THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MALIMBADA PRADESHIYA SABAWA, MALIMBADA, PALATUWA

BIDDING DOCUMENT

Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System

Procurement No: MPS/02/02/Solar

The Chairman
Malimbada Pradeshiya Sabawa Procument Committee
Malimbada
Palatuwa
Matara.

Tel:.....
Fax:…….
E-mail…….

…….2024

Procurement of Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System

Procurement No:……..

Bidder's Name :…….
(Issued To) …….
Address :…….
Tel. :…….
Fax. :…….
Receipt No. of Non Refundable Fee: ……

Issued Officer : ……..

Date :…….

Seal : ……..

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PROCUREMENT NOTICE-INVITATION FOR BIDS

Grid Tied Rooftop Solar Power Generating System
Malimbada Pradeshiya Sabawa, Malimbada, Palatuwa

PROCUREMENT NO: ……..

1. The Chairman, Procurement Committee on behalf of the Malimbada Pradeshiya Sabawa invites sealed bids from eligible and qualified Bidders for Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System

2. Bidding will be conducted through the National Competitive Bidding Procedure.

3. Bid documents may be inspected at free of charge and bidder may obtain further information and clarifications from Malimbada Pradeshiya Sabha office or over the telephone number 0412240208 or e-mail: malimbada.ps@gmail.com during normal office hours (**0830-1615**) or through Malimbada Pradeshiya Sabha official website: www.malimbadaps.lk .

4. A complete set of Bidding Documents in English language may be purchased by interested bidders on the submission of a written application on a business letter head to, The Secretary, Malimbada Pradeshiya Sabawa from **30 August/ 2024 until 18 September/ 2024** during normal working days from **0900 hrs to 1500 hrs** upon payment of a nonrefundable fee of LKR **3,000/=**, The method of payment in cash.

5. The sealed bids marked **"Solar Power Generating System"** on the top left hand corner may be deposited in the tender box provided at the Malimbada Pradeshiya Sabawa Office or could be sent by registered post to reach the Secretary, Malimbada Pradeshiya Sabhawa,Malimbada,Palatuwa.
on or before 18 /September/2024 at 1030hrs. Incomplete and Late bids will be rejected. Bids will be opened soon after closing time at following place in the presence of the bidder's representatives who choose to attend.

6. All bids shall be accompanied by a Bid Security of **LKR 80,000/=** and valid until **December 2024** from **September/2024.**

The Chairman
Malimbada Pradeshiya Sabawa Procument Committee
Malimbada
Palatuwa
Matara.

Section I, VI & VIII are not included in this bid document. They are standard SBD format publication second edition, January 2007 by Institute for Construction Training and Development (ICTAD) now Construction Industry Development Authority (CIDA)

Section II

Bidding Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

ITB Clause Reference	A. General
ITB 1.1	The Purchaser is: Malimbada Pradeshiya Sabawa The name and identification number of the Contract is: Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System Procurement No – ……..
ITB 2.1	The source of funding is: GOSL
ITB 4.4	Foreign bidders are allowed to participate in bidding. Not applicable
	B. Contents of Bidding Documents
ITB 7.1	For **Clarification of bid purposes** only, the Purchaser's address is: Attention: ……. Address: ……. …… …….. Telephone: **……** Electronic mail address: ……..
	C. Preparation of Bids
ITB 11.1 (e)	The bidder shall submit the Company Business registration details
ITB 14.3	The bidders should quote for all items
ITB 15.1	The bidder shall quote the local expenditure in Sri Lanka Rupees

ITB 19.1[12]	The bid shall be valid until 90 days from the bid opening
ITB 20.1	The Bid shall include a Bid Security issued by an acceptable agency to an employer using the form for bid security (unconditional on demand guarantee) included in Section IV Bidding Forms. The agencies acceptable to the employer are; 1) Any Bank operating in Sri Lanka under the Central Bank of Sri Lanka 2) A bank based in another country but the Guarantee "confirmed" by a bank operating in Sri Lanka under central bank of Sri Lanka. Value of bid security is Rs.75,000.00 Cheque, Bank Draft, LC, Bid -Securing Declaration are not accepted.
ITB 20.2	The amount of the bid security shall be the amount in rupees as given above in the Clause 20.1 of this sheet and the validity period up to 119 days from the bid opening date
	D. Submission and Opening of Bids
ITB 22.2 (c)	The inner and outer envelopes shall bear the following identification marks: "Solar Power Generating System" Procurement No – …….
ITB 23.1	For bid submission purposes, the Purchaser's address is: Attention: The Secretary Address: Malimbada Pradeshiya Sabawa, Malimbada, Palatuwa
	The deadline for the submission of bids is: Date: - ……/September/2024 Time: 14.00 hrs. If the bid is not sealed and marked as required, the purchaser will assume no responsibility for the misplacement or premature opening of the bid. Late submission will be rejected and returned unopened to the bidder.

ITB 26.1	The bid opening shall take place at: Address: Malimbada Pradeshiya Sabawa, Malimbada, Palatuwa Date: …../September/2024 Time: 14.00 hrs.
	E. Evaluation and Comparison of Bids
ITB 34.1	Domestic preference shall not be a bid evaluation factor.
ITB 35.4	See section III – Clause 5
ITB 35.5	Bidder shall quote for the total scope, only a one bidder is selected for this procurement.

Section III

Qualifications, Experience and Evaluation Criteria

The information to be filled by bidders in the following pages will be used for bid evaluation as described in the Instructions to Bidders. Attach additional pages as necessary.

1. Qualifications and Eligibility Information

a. The Bidder should have valid business registration in Sri Lanka for private limited under the Companies Act No.7 of 2007 and valid SLSEA solar PV service provider registration at which continuously renewal for five years under same SLSEA registration number up to 2024.

b. Bidder shall not have been blacklisted. A declaration letter shall be submitted with the bid document with signing the authorized officer of the said company.

c. That bid document should be signed by an authorized officer.

2. Experience

Bidder should be continuous five years' experience in grid tied rooftop solar installation and install cumulative capacity one megawatt including at least five number of forty-kilowatt grid tied rooftop solar power generating system on or before the date of bid submission. Provide details in following table. Attach additional pages as necessary.

Name of the project	Installed Capacity (kW)	Name of the Client	Date of Completion	Total Cost of the project (LKR)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
Total				

3. Personnel/ Technical staff

The Bidder must demonstrate that it has the personnel for the key positions in the bidder's permanent cadre that meet the following requirements and the bidder must have the capability to complete installation within the given contract period.

