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1.0 REQUEST FOR PROPOSAL (RFP)

DESIGN, BUILD AND INSTALLATION 115 KW (±10%) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI (TENDER NO. RE/EL/SE/JUN/4009/24)

State Life Insurance Corporation of Pakistan invites bids from authorized well-established Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies/ Contractors of Alternative & Renewable Energies to provide the Net-Metering facilitation and license through K-ELECTRIC having valid NTN / Sales Tax registration with active ATL Status in FBR and SRB record. The firm should also be certified vendor/ installer under Alternative Energy Development Board regulation 2021 with facilities for Design, Build and Install 115 KW approximately (±10%) or suitable capacity in accordance with the need of, On-Grid Tied Solar PV System, required for “**STATE LIFE BUILDNG NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI**”

Bidding shall be carried out through ‘Single stage Single envelope’ procedure. Prospective Bidders are required to submit a Pay Order of **Rs: 300,000/- BID SECURITY** in favor of STATE LIFE INSURANCE CORPORATION OF PAKISTAN.

The rates quoted shall be valid for a period of One hundred eighty days (180) from the date of bid opening of bids.

Prospective Bidders are requested to submit their tender through email address on EPADS on or before **10-07-2024 at 11:00 Hrs.**

Proposals will be opened on same date at **11:30 Hrs.** on e-pads.

Chief Engineer

1.1 NOTICE

State Life Insurance Corporation of Pakistan invites bids from authorized well-established Electrical Contractors/ Joint Venture/Consortium/Firms/ Companies/Contractors of Alternative & Renewable Energies to provide the Net-Metering facilitation and license through K-ELECTRIC having valid NTN/ Sales Tax registration with active ATL Status in FBR and SRB record. The firm should also be certified vendor / installer under Alternative Energy Development Board regulation 2021 for Design, Build and Installation of 115 KW approximately ($\pm 10\%$) or suitable capacity in accordance with the need of, On-Grid Tied Solar PV System, required for “**STATE LIFE BUILDNG NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI**”

Bidding shall be conducted on ‘Single Stage Single Envelope’ basis. Prospective Bidders are required to submit a Pay Order of **Rs. 300,000/- Bid Security** in favor of State Life Insurance Corporation of Pakistan.

The bid validity should be for a period of one hundred eighty (180 days) from the date of bid opening.

Interested Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies/ Contractors must submit the following documents with their proposal:

1.1.1 Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies/ Contractors must submit support letter as evidence of their level of relationship (i.e., Partner, distributor, Joint venture and reseller with the principal).

1.1.2 Detailed bids are to be submitted on Firm's letter-head duly signed by an authorized officer of the Firm. It must also include following documents pertaining to the Firm: -

- i. Income and sales tax registration certificates (Mandatory).
- ii. Business audit report for last three years.
- iii. AEDB Certification
- iv. Company profile as per data sheet format provided in this document.
- v. Where subject services were provided in last 3 years. (client’s list with project size along with credentials/person of contact)
- vi. Quality Certification(s) – e.g. ISO
- vii. Non-black listing undertaking on stamp paper of Rs. 100/- (Mandatory).
- viii. Bidders are required to provide quotes with validity of at least 180 days.
- ix. All items should be quoted with maximum warranty, support and upgrade period for the product. Company profile, activities, background of key shareholders and capabilities.
- x. Skill and experience of organization and management personnel.
- xi. Any other information/ document/ profile required under this RFP.

- xii. If required, the technically qualified Contractors/ Joint Venture/ Consortium/ Firms/ Companies who fulfill the eligibility/ conditions may be called for presentation which will be evaluated by the technical committee.

NOTE: Please use the forms attached with data sheet for company profiles including its technical, managerial, financial capabilities and experience etc.

Pre-Bid meeting will be held on **02-07-2024** at **15:00 Hrs.** for survey in the office Assistant Manager (Electrical) Real Estate Division. Interested bidders may participate in the survey on given time and date.

Prospective Bidders are requested submit their tender through email address on e-pads on or before **10-07-2024**, at **11:00 A.M.**, at given address.

Proposals will be opened on same date at **11:30A.M** on e-pads system.

Chief Engineer
Real Estate Division
5th floor, State Life Building No. 09,
Dr. Ziauddin Ahmed Road,
Karachi

2.0 INSTRUCTIONS TO APPLICANTS/PROSPECTIVE BIDDERS

2.1 Submission of Applications

2.1.1 Bids must be submitted through email address on e-pads but not later than **10-07-2024** on or before 11:00 hrs and be clearly marked as

Application For

DESIGN, BUILD AND INSTALL 115 KW APPROXIMATELY ($\pm 10\%$) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI (TENDER NO. RE/EL/SE/JUN/4009/24).

2.1.2 The name and mailing address of the Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company shall be clearly marked on tender.

2.1.3 The applications shall be prepared in the English language. Information in any other language shall be accompanied by its translation in English.

2.1.4 Bidders must respond to all questions and provide complete information as advised in this document. Any lapse to provide essential information may result in disqualification of the Bidders.

2.1.5 The clarification required may be asked through e-pads at least 07 days before the dead line for submission.

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2.2 PROPOSAL PREPARATION

2.2.1 A brief description of the Assignment and its objectives are provided in the Data Sheet given in section 3.0.

2.2.2 To obtain first-hand information on the Assignment and on the local conditions, Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies are encouraged to visit the site before submitting a proposal. The representatives of Electrical Contractor/ Joint Venture/ Consortium/ Firms/ Companies shall meet the officials named in the Data Sheet. Please ensure that these officials should be informed about their visit in advance to allow adequate time to facilitate the site visit. Electrical Contractor/ Joint Venture/ Consortium/ Firms/ Companies must fully update themselves of local conditions and take them into account while preparing proposal.

2.2.3 The Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company shall provide the inputs specified in the Data Sheet.

2.2.4 Please Note That:

The cost of preparing the proposal and site visit, are not reimbursable as a direct cost for the Assignment,

2.2.5 In case any activity or item is quantified in the financial proposal differently from the technical proposal, the evaluation committee shall have the power to accept the quantification indicated in the financial proposal to make it consistent with that indicated in the technical proposal.

2.3 DOCUMENTS

2.3.1 To prepare a proposal, Perspective Bidders will use the attached forms/documents listed in RFP as a sample.

2.3.2 Prospective Bidders requiring a clarification of the documents must notify the State Life in writing, but not later than seven **(07)** days before the proposal submission date. Any request for clarification in writing or email shall be sent to the Assistant Manager (Electrical) address indicated in the RFP.

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2.4 SUBMISSION AND PREPARATION OF PROPOSAL

State Life invites proposals from experienced Electrical Contractor/ Joint Venture/ Consortium/ Firms/ Companies by using single stage two envelopes procedure for Design, Build and Installation of 115 KW Solar Power System at State Life Building No. 09, Dr. Ziauddin Ahmed Road Karachi. Following procedure is prescribed for participation in the tender.

- 2.4.1 The proposal must contain technical as well as financial details/aspects which will be evaluated by the consultant as per the technical requirements/evaluation criteria mentioned in the tender documents.
- 2.4.2 State Life will evaluate the technical proposal in a manner prescribed in advance without reference to the prices and reject any proposal which does not confirm to the specified technical requirements.
- 2.4.3 During the evaluation no amendments in the proposal shall be permitted.
- 2.4.4 The bid found to be in compliance with all technical requirements/evaluation criteria mentioned in the tender documents and as well as most advantageous bid shall be considered for award.
- 2.4.5 All the Bidders are required to submit their technical proposals which will include but not limited to Company Profiles, Proposed Design including Layout of installations and Project execution plan of solar power system. This information will also be provided in soft form for presentation.
- 2.4.6 Financial Proposal will be evaluated as per given criteria. The Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company with most advantageous financial bid will be selected for the Design, Build and Installation of solar power system.

