipt by us of your demand in writing and your written statement that the Performance Security has not been issued and that this Bond has not been extended.

Upon expiry, this Bond shall be returned to the Bidder without undue delay.

The Guaranteed Amount shall be revised upon receipt by us of a notice duly signed by UOP and the Bidder of the revised guaranteed amount.

We hereby agree that any amendment, renewal, extension, modification, compromise, release or discharge by mutual agreement by UOP, the Bidder or any other entity of any document, agreement, instrument or deed shall not in any way impair or affect our liabilities hereunder and may be undertaken without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

This Bond for its validity period shall not be affected in any manner by any change in our constitution or of the Bidder’s constitution or of their successors and assignees and this Bond shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

All references to any contract, agreement, deed or other instruments or documents are by way of reference only and shall not affect our obligations to make payment under the terms of this Bond.

If one or more of the provisions of this Bond are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Bond.

We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Bond, which obligations are valid and legally binding on and enforceable against us under the laws of Pakistan and under the laws of the jurisdiction where this Bond is issued. Further, that the signatory(ies) to this Bond is/are our duly authorized officer(s) to execute this Bond.

This Bond and all rights and obligations arising from this Bond shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Pakistan shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

The issuance of this Bond is permitted according to the laws of Pakistan and the laws of the jurisdiction

where this Bond is issued.

Name:

Designation:

Annex D: Forms for Financial Bid

FINANCIAL BID FORM

Date: [Insert Date]

To: [Insert Name, Designation & Address]

Re: **FINANCIAL BID**

Request for Proposal for RFP for Solarization of UOP, Lahore on ESCO Model under a PPA arrangement

Having carefully examined the Bidding Documents pursuant to and comprising the Request for Proposals (RFP) dated • issued by University of the Punjab (UOP) in connection with the captioned transaction, and having satisfied ourselves with the nature and dynamics of the said project and electricity sale referenced above and general and local conditions to be encountered in the performance thereof, we, the undersigned, offer to design, engineer, finance, install, operate & maintain solar power Plant having a capacity of 2.5MWp to sell the generated energy stated in our Technical Proposal for the duration of the PPA at;

- 1) US Cents **[•] per kWh** during the Debt Period i-e [insert years]¹, And
- 2) US Cents **[•] per kWh** during the Post-debt Period i-e [insert years]

We understand, acknowledge, confirm and agree that:

- (a) we shall proceed to sign the PPA with 15 days of the LOA on the same terms as set out in the initialed PPA submitted by us as part of our Technical Proposal;
- (b) the offered Tariff will be payable in PKR on the terms provided in the RFP and PPA;
- (c) our this Financial Bid is unconditional;
- (d) our calculation of Levelized tariff for comparison purposes is appended with the Financial Bid Form

We further acknowledge and agree that UOP will not be responsible for any errors or omissions on our part in preparing this Financial Bid, including assumptions and cost, and we shall indemnify UOP fully in connection therewith.

Capitalised terms used in this Financial Bid bear the meaning ascribed to them in the aforesaid RFP.

[Signature]
In the capacity of [position]
Authorized to sign this Financial Bid Form of
[name of Bidder]

¹ Bidder will specify years for Debt Period and years for Post Debt Period. Debt Period years will not be more than 10.

Bid Price Table

[to be filled and provided by the Bidder]

Year	Bid Price (as per Financial Bid Form) in US Cents/kWh
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
NPV @10%	
Levelized Bid Price*	

** Levelized Bid Price will be calculated using the annuity method over 20 years at 10% discount rate.*

*** The submitted bid price will be without incorporation of Sales Tax.*

Notes:

- 1) Each Bidder shall tabulate Bid Price for each year based on its Financial Bid.
- 2) No adjustment for future indexations for Variable Component i-e PKR 0.50/kWh are required for these calculations.
- 3) In case of any inconsistency between the Financial Bid Form and the above Bid Price Table, the Financial Bid Form shall prevail.
- 4) UOP shall have the right to verify all calculations based on the Financial Bid Form and in case of any inconsistency shall have the right to disqualify such bidder.

Annex E: Technical Evaluation Criteria

Criteria for Technical Evaluation

Evaluation Criteria

Total Marks = 100

Qualifying Marks = 80

Shall comply with “Mandatory requirements” and “Minimum specifications”.

Sr.#	Mandatory Requirements	Documentary Evidence	Total Marks
1- System Design (Bidder failed to provide required items <u>Shall be Disqualified</u>)			
	Energy Yield (adhere to units requirement as per software simulation)	Provide document	Mandatory
	Overall system design with basic components and functionality. This will be designed for the respective building, cost and energy-wise effective to save the electricity bill cost.	Provide document	Mandatory
	Software Simulation with annual energy yield commitment	Department/Building wise design and simulation	Mandatory
	Building/Premises wise SLDs	Detailed SLDs building wise indicating all components and system design approach	Mandatory
2- Energy Parameters (Max Marks: 70)			
Note: Bidder SHALL has to comply with the minimum specifications for all the items/products.			
	Guaranteed Energy	Highest Guaranteed Energy offered by the Bidder will be given the full score and other Bidders will be given proportionate scores based on offered Guaranteed Energy. (Bidders offering lower Guaranteed Energy as against requirement specified in this RFP, will be disqualified.	20
	Deemed Energy	Lowest Deemed Energy demanded by the Bidder will be given the full score and other Bidders will be given proportionate scores based on demanded Deemed Energy. (Bidders offering higher Deemed Energy as against the Guaranteed Energy offered by the Bidder in its Technical Bid will be disqualified.	20
	Annual Degradation	The lowest annual degradation allowance demanded by the Bidder will be given the full score and other Bidders will be given proportionate scores based on demanded annual degradation allowance. (Bidders offering higher annual degradation allowance as against requirement specified in this RFP, will be disqualified.	10

	Value of Plant	The Bidder, meeting all minimum specifications of the Plant specified in this RFP, with the lowest value of Plant will be given a full score. Other Bidders will be given proportionate scores based on the value of the Plant.	20
3- Methodology (Max Marks: 30)			
	Project Organogram	Organogram indicating actual project team and personnel- CVs of the technical team	5
	Presentation, Methodology & level of details of the Technical Proposal including cost and energy-wise effective solution (for each building and the overall project) to save the overall electricity bill cost.	<u>Project execution methodology along with presentation</u> shall be provided. Also, Bidder Shall has to present the Technical Proposal to satisfy the Technical Committee about Technical Details of the Plant.	10
	Work Plan	A detailed work plan with a timeline indicating all activities and deliverables shall be evaluated based on the level of detail of activities and time to achieve COD. The Bidder offering more than 6 months for the achievement of COD after signing of PPA will be disqualified.	15

Annex F: Financial Evaluation Criteria

Financial Evaluation Criteria

The Financial Bid of each Bidder will be evaluated based on the Bid Price Table submitted by the Bidders along with the Financial Bid Form. Bid Price Tables submitted by all the Bidders will be assimilated in Table 1 and rankings shall be made on the basis of Levelized Bid Price in Table 2.

To verify the Bidders' Bid Price Tables, UOP will run calculations for this purpose in the following manner;

- 1) The Bid Price (for the Debt Period and for the Post-Debt Period) of each Bidder shall be tabulated in Table 1 for 20 years.
- 2) The Bid Prices for each year shall then be discounted to the COD, using a discount rate of 10 %.
- 3) The sum of the discounted Bid Prices shall then be compounded on a fixed annuity basis over the PPA Tenure, at the rate of 10 % (Levelized Bid Price).
- 4) The Bidders shall be ranked in ascending order in Table 2 based on the numbers calculated in the above steps.

Table 1

Year	Bidder-1	Bidder-2	Bidder-3	Bidder-n
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
NPV @10%				
Levelized Bid Price*				

** Levelized Bid Price will be calculated using the annuity method over 20 years at 10% discount rate.*

*** The submitted bid price will be without incorporation of Sales Tax.*

Table 2

Rank	Name of Bidder	Levelized Bid Price
<u>[insert rank]</u>	<u>[insert name of bidder]</u>	<u>[insert levelized Bid Price in US Cents]</u>

Annex G: Power Purchase Agreement

POWER PURCHASE AGREEMENT (PPA)
For Grid connected Solar PV Plant of Contract Capacity
To be installed at

University of the Punjab, Lahore

THIS POWER PURCHASE AGREEMENT (the “**Agreement**”) is made at Lahore, Pakistan on -----, 2023 (the “**Signing Date**”) at Lahore, Pakistan.

BY AND BETWEEN:

- (1) **[Seller Name]**, a company registered and existing under the laws of Pakistan having its registered office at _____ (the “**Seller**”); and
- (2) **University of the Punjab, Lahore (UOP)** an educational institution reconstituted at Lahore in accordance with the provisions of the University of the Punjab, Lahore Act, having its registered head office at _____ (the “**Purchaser**”).

The Seller and the Purchaser shall be collectively referred to as the “**Parties**” and individually as a “**Party**”.

WHEREAS:

- A. The Purchaser has carried out a competitive bidding process for the purposes of this PPA and on conclusion of the bidding process the Seller was declared as the successful bidder.
- B. The Seller has agreed that it shall design, engineer, develop, finance, construct, install, commission, own, operate and maintain at its own cost Contract Capacity to be located at UOP in accordance with the terms of this Agreement, for the purpose of supplying electricity in cost and energy wise effective way, to UOP.
- C. The Seller wishes to sell and the Purchaser wishes to purchase all of the energy generated by the 2.5 MW Plant pursuant to the terms and conditions of this Agreement.

- D. The Purchaser has in connection with the above agreed to provide roof-top spaces available at its campuses to the Seller for a period of twenty (20) years and purchase the energy to be delivered by the Purchaser in accordance with the terms of this Agreement.
- E. The Seller represents and warrants that it is duly organized and validly existing under the laws of Pakistan, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby.
- F. Punjab Energy Efficiency and Conservation Agency (PEECA) is the facilitating body under this agreement established by the Government of Punjab through its Energy Department for monitoring and implementing policies and regulations. The monitoring, technical assistance to the university and problem solving under the agreed terms of this contract (where needed) will be carried out by PEECA.
- G. The Parties agree that subject to the terms and conditions set forth in this Agreement, the Seller shall invest, engineer, design, construct, finance, install, own, operate, and maintain the Plant located at the Premises provided by the Purchaser to the Seller for the duration of this PPA in a cost and energy-wise effective way and the Purchaser will provide roof-top space and shall purchase all of the power generated by the Plant from the Seller. PEECA shall monitor and evaluate performance under the terms and conditions set forth herein and the Purchaser will provide facilitation to Seller for early achievement of Commercial Operations Date.
- H. This agreement shall continue in full force and effect until i) the termination of the agreement in accordance with the terms of this agreement, ii) the date which is twenty (20) years from the date of the commercial operations date.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the receipt and sufficiency of which is hereby acknowledged, intending to be legally bound, the Parties hereto agree as follows:

1. DEFINITIONS

Unless otherwise defined herein, capitalized terms used herein shall have the following meanings, whether used in the singular or in the plural.

“Actual Energy Generation” means the Net Delivered Energy and Deemed Energy (expressed in kWh) in a given Contract Year.

“AMR Meters” means the automatic meter reading technology which automatically collects consumption, diagnostic and status data from an energy meter or energy metering devices and transfers that data to a central database for the purposes of billing, troubleshooting and analysis.

“Applicable Law” means 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 Government of Pakistan (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.