No.	Position	No of personals	Minimum Qualifications	Total Work Experience [years]	Experience In Similar Work [years]
1	Project Manager	1	BSc. Eng. or Equivalent	05	02
2	Design Engineer	1	BSc. Eng. or Equivalent	05	02
3	Construction Supervisor	1	NVQ5 or above / Equivalent	05	02
4	Solar PV Technician / Field staff) NVQ 3 or above)	5	NVQ 3 or above/ Equivalent	02	01

The Bidder shall provide details of the proposed personnel and their experience records in the relevant information Forms included in Section IV-Forms of Bid.

4. Evaluation Criteria

The Technical Evaluation Committee (TEC) will carefully review and assess each bid in order to identify the most responsive bidders among the others, and then rank the bidders in ascending order taking price into account. Prior to conducting a full review of bidders, the TEC will verify whether each bidder has met the following requirements.

1. Whether the Forms of Bid have been duly filled and properly signed.
2. Valid business registration in Sri Lanka under Act number 7 of 2007 and valid SLSEA solar PV service provider registration and continuously renewal under same registration number during last five years
3. Meets the requirements mentioned in Section I (ITB) along with Section II (BDS), Section III & Section V.

Signature of bidder: …….
Bidder's Name :……

Date : …….. Company Seal: ……..

Section IV
Bidding Forms

1. Bid Submission Form
2. Bid Security Form
3. Manufacturer's Authorization
4. Price Schedule
5. Delivery Schedule
6. Cost Break Down

1.BID SUBMISSION FORM

[The Bidder shall fill in this Form in accordance with the instructions indicated No alterations to it's format shall be permitted and no substitutions shall be accepted.]

Date: ……
No.: .....

To: **……**
……

We, the undersigned, declare that

(a) We have examined and have no reservations to the Bidding Documents,

(b) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services "**Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating Systems to Malimbada Pradeshiya Sabhawa"**

(c) The total price of our Bid (without taxes), including any discounts offered is: -

Total bid price in words: -……

In figures: -……

(e) Our bid shall be valid for the period of time specified in ITB Sub-Clause 18. 1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 23.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(f) If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 43 and CC Clause 17 for the due performance of the Contract;

(g) We have no conflict of interest in accordance with ITB Sub-Clause 4. 3;

(h) Our firm, its affiliates or subsidiaries—including any subcontractors or suppliers for any part of the contract—has not been declared blacklisted by the National Procurement Agency;

(k) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.

(l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed:

Signature ……

Name ……..

In the capacity of : …….

In the capacity of *[insert legal capacity of person signing the Bid Submission Form]*

Complete Name of person signing the Bid Submission Form
: …….

Duly authorized to sign the bid for and on behalf of: ……..
……..

Insert complete name of Bidder

Dated on _____ day of _____, _____ *[insert date of signing]*

Company Seal ……..

2.BID SECURITY(GUARANTEE) FORM
(Unconditional)

[This Bank Guarantee form shall be filled in accordance with the instructions indicated in brackets] ……. *[Insert issuing agency's name, and address of issuing branch or office]*

***Beneficiary: ……**
…….
Date: ……..
[Insert (by issuing agency) date]

BID GUARANTEE No. : ……
[Insert (by issuing agency) number]

We have been informed that --------- *[insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners]* (hereinafter called "the Bidder") has submitted to you its bid dated --------- *[insert* (by issuing agency) *date]*(hereinafter called "the Bid") for the supply of *[insert name of Supplier]* under Invitation for Bids No. ------- ---- *[insert IFB number]* ("the IFB").

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we ---------- *[insert name of issuing agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ---------- *[insert amount in figures]* ---------- *[insert amount in words*]) upon receipt by us of your first demand in writing accompanied by a writ ten statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a) Has withdrawn it's Bid during the period of bid validity specified; or

(b) Does not accept the correct ion of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or

(c) Having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to **…../…../2024**

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date._____
[Signature of authorized representative(s)

3.MANUFACTURER'S AUTHORIZATION

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in it's bid, if so indicated in the BDS.]

Date: ……
Tender Ref.: .....

To **……**
……

WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of [insert type of goods manufactured], having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods*], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 27 of the Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: ……
[Insert signature(s) of authorized representative(s) of the Manufacturer]

Name: …….
[Insert complete name(s) of authorized representative(s) of the Manufacturer]

Title*:* ……..
[Insert title]

Duly authorized to sign this Authorization on behalf of: *[insert complete name of Bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

4.PRICED SCHEDULE

Item	Name of Project	Number of System	Grid Capacity	System Unit Cost LKR	Total Cost without Taxes, LKR
01	Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System	01	40kW		
	Total Cost without Tax, LKR				

Total cost without Tax(in figures): LKR……

Total cost without taxes (in words) :

LKR…….....

……

……

Taxes –(i)VAT: …… %

(If any): ……..

Total cost with taxes (in figures) : LKR……..

Total cost with taxes (in words) :
LKR……..
……
……

VAT Registration No……. (Attach a copy of VAT Reg. Certificate)

Signature of bidder ……
Bidder's Name ……
Date ……..
Company Stamp …….

5.DELIVERY SCHEDULE

Item No	Description of Goods	Unit	Quantity	Final (Project Site) Destination as specified in BDS	Delivery Date		
					Required Delivery Date* (From date of awarding letter)		Bidder's offered Delivery date [to be provided by the bidder]
					Earliest	Latest	
1	Solar Panel	No	As per bidder specified	Pl. see table A	07	15	
2	Inverter	No	As per bidder specified	Pl. see table A	07	15	
3	AC Surge Protection	No	As per bidder specified	Pl. see table A	07	15	
4	DC Surge Protection	No	As per bidder specified	Pl. see table A	07	15	
5	DC/AC switch gears	No	As per bidder specified	Pl. see table A	07	15	
6	Cable, Connection Box and required system components	No	As per bidder specified	Pl. see table A	07	15	
7	Mounting Structure	Set	As per bidder specified	Pl. see table A	07	15	
8	Monitoring System	Set	01	Pl. see table A	07	15	
9	Broachers/Manuals	Set	01	Pl. see table A	07	15	

*** Construction period is 30 days from date of signing the agreement**

6. COST BREAKDOWN SHEET

No	Item	Brand	Qty	County of origin	Efficiency	Warranty	Capacity/Rating/Size	Price (LKR)	VAT
1	Solar panel								
2	Inverter								
3	AC SPD								
4	DC SPD								
5	DC Switch Disconnector								
6	AC Disconnector								
7	DC Cable								
8	AC Cable								
9	DC over current protection devices								
10	MCB								
11	MCCB								
12	RCCB								
13	Digital Energy Meter								
14	Mounting structure and other fixing accessories								
15	Conduit, Water supply system								
	Transport								
16	Installation								
17	Design								
18	Testing & Commissioning								
19	Others (if any)								
20									
21	Free Maintenance Services (scheduled & unscheduled) with workmanship warranty for five (05) years●●						----------	-------	------

●●The selected bidder shall agree to sign the maintenance agreement for five (5) years free maintenance period and subsequent years (as requested by the client) after awarding of the contract.