3. DATA SHEET

Name of the Assignment:

**DESIGN, BUILD AND INSTALLATION 115 KW APPROXIMATELY
(±10%) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM
AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD
KARACHI (TENDER NO. RE/EL/SE/JUN/4009/24)**

Name of the Client: State Life Insurance Corporation of Pakistan

Description and the Objectives of the Assignment:

State Life invites bids from authorized well-established Electrical Contractors/ Joint Venture/ Consortium/ Firms / Companies / Contractors of Alternative & Renewable Energies to provide the Net-Metering facilitation and license through K-ELECTRIC having valid NTN / Sales Tax registration with active ATL Status in FBR and SRB record. The firm should also have Government of Sindh License to Electrical Contractor with modern facilities for Design, Build and Installation of 115 KW approximately (±10%) or suitable capacity in accordance with the need of, On-Grid Tied Solar PV System, required for “State Life Building No. 09 Dr. Ziauddin Ahmed Road Karachi”

For Queries & contact:

Chief Engineer

Real Estate Division

State Life Building No. 09,

Dr. Ziauddin Ahmed Road,

Karachi

Cell No: 021-99202812, 021-99202877

SPECIAL CONDITIONS

(TENDER NO. RE/EL/SE/JUN/4009/24)

1.	Bid Security	Rs. 300,000/- in the form of pay order/banker's cheque by schedule bank in favor of M/s. "State Life Insurance Corporation of Pakistan
2.	Release of Bid Security	a. To unsuccessful Tenderer after award of work. b. To successful Tenderer upon completion of work
3.	Forfeiture of Bid Security	a. If the bid is withdrawn after opening. b. If the bidder does not accept letter of award or refuse to enter in contract.
4.	Bid Validity	One hundred eighty (180) Days
5.	Method of Procurement	Single stage single envelope procedure of PPRA rules
6.	Opening of Bid	Date: 10-07-2024 time 11:30 AM on e-procurement system of PPRA (EPADS)
7.	Date of Commencement of Work	Seven (07) days from the date of signing of contract.
8.	Time of Completion	180 days including supply, installation, testing, commissioning and net metering from date of signing of contract.
9.	Liquidated Damages	0.25% of the contract amount per day (maximum 10% of contract amount)
10.	Defect Liability Period	(One (01) year) from date of completion of project including net metering.
11.	Method of Payment	i. 10% of the total amount will be released as mobilization advance after signing of contract against the Bank Guarantee to be provided by contractor. ii. 35% of the total amount will be released on successful delivery of electrical and mechanical items. iii. 30% after Installation. iv. 10% on Commission, Testing & handover of the System. v. 10% on successful Net Metering by KE. vi. 05% retention will be released after successfully completion of defect liability period
12.	Retention Money	05% (Five percent) of the certified amount
13.	Release of retention money	Upon completion of defect liability period of (01) One year.
14.	Applicable of taxes	All applicable government taxes, SST, etc. will be deducted from bills of contractor.
15.	Performance Bond	05 % of contract amount will be provided by the bidder from scheduled bank of Pakistan. The format is attached at Appendix C

NOTE: All application forms are required to be filled by the bidding Electrical Contractor/ Joint Venture Consortium/Firms / Companies.

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DESIGN, BUILD AND INSTALLATION 115 KW ($\pm 10\%$) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI (TENDER NO. RE/EL/SE/JUN/4009/24)

TECHNICAL PROPOSAL

**To be filled by Bidding Electrical Contractor/Joint
Venture/Consortium/Firm/Company
Letter of Application**

[Letterhead paper of the Applicant, including full postal address, telephone no, fax no., telex no., cable and e-mail address]

Date: _____

To: _____

[Name and address of the State Life]

SUB; DESIGN, BUILD AND INSTALLATION OF 115 KW APPROXIMATELY (±10%) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI (TENDER NO. RE/EL/SE/IUN/4009/24)

Sir,

Being duly authorized to represent and act on behalf of _____ (Here in after "the Applicant"), and having reviewed and fully understood all the technical qualification information provided, the undersigned hereby apply to be qualified as a Bidder for the following project: -

2. Attached to this letter are copies of original documents defining:
 - (a) The Applicant's legal status i.e.; PEC valid registration (Mandatory)
 - (b) The principal place of business; Form C or equivalent
 - (c) The place of incorporation (for applicants who are corporations); or

The place of registration and the nationality of the owners (for applicants who are in partnerships or have individually-owned firms)

3. State Life and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves or the authorized representative to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.

4. State Life and its authorized representatives may contact the following persons for further information¹, if needed: -

General and Managerial Inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Personnel Inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Technical Inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Financial Inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

5. This application is made with the full understanding that:
- (a) Bids will be subject to verification of all information submitted at the time of bidding;
 - (b) State Life reserves the right to:
 - (i) Amend the scope and value of any contract under this project before opening of bids; and
 - (ii) Reject or accept any application or cancel the prequalification process at any stage prior to acceptance of bid or proposal.
 - (c) State Life shall not be liable for any such actions towards bidders who have submitted the bids.

SEAL & SIGNATURE OF THE CONTRACTOR / FIRMS

6. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail.

Signed:
Name:
Official Correspondence Head Office Address:
With Contact Number of Electrical Contractor/ Joint Venture/ Consorti Firm/ Company (Telephone/ Mobile): Email Address:

SEAL & SIGNATURE OF THE CONTRACTOR / FIRMS

Application Form A-1

GENERAL INFORMATION

All individual Electrical Contractor/ Joint Venture/ Consortium/ Firms/ Companies are requested to complete the information in this form. Nationality information is also to be provided for foreign owners as required under the PEC Bye-Law.

Where the Applicant proposes to use named subcontractors for critical components of the works, or for work contents in excess of 10 percent of the value of the whole works, the following information should also be supplied for the specialist subcontractor(s).

1.	Name of Applicant (Firm/Company/ Contractor)	
2.	Head Office Address:	
3.	Telephone:	Contact Person: Name: Title:
4.	Fax:	Telex:
5.	Place of Incorporation/Registration	Year of incorporation/ registration

NATIONALITY OF OWNERS		
	NAME	NATIONALITY
1.		
2.		
3.		
4.		
5.		

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APPLICATION FORM A-2

General Experience Record

Name of Applicant:

All individual applicants are requested to complete the information in this form. The information supplied should be the annual turnover of the applicant, in terms of the amounts billed to clients for each year for work in progress or completed over the past five years.

Annual Turnover (Similar Projects only)		
Year	Turnover (In actual currency)	Equivalent Rupees in Millions.
1.		
2.		
3.		
4.		
5.		

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Application Form A-3

Particular Experience Record

Name of Applicant:

To qualify, the Applicant shall be required to pass the specified requirements applicable to this form, as set out in the: Instructions to Applicants.

On a separate page, using the format of Application Form A-4, each is required to list all contracts of a value equivalent to Pak Rs.10.00 million of a similar nature and complexity to the contract for which the Applicant wishes to qualify, undertaken during the last five years

1. The information is to be summarized, using Application Form A-4, for each contract completed or under execution by the Applicant.

Where the Applicant proposes to use named subcontractor(s) for critical components of the works or for work contents in excess of 10 percent of the value of the whole works, the information in the afore-mentioned forms should also be supplied for each specialist subcontractor.

- **Contractor Experience**

1. Provide overview of the firm's commercial grid-connected PV experience (do not include residential PV experience). Average commercial grid-connected PV system size installed by your company during the last five years.

- **Contractor References**

1. List five (5) or more commercial grid-connected PV projects installed in Islamabad, Rawalpindi, Peshawar, Lahore, Karachi, over the last five years. Use the **Application Form A-4**.

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Application Form A-4

Details of Contracts of Similar Nature and Complexity

Name of Applicant:

Use a separate sheet for each contract.