“Arbitrator” shall mean an impartial individual mutually agreed upon by both the Parties. In the event of disagreement regarding appointment, a person appointed by the competent court of law.

“Business Day” means any day other than Saturday or Sunday or any other day on which banks in (Lahore) are required or authorized by Applicable Law to be closed for business.

“Certificate of Commissioning of the Plant” shall mean the certificate to be issued by the CERAD (center for energy research and development) to the Parties under Clause 7.1 of this Agreement stating that, in the professional opinion of the CERAD, the Plant has been successfully commissioned and compliant to the specification outlines in the request for proposal document.

“Change in Law” shall have the meaning ascribed thereto in Section 14 of this Agreement.

“Check Meter” shall mean the check meters installed by the Seller apart from the Metering Equipment, as detailed in Clause 6.5 of this Agreement which shall be connected to the same core of the transformers to which the Main Meter is connected and shall be used for accounting and billing of electricity in case of failure/repair/maintenance of Main Meter.

“Commercial Operations Date” shall have the meaning ascribed thereto in Clause 7.3 of this Agreement.

“Commissioned” shall mean the successful completion of the commissioning of the Plant for continuous operation in accordance with Clause 7.2 of this Agreement.

“Contract Capacity” shall mean the 2.5 (two and half) MWp rated capacity of the Plant which the Seller commits to install and operate at the Premises under this Agreement or as may be revised pursuant to terms of this Agreement.

“Contract Performance Guarantee” shall mean the Contract Performance Guarantee as submitted by the Seller in accordance with the RFP.

“Contract Year” means, in respect of the first Contract Year, the period of twelve (12) calendar months from the date on which the Commercial Operations Date occurs and, in respect of subsequent Contract Years, means each successive period of twelve (12) calendar months.

“Deemed Energy” means, the electric energy expressed in kWh, not delivered by the Plant at the Interconnection Point which the Purchaser fails to off take due to no fault of the Seller. Deemed Energy excludes such a power failure which falls under the Force Majeure event, planned outage, and national level power failures. Deemed output also not includes any fault or autonomous shutdown of the equipment, reduce energy output due to environmental factors such as irradiance temperature, weather conditions, soiling losses for the term of this agreement.

“Electric Power Authority” means any government, administrative or regulatory authority, Board, agency, ministry and Commission in Pakistan which regulates and administers the power sector in Pakistan.

“Energy Charge” shall have the meaning ascribed to it in Clause 8.3 of this Agreement.

“Engineer” shall mean the firm of engineering consultants to be appointed and hired by the Parties for the purposes of completing tasks for the Parties in the manner of this Agreement.

“Financial Model” shall mean the projected financial statements including income statements, balance sheets, cash flow statements for 20 years along with a write-up on all the major assumptions including but not limited to energy, degradation, energy price, operations & maintenance costs, taxation, debt financing (with repayment schedule and mark-up calculations). The Financial Model is appended with this Agreement as Schedule 7.

“Force Majeure Event” shall have the meaning defined in Clause 20.2.

“Government Approval” means any approval, consent, permit, license or other authorization from any relevant Government Authority, which is necessary or desirable for the sale of energy by the Seller to the Purchaser, the development, construction, installation, financing, operation and/or maintenance of the Plant.

“Government Authority” means any relevant government, administrative or regulatory authority, board, agency, commission or ministry in Pakistan having authority in respect of the matters being described in this Agreement.

“Guaranteed Energy Generation” shall mean the minimum generation of energy guaranteed which is [.] KWh/day average (Total KWh generated in one year divided by 365 days) for first year and later calculated with accounting for [.] degradation each subsequent year in Energy as set out in Schedule 1.

“Insurance Policy” means the all risks insurance and third party liability insurance that the Seller shall reasonably agree in good faith to obtain and maintain according to the terms and conditions in this Agreement.

“Interconnection Facilities” shall mean all the facilities installed by the Seller at the Premises to enable Purchaser to receive the Delivered Energy from the Plant at the Interconnection Point(s), including transformers, and associated equipment, relay and switching equipment, protective devices and safety equipment.

“kW and kWh” means kilowatt as power and kilowatt hour as energy.

“Lenders” shall mean the financial institutions extending financial assistance to the Seller in respect of the construction and long term financing of the Plant.

“LESCO” shall mean Lahore electric supply company

“Load Bearing Capacity” shall mean the load bearing capacity of each of the buildings covered under Premises.

“Metering Equipment or Main Meter” shall mean all meters and metering devices as well as the Recording Equipment used for measuring the Actual Energy Generation which would primarily be used for accounting and billing of Electricity generated by Units comprising the Plant to be installed at the Delivery Point and operated and maintained by the Seller.

“Metering Date” means the first Business Day of each calendar month subsequent to the month in which the Solar Power is generated by the Seller. The billable units shall be equal to the difference between the meter reading on the Metering Date and the meter reading on the previous month’s Metering Date;

“Minor Revisions” shall mean the proposed minor revisions suggested by the Purchaser to the Plant Design and / or, as the case may be, to the Premises Modification Statement, if any, as submitted by the Seller and which do not materially affect the nature, scope, schedule and / or cost of the Plant Installation as contemplated under this Agreement.

“NEPRA” means National Electric Power Regulation Authority in Pakistan.

“Net Delivered Energy” means the net electrical energy expressed in kWh generated by the Plant and delivered at the Interconnection Point, as measured by the Metering Equipment or the Check Meter (as the case may be).

“Non-Project Event” shall mean an event which took place after sunset to before sunrise.

“Off-Peak Tariff” shall mean the off-peak grid tariff of LESCO as determined by NEPRA and applicable from time to time.

“Payment Security” means bank guarantee to be provided the Purchaser and shall have the meaning ascribed thereto in Clause 12 of this Agreement

“PEECA” shall mean Punjab Energy Efficiency & Conservation Agency.

“Performance Security” means bank guarantee to be provided during construction and subsequently during operations of Plant by the Seller and shall have the meaning ascribed thereto in Clause 11 of this Agreement

“Planned Outage” shall mean a planned interruption of the Plant’s generating capability or any material part thereof that has been scheduled by the Seller and has been notified to the Purchaser in accordance with Clause 10.1.

“Plant” means 2.5 MWp solar power generation plant, installed on buildings listed in Schedule-6. The definition of Plant also refers to each of the solar power generation system, separately, located at any one of the buildings specified in Schedule-6

“Plant Design” shall mean the detailed Plant design including Specifications with Brands/origin, BOQ and drawings of the Plant, Interconnection Facilities, Metering Equipment, Check Meters, Recording Equipment and other allied equipment and facilities.

“Plant Installation” shall have the meaning of placement of all plant equipment including accessories ready for commissioning and commercial operation of the Plant.

“Plant Operation Day(s)” means seven days a week and 365 days a year.

“**Premises**” means the area(s) designated by the Purchaser on which the Plant is to be installed with the locations as specified in Schedule 6 of this Agreement.

“**Premises Audit**” shall have the meaning ascribed thereto in Clause 4.1 of this Agreement.

“**Premises Modification Statement**” shall have the meaning of statement of modification of Premises for making the Premises suitable for construction, operation and maintenance of the Plant, as detailed in Clause 4.2 of this Agreement.

“**Premises Modification**” shall have the meaning of all activities by the Seller for making Premises suitable for construction, operation and maintenance of the Plant.

“**Project Event**” shall mean an event which took place after sunrise to before sunset.

“**Public Sector Entity**” means (a) The GOP, the Provincial Government, any sub-division of either, or any local governmental authority with jurisdiction over the Seller, the Plant, or any part thereof;

(b) any department, authority, instrumentality or agency of the GOP, the Provincial Government or any such local governmental authority; (c) courts and tribunals in Pakistan; or (d) any commission or independent regulatory authority, agency or body having jurisdiction over the Seller, the Plant or any part thereof.

“**Purchaser**” means University of the Punjab, Lahore (UOP) represented by [insert name or designation of principal officer of UOP] or its designated officer of UOP.

“**Recording Equipment**” shall mean the recording equipment to be installed by seller at the respective office premises/sites enabling each Party to make continuous readings of the Actual Energy Generation remotely, as detailed in Clause 6.3 below.

“**Required Commercial Operations Date**” shall mean the date that is six (6) months from the Signing Date and as such may be extended pursuant to terms of the Agreement between the Parties based on a request by the Seller.

“**RFP**” shall mean the Request for Proposal issued by the Purchaser to the Seller on [22-09-2023].

“Right of Way” means the access to the Premises with the intention of using it for installation of Plant, including the way from the entry point to the rooftop through the shortest accessible way, easements and other rights of way, howsoever described, necessary for construction, operation and maintenance of the Plant or any part of Plant or to any one of the rooftops (as listed in Schedule 6) in accordance with this Agreement.

“Seller” means [insert name of the bidder or Consortium] or a ‘Private Limited Company’ or SPV established and / or controlled by the Seller as provided in writing and accepted by Seller. Any private limited company/SPV established for the purposes of implementing this Agreement shall be owned and controlled by the Seller [as per Joint Venture Agreement submitted by the Bidder]. The ownership of the SPV cannot change without the approval of the Purchaser in writing, which will not be refused if the controlling ownership of the SPV is not altered and the new entrant is acceptable to the Purchaser.

“Signing Date” shall mean the date of signing of this Agreement.

“Solar Tariff” shall have the meaning ascribed to it in the Schedule 2 of this Agreement. **“Specifications”** shall mean the required specifications of the Plant as detailed in Schedule 3 of this Agreement.

“Substation Outage” shall mean a total or partial interruption of the Plant’s generating capability which is caused by the Substation’s inability to evacuate energy supplied by the Seller at the Interconnection Point(s).

“Substation” shall mean the Purchaser’s 400V (LV as per applicable Grid codes) Substation(s) attached to each department listed in Schedule-6 for interconnection of Plant or solar power systems.

“Term” shall have the meaning ascribed thereto in Clause 3 of this Agreement.

“Troubleshooting Period” shall have the meaning of minimum time spent for rectification of problem/fault in the Plant.

“Unplanned Outage” means an Outage because of any fault or any happening other than a Planned Outage.

“Willful Misconduct” means, on the part of a Party, any deliberate or intentional disregard of any provision of this Agreement by an officer, director or employee of such Party when acting for and on behalf of that Party, with the intention to inflict damage or injury, or a reckless disregard of the consequences of

such act, but shall not include any omission, error of judgment, mistake or negligence or recklessness of any officers, directors, employees, agents of such Party in the exercise of any function, authority or discretion conferred upon that Party in such capacity.

2. RIGHT OF WAY

2.1 The Premises

Purchaser will grant to the Seller and its representatives, for the Term of the Agreement, a non-exclusive right-of-way for vehicular and pedestrian ingress and egress within the University of the Punjab, Lahore (UOP), Lahore, and to the Premises, to the extent possible and required for the safe and efficient operation of the Plant without any detrimental effect to the safety and security of the University of the Punjab, Lahore (UOP), Lahore (the “Access Rights”). The Purchaser will give access to and permission to initiate work on each of the Premises no later than sixty (60) days from the Effective date of this agreement.

2.2 Access and Right of Way

2.2.1 Purchaser hereby grants to the Seller access to the Premises for carrying out any surveys, investigations and analysis that Seller may deem necessary during the development period, it being expressly agreed and understood that Purchaser shall have no liability whatsoever in respect of survey and investigations carried out or work undertaken by the Seller on or about the Premises pursuant hereto in the event of Termination or otherwise.