Personnel

Bidders should provide the names of suitably qualified personnel to meet the requirements specified in Section III (Qualifications and Experience of the Bidders). The data on their experience should be supplied using the form below for each candidate.

Form 5: Proposed Personnel

1.	**Title of position* (Project** Manager -1**)**
	Name :
2.	**Title of position* (**Design Engineer -1**)**
	Name :
3.	**Title of position* (**Construction Supervisor -1**)**
	Name :
4.	Title of position* (Solar PV Technician / Field staff) NVQ 3 or above - 5)
	Name: 1. **2.** **3.** **4.** **5.**

*As listed in Section III (Qualifications and Experience of the Bidders).

Form 6: Resume of Proposed Personnel (Pl. fill for each person indicated in form 5)

Position		
Personnel information	**Name**	**Date of birth**
	Professional qualifications	
Present employment	**Name of employer**	
	Address of employer	
	Telephone	**Contact (manager / personnel officer)**
	Fax	**E-mail**
	Job title	**Years with present employer**

Signature of bidder ……
Bidder's Name ……
Date ……..
Company Stamp …….

SECTION V - SCHEDULE OF REQUIREMENTS

1. General
2. Technical Specifications
3. Maintenance Services – Annex A
4. Apply Standards – Annex C

GENERAL

Malimbada Pradeshiya Sabhawa invites bids from eligible and qualified bidders to design with supply, delivery, install, test, commission and maintenance of grid-tied rooftop solar power generating system. 40kWac system will be installed on the roof of Pradeshiya Sabhawa building. The utility provider is the Ceylon Electricity Board (CEB). The selected bidder shall have good capacity, availability of stock and financial strength for quickly installing the system on the date of agreed. The selected bidder should sign a contract agreement with Pradeshiya Sabhawa, after issuing the acceptance letter. The power injection method is a net accounting system. The PV system should be installed according to the SLS 1522 and PUCSL guide line. The bidders are requested to visit site and decide technically to obtain maximum AC capacity within the CEB limit while considering available roof space, undergo weight on the roof, proper working path between the arrays (minimum one feet) on the roof, keeping proper gap between roof and panel for effective heat transfer to achieve the maximum benefit to the client.

Table A

Roof	Capacity(kWac)	Utility Provider	Utility Approval	Connection Method	Construction period
Amano Sheet	40	CEB	Received	Net Accounting	01 Month

1. Introduction

The Solar PV system and other associated system elements shall be designed to ensure continuity of operation under all working conditions and to facilitate inspection, maintenance, and repairs. Every effort shall be made during design and selection of equipment, with a reasonable safety margin, to ensure;

1. Trouble free operation of the solar PV system during its intended design life
2. Safety of operating personnel, equipment, and accessories
3. Continuous supply of spare parts in case of faulty situation

1.1 Task

a. This specification covers the general requirements for Design, Supply, Installation, Testing and Commissioning of solar PV rooftop system

b. Layout plan and mounting structures to be prepared. Solar panels shall be mounted on an Aluminum structure without affecting the architectural view of the building. The cost of Aluminum structure is required to be included in the bid.

c. System wiring diagram shall be submitted with bid indicating all items.

d. Panels layout diagram shall be submitted.

e. Complete system shall comply with the utility requirements for net accounting facility and auto isolation feature (*anti-islanding*) shall be available when failure or malfunction of utility grid connection.

f. All equipment offered shall be brand new, latest in model/version and currently in production and shall comply with IEEE 1547/VDE 0126 -1-1. It shall be completed with standard components and accessories to perform the desired functions and conform to the required specifications.

g. The Design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate SLS1522/IEC standards & PUCSL guide line.

h. Proposed Solar panel & Inverter should be registered in SLSEA before bid submission deadline.

i. This bid document should be signed by authorized officer only and all pages should be sealed. {See Section III-(1)-(c)}

j. If the bid document is not properly bound and not sealed with marked as required, the purchaser will assume no responsibility for the misplacement. Otherwise, the bidder will be deemed non-liable. The purchaser is not responsible for this.

k. The Contractor shall maintain the good housekeeping in the site and vicinity of the site during construction and attend to cleaning of the site after completion of the installation.

l. Malimbada Pradeshiya Sabhawa shall not responsible for theft, damage or loss of any of the materials and equipment during the installation. Equipment shall be covered and protected against dirt, water, and moisture, sand and chemical or mechanical injury. Upon completion of all works, the materials and equipment shall be thoroughly cleaned, adjusted and tested to demonstrate its proper operation to the Engineer. The contractor shall properly and adequately protect all materials and equipment before, during, and after installation. Material or Equipment damaged due to inadequate attention of the contractor shall not be accepted and Engineer reserves the right to request replacements for such equipment at the handing over. It is the responsibility of the contractor to clean the installation at close of work every day and to hand over a clean and neat installation at completion.

m. The selected bidder is bound to provide maintenance services to the system for a period of five (05) years free. Subsequent years will be singed agreement for maintenance within reasonable cost as requested by Pradeshiya Sabhawa.

1.2 Scope

The scope of work includes;

Design, supply, installation, testing and commissioning, operation and maintenance of a set of solar PV systems with associated power evacuation system and other facilities. The Solar PV system shall be connected to the existing low voltage network of the building which operates at 230/400 Volts, 50 Hz.

a. Supply and complete installation of the required number of solar panels with all necessary mounting structures and associated civil works on the allocated space of the roof and water supply system shall be installed to clean the PV module. Total input DC power (Wp) shall be designed considering the derating factor of the system and also considering available roof space to obtain maximum benefit to the client.

b. Supply and installation of all other standard components to complete the system including the inverters, combiner boxes, distribution boards, AC and DC cables and isolation switches, surge arrestors and protection devices.

c. Installation of necessary grounding system

d. Testing and Commissioning of the system

e. Certification of the system complied with the utility regulations to obtain the net accounting facility.

f. The bidder shall submit the progress report every six months.