1.	Name of Contract _____ Country _____
2.	Name of Client _____
3.	Client Address _____ _____
4.	Nature of works and special features relevant to the contract for which the Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company wishes to qualify _____
5.	Contract Role (Tick One) (a) Sole Contractor _____ (b) Sub- Contractor _____
6.	Value of the total contract (in specified currencies) at completion, or at date of award for current contract Currency _____
7.	Equivalent in Pak/Rs.
8.	Date of Award
9.	Date of Completion
10.	Contract Duration (Years and Months) ____Years ____Months
11.	Specified Requirements 1 Insert any specific criteria required for particular operations, such as annual volume of designing, procurement, or fabrication of photovoltaic solar systems.

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Application Form A-5

Summary Sheet: Current Contract Commitments/Works in Progress

Name of Applicant:

Applicants should provide information on his current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which substantial Completion Certificate has yet to be issued.

Name of Contract	Value of work (Equivalent Pak Rs. Millions)	Estimated Completion Date
1.		
2.		
3.		
4.		
5.		
6.		

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Application Form A-6
Personnel Capabilities

Name of Applicant: _____

For specific positions essential to contract implementation, Applicants should provide the names of at least two candidates qualified to meet the specified requirements stated for each position. The data on their experience should be supplied on separate sheets using one Form (A-7) for each candidate.

1.	Title of Position
	Name of Prime Candidate
	Name of Alternate Candidate
2.	Title of Position
	Name of Prime Candidate
	Name of Alternate Candidate
3.	Title of Position
	Name of Prime Candidate
	Name of Alternate Candidate
4.	Title of Position
	Name of Prime Candidate
	Name of Alternate Candidate

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Application Form A-7
Candidate Summary

Name of Applicant:

Position		Candidate [Tick appropriate one] <input type="checkbox"/> Prime <input type="checkbox"/> Alternate
Candidate information	1. Name of Candidate	2. Date of Birth
	3. Professional Qualification	
Present employment	4. Name of Client	
	Address of Client	
	Telephone	Contact (manager/personnel officer)
	Fax	Telex
	Job title of candidate	Years with present firm

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

Month/ Dates/Years		Company / Project / Position / Relevant technical and Management Experience
From	To	

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Application Form A-8
Equipment Capabilities

Name of Applicant:

The Applicant shall provide adequate information to demonstrate clearly that he has the capability to meet the requirements for each and all items of equipment listed in his proposal. A separate Form shall be prepared for each item of equipment proposed by the Applicant.

Item of Equipment		
Equipment information	1. Name of manufacturer	2. Model
	3. Capacity	4. Year of manufacture
Current status	5. Current location	
	6. Details of current commitments	
Source	7. Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased	

Omit the following information if it is owned by the Applicant or partner.

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreement	Details of rental/lease specific to the Project.	

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Application Form A-9

Financial Capability

Name of Applicant:

Applicants should provide financial information to demonstrate that they meet the requirements stated in the Instructions to Applicants. Each Applicant must fill-in this form. If necessary, use separate sheets to provide complete banker information. A copy of the audited balance sheets should be attached.

Banker	Name of banker	
	Address of banker	
	Telephone	Contact name and title
	Fax	Telex

Summarize actual assets and liabilities in Pak Rupees (Equivalent at the current rate of exchange at the end of each year) for the previous three years, based upon known commitments, projected assets and liabilities in Pak Rupees equivalent for the next two years.

Financial information in Pak Rs. or equivalent	Actual: previous five year					Projected: next two years	
	1	2	3	4	5	6	7
1. Total assets							
2. Current assets							
3. Total liabilities							
4. Current liabilities							
5. Profits before taxes							
6. Profits after taxes							

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Specific proposed sources of financing to meet the cash flow of the Project, net of current commitments.

Source of Financing	Amount (Pak Rs. or equivalent)
1.	
2.	
3.	
4.	

Attach audited financial statements for the last five years (for individual Electrical Contractor/ Joint Venture/ Consortium/ Firm/Company).

Firms owned by individuals, and partnerships, may submit their balance sheets certified by a registered accountant, and supported by copies of tax returns, if audits are not required by the laws of their countries of origin in case of foreign firms.

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Application Form A-10

Litigation History

Name of Applicant:

Applicants should provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution.

Year	Award FOR or AGAINST Applicant	Name of client, cause of litigation, and matter in dispute	Disputed amount (current value Pak Rs. or equivalent)

D: PEC-standards guidelines for Prequalification of Bidders.

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3.1 CONFLICT OF INTEREST

3.1.1 The Applicant must not be associated, nor have been associated in the past, with the consultant or any other entity that has prepared the design, specifications, and other prequalification and bidding documents for the project, or was proposed as Engineer for the contract, over the last five years. Any such association may result in disqualification of the Applicant.

3.2 UPDATING QUALIFICATION INFORMATION

3.2.1 Applicant shall be required to update the financial, personnel and equipment information used for technical qualification at the time of submitting their bids, to confirm their continued compliance with the qualification criteria and verification of the information. A bid shall be rejected if Applicant's technical qualification thresholds are no longer met at the time of bidding.

3.3 OTHER FACTORS

3.3.1 Only Applicant Electrical Contractor/ Joint Venture/ Consortium/ Firms/ Companies that have been technically qualified under this procedure shall be considered for financial evaluation. If a firm submits more than one bid, all bids including that bidder will be rejected. This rule will not apply in respect of bids which include specialist sub-contractors who are used by more than one Bidder.

3.3.2 The State Life reserves the right to: -

- (a) Verify the all information submitted at the time of bidding;
- (b) Amend the scope and value of any contract under this project before opening of bids;
and
Reject or accept any application or cancel the prequalification process at any stage prior to acceptance of bid or proposal.
- (c) State Life shall not be liable for any such actions towards bidders who have submitted the bids.

3.3.3 Applicants may be informed in writing by letter or e-mail within and upload the results on PPRA about the result of their applications.

SEAL & SIGNATURE OF THE CONTRACTOR / FIRMS

4. TECHNICAL BID SUBMISSION

The technical bid submission should include the technical proposal of the bidder along with the following documents listed below:

4.1 SINGLE LINE DIAGRAM (SLD)

A single line diagram of the entire PV power plant showing all electrical elements of the system such as circuit breakers, solar PV modules, bus bars and power and grounding conductors shown by standardized schematic symbols. SLD to be made in Auto-Cad, should be properly scaled and shared in PDF format .

4.2 COMMUNICATION NETWORK DIAGRAM

A line diagram representing the communication interface between:

- Inverters and gensets via Automatic Sustainable Controller (ASC) for solar

4.3 ROOF LAYOUT

Bidders are required to share the placement of the modules on the identified potential spaces to be made in AutoCAD and shared in PDF format. The layout should consider all near shading obstructions and clearly identify inverter rooms.

4.5 PV-GENSET INTEGRATION DOCUMENT

Bidders are required to substantiate chosen system capacities by providing an integration document which takes into context the minimum allowable loading for each genset without compromising the Business as Usual (BAU) generator(s) operation. The thresholds for both units have been fixed by the “Employer” and are given in Annexure F in form of a table as “Minimum allowable Genset threshold”. The document will also briefly elaborate Dispatch strategy.

4.6 Structure Drawing / Distributed Load

Bidders are required to share proposed structure drawings which complies to the technical requirements specified in this bid. The bidder shall provide detailed drawings of the structure and foundations with calculations on the expected distributed load of the whole PV system on each roof including all accessories. Further information on structure requirements for roof mounting PV modules have been listed under “Scope of structure” section.

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4.7 BILL OF MATERIAL/SERVICES WITH QUANTITIES

The bill of material list will include all project related materials, equipment, spares list (Direct and Indirect) being used in the project and services that make up the project EPC scope. The list will include brands and quantities specified.

4.8 DATA SHEETS REQUIRED

The following specification sheets to be included in the technical bid submission.

