**REQUEST FOR SELECTION OF BIDDER (RFP)**

**RFP NO:SSCL:CR:130:2017-18**

**Client: Shivamogga Smart City Limited (RFP)**

**Country: INDIA**

***Project Name: Grid Connected Rooftop Solar PV Systems on Roof Top of Government Buildings in Shivamogga City***

**Name of Work:**

**Design, Supply, Installation and Commissioning of Roof Top Solar Photovoltaic Systems on Net metering (as per KERC Regulations) – On the Roofs of Government Buildings in Shivamogga (approximately 430 kWp)**

**March 2018**

## SHIVAMOGGA SMART CITY LIMITED (RFP)

### Table A: Key Dates

| Sl. No | Event Description | Date |
|---|---|---|
| | **Qualification Cover and Financial Cover** | |
| 1. | Date of Issue of Tender | 21.03.2018 |
| 2. | Last date for receiving queries | 02.04.2018 |
| 3. | Pre-Bid Meeting | 28.03.2018 at 11:30 hrs<br>Shivamogga Smart City Limited,<br>Shivamogga |
| 4. | Authority's response to queries latest by | 10 days from the date of pre-bid meeting |
| 5. | Bid Due Date | 21.04.2018 |
| 6. | Date of Opening of Qualification Cover | 24.04.2018 at 16:00 PM |
| 7. | Announcement of short-list | Within 7 days from the date of opening Qualification cover |
| 8. | Date of Opening of Financial Cover for qualified Bidders | Within 7 days of issuing short listed Bidders |
| 9. | Validity of Bids | 180 days from Bid Due Date |
| 10. | Issuance of Letter of Award (LoA) | Within 15 days from opening of Financial Bids |
| 11. | Signing of the Agreement | Within 15 days from Issuance of LoA |

* If the Date happens to fall on a holiday, next working day will be considered

# Table of Contents

**SECTION – I: INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS ..... 7**
**SECTION - II CONDITIONS OF CONTRACT (GCC) ..... 22**
**SECTION - III EVALUATION CRITERIA OF BIDS ..... 29**
**SECTION-IV : TECHNICAL SPECIFICATIONS ..... 38**
**SECTION-V : PRICE BID FOR RESCO ..... 64**
**FORMATS FOR SUBMITTING RFP ..... 65**
**Format-1 : Covering Letter ..... 65**
**Format-2 : General Particulars Of The Bidder ..... 68**
**Format-3 : Format For Earnest Money Deposit ..... 70**
**Format-4 : Format For Performance Bank Guarantee (PBG) ..... 71**
**Format-5 : Check List For Bank Guarantees ..... 74**
**Format-6 : Power Of Attorney ..... 75**
**Format -7 : Financial Eligibility Criteria Requirement (As Per Clause 1.3) ..... 78**
**Format-8 : Format For Certificate Of Relationship Of Parent Company Or Affiliate With The Bidding Company. ..... 80**
**Format-9 : Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company ..... 81**
**Format-10 : Consortium Agreement ..... 83**
**Annexure A : Application available in MESCOM portal for installation of roof top solar PV. ..... 87**
**Annexure-B : Project Report Format ..... 105**
**Annexure C : Monthly O & M Report ..... 108**
**Annexure D : Project Completion Report for Grid-Connected Rooftop ..... 112**
**Annexure E : Technology Description & System Design /Specification ..... 113**
**Annexure F : Intimation to MESCOM for Implementation of Grid Connected Rooftop Solar PV Plant under Scheme ..... 116**
**Annexure – G : Undertaking from the Bidding Company on their Letter Head . 118**
**Annexure H; Size of the project ..... 120**
**Annexure – I ; Reference Diagrams ..... 121**
**Annexure – J: Project Structuring ..... 122**

## DISCLAMIER:

The information contained in this document **(RFP)** or subsequently provided to Bidder(s), whether verbally or in documentary or any other form, by or on behalf of the Shivamogga Smart City Limited (hereinafter to be referred as "**Authority**") or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this document and such other terms and conditions subject to which such information is provided.

This document is not an agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their bid for qualification and making their financial offers pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Bidder should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in the Bidding Process.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.