The above work scope may be achieved by accomplishing following the essential milestones

a. Inspection of premises.
b. Assessment of identified roof structures for structural integrity and load bearing capacity.
c. Assessment of the surrounding area for water availability.
d. Assessment of surrounding area for system grounding.
e. Solar resource assessment in the site.
f. Design the solar PV system.
g. Required equipment and accessories deliver to the site.
h. Prepare the roof structure in line with structural assessment.
i. Arrange all equipment, materials and tools required for installation, testing and commissioning of the system.
j. Carry out the installation, testing, commissioning and acceptance testing (including performance verification testing under site conditions).

k. String cables are properly tagged without on the roof, identified and traceable at key locations (at array, junction box, inverter).
l. Durable warning signs and labeling should be displayed to identify the components and their hazardous nature.
m. Emergency shutdown procedure, single line diagram should be displayed near the inverter.
n. Essential documentation including Operation and Maintenance Manuals (including operational and maintenance procedures) and layout diagrams for trouble shooting.
o. Train the designated representatives of the Pradeshiya Sabhawa.
p. Deliver and hand over of essential spare parts (*if any*) and tool kits for routine operation & maintenance work.
q. The contractor should obtain third party and indemnity insurance for human damage (minimum Rs. 2 million) and material damage during the construction period.
r. The Bidder shall be responsible and take an insurance policy for transit-cum storage-cum-erection for all the materials to cover all risks and liabilities for the supply of materials on the site basis, storage of materials at site, erection, testing and commissioning

s. **Inspection**

Following all items will be inspected by project consultants before installation the systems for relevant standards, genuine items, test reports, test certificates & Items also proposed by the bidder.

i. Solar Photovoltaic Modules	ii. Solar PV Inverters	iii. MC4 Connector
iv. DC Switch Disconnector	v. AC/DC Cables	vi. AC/DC SPD
vii. AC Disconnector	viii. String Fuses	ix. MCB & MCCB
x. RCCB	xi. Digital Energy Meter	
xii. Enclosure box	xiii. String boxes	

1.3 System cost

a. The system cost shall include all the costs related to above scope of work. Bidder shall quote for the entire facilities on a basis such that the total bid price covers all the obligations mentioned in this specification with respect of Design, Supply, Installation, Testing and Commissioning Including Warranties, Operation & Maintenance, goods and services before including spares required (if any) during operation & maintenance period.

b. The bidder has to take all necessary permits, approvals licenses, and Insurance to complete the scope of work mentioned in Clause 1.2 above. The project cost shall remain firm and fixed and shall be binding on the successful bidder till completion of work for payment of his actual cost of execution of the project.

c. No escalation will be granted or any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever. The cost shall be inclusive of all duties and taxes, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation/adjustment shall be payable during said construction period.

d. The operation & maintenance of Solar PV System would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, inverters, spares, consumables & other parts till the end of the warranty period.

e. The cost of inspection and testing shall be included in rates offered for PV Modules, PV inverters and accessories.

f. Five (05) years servicing period should be included into this project. Contractor will be responsible for servicing (warranty claim, rectifying the faults and maintenance for proper operation of the systems).

g. Contractor should discard all damaged PV panels and accessories outside the Pradeshiya Sabha premises as per the Central Environmental Authority regulation or any other applicable rules and regulations in Sri Lanka.

2. Operating Conditions

a. Design data:

i.	Weather Condition	Humid Tropical Climate
ii.	Wind gusts speed	50m/s
iii.	Min. Ambient Temperature	$22^{o}C$
iv.	Max. Ambient Temperature	$45^{o}C$
v.	Max. Relative Humidity	95%

b. The solar PV array and mounting structure must be able to withstand wind gusts speed up to 50m/s without damage.

c. All wiring, enclosures, and fixtures that are mounted outdoors must be resisted to high humidity, corrosion, insects and dust intrusion. The use of corrosion resistance terminals is required. Protection of the electronic circuit boards from corrosion by potting or applying a conformal coating is recommended.

d. The design data specified herein are average values for concerned location. It is bidder's responsibility to obtain precise data required to optimize the performance of system without compromising safety norms on his own cost.

3. Grid Parameters

Bidders shall consider grid parameters specified herein to integrate the solar PV system with the utility grid.

i.	Grid Nominal Voltage	230/400 V
ii.	Rated Fault Current	20 kA
iii.	System frequency	50 Hz
iv.	Method of grounding	Solidly Earthed
v.	Grid Frequency Tolerance range	+/- 3%
vi.	Grid Voltage Tolerance	+/- 6%

4. Accessories

4.1 Specifications/standards/requirements for Solar PV Module

The solar PV modules intended to use for the proposed solar PV system should conform to following standards and requirements;

a. Should be made out of mono crystalline N type cells.
b. Photo electrical conversion efficiency of solar PV module shall be at least 21%.
c. Module rating maximum 590W. If the bidder proposes greater than this capacity, bidder should provide in writing of manufacturer recommendation for using the rooftop. Bifacial solar modules are not accepted for this project.
d. Power output tolerance should be positive.
e. Shall perform in an operating environment where solar PV panel temperature ranges between 10°C to 85°C and relative humidity is 95%.
f. To guarantee minimum generation loss due to an increase in module temperature, the temperature coefficient of Pmax should not be greater than 0.34%/^{0}C.

g. Economic life time should be 25 years. Generation should not be less than 85% of initial value within the 25 years period.
h. Solar PV Module fill factor shall be at least 0.78
i. Solar PV Modules shall be encapsulated and sealed to protect silicon cells from external environment and prevent ingress of moisture during its economic life.
j. The Solar PV modules must be tested & approved by one of the IEC authorized test centers as per relevant and latest IEC standards.
k. The Solar PV modules should comply with IEC 61215, IEC 61730, IEC 61701, IEC 62716 and IEC 62804 Electrical Protection Class II, Application class A and CE guidelines or latest for safety.
l. Solar PV module manufacturing plant should be ISO 9001:2008, ISO 14001:2015, ISO 45001-2018 certified.
m. Solar PV cell surface to be coated with anti-reflective coating.
n. Degradation should be less than 2% in the first year and less than 0.5% in subsequent years.
o. Module frame shall be made out of anodized aluminium alloy and width of the module frame should be at least 35mm (If back sheet is polymer material). If back sheet is glass, 30mm width is accepted only for mono facial modules.
p. The bidder should be responsible for the solar PV module use in Sri Lanka.
q. Solar PV modules should have a minimum 12-year product warranty and a linear performance warranty 25 years. A warranty statement from the manufacturer should be attached.
r. Specify the warranty period for insurance coverage against the manufacturer's insolvency or bankruptcy in the event of a claim.
s. Manufacture shall have tier1 for manufacturing the solar PV modules.
t. Manufacture authorization letter or manufacture authorized local agent letter should be submitted with bid.