- Solar PV Modules
- Inverters
- AC (LV and MV) and DC Cables
- ESE Lightning Arrestor
- Controller(s) employed under EMS
- Controller(s) for PV integration with battery and Gensets
- Data loggers
- RMS Dashboard
- Electrical Protection Items (DC breakers, AC breakers, SPD)
- Low Water Cleaning tools

4.9 ENERGY GENERATION SIMULATION REPORT AND PERFORMANCE COMMITMENT

The technical bid submission should include an energy generation simulation report with all inputs assumption clearly mentioned in a separate table. This energy generation report can be generated with any commercially available solar PV simulation software, however PV-Syst or Helioscope is preferred. The bidder will use this submitted simulation report to commit an annual Performance Ratio (PR) and Energy Generation (MWh) against a specified Irradiance (kWh/m²/year) and temperature (OC). The bidder is to provide year on year expected solar PV generation table which will called as the “Performance Commitment Table” from year 1 to year 25 against a specified irradiance/temperature with year 1 and year 2 numbers which will be taken as commitment numbers. O&M for year 1 and 2 will be included in the scope of Bidder. Below table represents a template for prospective “Performance Commitment Table”.

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Year	PR (Performance Ratio)	TCPR (Temperature- Corrected Performance Ratio)	Yearly Generation (MWh)	Global Horizontal Irradiance (W/m ²)	Ambient Temperature (°C)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

If State life intends to extend O&M period for following years after the second year the performance commitment for that year will be based on the “Performance Commitment Table”. The “Performance Commitment Table” provided by the bidder will be considered to technically qualify bidders for consideration in the commercial bid.

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4.10 LOW WATER INTENSIVE CLEANING TOOLS

Share details of proposed tools or equipment which will use low quantity of water to clean modules. The equipment used should easily transportable by a cleaning resource and should be using specialized nozzles to reduce the amount of water consumed without exerting any pressure on the modules (i.e. it should not be a water jet) but rather water should be applied in mist form.

The Contractor must also provide the Employer with an estimated annual water use calculation as the provision of the water resource shall be the Employer's responsibility.

The RFP also allows individual bidders to come up with innovative techniques and equipment to clean solar PV modules while keeping in perspective the following variables in order of importance:

- No damage to be inflicted on the modules.
- Amount of water used should be reduced.
- Should reduce time taken by O&M resource to complete a cleaning cycle.
- Cleaning equipment should not compromise safety of the electrical connections or personnel.

5.1 TECHNICAL EVALUATION

5.1 A detailed evaluation of the bids will be conducted in order to determine whether the technical aspects are substantially responsive to the requirements set forth in the Bidding Documents. In order to reach such a determination, State Life Technical Evaluation Committee shall examine the information supplied by the Bidders and also take into account the following factors:

5.1.1 Overall experience of the Bidder firm related to the assignment;

5.1.2 Any other relevant technical factors that State Life deems necessary or prudent to take into consideration.

5.1.3 Income and sales tax registration certificates. (Mandatory)

5.1.4 Business audit report for last three (03) years.

5.1.5 AEDB Certification

5.1.6 Where subject services were provided in last 3 years. (client's list with project size along with credentials/person of contact)

5.1.8 Quality Certification(s) – e.g. ISO

5.1.9 Non-black listing undertaking on stamp paper of Rs. 100/- (Mandatory).

5.1.9 Bidders are required to provide quotes with validity of at least 180 days.

5.1.10 All items should be quoted with maximum warranty, support and upgrade period for the product. Company profile, activities, background of key shareholders and capabilities.

5.1.11 Any other information/ document/ profile required under this RFP.

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- 5.1.12 Applicant (Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company) profile, activities, background of key shareholders and capabilities.
- 5.1.13 Skill and experience of Applicant; Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company and management personnel
- 5.1.14 The EOIs of the technically qualified Applicants which fulfils the eligibility/ conditions will be called for presentation and will be further evaluated by the technical committee.

5.2.1 TECHNICAL EVALUATION CRITERIA:

In order to ascertain the relative suitability of the offered services, State Life Technical Evaluation Committee shall evaluate the bids as given in section 4.2.2. Only those bidding Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies obtaining at least **70%** marks in the technical criteria shall be further evaluated whereas the remaining bids shall be rejected as being technically not suitable.

5.2.2 TECHNICAL EVALUATION FORM

Profile Evaluation (Total Marks = 50) (Passing Marks = 30)

Applicants will be evaluated as per criteria defined below. Bidders with complete documents (as mentioned earlier) will be considered for technical evaluation. All technically qualified Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies/ Contractors will be called for presentation.

- a. Company Profile (7.5Marks)
- b. Complete Scope of Works (5.0 Marks)
- c. Financial Health (7.5Marks)
- d. Technical Experience/ Installed Capacity Experience (25 Marks)
- e. Litigation History (5.0Marks)

5.2.3 Company profile (Marks Allocated 7.5)

Provide a complete company profile. Experience certificate mentioning the number of years will be provided by the Electrical Contractor/ Joint Venture/ Consortium/ Firm/ Company at its letter head, which will be double checked with the date of issuance of NTN or company registration certificate plus work experience from 1st solar project done.

Years of experience (General)	Marks allocated	Marks secured
4-8 years	7.5	
2-4 years	5.0	
Less than 2 Years	3.0	

5.2.4 Complete Scope of Works (Marks Allocated 5)

Provide detailed BOQ for evaluation of scope. This is a turnkey contract and will require all aspects for a well-designed and maintained system. Any shortcoming in the scope will reduce score. Every missing scope item will have one point deduction..

Complete Scope or Not	Marks allocated	Marks Secured
YES	5.0	
No	0.0	

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5.2.5 Financial Health

(Marks Allocated 7.5)

Participating Electrical Contractors/ Joint Venture/ Consortium/ Firms/Companies must provide last three years annual audited accounts of the Company.

Annual Turn Over	Marks
Average Annual Turnover of last three years > PKR 50 million	7.5
Average Annual Turnover of last three years from PKR 40Millions up to PKR 50 million	5.0
Average Annual Turnover of last three years from PKR 30 million up to PKR 40 million	2.5
Average Annual Turnover of last three years less than PKR 30 million	00

5.2.6 A. Technical Experience**(Marks Allocated 25)**

Detail of all solar power projects done in last 05 years of 100 KW OR MORE capacity with completion certificates and performance reports duly signed by the user, indicating performance of years of installation.

Sr. #.	PROJECTS EXPERIENCE (Please do not include residential PV experience)	MAKRS ALLOCATED	MARKS SECURED
1	10 or more solar power projects of more than 100KW	12.5	
2	5-9 projects of more than 100 KW	8.0	
3	3-5 projects of more than 100 KW	5.0	
4	Less than 03 projects	00	

B. Total Installed Capacity Experience of the firm

Sr. No.	INSTALLED CAPACITY EXPERIENCE (Please do not include residential PV experience)	MARKS ALLOCATED	MARKS SECURED
1	200 KW and Above	12.5	
2	150 KW and up to 200 KW	8.0	
3	100 KW to 150 KW	5.0	
4	Less than 100 KW	00	

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5.2.7 Litigation History/Blacklisting**(Marks Allocated 5.0)**

Electrical Contractor/Joint Venture/Consortium/Firm/Company will be evaluated with its litigation history with any entity current and pending on similar services. One mark will be deducted up to maximum five marks for any current or historical case with any entity (vice versa). Electrical Contractors/ Joint Venture/ Consortium Firms/ Companies/ Contractors are required to submit the case history at stamp paper. Otherwise, State Life has right to disqualify or terminate the contract if State Life finds any litigation case of the Electrical Contractor/Joint Venture/Consortium/Firm/Company, during or later on at any stage.

Sr. No	Litigation History	Marks Allocated	Marks Secured
1	No litigation Case	5.0	
2	01-02 Litigation Case	4.0	
3	03-04 Litigation Case	3.0	
4	Greater than 04 Cases	00	

5.3 DESIGN EVALUATION

The proposal submitted should be presented in front of the technical evaluation committee, on parameters described in scope of work and will be evaluated as followed.