The Authority may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a bidder or to appoint the Selected Bidder or Developer, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bids without assigning any reasons whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

## BID INFORMATION SHEET

| | |
|---|---|
| **Document Description** | This RFP document comprises of ***"Bidding process for 430 kWp"*** with RESCO model**.** |
| **RFP NO.** | **RFP No:SSCL/SOLAR ROOF TOP/2017/3 Dated _____-2018** |
| **Broad Scope of Work for Bidding** | **Design, Supply, Installation and Commissioning of Roof Top Solar Photovoltaic Systems on Net metering (as per KERC Regulations) – on the Rooftop of Government buildings (approximately 430 kWp)** |
| **Pre-bid Conference/ Clarification Meeting** | Refer to "Key dates" |
| **Last date & Time of Submission of Response of RFP** | Refer to "Key dates" |
| **Bid Opening (Techno-Commercial)** | Refer to "Key dates" |
| **Bid Document fees** | **Please refer E-portal** and is nonrefundable. To be paid as DD drawn on any scheduled banks in favor of **Shivamogga Smart City Limited,** and payable at Shivamogga. |
| **Bid Security** | **Rs.4,15,000/- (Rupees Four Lakh Fifteen Thousand)**<br>Through E-Procurement Website, through any one of the following e-Payment options like Credit Card, Direct Debit, National Electronic Funds Transfer (NEFT), Over the Counter (OTC) – designated Bank branches located across the country |
| **Performance Security(PBG)** | PBG amount shall be furnished by the successful bidder after issue of Letter of Award by Shivamogga Smart City Limited. Please refer Clause 1.16 of Section-I for details. |

| | |
|---|---|
| RFP submission | Bid to be submitted online through e-procurement platform of Government of Karnataka |
| Important Note: Prospective Bidders are requested to remain updated for any Notices/amendments/clarifications etc. to the RFP document through the website www.eproc.karnataka.gov.in. No separate Notifications will be issued for such notices/amendments/clarification etc., in the print media or individually. All the information related to this RFP will be updated on the above Website. | |

# SECTION – I: INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

## 1.1 INTRODUCTION

**1.1.1** Shivamogga is selected as smart city in the second round of Smart city competition. As per the smart city guide lines, 10% of the town energy consumption shall depend on the renewable energy. SSCL proposes to install the Solar roof top PV on the identified Government buildings. The scope of works consists of "**Design, Supply, Installation and Commissioning of Roof Top Solar Photovoltaic Systems on Net metering (as per KERC Regulations) – On the Rooftop of Government Buildings in Shivamogga (approximately 430 kWp)".**

**1.1.2** Bidder can submit bids under **RESCO** Model for installing and maintaining roof top solar on government buildings as mentioned in RFP as per Clause 1.2.

**1.1.3** The Project targets installation of grid-connected roof top solar PV on the roofs of buildings owned by the Shivamogga City Corporation. The generated solar power may be utilized for captive application and the surplus power will be fed directly to the grid. The Project aims to reduce the fossil fuel based electricity load on main grid and make building self-sustainable from the point of electricity, to the extent possible.

**1.1.4** RFP, which expression shall also include its successors and permitted assigns, hereby invites interested companies to participate in the bidding process for the selection of Successful Bidder(s) for implementation of large scale grid-connected roof top Solar Photovoltaic Projects under Smart City scheme in the Shivamogga City Corporation area indicated herein under.

**1.1.5** The Bidder is advised to read carefully all instructions and conditions appearing in this document and understand them fully. All information and documents required as per the bid document must be furnished. Failure to provide the information and / or documents as required may render the bid technically unacceptable.

**1.1.6** The bidder shall be deemed to have examined the bid document, to have obtained his own information in all matters whatsoever that might affect the carrying out the works in line with the scope of work specified elsewhere in the document at the offered rates and to have satisfied himself to the sufficiency of his bid. The bidder shall be deemed to know the scope, nature and magnitude of the works and requirement of materials, equipment, tools and labour involved, wage structures and as to what all works he has to complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents.