2.2.2 In consideration of this Agreement and the covenants and warranties on the part of the Seller herein contained, Purchaser, in accordance with the terms and conditions set forth herein, hereby grants to the Seller, commencing from the Signing Date, the leave and the right in respect to the Premises (along with any rooftop area, storage space, location for equipment placement).

2.2.3 It is expressly agreed that the access to the Premises/s and the right to develop Plant on the Premises/s granted hereunder shall terminate automatically and forthwith, without the need for any action to be taken by Purchaser to terminate the said access, upon the Termination of this Agreement for any reason whatsoever.

2.3 Procurement of the Premises

2.3.1 The Purchaser and the Seller shall, on a mutually agreed date and time, inspect the Premises and prepare a memorandum containing an inventory of the Premises including the vacant and unencumbered rooftop space, assets and equipment on the rooftops, and any other immovable property on or attached to the Premises (rooftops).

2.3.2 The Purchaser shall make best efforts to grant, no later than [30 (thirty)] days from the Signing Date, the Right of Way to the Seller in respect of all access and Right of Ways to the Premises.

2.3.3 Upon receiving Right of Way, the Seller will define the need to undertake construction of any specific infrastructure which needs to be developed. The Seller shall submit a plan of the required construction work to the Purchaser, get the Purchaser sanction for the same and complete the infrastructure development Works thereon within a reasonable period in accordance with Good Industry Practices. All works carried out by the seller shall not damage the buildings, interconnections points, infrastructure, land and equipment belonging to the purchaser.

2.4 Access to Purchaser

The right of way and right to the Premises granted to the Seller hereunder shall always be subject to the right of access of Purchaser and their employees/ agents for regular activities taken up by the Purchaser for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.

2.5 System Disruptions due to Premises access

- 2.5.1. If, for reasons other than the Seller's breach of its obligations herein, the Seller ceases to have access rights to the Premise/s for up to three days, the Purchaser shall provide an alternate Right of Way to Premises within two (2) weeks of the date of disruptions and for the interim period, and also allow compensation for Deemed Energy as per Clause 9.5.

2.6 Access to Premises

The Seller shall be permitted to access the Premises twenty-four (24) hours a day, seven (7) days a week, as reasonably determined by the Seller for the purposes of the Seller's rights and obligations pursuant to terms & conditions of this Agreement.

2.7 Installation, Operation and Ownership of the Plant

-
- a) Purchaser will authorize the Seller to use the Premises only for the purposes of installation, operation and maintenance of the Plant/solar power generation facility installation. The Seller undertakes not to use the Premises for any purpose other than as aforesaid.
 - b) The Seller shall not install at any of the Premises, installations exceeding the available space or load as provided in Schedule 6, Substation capacity of related department in the relevant Premises and electricity distribution system of Purchaser existing on the date of this Agreement.
 - c) The Seller will also undertake cleaning of the Plant / solar systems at regular intervals, however the Seller will not use water jets/ pressurized hoses for the cleaning as the water may enter the internal circuitry laid down around these premises.
 - d) The Seller shall bear all risk of loss with respect to the Plant and shall have full responsibility for its operation and maintenance in compliance with all the laws and approvals. The Seller shall coordinate in advance all such repair and maintenance work with the manager of the relevant buildings comprising the Premises or his/her designee so as not to restrict parking access or interfere with scheduled activities on the relevant building comprising the Premises. Upon such request for repair and maintenance work, the Purchaser shall respond to such request within five (5) Business Days. If the Purchaser does not respond to such request within such five (5) Business Days period, such request shall be deemed approved by

the Purchaser. All such work shall be diligently prosecuted to completion to the end that such work shall not remain in a partly finished condition any long than is necessary for its completion.

- f) The Purchaser shall not cause or permit any interference with the isolation of, and access to sunlight of, the Premises as such access exists as of the Signing Date.
- g) The Seller shall have no right, title or interest in the Premises except as that of a siting, installation, operation and maintenance (including cleaning/up keeping) of the Plant / rooftop solar power generation systems as per the terms set out in this Agreement.

3. TERM AND EFFECTIVE DATE

This Agreement shall commence upon the Signing Date and shall remain in force for a period of twenty (20) years from the date of Commercial Operation Date unless terminated earlier in accordance with the terms hereof (the “**Term**”).

4. PLANT INSTALLATION

- 4.1. The Seller shall from the Signing Date commence a due diligence and a thorough physical inspection of the Premises, and shall within a period of [•] days confirm its suitability for the construction, installation, operation and maintenance of the Plant (the “**Premises Audit**”).
- 4.2. Upon completion of the Premises Audit, the Seller shall within a period of [•] days submit with the Purchaser a statement for any Premises Modification that it deems necessary (the “**Premises Modification Statement**”) to which the Purchaser shall, subject to any proposed Minor Revisions, accord its approval within a period of [•] days of submission thereof (the “**Premises Modification Approval Period**”).
- 4.3. The Seller shall within a period of [•] days of the Signing Date submit with the Purchaser the proposed Plant Design to which the Purchaser shall, subject to any proposed Minor Revisions, accord its approval within a period of [•] days (the “**Plant Design Approval Period**”). The Seller confirms that Load Bearing Capacity of the Premises will not be breached under any circumstances.
- 4.4. The Purchaser may, prior to according its approval to the Plant Design and / or, as the case may be, to a proposed Premises Modification, if any, as specified the Premises Modification Statement suggest Minor Revisions thereto which shall become effective upon mutual agreement between the Parties.
- 4.5. In the instance where the Purchaser does not accord its approval to the Plant Design and / or, as the case may be, the Premises Modification Statement submitted in connection with any proposed Premises Modifications deemed necessary by the Seller within the stipulated Plant Design Approval Period or Premises Modification Approval Period (as the case may be) due to either:
 - (i) on-going discussions between the Parties in respect of the proposed Minor Revisions, if any; or
 - (ii) a delay on account of any other reason.

The Required Commercial Operations Date in either case shall be extended on a day to- day basis

by such number of days that it takes the Parties to either reach a final decision in respect of the proposed Minor Revisions, if any, and / or, as the case may be, for the Purchaser to otherwise accord its approval to the Plant Design and / or, as the case may be, the Premises Modification Statement, if any, as submitted by the Seller.

- 4.6. Upon the Parties' agreement in respect of both the Plant Design and / or, as the case may be, the Premises Modification, if any, as submitted in the Premises Modification Statement, the Seller shall at its own cost obtain the relevant Governmental Approvals as required under the Applicable Laws in relation to any necessary Premises Modification that the Seller may seek to undertake as well as for Plant Installation in accordance with the Plant Design. The Purchaser hereby undertakes to provide its full cooperation to the Seller in the facilitation process for the acquisition of the aforesaid Governmental approvals.
- 4.7. Upon being granted the necessary Governmental approvals as detailed in Clause 4.6 above, the Seller shall proceed with completing any Premises Modifications that it deems necessary as well as the Plant Installation in accordance with the Plant Design with a view to achieving the Commercial Operations Date of the Plant by the Required Commercial Operations Date as required under Clause 7.3 below.
- 4.8. The Purchaser hereby agrees that the Plant shall, at all times, be the property of the Seller with free access to any of its Seller or its SPV and Seller's Banks till the expiry of the PPA. At the end of the tenure, the Seller shall clear the Premises at its own cost within one (1) month. Pursuant to the expiry of one (1) month, the Purchaser shall be entitled to remove the equipment from the Premises as it deems fit. In such case, the Seller shall have no claim against the Purchaser.
- 4.9. Obtaining the relevant Governmental Approvals for setting up the Plant and to provide energy to the Purchaser shall be sole responsibility of the Seller. The Seller shall at its own cost obtain the relevant Governmental approvals for the purposes of the Plant as required under the Applicable Laws. However, the Purchaser will provide its full cooperation to the seller in the facilitation process for the acquisition of the aforesaid Governmental approvals wherever possible.
- 4.10. The Purchaser represents that it is the owner in possession and has title of the Premises and has agreed to allow free and uninterrupted access of the Premises to the Seller to carry out the construction and operations of the Plant during the Term of this Agreement.
- 4.11. The Purchaser further agrees and acknowledges that the obligations of Seller under this agreement are dependent on and subject to the peaceful and unfettered access to the Premises.
- 4.12. The Purchaser also agree that it shall provide unrestricted access to Seller's personnel to the Premises at any and all times to install, monitor, operate, maintain and generally take care of the Plant as per Clause -1 above.

5. GRID CONNECTIVITY

- 5.1. The Seller shall at its own cost procure (with the prior approval of the Purchaser as per the applicable Grid Codes) and install the Interconnection Facilities on a date not later than [•] days prior to the date on which the Plant is to be Commissioned.

6. METERING EQUIPMENT

- 6.1. The Parties hereby acknowledge that for the purposes of determining the Net Delivered Energy, Metering Equipment shall be required prior to the delivery of energy by the Seller to the Purchaser at the Interconnection Point for sale in accordance with the terms of this Agreement.
- 6.2. The Seller (with the prior approval of the Purchaser as per the applicable Grid Codes) shall at its own cost procure and install the Metering Equipment not later than [•] days prior to the date on which the Plant is to be Commissioned. Seller will install NEPRA approved two meters at the point of common coupling (PCC). One meter is for the actual reading and second one for revalidating the reading. In case of any difference observed more than 2%, seller is liable to calibrate meters from PNAC (Pakistan National Accreditation Council) approved lab or install new NEPRA Approved meters.
- 6.3. The Parties shall on and after the Commercial Operations Date take readings from the Metering Equipment on the last day of every calendar month during the Term. The meter will be read by the Seller's personnel on the Metering Date in the presence of the authorized representative of Purchaser. Both the Parties will sign a joint meter reading report. However, in case the report is not signed in the first three Business days of any month due to non-availability of Purchaser' authorized representative; the report signed by the Seller will be considered as joint meter reading report provided that reports are verified by AMR meters. The Parties agree that such joint meter reading Report will be final and binding on the Parties subject to accurate reading reported in the Clause 6.2.
- 6.4. Upon commissioning of the Recording Equipment, metering shall be carried out remotely through Recording Equipment to be procured and installed by the Seller at its own expense at respective offices of the Parties [•] days prior to the date that the Plant is Commissioned. The Parties shall be required to sign and stamp their respective monthly readings.
- 6.5. The Metering Equipment (excluding the Recording Equipment) shall be sealed in the presence of representatives of the Seller and the Purchaser and such seal shall only be broken on a pre-agreed maintenance and calibration schedule to be decided on the first Plant Operation Day of each Contract Year throughout the Term or otherwise on a day and time as mutually agreed between the Parties. Prior such maintenance and calibration dates, if seal is found broken then metering equipment will be re-calibrated or replaced within 5 days after finding the broken seal.
- 6.6. The Seller shall, in addition to the Metering Equipment, install at its own cost a Check Meter for the Purchaser. When the Metering Equipment and/or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it will be repaired, re-calibrated or replaced by the Seller, as may be required, and/or the Purchaser at the Seller cost if it not re-calibrated or replaced within 30 days of notice by the Purchaser.
- 6.7. In the event that a Main Meter at a Delivery Point is not in service as a result of maintenance, repairs or testing, then the Check Meter at such Delivery Point shall be used during the period the Main Meter is not in service.
- 6.8. Metering Equipment should be compliant with the M&T of LESCO & NTDC rules and should be class 1 with accuracy of + or – 0.5. Calibration of the Metering Equipment will be done after every two (2) years, or as may be required if variance between Metering Equipment and Check Meter is more than 2% in any month or as per internationally acceptable limits.