4.2 Identification of solar PV modules

Solar PV modules shall have with RF identification label.

4.3 Specifications/standards/requirements for Solar PV Inverter

a. The Inverter operation shall be based on Maximum Power Point Tracking (MPPT) principle.
b. The grid interconnection protection scheme required (shall be as per the standards and requirement specified by the utility provider) at the grid interface may be built in to inverter or separately provided (Most of the modern inverters are equipped with this protection scheme as a built-in capability). The bidders are expected to study and understand the protection scheme required at the grid interface prior to choose the Inverter.
c. Inverter shall be protected against incorrect polarity of DC input.
d. The power quality of the inverter output shall be as specified by the utility provider (as per the standard and specifications of Net accounting Scheme.

e. The nominal inverter power output shall be delivered to the existing low voltage network at three phases (3P), 230V/400V, 50 Hz with including multiple inverters selected capacities according to the orientation of the roof.

f. The operating range of the inverter shall be +/- 6% nominal voltage and +/- 3% of power frequency. These settings should be adjustable to set the inverter operating range.

g. Proposed inverters are most suitable if they have voltage var control facility & AFCI protection.

h. The inverter efficiency shall be at least 98%.

i. The applicable IP class shall be at least IP 65 as per IEC 62208 specifications.

j. Shall be built with capability to synchronize with low voltage grid.

k. Shall be built with capability to log data, remote monitoring and data transferring to remote computer through LAN cable (RJ 45).

l. Inverters shall be warranted for a minimum of ten (10) years.

m. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter in addition to the above shall be as follows:

   i. Grid Frequency Synchronization range: +/- 3Hz

   ii. Maximum input DC voltage: Depending on the inverter used. (Shall not exceed overloading limits as specified by manufacturer)

   iii. No-load losses: Less than 1% of rated power.

   iv. THD: < 3%

o. Inverters shall be capable of complete automatic operation including wake-up, synchronization & shutdown.

p. Inverters should comply with applicable IEC standard for efficiency measurements and environmental tests as per standard codes IEC 61683 and IEC 60068 2(6, 21, 27, 30, 75, 78). The MPPT units should qualify IEC 62093 and IEC 60068 2 (6, 21, 27, 30, 75, 78).

q. Inverters should comply with SLS1547/IEEE1547 (and IEC 62116) for islanding protection and interconnecting with grid as required by CEB.

r. Inverters should be tested and approved by internationally recognized test houses.

s. Manufacturer shall have minimum of 5 years' experience in Manufacturing the inverter.

4.4 Specifications/standards/requirements for Array Structure

a. The structures provided shall be of flat-plate design with combination of I, C and L sections as per structure design requirement to withstand 50m/s wind speed. Suitable fastening arrangement such as grouting and clamping should be provided to secure the installation against the specified wind speed. The solar PV panel mounting structure shall be firmly secured on to the roof structure without affecting the structural integrity. This shall be performed in consultation with a qualified structural engineer.

b. Structural material shall be aluminium and electrolytic alloy compatible with the materials used in the module frame, its fasteners, nut and bolts.

c. Aluminum structures can withstand the wind speed of 50m/s. Necessary protection towards rusting shall be provided either by coating or anodization. The fasteners used should be made up of stainless steel. Proper sealing materials to be employed for roof penetrations.

d. The structures shall be designed to allow easy replacement of any module. Solar PV modules shall be laid on the roof according to the correct orientation to get the maximum output.

e. Each structure should have angle of inclination as per the site conditions to take maximum irradiance. However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

f. Regarding civil structures the bidder need to take care of the load baring capacity of the roof and need arrange suitable structures based on the quality of roof.

g. The mounting structure could be removed easily on a major roof repair and reinstall using the same materials.

h. The module alignment and tilt angle shall be calculated to provide maximum annual energy output wherever possible. The existing roof alignment may be followed if the difference in energy yield (energy maximum tilt angle Vs roof angle) found to be insignificant. The panel mounting angle shall be as much as closed to the optimum value.

i. A minimum of one foot must be set aside as a service path between arrays for repairs and maintenance, such as panel replacement, inspection, and cleaning.

j. Panels to be separated from the roof surface using a suitably space (as per the SLS 1522) to prevent the generation of excessive heat under the panels.

k. Appearance of the roof, if visible at a distance, also to be considered for deciding mounting angle.

l. Proper sealing materials to be employed for roof penetrations.

m. Materials shall be UV resistant and shall be designed to withstand the temperatures to which they are exposed.

n. Dissimilar metals, if used, shall be isolated from one another using non-conductive materials.

4.5 Specifications/standards/requirements for Combiner Boxes (Junction Boxes)

a. Shall be suitably rated (box bus bar) to handle the expected current flow at the combiner box.
b. The array combiner boxes shall be sealed to prevent ingress of dust, vermin and moisture
c. The IP rating shall be at least IP 65 with powder coated combiner boxes
d. Shall be provided earth test point for fault detection.
e. Shall be equipped with suitable arrangement to disconnect and isolate arrays.
f. Shall be fitted with cable glands for both incoming and outgoing cables.
g. Cables to be properly terminated at the combiner box.
h. Protective devices to be installed at combiner boxes to protect against over current/voltages and lightning conditions.
i. Cables shall be properly tags for identification.
j. Ground fault protection to be provided either at combiner boxes or at inverters.

4.6 Distribution board

a. DC Distribution panel is needed to receive the DC output from the array field, with analog measurement panel for voltage, current from different MJBs so as to check any failure in the array field.

b. It shall have isolator of suitable rating for connection and disconnection of array sections. DCDB shall be complied with IP65 protection.

4.7 Cables and trays/conduits

a. All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Cables shall be terminated using proper tools.

b. All cables used outdoor shall comply with latest standards. In general, relevant IEC standards should be adopted in calculation of current rating, voltage drops.

c. Cabling and other accessories should be warranted, and indicate the warranty period including for the workmanship.

d. Data sheets, standards and manufacturer details should be provided.

e. All cable laying must be done using either cable trays or conduits, with thermal expansion taken into account.

f. Insulation and continuity testing of the cable in the presence of the engineer or his representative and submission of testing report to the engineer.

g. Contractor shall terminate all the cables using appropriate cable lugs and glands. All the cables shall be labelled and numbered. The details shall be mentioned in the as built drawings and wiring diagrams.