PROPOSED DESIGN PARAMETERS**Marks Allocated (50)****Passing Marks (30)**

Participating Electrical Contractors/ Joint Venture/ Consortium/ Firms/Companies must provide Design as per the specifications provided in Scope of work, while Minimum Qualifying marks are 35. The design will be evaluated as per following:

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Sr. No.	Information/Data given by Firms Evaluation Parameters	Details	Marks
1	Solar PV Module	Brands ranked and approved by PVEL labs. Priority will be given to brands with local service model and spares available. =10 marks	
2	Multi MPPT String Inverter	SMA/Fronius/Huawei/Sungrow or equivalent =15 marks Others =00 mark Clearly Mention in technical proposal	
3	Support Services	Local =5.0 Outstation =2.5 Provide contact details of office of technical support services.	
4	Warranty	INVERTER Up to 5 YEARS = 05 marks Up to 4 YEARS = 03 marks Solar PV Module (Product) Up to 15 YEARS = 05 marks Less than 15 YEARS = 03 marks	
5	Tender Conformance to Specs	Yes / No Provisioning of following requirements is mandatory. = 05 marks i. BoQ ii. Specifications iii. Data sheets iv. Layout drawings with complete wiring plan. Non-conformance to any of the above item shall result in total dis-qualification.	
6	Literature Provided	Literature: = 05 marks Complete = Yes / No The Applicant is required to submit complete literature about the equipment and fixture mentioned in the proposed BoQ, Specification and Data sheet.	
7	Units generation Commitment by PV (Per Year)	>1500 Kwh/KW = 05 marks >1400 Kwh/KW = 03 marks >1300 Kwh/KW = 01 marks <1300 Kwh/KW = 00 marks	

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6.1 Scope of Work

State Life Insurance Corporation invites bids from authorized well-established Electrical Contractors/ Joint Venture/ Consortium/ Firms/ Companies/ Contractors of Alternative & Renewable Energies (ARE C1 & ARE C2) to provide the Net-Metering facilitation and license through K-ELECTRIC / WAPDA having valid NTN/ Sales Tax registration with active ATL Status in FBR and SRB record. The firm should also be certified vendor / installer under Alternative Energy Development Board regulation 2021 with facilities for Design, Build and Installation of 115 KW approximately ($\pm 10\%$) or suitable capacity in accordance with the need of, On-Grid Tied Solar PV System, required for “**State Life Building No. 09 Karachi**”

Single stage single envelopes procedure will be used for the Design, Build and Installation of 115KW Solar Power System at State Life Building No. 09 Karachi

6.2 TECHNICAL SPECIFICATION:

6.2.1 SOLAR PANEL ON ROOF TOPS OF EXISTING BUILDINGS OF STATE LIFE NO. 09 KARACHI

Minimum Specifications	
Photovoltaic Panel	Mono PERC ISO certified (N-Type or P-Type or HJT) Efficient should be above $>22\%$
PV Size	$>580W$
Qty of cells	>144
Bus Bar	Multi Bus Bar solar cell
Cell Quality	A Grade, tier 1 Bloomberg (PVEL Top Performer)
Module Efficiency	$>22\%$
Power Tolerance	0—+3 % or more
Operating Temperature	$-40^{\circ}C$ to $+85^{\circ}C$
Temperature Coefficient of Pmax	$-0.35\%/^{\circ}C$ or better
Fill Factor (Calculations Required)	77% or higher at STC (Detailed)
Certification or equivalent	IEC 61215, IEC 61730, IEC61701 ED2, UL1703
Frame	Must withstand 5400 PA Load
Junction Box	IP68 rated, with bypass diodes
Connectors	MC4 or comparable
Front Cover	3.2mm tempered glass or higher
Warranty	12 years product replacement 10 years for 90% of warranted minimum power 11 - up to 25 years for 85% of warranted minimum power

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6.2.2 Grid Inverter

Minimum Specifications	
Parameters	Description
Type of Inverter	Grid Tied- 3 Phases, WAPDA/KE / Gen.Sync. With built-in Wi-Fi for Data Monitoring.
Make	Japan/ European/USA Singapore/Malaysia/Taiwan/Korea/China/Turkey
No of MPPT inputs	6 or more independent MPP trackers
Nominal AC Voltage	3 c, 230/400 VAC 50Hz
Total Harmonic distortion	<3%
Efficiency	98% peak
Protection Class	IP 65 or above
Standby power consumption	<10W
Operating Temperature humidity	-25 °C "" 60 °C and 0-100%
Topology	Transformer less
Max Input Voltage	1KV
Rated Power @ 400 V 3 4 50Hz	100-110kW
Max AC Power	100-100kVA
Power Factor @ Rated power	0.99
Remote Monitoring App	Yes
Synchronization with Existing Genset	Genset Sync Device
Protections	

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AC/ DC PROTECTION

- i. AC/ DC Over Voltage Protection
- ii. AC/ DC Under voltage Protection
- iii. AC/ DC Over current Protection
- iv. AC/ DC Reverse polarity Protection, Over Temperature Protection, Surge Protection, Anti Island Protection and Grid code complied

AC Protection	Yes
Anti-Islanding Provision	Yes
LVRT Protection	Grid Frequency under/ over Ground Fault Protection Leakage protection
Interface	-RS232/US8 -RS48 Modbus Protocol / Ethernet -LCD Display -Local Monitoring Software should be lifetime free of cost &integrated

Compliance

UL1741/ IEEE1547, UL 1998, CE, EN 50178,

or

EN-624109-1, EN 62109-2, EN 61000-6-2, EN-621000-

6-4, EN 61000-3-11, EN 61000-3-12, EN 50178,

IEC 62103, EN 55011, IEC 61000-3-11, IEC 61000-3- 12, IEC 61000-6-3

IEC 62109-1/2, AND UL 1741 IEC 61727, VDE-All-N 4105, VDE 0125-11, G59/3,

(Different country standards needed for net metering)

6.2.3 Panel Mounted Structure at State Life No. 09 Karachi

Specifications:

- a. MS Iron Structure with red oxide coating and epoxy paint finish with at-least 10-degree designed.
- b. Structure to be designed at 35m/s at 3 sec Gust Factor, Class C Area based on ASCE 7-10.
- c. Building Height to be determined based on site survey.
- d. Elevated structure to avoid shading from surrounding walls between 10 am to 2pm.
- e. Consideration to clean the solar PV modules should also be considered.
- f. Shading shall be avoided all year around from 10:00 am to 2:00 pm.
- g. To allow for regular cleaning of the solar module, it should be accessible to cleaning staff.
- h. Complete Design, Structural and shading analysis report is required to be provided.
- i. Standard civil pads will be provided and structure will be elevated type

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6.2.4 Cable PV to inverter

- a. **PV to inverter** Cable size should be designed appropriately for Losses not more than 1.5%, 99% pure copper or higher, tin coated & UV coated (Flexible).
- b. Panel wiring (4mm² & 6mm²), XLPE/PVC Double insulation 1500 V, combiner boxes, conduits, clamps etc. H1Z2Z2-K Standard to be followed (if required)
- c. High Voltage wiring and circuit breakers, conduits etc.

6.2.5 Cable Duct / Tray / Electrical Conduits:

Item Specifications:

PV to inverter-Type, Proper Electrical UPVC Conduits with 40% free space (Fill Factor)

Grid (DB) to inverter: Galvanized Cable duct (Size/length as per Design).

Must be durable and does not support combustion.

Inverter to Load (DB): Galvanized cable duct (Size/ length as per design). Must be durable and does not support combustion. PVC Dura duct was indoor.

Separate conduits for +ve and -ve DC cables are required.

Separate conduits for AC, DC and Communication cables are required.