7. COMMISSIONING OF THE PLANT

- 7.1. Upon the Seller having completed the Plant Installation in accordance with the Plant Design and having obtained all necessary Governmental Approvals under the Applicable Laws as required for power generation and sale of energy to the Purchaser under this Agreement, the Seller shall request CERAD (Centre for Energy Research and Development) to issue the certificate of completion to the Parties (Seller and Purchaser) on pro bona basis. This certificate will state that, in the professional opinion of the CERAD, the Plant complies with the specification underlined in request for proposal document and has been successfully commissioned.
- 7.2. Upon the Seller having been successfully issued the Certificate of Commissioning of the Plant by the CERAD, the Plant shall be commissioned. The Seller shall also provide a certificate issued by a reputable Civil/Structural Engineering Department from the University of Engineering and Technology, duly registered with PEC, that weight of the Plant / solar generation system on each building is not more than 90% of the Load Bearing Capacity of such building.
- 7.3. Following the successful commissioning of the Plant in the manner detailed in Clause 7.2 above, the Seller shall notify the Purchaser in advance the date on which the Plant shall be delivering energy at the Interconnection Point(s) to the Purchaser in accordance with the terms of this Agreement (the “**Commercial Operations Date**”). Provided, however, that such Commercial Operations Date shall not be later than the Required Commercial Operations Date.
- 7.4. If the Seller is in breach of its obligation under Clause 7.3 above, to achieve the Commercial Operations Date by the Required Commercial Operations Date, then the Seller shall, unless such breach is attributable to breach or default by the Purchaser of its obligations, be liable to pay liquidated damages to the Purchaser in the following manner:
- a) If there is a delay in achieving Commercial Operations Date by up to one (1) month from the Required Commercial Operations Date, the Seller shall pay liquidated damages at the rate of PKR 5,000/- (Pak Rupees Five Thousand Only) per day of delay by way of Demand Draft / Pay Order to the Purchaser.
 - b) If there is a delay in achieving the Commercial Operations Date by up to two (2) months from the Required Commercial Operations Date, then the Purchaser shall encash twenty per cent (20%) of the Contract Performance Guarantee.
 - c) If there is a delay of up to three (3) months from the Required Commercial Operations Date, then the Purchaser shall encash forty per cent (40%) of the Contract Performance Guarantee.
 - d) If there is a delay up to four (4) months and above from the Required Commercial Operations Date, then the Purchaser shall encash 100 % (one hundred per cent) of the Contract Performance Guarantee.

8. ENERGY SALE AND PURCHASE

- 8.1. Subject to the terms of this Agreement, the Seller shall from and after the Commercial Operations Date and until the expiry of the Term be under an obligation to deliver and sell to the Purchaser at the Interconnection Point(s) the Guaranteed Energy Generation. Provided, however, that the Seller shall not be in breach of its obligations under this Agreement if energy is not delivered to the Interconnection Point due to the occurrence of a:
 - a) Planned Outage;
 - b) Substation Outage; or
 - c) Force Majeure Event.
- 8.2. The Purchaser shall be under an obligation to purchase the Actual Energy Generation by the Seller pursuant to Clause 8.1 above.
- 8.3. Upon each calendar month's end, the Seller shall prepare an invoice by multiplying the Actual Energy Generation with the Solar Tariff in that time period (the "Energy Charge").
- 8.4. The Seller shall provide details of its designated bank account, for the purpose of depositing payment in respect of the Energy Charge within the due date. The Seller shall have the right to change the designated bank account as and when needed and shall inform at least forty-five (45) days of prior written notice to Purchaser (provided, that Seller shall submit to Purchaser a ' Bank Maintenance Certificate' on the bank's letter head along with its official request signed by an authorized representative of the Seller.
- 8.5. The Purchaser shall pay through cheque the amount payable in respect of the Energy Charge to the Seller's designated bank account within thirty (30) days of receipt thereof.
- 8.6. In case of any dispute on the billed amount, Purchaser shall give a written notice of such dispute to the Seller within 07 days specifying the precise portions of the relevant bill that is disputed, the specific amount disputed and the reasons for the dispute. Purchaser shall pay the undisputed amount on or before the due date, and any disputed amount shall be payable subject to resolution of such dispute by PEECA or as per dispute resolution mechanism specified in Clause 24 of this Agreement.

9. ENERGY LEDGER

- 9.1. During the Term of the Agreement, the Parties have agreed to appoint PEECA for maintaining an energy ledger containing debit and credit entries in respect of the Guaranteed Energy Generation and Actual Energy Generation to be sold and bought by the Parties in accordance with the terms of this Agreement (the "**Energy Ledger**"). The Energy Ledger will also reflect related Energy Charge and payments or adjustments thereof. The energy ledger related data will be exchanged between seller and purchaser on quarterly basis for record and end of year calculation purposes. The Deemed and Shortfall Energy will be reported to the purchaser upon verification towards the end of each month.

- 9.2. If for any Contract Year, it is found that the Seller has not been able to generate and deliver Guaranteed Energy on account of reasons solely attributed to the Seller (planned or unplanned outage), such shortfall in performance shall make Seller liable to pay a compensation as per the following formula calculated and recovered on yearly basis:
 Compensation for the Shortfall Energy = (the Off-Peak prevailing variable tariff - prevailing Solar Tariff) x (Guaranteed Energy - Actual Energy in kWh).
- 9.3. No liquidated damages shall be recovered in case the Off-peak applicable variable tariff is less than the prevailing Solar Tariff.
- 9.4. In an instance where the Actual Energy Generation as supplied by the Seller is of an amount lesser than the Guaranteed Energy Generation in contravention of its obligations under Clause 9.2 above, the Energy Ledger shall be debited by an amount equivalent to the Guaranteed Energy Generation minus Actual Generation and multiplied by the differential of the Solar Tariff and the Off-Peak applicable variable tariff in accordance with the illustration provided below:

Illustration

If in one year the Guaranteed Energy Generation for 2.51MW is 1500000 KWh and Actual Energy Generation is 145000 KWh and difference between both is 5000KWh and if the differential of the Off-Peak applicable variable Tariff and Solar Tariff is Rs.5 then the total debit will be Rs. 25,000 debited to Energy Ledger.

- 9.5. In case the Seller could not deliver electric energy (in kWh) from the Plant at the Point of interconnection due to the Substation Outage, the Energy Ledger shall be credited by an amount equivalent to multiplication of the Deemed Energy (exclude such a power failure which falls under the Force Majeure event, planned outage, and national level power failures. autonomous shutdown of the equipment, reduce energy output due to environmental factors such as irradiance temperature, weather conditions, soiling losses and not includes any fault or autonomous shutdown of the equipment in a year for the term of this agreement) with the Solar Tariff in accordance with the illustration provided below (in hours with an exclusion of 30 minute required to start up the generator sets /invertors / solar plant related components in case of each load shedding event less than 31min) during which Project Event continued.

Illustration

for example, if there is x hour load shedding during Project Event, then Deemed Energy for that month will be calculated in the following manner:

$3.81\text{kWh per KW} \times 2500\text{KWp of plant size} \div 24 \text{ hours} \times x \text{ hours of load shedding} =$
 _____KWh deemed Energy.

If each load shedding event is less than 31min; then $x = 0$; and if each load shedding event is greater than 30min; then $x =$ load shedding hours

Assuming solar tariff for the period is PKR 10/kWh then the credit for 2 hours load shedding project event will in a credit of PKR 7,937 for Deemed Energy in the Energy Ledger.

- 9.6. The Energy ledger will be closed at end of each Contract Year and any net balance due or outstanding in the Energy Ledger shall be settled by the Parties by paying the owed amount to the other Party within a period of fifteen (15) days after receipt of such advice from PEECA which will be issued not later than fifteen (15) days after end of each Contract Year.
- 9.7. Any maintenance work on the solar plant or its components will be completed by the seller during the non-project event time frame “after sunset to before sunrise”.
- 9.8. In case of any dispute on the Energy Ledger or the amount due towards any Party, the aggrieved Party shall give a written notice of such dispute to the other Party and to PEECA within 07 days specifying the precise nature of the dispute with evidence, as may be available, the specific amount disputed and the reasons for the dispute. The other Party shall pay the undisputed amount on or before the due date, and any disputed amount shall be payable subject to resolution of such dispute by PEECA. In case any Party is not satisfied with the decision of PEECA on the Energy Ledger, the aggrieved Party may follow the dispute resolution mechanism provided in Clause 24 of this Agreement.

10. MAINTENANCE SCHEDULE AND OUTAGE NOTIFICATION

10.1. Annual Maintenance Plan

- (a) On the first Plant Operation Day of each Contract Year throughout the Term, the Seller shall provide the Purchaser with a schedule of the period and the dates of any Planned Outages (the “**Planned Outage Schedule**”).
- (b) The Seller shall notify the Purchaser of any changes to or variation from the Planned Outage Schedule at least five (5) days in advance.
- (c) The Seller shall not conduct planned outages more than 144 hours in a year for the term of this agreement.

10.2. Unplanned Outages

- (a) The Seller shall use its reasonable endeavours to minimize the number of Unplanned Outages. The Seller shall try to troubleshoot any Unplanned Outage and bring back the Plant to full operation as soon as possible after the commencement of any such Unplanned Outage. However, such Troubleshooting must be completed no later than 48 hours after occurrence of such Unplanned Outage. Seller will send email to purchaser upon each unplanned outage and will maintain record of this unplanned outages for verification by Purchaser and Purchaser will have free access to this record as and when desired by the Purchaser. At the end of each quarter the Seller will send Unplanned Outage report to Purchaser and PEECA.
- (b) If the Seller could not troubleshoot such Unplanned Outage arising out of any fault or any malfunctioning or whatsoever any reason within 48 hours after the occurrence of such Unplanned Outage as the case maybe, then after the first 48 hours, the penalty charge will start and will remain till the rectification of problem. The amount of liquidated damages in shape of penalty charge will be calculated by multiplication of Guaranteed Energy and Differential of Solar Tariff and Off-Peak Grid Tariff and this amount will be debited to Energy

Ledger (in addition to the compensation for the shortfall energy already covered in Clause 9.2). The Purchaser will serve first notice to Seller for troubleshooting the problem after lapse of 48 hours (**Troubleshooting Period**) and second notice will be issued after 96 Hours from the occurrence and third notice after 144 hours from the occurrence of unplanned outage. After three months of continuous system down, the Purchaser will have right to engage the third party for rectification of the problem at the cost of the Seller.

- (c) Planned or unplanned outages shall be included in the energy ledger (containing debit and credit entries in respect of the Guarantee Energy generation and actual generation).