4.7.1 DC Cable

a. The cables used in the system should be IEC 62930, SLS 1542 or EN 50618 certified cables. Cables of various sizes as per load requirement for connecting all the modules/arrays to Junction Boxes, Junction Boxes to DC distribution box and DC distribution box to inverter. The cables shall be able to handle maximum expected current in case of a short circuit condition.

b. Cross section area of the conductors shall be selected such that energy losses are within the stipulated limits.

c. Cross section area of the conductors shall be selected such that voltages are managed at stipulated limits to facilitate trouble free operation of the equipment and PV system. Over current protection shall be provided at appropriate levels of the network.

d. The DC cable network shall be designed such that energy losses are kept 2% when transferring the rated power.

e. Cable sizing calculations for the DC side should be provided.

f. Positive and negative DC cable should be laid separately.

g. All the string cables shall be properly tagged, identified and traceable at key locations (at array, junction box, inverter)

4.7.2 AC Cable

a. Similarly, energy losses at AC side shall be kept 1%.

b. Copper Cables of appropriate size shall be provided from inverter onwards in AC side. Only copper wires of appropriate size and of reputed-made shall have to be used.

c. Cable sizing calculations for the AC side should be provided

4.7.3 Tray/Conduits

a. Use UPVC (colored) conduits and type 1000/ PN_T 14

b. Use powder coated internally and hot dip galvanized for external sheet steel for cable tray

c. Use corrects cross section trays/tubes that allow for thermal expansion based on the amount of wire resting in the tubing.

4.8 Data monitoring equipment:

a. The system performance parameters shall be measured by using a data logging system for maintenance, control and monitoring of system.
b. Separate digital energy meter should be mounted with the system to obtain the energy generation. (most suitable to obtain more details such as the actual value of AC/ DC Voltage, Current & Energy generated by the solar system)
c. Systems performance parameters should be linked to a single point and monitored using a computer in the monitoring room.
d. The employer will provide an internet facility.

5. Protection

The system should be provided with all necessary protections like grounding, lightning surges and grid islanding as follows:

5.1 Grounding protection

a. All components and exposed metal parts in the system shall be properly grounded. Solar panels shall include both equipment and system grounding.
b. Provision should be kept for shorting and grounding of the PV array at the time of maintenance work. Inverters, AC Distribution Board and DC Distribution Board should also be earthed properly. All grounding points are bonded together to make them at the same potential.
c. Grounding shall meet such norms as specified in the electrical code of practice in use and as specified by utilities cost of necessary grounding shall be included in the bid.

5.2 Grid Islanding & Surge Protection

a. Solar system shall be equipped with islanding protection. In addition to disconnection from the grid (islanding protection i.e. on no supply), under and over voltage conditions shall also be provided. Solar system shall include the type II branded AC/DC surge protection devices (SPD) to protect the system from the surges. Separate SPD should be installed at correct places in addition to the inbuild SPD of inverters.
b. Solar PV system shall be provided with adequate rating fuses in DC side as well as AC side for over current protection and disconnecting switches to isolate the DC and AC system for maintenances as needed in addition to inbuild of the inverters.

c. Direct lightning system is not considered for this project. But suitable rating of

SPD's shall be installed in correct places to prevent the damage from surges.

6. Earthing

a. All non-current carrying metal objects such as solar PV panel frames, mounting structures, enclosures etc. shall be grounded using unbroken earth wire. Earth wire shall be neither disconnected nor connected via fuse or any other link which has the tendency for physical opening or separation.
b. Earthing system shall be electrically connected to provide return to earth path from all equipment irrespective of their mechanical connection.
c. Earth pit should be constructed and earth resistance shall be less than ten (10) Ohm.
d. The earth wire conductor shall be made out of copper and shall be designed to withstand expected highest current. Earth rod should be made of copper coated rod or GI pipe with sufficient cross section & length.

7 Site visits

The bidder shall visit the site and acquaint all information that may necessary for the design purpose at his own cost.

8 Manuals and Training

i. Prior to the commissioning of the systems, the Contractor shall arrange suitable technology transfer programs for the employer's technical staff to ensure that they are fully able and qualified to execute all functions related to the operations, trouble shooting and perform a minor maintenance of all the equipment and systems provided under the contract. The works shall not be considered complete for the purposes of taking over until such Technology transfer programs have been completed.
ii. Technology transfer programs shall cover the following:
    a. Systems operation and control.
    b. System and plant maintenance and repair, replacement and configurations.
    c. Recording and reporting.
    d. Emergency operation procedure.
    e. Maintenance management procedures.
    f. Safety.
iii. Training shall be provided for the employer's staff at the site by the contractor during the installation period.
iv. The training manuals and technical literature shall be prepared in English or Sinhala or both.
v. Comprehensive technical literature shall be provided for the trainees before commencement of training.
vi. All training sessions shall be completed within the initial project implementation period.
vii. Pradeshiya Sabhawa expects that this training will help them identify possible faults, know what to do in an emergency case, and to be aware of the installation of the system.

9. Warranties & Guarantees

a. The bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials.

b. The bidder shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts (*if any*) for a period of not less than ten (10) years from the date of grid connection.

c. The bidder shall provide unscheduled and scheduled maintenance services during requested servicing period.

d. Indicate the warranty from the date of commissioning is required for the performance of the system. Further, minimum warranty is required for the inverters and modules performance degradation in accordance with industrial standard warranty conditions.

10. Utility Requirement

There should be a lockable isolating switch which should be located at an accessible place to the utility personal at any time.

11. Documents

The following documents shall be submitted along with the bid.

1. Catalogues with technical literature of the offered units
2. Duly filled and signed bid form and technical schedule
3. Panel layout on the roof
4. Previous supply records of the bidder.
5. Wiring diagram of the system with indicating all accessories.
6. Certificate from internationally recognized testing laboratory or organization to conform the quality of the equipment
7. Warranty contract and associated documents
8. Manufacture authorization letters (mainly solar panel & inverter, most suitable for all items mentioned in cost breakdown table in section iv)
9. Energy calculation (Energy generation yield) for 20 years
10. Solar PV modules recycling process after lifetime to be submitted. (Same to be applied other electronic and electrical items removed from the plant due to any defects)
11. DC/AC cable current carrying capacity calculation sheets should be provided.
12. Work time sheet schedule
13. Solar PV module serial nos, inverter serial nos, manufacturer recommended warranty statement will be provided end of the instalation.