6.2.6 Earthing Cable

Earthing Cable to Connect PV Module Earthing: - Cable should be appropriate to provide PV Mounting structure/ Inverter with protection to complete PV plant with lightning arrestors, 99% pure earth bus bar copper or higher. Cables should be off green color. Complete Grounding path to be covered from PV modules to inverter to termination PV panel.

Earthing Test report to be provided with resistance lower than 5 Ohm.

6.2.7 Net Metering

Applicant to undertake and ensure that Net-Metering process is fully done from submission of documents, issuance of NEPRA net meter license, installation of Bi-Directional meter & Load Flow Study by K-Electric & K-Electric Authorized Consultant and fully fictionalization of Net-Metering process. Cost of meter to be kept in scope as well.

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Available space for installation of 115 KW ($\pm 10\%$) Solar PV System is as under: -

a. Google Sketchup Image:

Appendix 'A'

7.1 TIME PERIOD OF DELIVERY / INSTALLATION.

Delivery / Installation Period:

- | | |
|---|-----------------------------|
| i. Submission of design for vetting of Consultant | 07 days of contract signing |
| ii. Vetting of design by Consultant | 07 days |
| iii. Corrections in design as per vetting of Consultant | 07 days |
| iv. Execution & commissioning of work | 90 days |
| v. Net metering from K- Electric in parallel with execution of work | 90 days (max) |

7.2 PENALTY / LATE DELIVERY

In the event of any delay in delivery beyond given time the successful bidder shall inform State Life before expiry of such period giving reasons / justifications for delay. However, State Life reserves the right to take following actions: -

- a) Evaluate the request for extension in delivery period as per its merit and may consider extension in delivery/installation period or otherwise.
- b) In case of late delivery for the reason within control of the firm, liquidation damages at the rate of 0.25% of the contract amount per day but not exceeding 10% of the total value of undelivered/stores items may be levied.

7.3 INSPECTION / TESTING

State Life Technical Committee will inspect and test the supplied Distribution Switches with accessories as per specifications and accessory list after arrival at the premises. All applicable tests would be conducted in the presence of State Life Technical Team and required test reports would be signed by both the parties and submitted to State Life to ensure 100% work performance of equipment and services.

7.4 DISPUTE SETTLEMENT

Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions of the Arbitration Act, 1940 (Act No. X of 1940) and Rules made thereunder and any statutory modifications thereto.

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Services under the Contract shall, if reasonably possible, continue during the arbitration proceedings and no payment due to or by the Client shall be withheld on account of such proceedings.

7.5 TERMS OF PAYMENT

Following payment schedule, terms and conditions will be applicable on mutual agreement:

- A. 10% of the total amount will be released as mobilization advance after signing of contract against the Bank Guarantee to be provided by contractor.
- B. 35% of the total amount will be released on successful delivery of electrical and mechanical items.
- C. 30% after Installation.
- D. 10% on Commission, Testing & handover of the System.
- E. 10% on successful Net Metering by KE.
- F. 5% retention will be released after successfully completion of defect liability period.

Note: Please note that except to the mobilization advance all payments will be released after verification / recommendation of Consultant appointed by State Life for supervising the job or State Life Engineering team.

7.6 WARRANTY

- i) One (01) year warranty as per defect liability period for replacement of any faulty/malfunctioned equipment free of cost will be provided for all the items under this procurement .
- ii) Product warranty will be provided as per the technical specifications mentioned in this tender document.

7.7 DEFECT LIABILITY(01 YEAR)/OPERATION & MAINTENANCE PERIOD (02 YEARS).

- a. Contractor will maintain the solar system in best technical manner throughout the defect liability period (free of cost) of 01 one year from the date of completion of project.
- b. Contractor will ensure the proper functioning of solar system throughout the defect liability period of 01 year from the date of completion of the project
- c. Contractor will replace any defective/nonoperational part immediately (free of cost) under defect liability of One (01) year from the date of completion of the project.

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- d. On receipt of any complaint (via phone call, letter, WhatsApp or fax), the contractor will attend the complaints within 2 Hours. Reason as political strikes etc, for not attending the complaints shall not be accepted. All the collective and precautionary measures undertaken by contractor regarding maintenance / servicing shall be checked and supervised by electrical Incharge/ Supervisor / Officer.
- e. To immediately attend all emergency breakdowns and replacement works. All such repairing works are to be supervised and controlled by an experienced person / qualified Engineer.
- f. In case of delay, during defect liability period (01 year), in attending complaints and rectification of fault as well as delay in submission of monthly inspection reports, a penalty of 05 % will be imposed on the retention money amount already being hold by SLIC
- g. In case of delay, during operation and maintenance period (02 years), in attending complaints and rectification of fault as well as delay in submission of monthly inspection reports, a penalty of 05 % will be imposed on the monthly payment of operation and maintenance bill.
- h. Verification of energy data produced by the system and net metering recovery from K- Electric up-to expiry of defect liability period. The report to be submitted on month basis after issuance of completion certificate.

7.8 AFTER SALE SERVICE.

- a. Applicant will guarantee the availability and the supply of Essential Maintenance Spares and Parts required to keep the equipment operational for a period as per the warranty of all items from the date of inspection & commissioning of equipment.
- b. The Applicant would provide details of any improvement's modifications in the supplied equipment during warranty period in currency of the contract if carried out by the OEM.

7.9 OPERATION MAINTENANCE & TRAINING

The Applicant is required to provide operation maintenance for a period of 01 year (free of cost) of the installed system including on job training to the staff State Life for operation. The two (02) years operation and maintenance will be provided by the applicant as per the rates quoted in the subject tender.

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7.10 NET-METERING

Net-Metering to be covered with end-to-end facilitation by the Applicant, however the fees of Bi-Directional Meter, NEPRA Pay order & Load Flow Study will be borne by State Life as per K-ELECTRIC, NEPRA & K-ELECTRIC authorized consultant charges and must be include in the financial proposal as it can be made part of the agreement.

7.11 PAYMENT OF APPLICABLE TAXES

The Applicant, and their employees shall be responsible for payment of all their taxes, including income tax, sales tax on services and other taxes on income arising out of the Contract and the rates and prices stated in the Contract shall be deemed to cover all such taxes. Taxes to be borne by the Successful Bidder on any payment arising out of the contract, as per applicable laws.

7.12 PROJECT PLAN SUBMISSION

The Final Project Execution Plan shall be submitted by the Successful Bidder within 10 days from the date of receipt of Letter of Acceptance, which shall be either planed on MS-Project or Primavera Latest Version. It will contain the following minimum information but not limited to the following:

- i. A Bar Chart identifying the critical activities, with completion date.
- ii. A CPM identifying the critical path/activities.
- iii. TECHNICAL / USER MANUAL / PUBLICATION: Successful Bidder will be bound to provide subject material to State Life before commissioning.

7.13 TURN AROUND TIME

07 days for the turnaround time (TOT) for replacement of equipment (if required with its alternate arrangement by Electrical Contractor/ Joint Venture/ Consortium/ Firm / Company without hampering the power supply), spares parts, curing a fault, maintenance, etc. would be allowed, the shipping cost of the provision initially and otherwise of the equipment and parts during the whole contract period should be borne by Electrical Contractor/ Joint Venture/ Consortium/ Firm/Company.

7.14 ONLINE PORTAL FOR SOLAR SYSTEM MONITORING

Solar Online Portal should be provided with the complete system so that the PV system operators and installers can analyze & access key system, data anytime, anywhere and measure values and visualize and compare yields, meaning that even minor deviations can be detected and resolved quickly.

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7.15 INTEGRITY PACT

If the Contractor or any of his Subcontractor, agents or servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as Appendix-B to this Form of Contract, then the State Life shall be entitled to:

- (a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractor, agents or servants;
- (b) terminate the Contract; and
- (c) recover from the Contractor any loss or damage to the State Life as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractor, agents or servants.