11. PERFORMANCE SECURITY

- 11.1. The Seller shall, for the performance of its obligations hereunder during the development, construction and commissioning period, provide to Purchaser no later than 10 (ten) days from the date of this Agreement, an unconditional and irrevocable on-demand bank guarantee, issued by a reputable bank in Pakistan, having a long-term credit rating of at least "AA-" according to the PACRA rating scale for financial institutions for a 5% of PEECA suggestive price of the plant as the "Performance Security" as per Schedule 4. Until such time the Performance Security is provided by the Seller pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security pursuant hereto, Purchaser shall release the Bid Security to the Seller. The Performance Security shall be valid for a period of twenty four (24) months. In case, there is likelihood of delay in achieving COD, the Seller shall notify the Purchaser before 28 days of expiry of Performance Security and shall extend the same for a period as notified by the Purchaser. Failure to notify by Seller or extension of Performance Security before its expiry will result in encashment of Performance Security by full amount.
- 11.2. Notwithstanding anything to the contrary contained in this Agreement, in the event Performance Security is not provided by the Seller within a period of 30 (thirty) days from the date of this Agreement, Purchaser may encash the Bid Security and appropriate the proceeds thereof as damages, and thereupon all rights, privileges, claims and entitlements of the Seller under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Seller, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.
- 11.3. Upon occurrence of a Seller Default or failure to meet any of its obligations under this Agreement, Purchaser shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Seller Default or failure to meet any of Sellers obligations. Upon such encashment and appropriation from the Performance Security, the Seller shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Seller shall, within the time so granted, replenish or furnish fresh Performance Security as aforesaid failing which Purchaser shall be entitled to terminate this Agreement in accordance with Clause 17. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Seller shall be entitled to an additional period of 90 (ninety) days for remedying the Seller Default, and in the event of the Seller not curing its default or meeting such obligations within such period, Purchaser shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement in accordance with Clause 17.

- 11.4. The Performance Security shall remain in force and effect till COD. The Purchaser shall release the Performance Security forthwith upon successfully achieving COD, provided however, that the Performance Security shall not be released if the Seller is in breach of this Agreement. Provided further that Seller shall replace the Performance Security of 5% of PEECA suggestive price of the plant as per format given in Schedule 4, which shall remain valid for the Operation and Maintenance Period till expiry of the Agreement. The Performance Security will come into effect if for any contract year, it is found that the Seller has not been able to generate Guaranteed Energy in a relevant year or a breach of an obligation under this Agreement, on account of reasons solely attributed to the Seller.
- 11.5. The Performance Security shall have a term of at least 24 (Twenty-Four) Months. The seller shall maintain the Performance Security in full force and effect from the COD until the earlier of:
- (a) the full discharge of all its obligations under this Agreement, and
 - (b) the dates occurring three (3) Months after the expiry or early termination of this agreement, at which date the Performance Security shall be released.
- 11.6. At least 90 (ninety) Days prior to the scheduled expiry of the Performance Security, the Seller shall arrange for the extension or renewal of the Performance Security for further period of at least [24 (Twenty-Four) Months] from the expiry of the then current Performance Security, until such time as stipulated above. If the Seller fails to extend or renew the Performance Security, within such period of time, the Purchaser shall be entitled to draw down the un-drawn amount under the Performance Security as a cash-retention and to the extent that there are no outstanding claims thereto, this amount shall be released upon submission of a new Performance Security complying with the requirements of this Clause 11 or upon the scheduled date of expiration of the Performance Security.
- 11.7. If the Seller fails to make payment of any due amount which is payable in accordance with the terms of Clause 9, the Purchaser shall have the right to issue a written demand to the Seller requesting immediate payment of the same amount.
- 11.8. If the Seller has not paid the amount due within thirty (30) Days of the written demand referred to above, the Purchaser shall be entitled to draw down the amount due from the Performance Security. The Purchaser shall immediately inform the Seller of such drawdown by way of written notice.
- 11.9. If the Purchaser draws down any amounts from the Performance Security, the Seller shall cause the Performance Security to be replenished within a period of 30 (thirty) Days starting on the date the Purchaser notifies the drawdown, so that on or prior to the expiry of such period, the amount of the Performance Security available to the Purchaser shall be the full amount set out at Clause 11.4.

12. PAYMENT SECURITY

- 12.1. On or prior to the occurrence of COD, the Purchaser shall submit to the Seller an unconditional and irrevocable on-demand bank guarantee, issued by a reputable bank in Pakistan, for an amount of [PKR thirty million (30,000,000)] and substantially in the form set out in Schedule Form of Performance Security and Payment Security to secure the due performance of the Purchasers' payment obligations during the Operations Period.
- 12.2. The Payment Security shall have a term of at least [24 (Twenty-Four) Months]. The Purchaser shall maintain the Payment Security in full force and effect from the COD until the earlier of:
 - (a) the full discharge of all its payment obligations under this Agreement, and
 - (b) the dates occurring three (3) Months after the expiry or early termination of this Agreement, at which date the Payment Security shall be released.
- 12.3. At least (ninety) 90 Days prior to the scheduled expiry of the Payment Security, the Purchaser shall arrange for the extension or renewal of the Payment Security for further period of at least [24 (Twenty Four) Months] from the expiry of the then current Payment Security, until such time as stipulated above.
- 12.4. If the Purchaser fails to make payment of any due amount which is not subject to a dispute and is payable in accordance with the terms of Clause 8, the Seller shall have the right to issue a written demand to the Purchaser requesting immediate payment of the same amount.
- 12.5. If the Purchaser has not paid the amount due within sixty (60) Days of the written demand referred to above, the Seller shall immediately intimate seller about draw down of the amount due by way of written notice, from the Payment Security.
- 12.6. If the Seller draws down any amounts from the Payment Security, the Purchaser shall cause the Payment Security to be replenished within a period of 30 (thirty) Days starting on the date the Seller notifies the drawdown, so that on or prior to the expiry of such period, the amount of the Payment Security available to the Seller shall be the full amount set out at Clause 12.1.
- 12.7. The Seller and the Purchaser may agree to waive the renewal of the Payment Security mechanism set forth in this Clause 12 at any time during the Operations Period.

13. **REPRESENTATIONS AND WARRANTIES**

The ESCO hereby represents and warrants that

- 13.1. It has necessary corporate power and authority to enter into this agreement.
- 13.2. It has all authorization required to perform its responsibilities and obligations under this agreement.

- 13.3. It has or shall purchase relevant insurance policies, consistent with national and international standards for terms of this agreement.
- 13.4. It shall maintain duly incorporated under the laws of Pakistan for the term of this agreement.
- 13.5. this agreement does not violate any other agreement to which it is a party or by which it may be bound and
- 13.6. this agreement does not violate any row, court order, rule or regulation of any court of government or regulatory authority against it
- 13.7. it is not insolvent and has no liquidated proceedings pending against it
- 13.8. The successful bidder shall not assign the contract or any part thereof or any benefit or interest therein or there under without the prior written consent of the Engineer-in-charge. The successful bidder shall not sublet the works or any part-thereof except where otherwise provided by the contract, without the prior written consent of the Engineer-in-charge and such consent, if given, shall not relieve the successful bidder from any liability or obligation under the contract and he shall be responsible for the acts, defaults and negligence of any sub-contractor, his agents, servants or workmen as if they were the acts, defaults or neglects of the successful bidder, his agent, servants or workmen, provided always that the provision of labour on piece-work basis shall not be deemed to be subletting under the clause. The successful bidder or sub-contractor after approval will be bound to carry out the assigned work to comply with the terms and conditions of both RFP and PPA documents. Furthermore, any such consent from UOP shall not relieve the successful bidder/sub-contractor from any liability or obligation under the RFP, PPA documents.

14. OTHER OBLIGATIONS OF THE PARTIES

14.1. Throughout the Term:

- (a) The Seller, with the prior written permission of the Purchaser, shall remove all the trees, poles or any physical structure at Premises before the plant installation causing hindrance in the installation of the plant and Seller shall keep trimming the trees, plants, bushes and hedges regularly so that the Plant receives as much sunlight for its best output. Any removed hindrance related assets will be the sole property of the UOP. Upon termination of the contract the seller will reinstate the building roofs, physical structure at the premises, and landscape back to its original form at its own cost. Seller will be liable for any damage caused to the assets of university during installation or related work. The evaluation of any damage caused will be conducted by the purchaser or its assigned party. The damages related costs will be deducted from the performance security given by the seller.
- (b) Seller will ensure regular cleaning of Solar PV modules to maintain the optimum yield using optimal amount of water. The seller though responsible for maintenance and troubleshooting of the solar unit/s and its ancillary components will pay for optimal amount of water needed to clean the solar unit/s i.e. solar panel etc. at a WASA approved tariff rate upon installation of a WASA approved water meter in addition to any cost spent in alteration of water connections provisions. The used water will be drained properly and roof flooding with water used for solar panel cleaning will be avoided by the seller at all costs.
- (c) The Purchaser shall provide electricity, water and other utilities necessary for the construction, installation, operation and maintenance of the Plant and shall charge for such services at Government applied rates.
- (d) The Purchaser shall not modify the Premises in a manner that will have any impact on or interfere

with the operation of the Plant, without obtaining prior written consent from the Seller 15 days in advance.

- (e) The Seller shall not remove any markings or identification tags on the Plant;
- (f) Pursuant to terms and conditions specified in Clause 2, the Purchaser shall provide the Seller all time access to Premises and the Plant for any construction, installation, inspection, operation, maintenance, repair, removal and replacement or other proper operation as the Seller determines necessary;
- (g) The Purchaser shall not allow to exist any condition or circumstances that would have a negative impact on solar irradiation or the performance of the Plant or a reduction of the output capacity of the Plant;
- (h) The Seller shall promptly notify the Purchaser if the Plant (or any part thereof) is damaged, appears unsafe, or is stolen but Seller will arrange suitable risk coverage through insurance policy from first class insurance company in Pakistan for the Plant.
- (i) The Seller shall not perform any action to the Plant which result in the Plant being shut down continuously for more than one full 24-hour day without obtaining prior written consent from the Purchaser;
- (j) The Purchaser shall not perform any action which can result in the Seller not being able to sell the power to the Purchaser for more than one full 24-hour day without giving written notice to the Seller one day in advance;
- (k) The Seller will not make any major modification to the Plant after the Commercial Operation Date but can upgrade technology/firmware/software helping in improvement of the performance of the Plant. For any replacement of any component of the Plant with any upgraded version, the Seller will submit the details of such replacement to Purchaser for its permission. Any such outage will be considered as Unplanned Outage and clause for Unplanned Outage will apply.
- (l) The Seller shall replace, improve or upgrade the technology and all costs shall be borne by the Seller.
- (m) The seller undertakes that the supply of all energy generated by the designed system with basic components, interconnections, i.e. will result in the overall electricity related cost savings for the UOP when compared to the LESCO supplied mode and/or LESCO-Genset combined mode for respective buildings.
- (n) Seller shall record maintenance and improvement related evidence. This information shall be shared on quarterly basis with Purchaser and PEECA (in both cases if work was completed or no such activity was carried out).
- (o) The Purchaser shall provide all possible help in obtaining any required Governmental Approval helping in quicker achievement of Commercial Operation Date;