12. Safety of Personal

a. The maximum safety, consistent with good erection practice in the case of work above ground, must be afforded to personnel directly engaged on this Contract, or who in the normal course of their occupation find it necessary to utilize temporary works erected by the Contractor or frequent the working area. Reasonable measures shall be taken to afford adequate protection against material falling from a higher level onto personnel below. The operation of or connections to any items of equipment once made live shall be subject to a "Permit to Work" system in a form agreed between the Project Manager and the Employer in accordance with the Employer's standard regulations for such work.

b. Contractor shall install durable warning signs and labeling should be displayed to identify the components and their hazardous nature.

c. Emergency shutdown procedure, single line diagram should be displayed at the nearby the inverter.

d. Contractor shall submit essential documentation including operation and maintenance manuals (including operational and maintenance procedures) and layout diagrams for trouble shooting.

13. Manufacturing Experience

Manufacture shall have minimum of 5 years' experience in manufacturing PV inverters, PV modules and accessories. Further, the manufacturer shall have minimum of five (5) year experience in supplying inverters and accessories for different countries other than the country of manufacturer.

14. Inverter mounting

Inverter should be mounted the relevant places which are more suitable for this project. Mounting places will be shown by the authorized officer of Pradeshiya Sabhawa at the site visit.

TECHNICAL SPECIFICATIONS

1. Solar Module

Descriptions	Required Specification	Bidders' response		If 'No" indicate the bidders offered
		Yes	No	
Trade name	Mention			
Model No	Mention			
Country of Origin	Mention			
Country of Manufacture	Mention			
Name of Manufacturer	Mention			
If Back sheet Polymer Material, frame thickness	35 mm			
If Back Sheet Glass, Frame thickness	30 mm			
Output Cables	4 sq.mm			
Weight (kg/ m^2)	Maximum - 12.5			
Panel Capacity	Maximum - 590Wp			
Working Temperature	10^0 C to 85^0 C			
Module Efficiency	21% or more			
Cell Type	Mono crystalline (N- Type)			
Power Tolerance	Positive only			
Product Warranty	12 years or more			
Performance warranty	25 years			
Commercial Life time	25 years or more			
Number of bypass diodes	3 or more			
Anti-PID test	Required with proof			
Salt mist corrosion	Required with proof			
Ammonia corrosion	Required with proof			
Dust & stand	Required with proof			
Fire test	Required with proof			

High temperature and high humidity environment.	Required with proof			
Application class rating	Class A			
Safety class rating	Class II			
Standards	See Annex C			
Protection Rating	IP 67 or more			
Quality Management	ISO 9001: 2015, ISO 14001:2015, ISO 45001-2018			

2. Solar PV Inverter (If you select different capacities, please use additional table)

No	Description	Specified	Bidder's Response
	Trade name	Mention	
1	Model No	Mention	
2	Country of Origin	Mention	
3	Country of Manufacture	Mention	
4	Name of Manufacturer	Mention	
5	Is an accredited agency	Mention	
6	(a) PV Inverter Types (b)Inverter Technology	String Inverter Transformer less	
7	Operating Temperature Range	10^0 C to 85^0 C	
8	Cooling Method	Mention	
9	Protection Rating	IP 65 or more	
10	If available DC SPD	Mention Type	
11	If available AC SPD	Mention Type	
12	THD	Less than 3	
13	Relative Humidity	0% - 100%	
14	Efficiency	98% or More	
15	Maximum input DC power	Mention	
16	Maximum output AC power	Mention	
17	Rated Grid Voltage	AC 230/ 400V	
18	Voltage Var control facility	Yes/No	
19	AFCI protection	Yes/No	
21	Rated Grid Frequency	50 Hz	
22	Maximum AC Output Apparent Power	Mention	
23	Power Factor	≥ 0.9	
24	Short Circuit Proof	Required	
25	Internal Consumption at Night	$\leq$1W	
26	Ground Fault Monitoring	Required	
27	Reverse Polarity Protection	Required	
28	Grid Code	IEEE 1547 or	

		Equivalent	
29	Protection Rating	IP 65	
30	Warranty	10 Years	
31	Standards	See Annex C	

3. Cables and Mounting Components

No	DC / AC Cables	Bidder's Response	
		DC	**AC**
1	Make		
2	Country of Origin		
3	Standards	SLS 1542:2016/IEC 62930	SLS compliance
	Mounting Structure	**Requirements**	**Bidder's Response**
i	Railings	Aluminum	
ii	Nuts & Bolts	SS 304	
iii	Other fixing components	SS 304	
iv	Clips/Bracket	SS 304	
v	Cable tie	Polyimide 6.6	
vi	Conduits	UPVC 1000/ PN_T 14	

4. Monitoring System

No	Required Feature	Bidder's Response		Remarks
		Yes	No	
1	Real Time data			
2	Past Data			
3	Peak Power			
4	Cumulating Power			
5	CO_2 Emission			
6	Power & Energy Graphs			
7	Fault & Safety Event			

5. Surge Protection Device

No	Feature	AC	DC
1	Model		
2	Country of origin		
3	Manufacture		
4	Type		
5	Maximum Current		
6	Maximum Energy		
7	Maximum number of surges		
8	Response Time		
9	Case Material		
10	Warranty		

6. MC4 (Multi Connector 4mm^2)

No	Feature	Specified	Bidder's Response
1	Rated current	30A (2.5 - 4.0mm²)	
2	Maximum rated voltage	1500V, IEC 62852 /SLS1637	
3	Degree of protection	IP67	
4	Locking system	Click for waterproofing	
5	Connection Method	Crimp	
6	Conductor Material	Tinned Copper	

7. Enclosures

Item	Requirements	Compliance (Yes/No)	Remarks
Make	(Please Mention)		
Model	(Please Mention)		
Country of Origin	(Please Mention)		
Country of Manufacture	(Please Mention)		
Type	Indoor floor standing		
Material	PVC		
Protection	IP65		
Cable Entry	Bottom		
Door	PVC hinged door with rubber ring		
Lock	Pushing lock with tick sound		

8. Earthing System

Description	Wire	Rod	Remarks
Material			
Withstand Maximum Current(A)			
Cross Section(mm^2)			
Length(ft)	As required		