7.16 COMPLETION OF WORK (RISK & COST)

If due to any reason, contractor is unable to complete the work in given time or beyond 100 days of completion date, for which L.D has been imposed on him, SLIC can terminate the contract with him and get the remaining work executed through other contractor at his risk & cost. The cost so incurred will be deducted from his bills or recovered from him through other / legal means.

7.17 DRAWING & DESIGN:

Once the project is awarded submission of the following will be required to fulfill the "Project Design" requirements. The requirements are as follows:

- The detailed design package to include all site data gathered, calculations, CAD based drawings, CAD based component details, specifications, datasheets.
- The detailed design package to include
 - Layout with module placement (Top View and Side View)
 - Optimal Stringing plan of PV modules.
 - Shading analysis (10 am to 2 pm 21st Dec winter solstice consideration)
 - Grounding and Bonding layout and calculations
 - Lightning protection design and calculations

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- Communication scheme & RMS functionality
- Data archiving tools
- Power cables calculations
- OCPD and SPD sizing
- Cable tray/conduits sizing calculation and route in CAD
- Single Line Diagram (SLD) DC & AC side
- Structure CAD drawings along with civil details
- Structure simulation to pass at 35m/s
- Structure to comply with ASCE 7-10 for structure design
- Inverter mounting drawings.
- Calculation of distributed load on roof. Uniformly distributed load and maximum point load.
- Storm water drainage plan for roof.
- Electrical BOS CAD details. Like DC isolator panel, AC LV panel etc.
- Earthing drawing and resistance calculation
- CAD drawings, and design basis.
- Safety Signage (According to NEC)
- Bill of Material of equipment and services
- Energy simulation report (Report in PVsyst will be preferred).
- The solar PV Design to comply to IEC 62548 and all referenced standards within IEC 62548 to ensure safe and reliable solar PV design and operation.
- Grounding design to comply with IEC 60364 solar PV requirements.
- Lightning design and its earth pit must comply with IEC 62305.
- All testing, documentation, and commissioning to comply with IEC 62446, any additional requirement mentioned in the RFP to be complied as well.
- Before project closure all as built design drawings to be printed in 24"x36" sheets and scaled appropriately for employer's record.

All "Project Design" documents shall be provided in electronic format. The bidder shall allow State Life and its Owner's Engineer a reasonable time for review, comments and approval/rejection of the documents

All EPC works have to be executed strictly in accordance with the approved Project Designs and Project Management Plan. Any change deemed necessary by the bidder needs to be approved by the Employer or its Owner's Engineer with proper technical and commercial justification. After the finalization of the EPC works, but not later than 20 days after COD, a complete set of "As-Built" documentation shall be submitted to the Employer and Owners Engineer.

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The contractor shall submit as built single line diagram of solar system along with layout of solar system installed at the building after completion of project with his signature & stamp.

7.18 PROJECT MANAGEMENT PLAN

Once the project is awarded the bidder must prepare and maintain a Project Management Plan (PMP) that defines how the project is executed, monitored and controlled in accordance with the requirements of the EPC contract. It shall cover following aspects:

- Scope Management (e.g. Work breakdown structure)
- Schedule Management (Project Gantt Chart) with weekly updates on progress. Any delay will have to be explained and justified with S curves.
- Team organogram and communication hierarchy. Escalation Matrix.
- Method of Works.
- Photo evidence and records to be maintained on project progress and shared with the buyer.
- Project progress meetings MoM to be maintained.
- Risk Management
- Installation best practices and management plan
- O&M Plan
- Spare parts management plan
- Onsite safety planning.
- Handover documents
- Subcontractor roles and responsibilities to be provided
- Subcontractor eligibility requirement documents to be provided

The “Project Management Plan” needs to be approved by the Consulting Engineer and client prior to the approval of the design works.

The bidder shall fulfill the Employer’s “Project Schedule” deadlines for the delivery of the project.

7.19 ELECTRICAL PROTECTION EQUIPMENT

The solar PV electrical protections to be designed based on IEC 62548, IEC 61643-32. Should include OCPD, OVP, Lightning Protection etc. as required based on standards. All electrical panels located outside will be outdoor rated IP56, powder coated and should not be exposed to direct sunlight or precipitation.

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7.20 TECHNICAL DESIGN STANDARDS COMPLIANCE

The following design and installation standard compliance is required for the project in consideration:

- 1) IEC 62548 (Solar PV Design Requirements)
- 2) IEC 62446 (Testing, documentation and maintenance)
- 3) IEC 61643-32 (Low-voltage surge protection devices)
- 4) IEC 60364-5-52 (Electrical installation of buildings)
- 5) IEC 62305 (Lightning protection)
- 6) IEEE 80 (Earthing design)
- 7) BS 7430 (Earthing design)
- 8) Structure Design (ASCE 7-10)

7.21 SAFETY AND QUALITY CONTROL PLAN

The bidder will be expected to share a safety and quality control plan along with the detailed design submission. The plan shall include all steps taken to maintain quality and the resources that will be engaged at site for quality control. Similarly, safety for all resources and safety of project equipment is an important consideration at site and a safety plan will be shared by the bidder to highlight all consideration, resources that will be engaged for maintaining safety at site.

7.22 O & M OVERVIEW

Three years of operations and maintenance is an integral activity of this EPC project. It is intended that the project performs as per design “Performance Commitment Table” while also maintaining the project to ensure reliability and longevity for 25 years. Industry best practices to be used to operate and maintain the solar PV Project. All necessary preventive and corrective actions to be shared and implemented before the start of the O&M contract. The following key performance metrics to be monitored and reported which are as follows:

- Annual Performance Ratio
- Monthly Performance Ratio
- Power Performance Index
- Energy performance Index
- Inverter wise performance
- Cleaning Schedule

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Performance Ratio (burn test) to be carried out for 30 days once project is completely installed and ready for testing. Monthly Reports to be shared covering all aspects of solar PV performance including an event log. Any system under performance or failure of an equipment will automatically trigger the requirement of a detailed root cause analysis RCA (based on site-based tests) and a report will have to be submitted at the earliest completion of an RCA.

The following additional spare parts will be ordered along with the project procurement

- 10 extra modules.
- 50 m DC cable
- Equipment to ensure low water consuming cleaning techniques.
- Miscellaneous Items.

Any additional spares that the bidder foresees that could be used should be additionally specified. These should not be consumable items and will be analyzed by the owner's engineer before being allowed to be added in the spares list. These spares are owned by State Life & stored within State Life, whereas it is the responsibility of the contractor to properly maintain, safeguard and store the spare parts. The spares can be acquired after an incident is properly reported where the installed inverters have become nonoperational.

Any additional spares non-availability impact on nonperformance of the plant will be the responsibility of the contractor during the O&M period. Any resulting damages due to nonperformance of the plant due to the unavailability of the inverters or any other equipment will be the responsibility of the O&M provider. Specialized low water consumption cleaning techniques and equipment to be used to avoid soiling and reduce portable water use. Unlimited water will not be available for cleaning modules. The cleaning frequency of the modules must be twice per week.

7.23 PROJECT EPC CLOSE OUT CRITERIA

The following deliverables will have to be completed before the EPC contract can be officially closed and O&M activities to be initiated.

- Revised PV-syst Simulation based on As-built conditions. This however will not change the "Performance Commitments" made.
- Commissioning inspection and test report to be based on IEC 62446.
- Performance ratio burn test report.
- Handover of warranty documents and contacts for OEM's.
- Spare parts lists handover to site owner.
- O&M Team readiness to start all required activities. Site resourcing etc.
- Projects team to get cleaned all PV modules before handing over to O&M team.

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7.24 BLACKLISTING AS PER PPRA RULE.

In case of failure of contractual obligations, SLIC may start blacking list procedure as per PPRA rules and State Life blacklisting policy.