- (p) The Seller shall maintain insurance cover of the working people at Premises and equipment/Plant against all risks with any reputable insurance company in Pakistan;
 - (q) The Seller shall at all times, keep the Plant free and clear of all claims, levies and legal processes not created by the Purchaser, and protect and defend the Purchaser against the same.
 - (r) The Seller, in addition to the Premises Modification, shall properly maintain the Premises in good condition capable of being used safely for the Plant Installation, inspection, operation and maintenance, and the removal and replacement of the Plant.
 - (s) The Seller shall not sell the Plant till the duration of this Agreement i-e twenty (20) years.
- 14.2. If the Seller modifies or repairs the Premises beyond Premises modification statement or without any prior approval from the Purchaser, the Seller at its own cost will bring back the Premises to a position as per Premises Modification Statement without any effect on the performance of the Plant.
- 14.3. Throughout the Term, the Seller shall, at its own costs:
- (a) Keep the Plant operational throughout the Term and shall provide maintenance services to the Plant in efficient manner through professional trained engineers and technicians as per laws of Pakistan Engineering Council.
 - (b) Investigate the cause of the Plant being shut down for more than 24 hours continuously and troubleshoot the Plant within 48 Hours (Troubleshooting Period) after occurrence of the fault or upon receipt of such notice from the Purchaser.
 - (c) Construct, operate and maintain the Plant fully complying with the Load Bearing Capacity, latest versions of Building Code of Pakistan- Seismic, Energy and Fire Safety provisions, PETSAC (Pakistan Electrical and Telecommunication Safety Code) 2014, NEPRA Latest Grid Code, Pakistan Electricity Act 1997 and other National and International safety and installation standards, codes, practices and guidelines applicable to similar solar plant construction, operation and maintenance.
- 14.4. All insurance policies in respect of the insurance obtained by the Seller pursuant to this Clause shall include a waiver of any and all rights of subrogation or recovery of the insurers there under against, *inter alia*, Purchaser, and its assigns, successors, undertakings and their subsidiaries, affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.
- 14.5. The Seller hereby further releases, assigns and waives any and all rights of subrogation or recovery against, *inter alia*, Purchaser and its assigns, undertakings and their subsidiaries, affiliates, employees, successors, insurers and underwriters, which the Seller may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Seller pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

- 14.6. The Seller shall provide all time access to Purchaser or any of its representatives / guests for visits, inspection, verification, and performance measurement of the Plant and shall also entertain the study tours from Universities/Organizations duly authorized by the Purchaser.
- 14.7. The Seller shall ensure security of its staff and equipment through its own security measures and must also ensure workers and equipment safety risks through insurance cover from a first class insurance company in Pakistan.
- 14.8. The Purchaser will also ensure security of the Premises through its own measures and will provide maximum protection possible. Each worker assigned for this plant shall pass through a security Process of the Purchaser for eligibility of work on this plant and each worker or Engineer or technician or officer has to fully comply with the security process of the Purchaser. The Seller will submit to purchaser complete information of the people at work and will keep informed on regular basis of any change in worker at the Plant. The Seller will maintain register of roll call of employees on daily basis.
- 14.9. The Seller shall not, in any case, breach the respective Load Bearing Capacity of the Premises during construction or operations of the Plant.

15. CHANGE OF PREMISES AND TRANSFER OF PLANT

- 15.1. During the Term, the Purchaser may, subject to the provisions of Clause 25 below, change the Premises and transfer the Plant to new premises.

16. INDEMNIFICATION

- 16.1. Each Party shall indemnify, defend, protect, save and hold harmless the other Party, its employees, officers, directors, agents, successors and assigns from any and all third party claims, actions, costs, expenses (including reasonable attorneys' fees and expenses), damages, liabilities, penalties, losses, obligations, injuries, demands and encumbrances of any kind or nature arising out of, connected with, relating to or resulting from the first Party's negligence or Willful Misconduct or breach of this Agreement including Force Majeure Event as set out in Clause 20; provided, that nothing herein shall require the first Party to indemnify the other Party for its own negligence or Willful Misconduct or breach of this Agreement.
- 16.2. Notwithstanding anything to the contrary contained in this Clause 16, the indemnities herein provided shall not include any claim or recovery in respect of any cost, expense, loss or damage of an indirect, incidental or consequential nature, including loss of profit, except as expressly provided in this Agreement.
- 16.3. The provisions of this Clause (*Indemnification*) shall survive the termination or expiration of this Agreement.

17. LOSS OR DAMAGE

- 17.1. Any loss, damage, theft, destruction or a similar occurrence affecting the plant outside the purchaser's reasonable due care obligation will not fall in purchaser's negligence or wilful misconduct or breach of this agreement category. In the event of any loss, damage, theft, destruction or a similar occurrence affecting the Plant, due to the Purchaser's negligence or Willful Misconduct or breach of this Agreement, the Purchaser at its sole cost and expense shall repair or replace within two months from the date that such event occurs. If the Purchaser fails to repair or replace the Plant within 48 hours (Troubleshooting Period), the Purchaser shall continue to make payments to the Seller and pay to the Seller the amount of estimated Energy Charge, using the average total production in the corresponding three months of the preceding operational year. Stray bullets or stones or weather related damages will not fall under purchaser's responsibility.
- 17.2. Other than events stated in the Clause 17.1 was due to the Seller negligence or Wilful Misconduct or breach of this Agreement, the Seller shall bear all of the risks, costs and expenses of such event and the Purchaser shall only be required to cooperate with the Seller, at the Seller's sole cost and expense, to the extent necessary to have the Plant repaired or replaced. Such downtime will be considered as Unplanned Outage.
- 17.3. The Seller shall be responsible for damage to or loss to the Premises if any arising out of the activities, including but not limited to breach of the Load Bearing Capacity, by Seller arising out of the plant installation and/or operations and maintenance.
- 17.4. Seller will install the CCTV network with a central control room having access given to both the seller and purchaser.
- 17.5. Each Party's liability to the other Party under this Agreement shall be limited to direct and actual damages only. The Parties agree that, unless specifically provided for in this Agreement, neither Party shall be liable to the other for consequential, incidental, punitive, exemplary, special or indirect damages.
- 17.6. If the Metering Equipment is damaged and not operational but energy in reality is being generated and consumed, then the Seller shall fix the problem within three (3) days and estimate the amount of energy that would have been delivered to the Purchaser during such period shall be measured from the inverter database, or check meter or average production in the corresponding days of the preceding operation year.
- 17.7. If the Seller sends an invoice to the Purchaser for estimated Energy Charge pursuant to the preceding paragraph, and the Seller subsequently determines that it has either overestimated or underestimated the actual production, then the Seller will adjust the next bill downwards (to refund the overbilling) or upwards (to make up for the lost billing), as the case may be.

18. EVENTS OF DEFAULT

- 18.1. The Purchaser shall be in default under this Agreement if any one of the following events occur:

- (a) The Purchaser fails to make payment of any amount due and such failure continues for a period of sixty (60) days' maximum after receipt of written notice of such non-payment;
- (b) The Purchaser fails to perform any obligation specified under this Agreement and fails to commence (and thereafter diligently proceed with) appropriate steps to Troubleshooting such failure within a period of sixty (60) days from the date of written notice identifying the breach and requiring the Troubleshooting of the breach;
- (c) The Purchaser makes an assignment for the benefit of creditors, admits in writing its insolvency, files or there is filed against it a voluntary petition in bankruptcy, is adjudicated bankrupt or insolvent or undertakes or experiences any substantially similar activity;
- (d) The Purchaser fails to provide or renew the Payment Security within ninety (90) days before expiry of the Payment Security pursuant to Clause 12.1 of this Agreement;
- (e) The Purchaser fails to provide Right of Ways to Seller for a continued period of thirty (30) days;
- (f) The Purchaser fails to make payment of due amount as specified in Clause 9.6 of this Agreement and such failure continues for a period of sixty (60) days' maximum after receipt of written notice of such non-payment.

18.2. The Seller shall be in default under this Agreement if any one of the following events occur:

- (a) The Seller fails to perform any obligation specified under this Agreement and fails to commence (and thereafter diligently proceed with) appropriate steps to Troubleshooting such failure within a period of sixty (60) days from the date of written notice identifying the breach and requiring the Troubleshooting of the breach.
- (b) The Seller fails to provide the cost and energy wise effective electricity supply to the UOP.
- (c) The Seller fails to result in the overall electricity related cost savings for the UOP when compared to the LESCO supplied mode and/or LESCO-Genset combined mode for respective buildings.
- (d) The Seller makes an assignment for the benefit of creditors, admits in writing its insolvency, files or there is filed against it a voluntary petition in bankruptcy, is adjudicated bankrupt or insolvent or undertakes or experiences any substantially similar activity.
- (e) The Seller fails to achieve the Commercial Operations Date within three (3) months from the

expiry of the Required Commercial Operations Date.

- (f) Following the Commercial Operations Date, the Seller fails to maintain the Guaranteed Energy Generation as required under Clause 8.1 of this Agreement for over a period of three (3) consecutive years.
- (g) The Seller fails to provide or renew the Performance Security pursuant to Clause 11 of this Agreement.
- (h) The Seller fails to make payment of due amount as specified in Clause 9.6 of this Agreement and such failure continues for a period of 60 days' maximum after receipt of written notice of such non-payment.

19. REMEDIES IN THE CASE OF DEFAULT AND TERMINATION

19.1. If there is an event of default by the Purchaser under Clause 18.1, the Seller may take any one or more of the following actions. The Seller may:

- (a) Terminate this Agreement by giving thirty (30) days' written notice to the Purchaser of such breach and the intention to terminate this Agreement and may on the expiry of such notice elect to transfer the Plant to the Purchaser or its designee in which case the Purchaser or its designee shall simultaneously pay the 'Compensation Amount' set forth in Schedule 5 of this Agreement;
- (b) Take any reasonable action to correct the Purchaser's default or to prevent the Seller's loss; and any amount that the Seller pays with respect to this matter will be added to the amount the Purchaser owes to the Seller and will be immediately due;
- (c) Require the purchaser at its own expense to return the plant or make it available to Seller in a reasonable manner.
- (d) Proceed, by appropriate court action, to enforce the performance of this Agreement and to recover damages for the Purchaser's breach;
- (e) Disconnect, turn off or take back the Plant by legal process or self-help, to the extent permissible under the law; or
- (f) Exercise any rights or remedies available under applicable law or this Agreement.

19.2. If there is an event of default by the Seller under Clause 18.2 the Purchaser may take any one or more of the following actions. The Purchaser may:

- (a) Terminate this Agreement by giving written notice to the Seller of such breach and the intention to terminate this Agreement, which termination shall be effective on a date specified by the Purchaser that is no earlier than 30 days following the date of such notice;
- (b) Take any reasonable action to correct the Seller's default or to prevent the Purchaser's loss; and any amount that the Purchaser pays with respect to this matter will be added to the amount the Seller owes to the Purchaser and will be immediately due;
- (c) Uninstall or return the plant to the Seller at the sole cost of the Seller;
- (d) Buy the Plant at the residual plant value as per Clause 26 below ;(e) Proceed, by appropriate court action, to enforce performance of this Agreement and to recover damages for the Seller's breach.

19.3. The defaulting Party agrees to repay the non-defaulting Party for any reasonable amounts the non-defaulting Party pays to correct or cover the default. The defaulting Party also agrees to reimburse the non- defaulting Party for any reasonable costs and expenses the non- defaulting Party incurs resulting from early termination. By choosing any one or more of these remedies, the non-defaulting Party does not give up its right to use another Troubleshooting method. By deciding not to use any Troubleshooting in respect of a default by the defaulting Party, the non-defaulting Party does not give up the right to use that Troubleshooting in the case of a subsequent default.

20. **FORCE MAJEURE EVENT**

20.1. Subject to the limitations set forth in this Agreement, if either Party is rendered unable by reason of a Force Majeure Event (as defined below) to perform, wholly or in part, any obligation set forth in this Agreement, then upon such Party's giving notice and full particulars of such event as soon as practicable after the occurrence thereof, such obligation of such Party shall be suspended or excused to the extent of such Force Majeure Event.