9. Digital Energy Meter

No	Description	Compliance (Yes/No)	Remarks
1	Trade name		
2	Model		
3	Country of origin		
4	Manufacture		
5	Type		
6	Data Store Capacity		
7	Voltage		
8	Current		
9	Energy generated(kWh)		
10	Warranty		

10.List of main items (Pl. indicate no of quantity in the following table according to the design)

Designed Capacity(kW_{DC})	Solar Module	Inverter	DC SPD	AC SPD	DC Switch disconnector	AC disconnector	Circuit Breaker	String Fuse +	String Fuse -	PV String	Average proposed Units(kWh/ Year)
							MCB- MCCB- RCCB-				

11.After sale Service

Item. No	Descriptions	Bidders Response
1	Availability of stocks	
2	After sale services (Maintenance) (i). How many dates/hours require attending from the failure date of inform? (ii). How do you arrange to sign the service agreement for ten years period? (iii). How many dates do you want to rectify the system? (iv). Do you provide backup?	

12.Company Details

No	Bidder's Description	Detail
1.	Company Name	
2.	Office Address	
3.	Authorize Officer Capacity	
	Name	
	Contact Tele No	
4	Technical Person for Clarification Name	
	Contact Tele No	

13.Relative Services

No	Description of service	Requirement	Bidder's response
01	Free maintenance services	05years	
02	Spare parts availability	10 Years	
03	Training/Demonstration	Representatives	

I confirm that we abide the provisions of the relevant laws and regulations as required to enable us to submit this Bid and execute the project, in the event of our selection as Successful Bidder. We further undertake and agree that all such factors as mentioned in this specification have been fully examined and considered while submitting the Bid.

Name & Address : ……
……
……

Signature : …… Date : …….…….

Company Stamp ……

MAINTENANCE SERVICES

Annex - A

e. The contractor shall be responsible for providing full operation, maintenance and repair services for all systems.

f. Contractor shall enter into Comprehensive Annual Maintenance Contract (CAMC) agreement for next subsequent years before the expiration of the free maintenance period as request by client.

c. The operation & maintenance of solar PV systems would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors, spares, consumables & other parts until the end of warranty period.

d. During CAMC, Contractor shall provide maintenance visit every 6 months maintenance.

e. The contractor shall properly maintain the maintenance register up-to-date, which shall be used to log all adjustments and any repair works with all maintenance information, during maintenance period.

e. The contractor shall provide telephone hotline support for the employer throughout the maintenance period and contractor shall undertake to answer all questions on all technical and non-technical matters of the systems informed by nominated persons of the employer.

f. Maintain the energy generation yield stated by the contractor during the CAMC period, not falling below 10% of the required value.

g. Following task should be done by contractor throughout the maintenance period. This form fills and provides to the employer in every inspection period.

Annex - C

APPLY STANDARDS

Please refer Sri Lanka Sustainable Energy Authority web site

Select www.enrgy.gov.lk ---------- click “Sri Lanka Sustainable Energy Authority” ---- click – “Sooryabala Sangramaya”

SECTION VII - CONTRACT DATA

The following Contract Data shall supplement and/or amend the Conditions of Contrast (CC) whenever there is a conflict in the provisions herein shall prevail over those in the condition of the contract.

CC	
1.1 (i)	The contract name: Supply, Delivery, Installation, Testing, Commissioning and Maintenance of Grid Tied Rooftop Solar Power Generating System Procurement No.: ……
1.1 (e)	The contract completion within 30 days from the date of signing the agreement. Free maintenance period is five years from the date of grid connection.
1.1 (h)	The Employer is Malimbada Pradeshiya Sabhawa The authorized representatives are: For the Employer: ……..
1.1(l)	See table A
8.1	For clarification of bid, employer's address is The secretary Malimbada Pradeshiya Sabhawa Malimbada, Palatuwa Telephone: …… Electronic mail address: ……
15.1	The method and conditions of payment to be made to the contractor under this Contract shall be as follows: 1. **First Payment:** 40% of the contract price will be paid goods delivered to the site. 2. **Second Payment:** 30% of the contract price will be paid after installation. 3. **Third Payment:** 25% of the contract price will be paid after grid connected. 4. **Finally**, the employer will retain 5% of the contract amount for 90 days from date of grid connected. This amount will be released after 90 days based on technical recommendations of system successful operation with required generation.
15.2	The contractor should provide completed works report for obtaining the payment.
15.3	Report submitted for the payment approval is checked by the employer and if an error is found contractor shall correct them within the time specified in the employer's notice
17.1	A performance security 10% of total contract price obtained from a Commercial

	bank operates and registered under Central Bank of Sri Lanka. Please find the form in section VIII and accepted same format only.
25.1	The inspections and tests shall be done by the third-party consultants who are nominated by Malimbada Pradeshiya Sabhawa.
25.2	The Inspections and tests shall be conducted at the site.
26.1	The liquidated damages rate is 0.05 percent of the contract price per week with a maximum of 10% of the total contract price and will apply when there is a failure the employer informed as soon as possible about any occurrence of such event.

SECTION X - ABBREVIATIONS

SLSEA	-	Sri Lanka Sustainable Energy Authority
CEB	-	Ceylon Electricity Board
SLS/SLSI	-	Sri Lanka Standards Institution
PUCSL	-	Public Utilities Commission of Sri Lanka
CIDA	-	Construction Industry Development Authority
ITB	-	Instructions to Bidders
BDS	-	Bidding Data Sheet
CC	-	Condition of Contract
kW	-	Kilo Watt
kWh	-	Kilo Watt Hour
VAT	-	Value Added Tax
GOSL	-	Government of Sri Lanka
NPA	-	National Procurement Agency (Now Public Finance/Procurement Commission)
PV	-	Photovoltaic
Ph	-	Phase
MCB	-	Miniature Circuit Breaker
MCCB	-	Molded Case Circuit Breaker
DC	-	Direct Current
DB	-	Distribution Board
DG	-	Diesel Generator
AC	-	Alternative Current

IEC	-	International Electro technical Commission
IEEE	-	Institute of Electrical and Electronics Engineers
ISO	-	International Organization for Standardization
I-V	-	Current - voltage
PID	-	Potential Induced Degradation
MPPT	-	Maximum Power Point Tracker
Hz	-	Hertz
V	-	Voltage
THD	-	Total Harmonic Distortion
IP	-	Ingress Protection
EM	-	Electrical & Mechanical Services