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DESIGN, BUILD AND INSTALLATION 115 KW ($\pm 10\%$) ON-GRID TURNKEY PHOTOVOLTAIC (PV) SOLAR SYSTEM AT STATE LIFE BUILDING NO. 09 DR. ZIAUDDIN AHMED ROAD KARACHI (TENDER NO. RE/EL/SE/JUN/4009/24)

FINANCIAL PROPOSAL

8.1 FINANCIAL PROPOSAL

The rates of the items quoted in the BOQ should be as per the minimum specification mentioned in the document and must be included with all types of taxes, transportation, profit etc.

S.#	Items	Quantity	Unit	Supply Rate (Rs.)	Supply Amount (Rs.)	Installation Rate (Rs.)	Installation Amount (Rs.)	Total Amount (Rs.)
1	Supply & installation of Solar PV Module Prices with allied accessories complete in all respect as per specification and site requirements							
2	Supply & installation of Inverters with allied accessories complete in all respect as per specification and site requirements							
3	Supply & installation of Elevated Structure with allied accessories complete in all respect as per specification and site requirements							
4	Supply & installation of PV Diesel Genset Controller with allied accessories complete in all respect as per specification and site requirements							
5	Supply & installation of DC Cabling & DC Fuses with allied accessories complete in all respect as per specification and site requirements							
6	Supply & installation of AC Cabling with allied accessories complete in all respect as per specification and site requirements							
7	Supply & installation of Grounding Cables (All) with allied accessories complete in all respect as per specification and site requirements							
8	Supply & installation of Communication Cables with allied accessories complete in all respect as per specification and site requirements							

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S.#	Items	Quantity	Unit	Supply Rate (Rs.)	Supply Amount (Rs.)	Installation Rate (Rs.)	Installation Amount (Rs.)	Total Amount (Rs.)
9	Supply & installation of LV Panels and Protection with allied accessories complete in all respect as per specification and site requirements							
10	Supply & installation of Other Electrical Accessories with allied accessories complete in all respect as per specification and site requirements							
11	Supply & installation of Earthing Pits with allied accessories complete in all respect as per specification and site requirements							
12	Supply & installation of Lightning Protection System with allied accessories complete in all respect as per specification and site requirements							
13	Supply & installation of Complete Electrical Installation with allied accessories complete in all respect as per specification and site requirements							
14	Supply & installation of Complete Structural Installation with allied accessories complete in all respect as per specification and site requirements							
15	O&M for Two Years Cost (as per breakup cost mentioned in Annexure A)							
17	Net Metering Complete Process as per specification and site requirements							
18	Supply & installation of NetMetering Meter Cost with allied accessories complete in all respect as per specification and site requirements							
19	Solar Monitoring							
20	Spares							
TOTAL AMOUNT (A)								

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8.2 OPERATION & MAINTENANCE DURING WARRANTY PERIOD (2 YEARS) PER YEAR.

Services	Frequency	Rate (Rs.)	Amount 1 st Year	Amount 2 nd Years	Amount 3 rd Year
Ready on Site after sales support.			Free of Cost as per Defect Liability Period		
Complete System monitoring.					
System trouble shooting (Remotely via cloud connectivity).					
Preventive on site visits					
Solar panels cleaning services.					
TOTAL AMOUNT PER YEAR		Rs.			
TOTAL AMOUNT FOR 2 YEARS (B)		Rs.			

Sr. No.	Financial Proposal (A)	Operation Maintenance Cost (B)	Total (A+B)
1.			

CONSOLIDATED COST IMPACT

1KW UNIT PRICE PKR _____

115KW SYSTEM PRICE PKR _____

NOTE:

- Operation and maintenance for the period of 1st year will be free of cost as per clause of Defect liability period.
- Operation and maintenance for the period of 2nd & 3rd year will be quoted by the bidder in the above mentioned BOQ.
- Price Quotes should be valid for a minimum period of 180 days from the date of opening of tender.

Any other Detail:

Name in Full _____

Designation _____

CNIC _____

Phone / Fax _____

Address _____

Signature _____

Date _____

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APPENDIX A

GOOGLE IMAGE OF STATE LIFE BUILDING NO. 09 KARACHI.

**ROOF SPACE AVAILABLE TO INSTALL SOLAR PANELS AT
STATE LIFE BUILDING NO. 09 KARACH
TENDER NO. RE/EL/SE/IUN/4009/24**



**Appendix-B
(Integrity Pact)**

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

Contract No. _____ Dated _____
Contract Value: _____
Contract Title: _____

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

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

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

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

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

Name of Client:
Signature:
[Seal]

Name of Contractor.....
Signature:
[Seal]

Appendix-C
FORM OF PERFORMANCE SECURITY
(Bank Guarantee)

Guarantee No. _____
Executed on _____
Expiry date _____

[Letter by the Guarantor to the Employer]

Name of Guarantor (Bank) with address: _____
(Scheduled Bank in Pakistan)

Name of Principal (Contractor) with
address: _____

Penal Sum of Security (express in words and figures) _____

Letter of Acceptance No. _____ Dated _____

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

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has accepted the Employer's above said Letter of Acceptance for _____ (Name of Contract) for the _____ (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause 49, Defects Liability, of Conditions of Contract are fulfilled.

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

We, _____ (the Guarantor), waiving all objections and defences under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

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

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

	_____ Guarantor (Bank)
Witness:	
1. _____	Signature _____
_____	Name _____
Corporate Secretary (Seal)	Title _____
2. _____	
_____	_____
Name, Title & Address	Corporate Guarantor (Seal)

FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the "Agreement") made on the _____ day of _____ (month) 20____ between _____ (hereafter called the "Employer") of the one part and _____ (hereafter called the "Contractor") of the other part.

WHEREAS the Employer is desirous that certain Works, viz _____ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any, except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement, viz:
 - (a) The Contract Agreement;
 - (b) The Letter of Acceptance;
 - (c) The completed Form of Bid;
 - (d) Special Stipulations (Appendix-A to Bid);
 - (e) The Particular Conditions of Contract – Part II;
 - (f) The General Conditions – Part I;
 - (g) The priced Bill of Quantities (Appendix-D to Bid);
 - (h) The completed Appendices to Bid (B, C, E to L);
 - (i) The Drawings;
 - (j) The Specifications.
 - (k) _____ (any other)
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor

Signature of Employer

(Seal)

(Seal)

Signed, Sealed and Delivered in the presence of:

Witness:

Witness:

(Name, Title and Address)

(Name, Title and Address)

MOBILIZATION ADVANCE GUARANTEE/BOND

Guarantee No. _____ Date _____

WHEREAS _____ (hereinafter called the 'Employer') has entered into a Contract for _____
(Particulars of Contract)
with _____ (hereinafter called the "Contractor").

AND WHEREAS, the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Rupees _____ (Rs _____) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS, the Employer has asked the Contractor to furnish Guarantee to secure the mobilization advance for the performance of his obligations under the said Contract.

AND WHEREAS, _____
(Scheduled Bank in Pakistan or Insurance Company acceptable to the Employer)
(hereinafter called the "Guarantor") at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW, THEREFORE, the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, on the part of the Contractor, shall be given by the Employer to the Guarantor, and on such first written demand, payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall remain in force until the advance is fully adjusted against payments from the Interim Payment Certificates of the Contractor or until _____ whichever is earlier.
(Date)

The Guarantor's liability under this Guarantee shall not in any case exceed the sum of Rupees _____ (Rs _____).

This Guarantee shall remain valid up to the aforesaid date and shall be null and void after the aforesaid date or earlier if the advance made to the Contractor is fully adjusted against payments from Interim Payment Certificates of the Contractor provided that the Guarantor agrees that the aforesaid period of validity shall be deemed to be extended if on the above mentioned date the advance payment is not fully adjusted.

GUARANTOR

1. Signature _____
2. Name _____
3. Title _____

WITNESS

1. _____

Corporate Secretary (Seal)

2. _____
(Name Title & Address)
- _____
Corporate Guarantor(Seal)