20.2. For the purposes of this Agreement, "Force Majeure Event" shall mean an event, condition or circumstance beyond the reasonable control and without the fault or negligence of the Party claiming force majeure which, despite all reasonable efforts of the Party claiming force majeure to prevent its occurrence or mitigate its effects, causes a delay or disruption in the performance of any obligation imposed hereunder. Subject to the foregoing, Force Majeure Events shall include any of the following:

- (a) Lightning, storm, flood or other unusually severe weather conditions;
- (b) Earthquake, landslide or other natural disasters of overwhelming proportions;
- (c) Strikes, lockout or other industrial disturbance;

- (d) War (whether declared or undeclared), mobilization or other unexpected call-up of armed forces, actions of terrorists, blockade, riot, insurrection, civil commotion, revolution, coup d'état, sabotage, vandalism or acts of public enemies;
 - (e) Expropriation or compulsory acquisition of the Premises and/or the Plant, omission or default by any Government Authority which adversely affects the Premises and/or the Plant or any of the relevant Party's rights under this Agreement;
 - (f) Any permit or license or approval from a Government Authority being revoked or not renewed, the occurrence of which is not attributable to the failure of the relevant Party; or
 - (g) Any restriction on the distribution of power by the Electric Power Authority or any other Government Authorities who have authority over the Grid.
- 20.3. If a Force Majeure Event occurs that prevents a Party from performing its obligations hereunder, such Party shall:
- (a) Immediately notify the other Party in writing of such Force Majeure Event;
 - (b) Be entitled to suspend performance under this Agreement only for the scope and duration as required by the Force Majeure Event;
 - (c) Use all reasonable efforts to Troubleshooting its inability to perform and to resume full performance hereunder as soon as practicable;
 - (d) Keep the other Party informed of such efforts on a continuous basis; and
 - (e) Provide written notice of the resumption of performance hereunder.
- 20.4. Neither Party shall be relieved of any obligations under this Agreement solely because of increased costs or other adverse economic consequences that may be incurred through the performance of such obligations.
- 20.5. If a Force Majeure Event continues for 180 consecutive days, either Party has the right to terminate this Agreement, provided that such period shall be extended if a Force Majeure Event cannot be cured within such 180-day period for as long as the affected Party is diligently seeking to mitigate such Force Majeure Event, provided that in no event shall a Force Majeure Event continue beyond 365 days.

21. **ASSIGNMENT AND SECURITY**

- 21.1. No assignment, novation or transfer by a Party of this Agreement or such Party's rights or obligations hereunder shall be effective without the prior written consent of the other Party, except as provided under Clauses 21.2 to 21.4 below.

- 21.2. Notwithstanding the provisions of Clause 21.1, for the purpose of financing the Plant, the Seller may assign or create a security interest in favor of the Lenders in the Seller's rights and interests pursuant to: (i) this Agreement; (ii) the Plant and the Right of Way; (iii) the present and future revenues or any of the rights or assets or actionable claims of or debts owed to the Seller; and (iv) any other present or future right, interest, property or asset of the Seller of any kind and wherever situated.
- 21.3. Upon notification by the Lenders to the Purchaser, of the occurrence and continuance of an event of default under the financing documents pursuant to which the Lenders have extended financial assistance to the Seller (the "Financing Documents"), the Lenders shall have the right, inter alia, to (i) take possession of the Plant along with the Right of Way and prior to the Commercial Operations Date, complete construction of the Plant (i.e. max. 6 months after signing of PPA) and to operate and maintain the same, and (ii) cure any event of default of the Seller as provided for under Clause 18.2 above.
- 21.4. The Lenders may sell, transfer or assign the Plant along with the Right of Way as a going concern with all assets (present and future) together with possession thereof for the purposes of enforcing their rights under or pursuant to the Financing Documents, with the prior consent of the Purchaser and such consent may not unreasonably withheld.

22. CONFIDENTIALITY

- 22.1. The Parties shall treat as strictly confidential all Confidential Information (defined below) received or obtained in relation to entering into or performing this Agreement.
- 22.2. "Confidential Information" means any and all information furnished by a Party (the "Disclosing Party") to the other Party ("Receiving Party") in connection with this Agreement, whether disclosed directly or indirectly, verbally or in writing, and includes, without limitation business Plants, operations, strategic plans, clients, pricing, methodologies, processes, financial data, technical specifications and/or products and services of the Disclosing Party, as well as all notes, compilations, analyses or other documents prepared by the Receiving Party which contain or are based upon the information provided by the Disclosing Party pursuant hereto.
- 22.3. The Parties may disclose Confidential Information which would otherwise be confidential if and to the extent:
- (a) Required by any law;
 - (b) Disclosed to the professional advisers, auditors, the financing Parties and/or bankers of each Party on a need-to-know basis;
 - (c) Such Confidential Information has come into the public domain through no fault of that Party; or
 - (d) The other Party has given prior written approval of the disclosure, provided that any such Confidential Information disclosed will be disclosed only after consultation with the other Party.
 - (e) to any government department or any governmental or regulatory agency having jurisdiction over such Party but only to the extent that such Party is required by law to make such disclosure

23. **MISCELLANEOUS**

23.1. Details as under:

- (a) Each Party shall be responsible for its own costs and expenses incurred in connection with its preparation, negotiation, execution and performance of this Agreement.
- (b) The Seller agrees to be solely responsible for any costs and expenses in connection with the Premises modification, including removing trees or anything blocking or impeding access to the roof, for the Plant Installation.
- (c) The Seller agrees to be solely responsible for any costs and expenses in connection with the Plant and the application for required Governmental Approvals.

23.2. Communication and Administration

- (a) Any notice to be given under this Agreement shall be in writing and shall be sent by email or courier to the email address or address of the relevant Party below, or to such other email or other address as that Party may from time to time notify to the other Party in accordance with this Clause. The details for notices of the Parties are as follows:

If to the Seller: [full name] [Address]

Attn: [-----]

Email: [-----]

If to the Purchaser: [full name] [address]

Attn: [-----] Email: [-----]

23.3. If any provision of this Agreement is held to be invalid or unenforceable, such provision shall to the extent possible be regarded as having been replaced by an equivalent provision that, as closely as possible, reflects the original intent of the Parties while still being valid and enforceable. To the extent that such deemed replacement is not possible, then the provision held invalid or unenforceable shall be given no effect and shall be deemed not to be included in this Agreement, without invalidating any of the remaining provisions of this Agreement.

23.4. This Agreement, RFP, the Bid submitted by the Seller and its Schedules represent the entire agreement and understanding of the Parties with respect to the transaction forming the subject hereof, and supersedes any earlier agreements, understandings and communications between the Parties with respect thereto.

23.5. Any Schedule or Annexure attached or clarification issued time to time hereto shall be deemed an integral part of this Agreement. In the event an inconsistency exists between this Agreement and any Schedules hereto, this Agreement shall prevail.

- 23.6. The Seller shall, at its own cost and expense, ensure that adequate fencing is set up around the construction Premises of the Solar Plant which would prevent unauthorized ingress into the construction Premises by third parties, whether associated with Purchaser, Seller and/or its subcontractors, employees, agents, officers, etc., provided, that placement of fencing shall be approved by Purchaser prior to the erection thereof.
- 23.7. The Purchaser shall provide appropriate space for a control room.

24. GOVERNING LAW AND JURISDICTION AND DISPUTE RESOLUTION

- 24.1. This Agreement shall be governed by and construed in accordance with the laws of Pakistan.
- 24.2. The Parties shall attempt to settle in good faith any dispute that may arise by mutual discussions within a period of thirty (30) days upon delivery of notice of the dispute by the disputing Party on the other Party. Each Party shall identify an officer who shall try to resolve the dispute through negotiation.
- 24.3. In the event that the Parties are unable to resolve the dispute in accordance with Clause 21.2 within the time period stipulated therein, the dispute shall be decided by reference to arbitration to the Arbitrator (to be channelled through the office of the worthy Vice Chancellor and agreed after the consent of parties. i.e. Energy Department likely to be proposed as the arbitrator), subject to the following conditions;
- (a) The arbitration shall be conducted in accordance with the provisions of the Arbitration Act, 1940;
 - (b) The place of arbitration shall be Lahore, Pakistan; and
 - (c) The decision or award of the Arbitrator shall be final and binding upon the Parties.
- 24.4. The Parties agree that any arbitration award made may be enforced against the relevant Party's assets wherever they are located or may be found, and a judgment upon any arbitration award may be entered by any court having jurisdiction thereof.
- 24.5. The Parties agree that each Party shall bear its own cost for the arbitration.
- 24.6. Notwithstanding any reference of a dispute to the expert, arbitration or negotiation herein, the Parties shall continue to perform their respective obligations under the agreement during the resolution of dispute.

25. RELOCATION OF THE SOLAR PLANT

- 25.1. If Purchaser requests the Seller for any relocation of the Plant within the Premises or to nearest premises or other new premises, whether temporary or permanent, the Seller shall undertake such relocation at the cost of Purchaser. Such relocation shall be completed within a maximum period of twelve (12) months from the date of last supply of energy, assuming handover of new Premises. Purchaser shall give the Seller three (3) month's written notice prior to commencement of the

intended relocation. The cost of such relocation shall be limited to the actual logistics cost of relocation, including the cost of labour, material, disposal of old material, replacement cost of disposed old material, storage of material, design resources and any other costs associated with the relocation of the Plant and the quotation for this cost shall be shared with Purchaser by the Seller for prior approval and if so approved shall be payable, as per mutually agreed schedule, to the Seller by the Purchaser.

- 25.2. During the time period within which the relocation of the Plant is carried out by the Seller on the instructions of the Purchaser, it shall be assumed that there is a Substation Outage and the Energy Ledger shall for such time period be credited in the same manner as detailed in Clause 9.3 above.
- 25.3. If the Seller determines that the relocated plant shall have a lower energy generation capacity, due to no fault of installation or the quality of equipment, then the Solar Tariff for the relocated plant shall be increased pro rata to the reduction in Guaranteed Energy Generation. However, the Purchaser shall have the right to verify such reduction in energy through PEECA or an independent and reputable consultant having experience in solar PV plants at the cost of the Seller. In the event, an independent and reputable consultant has to be engaged for verification, the Purchaser shall provide the Seller with three names of local reputable consultants to choose from. The consultant's determination in this regard will be final and binding.

26. EARLY TERMINATION AND BUYOUT IN CASE OF DEFAULT

If the Purchaser desires to purchase the Plant as a result of Default by the Seller, then residual plant value (Purchase Price) will be calculated as per formula given below in relation to Sellers Default. If the Purchaser has to purchase the Plant as a result of default by the Purchaser or wishes for an early termination of the Agreement, then residual plant value (Termination Price) will be calculated as per formula given below in relation to Purchasers Default. Nevertheless, a third party technical evaluation regards to the plant's operation and its price at the time of dispute will be conducted by Centre for energy research and development, UOP. The compensation amounts under each case can be calculated as per the Schedule 5 to this Agreement. In case of termination of contract, options to subcontract the plant assets to the operation and maintenance subcontracted teams available in the market or buy out of the plant by a third party can be applied upon mutual consensus of seller and purchaser.

Early termination and buyout in case of a default by any party is only applicable if the plant is operational and in full working condition to meet the agreed guaranteed energy generation.

[The Schedule below is given as an example and has been developed by inserting Rs.100 Million value of the Plant as an example. The Table will be updated upon signing and actual initial value as provided by the Successful Bidder in its Technical Bid will be replaced]

Plant value calculation Formula

Termination Price if Purchaser Defaults:
 $TP(P) = PVep \times (1 + \text{Premium})$ where Premium
= 15%

$PVep = \text{Dep} \times \text{Plant Value at Year 0 (PKR)}$
where

$\text{Dep} = [1 - \{(1/20) \times \text{End of Year}\}] \%$ where

End of year can be 1,2,3...20.

Termination Price if Seller Defaults: $TP(S) = PVep \times$
 $(1 - \text{Penalty})$ where

Penalty = 15%

$PVep = \text{Dep} \times \text{Plant Value at Year 0 (PKR)}$ where

$\text{Dep} = [1 - \{(1/20) \times \text{End of Year}\}] \%$ where

End of year can be 1,2,3...20.

27. NOTICES AND COMMUNICATIONS

Any notices or other communications require to be given under this agreement shall be in writing and shall be delivered in the following manner i) hand or courier to each party requested to receive the notice or communications at its respective address.

Any notices of other communications shall be deemed to have been received: i) if delivered personally, when left at the address with received receipt or receiving ii) if delivered by commercial courier, on the date and at the time that courier's delivery receipt is signed iii) if delivered by first class recorded delivery post.

The Parties have created this Agreement by signing and stamping on their behalf and each Party has retained one copy.

[Purchaser Name]

By: [-----]

Title:

By: [-----] Title:

[Seller Name]

By: [-----] Title: Director

By: [-----] Title: Director

Witness 1

Witness 2

SCHEDULE 1
GUARANTEED ENERGY GENERATION

Guaranteed Energy Generation is [.]KWh per day average calculated by dividing the total energy generated in one year divided by 365 Days. Year wise Energy Guaranteed is given below.

YEARS	GUARANTEED ENERGY GENERATION FOR Contract Capacity
YEAR-1	
YEAR-2	
YEAR-3	
YEAR-4	
YEAR-5	
YEAR-6	
YEAR-7	
YEAR-8	

YEAR-20	

SCHEDULE 2

SOLAR TARIFF, INDEXATION AND ADJUSTMENT

Introduction

This Schedule 2 is attached to and constitutes an integral part of the Power Purchase Agreement dated • (the “PPA” or the “Power Purchase Agreement”) by and between the Purchaser and the

Seller. This Schedule is divided into the following Parts:

- (a) Part I: The Solar Tariff
- (b) Part II: The procedure for indexation and adjustments for price index changes; and
- (d) Part III: Reference Solar Tariff and components

Part I: SOLAR TARIFF

1.1. From and after the COD, the Solar Tariff for the relevant billing cycle shall comprise of the following components:

- 1) Fixed Component (FC) in PKR/kWh:- (this component will remain fixed throughout the term of the PPA); And
- 2) Variable Component (VC) in PKR/kWh:- (The initial value of this component will not be more than PKR 0.50/kWh which will be adjusted on the basis of change in CPI

(General), as published by Pakistan Bureau of Statistics, on annual basis.

i-e Solar Tariff = FC + VC_{REV}

Part II: INDEXATION MECHANISM

- 2.1. At the beginning of each year following the COD, the Seller shall on the 2nd Business Day following the end of the year, deliver to the PEECA and the Purchaser, the current Indices and values. PEECA shall review the index values provided by the Seller and shall establish the revised Solar Tariff for the next Contract Year.
- 2.2. In case, the index used herein ceases to be available or withdrawn for any reason, the Parties shall request PEECA to determine suitable alternative index for the purpose. PEECA may use such index as allowed by NEPRA for similar circumstances for other solar Projects. Pending the determination of alternative index by PEECA or NEPRA, as the case may be, the last available value of the index shall be used for all purposes.
- 2.3. The Variable Component of the Solar Tariff shall be adjusted for the indexations on an annual basis, from 1 January through 31 December, as follows:

$$VC_{Rev} = VC_{Ref} * CPI_{Rev} / CPI_{Ref}$$

Where:

VC_{Rev} = the indexation-adjusted component of the Solar Tariff, expressed in Rs. / kWh, in the year in which the relevant billing cycle occurs;

VC_{Ref} = the reference value of Variable Component, as established in Part-III;

CPI_{Rev} = the revised CPI (General) in Pakistan for the year prior to the year in which indexation is applicable, as notified by the Pakistan Bureau of Statistics; and

CPI_{Ref} = the CPI (General) in Pakistan as on 31st December 2019, as established in Part-III.

Part III: REFERENCE TARIFF

$Solar\ Tariff_{Ref} = FC + VC_{Ref}$ Where:

$$\text{Solar Tariff}_{\text{Ref}} = \text{Rs []/kWh}$$

[**Note:** Reference Solar Tariff will be the price by converting the USD based tariff indicated on Letter of Award issued to the Seller in to PKR under the mechanism provided in the RFP.]

$$\text{FC} = \text{Rs []/kWh}$$

[**Note:** The Fixed Component (FC) will be established by converting the USD based tariff indicated on Letter of Award issued to the Seller in to PKR under the mechanism provided in the RFP. The Fixed Component will be calculated by reducing both Variable Component from Solar Tariff]

$$\text{VC}_{\text{Ref}} = \text{Rs []/kWh}$$

[**Note:** Reference Variable Component (VC_{Ref}) is Rs. 0.50/kWh established based on signing of this PPA. The will be adjusted for inflation based on change in CPI index from 31st December 2019 to 31st December 2020 on or after 1st January 2021.]

The term Solar Tariff excludes applicable General Sales Tax amount which will be charged over & above the Solar Tariff as per Applicable Laws.

SCHEDULE 3
SPECIFICATIONS (at least or advance as per the RFP document)

SCHEDULE 4

FORM OF PERFORMANCE SECURITY

Date: _____

To,
Bidder Name

PERFORMANCE SECURITY NO. (the **Guarantee**)

We, [●]¹, being the Guarantee issuing bank (the **Issuing Bank**) understand that [●] a company incorporated under the laws of [●] having its registered office located at [●] (the **Bidder name** _____) has been selected, for procurement, supply, construction, erection, and installation contract of “**2.5 MWp SOLAR POWER PLANT AT UNIVERSITY OF THE PUNJAB, LAHORE ON ESCO MODEL UNDER A PPA ARRANGEMENT**” (the **Plant**).

Further, we understand that the Bidder name _____ is required to provide the UOP with a performance bond equal to PKR _____ only.

The above premised, we (the Issuing Bank) hereby undertake irrevocably and unconditionally to pay to the UOP, without any notice, reference or recourse to the Bidder name _____ or to any other entity or without any recourse or reference to the Contract, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

PKR _____
(the **Guaranteed Amount**)

at sight and immediately, however not later than within three (3) business days from the date of receipt of the UOP’s first written demand (“the **Demand**”) at the Issuing Bank’s offices located at [●], such Demand shall state that the UOP is entitled to make a demand under the Guarantee and shall set out the total amounts demanded.

The Demand shall only be honoured by us, if it is made by and bears the signature of an authorised officer

or other representative of the UOP, as duly verified to us by the UOP's bank (i.e. [●]).

We, the Issuing Bank, shall unconditionally honour a Demand hereunder made in compliance with this Guarantee at sight and immediately on the date of receipt of your Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of this Guarantee, free and clear of and without any set-off or deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

After having come into force, this Guarantee and our obligations hereunder will expire on [*Insert date and time*] (the **Guarantee Expiry Hard Date**) provided that, in the event that the UOP issues

¹Insert name of Issuing Bank

a Demand to the Issuing Bank on or immediately prior to the Guarantee Expiry Hard Date, the Issuing Bank shall honour that Demand.

Upon expiry, this Guarantee shall be returned to the Bidder name _____ without undue delay. Multiple Demands may be made by UOP under this Guarantee but our aggregate liability will be restricted up to the Guaranteed Amount.

We hereby agree that any part of the Contract may be amended, renewed, extended, modified, compromised, released or discharged by mutual agreement between UOP and the Bidder name _____ without in any way impairing or affecting our liabilities hereunder without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

This Guarantee for its validity period shall not be affected in any manner by any change in our constitution or of the Bidder name _____'s constitution or of their successors and assignees and this Guarantee shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

All references to any contract or other instruments are by way of reference only and shall not affect our obligations to make payment under the terms of this Guarantee.

UOP may not assign / transfer or cause or permit to be assigned or transferred any of its rights, title, interests and benefits of this Guarantee without our prior written consent, which consent shall not be unreasonably withheld or delayed.

If one or more of the provisions of this Guarantee are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Guarantee.

We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Guarantee, which obligations are valid and legally binding on and enforceable against us under the laws of [...] and under the laws of the jurisdiction where this Guarantee is issued. Further, that the signatory(ies) to this Guarantee is/are our duly authorized officer(s) to execute this Guarantee.

This Guarantee and all rights and obligations arising from this Guarantee shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Lahore shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

The issuance of this Guarantee is permitted according to the laws of Pakistan.

This Guarantee is subject to the Uniform Rules for Demand Guarantee, ICC Publication No.758. For and on behalf of the Issuing Bank:

.....

Name:

Designation:

Witnesses:

..... Name: CNIC#:

..... Name: CNIC#:

SCHEDULE 5 COMPENSATION AMOUNT

All amounts in PKR

[to be updated before signing and conditional to independent evaluation from a third party]

End of Year (Y)	Plant Value after Depreciation: Dep = [1-{(1/20) * End of Year}]%	Depreciated Value of Plant	Premium if Purchaser defaults	Termination Price if Purchaser defaults	Penalty if Seller defaults	Termination Price if Seller Defaults
0	100%	100,000,000	15%	115,000,000	15%	97,750,000
1	95%	95,000,000	15%	109,250,000	15%	92,862,500
2	90%	90,000,000	15%	103,500,000	15%	87,975,000
3	85%	85,000,000	15%	97,750,000	15%	83,087,500
4	80%	80,000,000	15%	92,000,000	15%	78,200,000
5	75%	75,000,000	15%	86,250,000	15%	73,312,500
6	70%	70,000,000	15%	80,500,000	15%	68,425,000
7	65%	65,000,000	15%	74,750,000	15%	63,537,500
8	60%	60,000,000	15%	69,000,000	15%	58,650,000
9	55%	55,000,000	15%	63,250,000	15%	53,762,500
10	50%	50,000,000	15%	57,500,000	15%	48,875,000
11	45%	45,000,000	15%	51,750,000	15%	43,987,500
12	40%	40,000,000	15%	46,000,000	15%	39,100,000
13	35%	35,000,000	15%	40,250,000	15%	34,212,500

14	30%	30,000,000	15%	34,500,000	15%	29,325,000
15	25%	25,000,000	15%	28,750,000	15%	24,437,500
16	20%	20,000,000	15%	23,000,000	15%	19,550,000
17	15%	15,000,000	15%	17,250,000	15%	14,662,500
18	10%	10,000,000	15%	11,500,000	15%	9,775,000
19	5%	5,000,000	15%	5,750,000	15%	4,887,500
20	0%	0	15%	0	15%	0

SCHEDULE 6**PREMISES****UoP**

Sr.	Departments allocated for Contract Capacity Installation of solar Power plant at rooftops	Roof Top Area (Sft)
12.	Admin Block	56000
13.	Undergraduate Block	38000
14.	CHEP	16000
15.	IBA	48500
16.	CEES	38000
17.	IEEE	41500
18.	ISCS	22000
19.	IAS	62400
20.	Chief Engineer office	7500
21.	Botany and Zoology	51104
22.	Two suitable hostels (Boys and Girls)	12000
	Total Covered Area	393004 Sft

SCHEDULE 7
FINANCIAL MODEL