**1.1.7** Details of the buildings owned by SCC and proposed for the Project are listed in the table.

**> 50 kWp to 100 kWp**

| Sl No. | Name of building | Metering | Recommended kWp |
|---|---|---|---|
| 1 | District Central co-operative bank | Net | 58 |
| 2 | AC Office | Net | 48 |
| 3 | Shivamogga Smart City Office | Net | 19 |
| 4 | PWD Building Balraj Urs Road | Net | 52 |
| 5 | Nehru Stadium | Net | 219 |
| 6 | Corporation Buildings | Net | 33 |

| Capacity | Number of Buildings covered | Total kWp to be installed |
|---|---|---|
| 1 kWp to 10 kWp | - | - |
| > 10 kWp to 50 kWp | 3 | 101.00 |
| > 50 kWp to 100 kWp | 2 | 110.00 |
| > 100 kWp to 500 kWp | 1 | 219.00 |
| **Total** | **6** | **430.00** |

**Regulatory overview: KERC from time to time has been issuing orders determining the Generic tariff for STRPV units (up to 1 MW).** KERC in letter dated 11 September 2017 has decided that the tariff for the solar roof tops shall have to be discovered through reverse bidding, keeping the prevailing average pooled power purchase cost as notified by the Commission (currently it is Rs 3.57 / unit). The latest order issued by KERC on the date of signing the PPA (SCC and MESCOM) shall be applicable and would remain firm through-out the contract period.

**1.1.8** Deleted

**1.1.9** **KERC Regulation:** KERC has also issued KERC (Implementation of Solar Rooftop Photovoltaic Power Plants) Regulations, 2016 dated 15.12.2016. The successful bidder/s are strictly required to adhere to terms and conditions of this Regulation during implementation as well as during the entire contract period.

**1.1.10** **MESCOM Procedure:** Procedure set by MESCOM for installation of roof top solar PV is available in MESCOM portal under Form 1 to 9. Details of these forms are as follows:

Format 1 - Application Form for Grid Connectivity Solar Roof Top PV Generation system on Gross/ Net Metering Basis.

Format-1A - Certification for not availing subsidy from MNRE.

Format 2 – Solar roof top Photovoltaic Systems application register.

Format 3 – Revenue Report (To be submitted by the AAO/SA).

Format 4 - Technical Feasibility Report (To be submitted by the Section officer).

Format 5 - Power Purchase Agreement (PPA) for gross / net metering.

Format 6a - Approval for installing …….. kWp solar RTPV system under Gross-metering.

Format 6A - Approval for installing …….. kWp solar RTPV system under Net- metering.

Format 7 - Submission of work completion report.

Format 8 - Commissioning report of SRTPV system (Net / Gross metering).

Format 9 - Certificate of synchronization of your…… kWP SRTPV system.

Please refer Annexure A for above format.

Successful Bidder/s is required to comply all above procedures scrupulously.

### 1.2 BID DETAILS:

**1.2.1** The bids are invited under this RFP of the rooftop scheme is for RESCO model. Through this RFP, SSCL is proposing installation of SRTPV systems on Government Buildings. The Bid Parameter shall be the Price quoted per unit not exceeding Rs 3.57 / unit or as per the prevailing orders issued by KERC before the execution of PPA. The price quoted by the bidder shall remain firm through-out the contract period. The Price quoted per unit in excess of the above shall be rejected.

#### 1.2.2 BID CAPACITY

Total Bid capacity will be likely to be approximately 430 kWp.

#### 1.2.3 INSTRUCTIONS TO THE BIDDERS:

Bidder must meet the eligibility criteria independently as Bidding Company or as a Bidding Consortium with one of the members acting as the Lead Member of the Bidding Consortium.

a. Bidder will be declared as a Qualified Bidder based on meeting the eligibility criteria and as demonstrated based on documentary evidence submitted by the Bidder in the Bid.
b. In case of a Bidding Consortium the Financial Eligibility criteria like Annual turnover or Net worth as indicated in Clause 1.3.4, shall be fulfilled by the Lead Member or Parent Company of the Lead Member while the Technical Eligibility Criteria shall be fulfilled by consortium member.
c. In case bidder submitting bid through consortium, a Consortium Agreement as per the Format-10 shall be furnished along with the bid.
d. Financial Consortium is not allowed in this Bidding Process. Consortium is only permitted for Technical partnership as per Format- 10.

e. Further in-case where the bidding company has used the financial eligibility criteria of its parent company then it needs to be ensured that any change in the controlling equity of the Bidding company requires prior approval of Shivamogga Smart City Limited.

f. All members of the consortium should be registered as company only. However, Member of the Consortium may form the Project Company shall also meet the criteria mentioned under 1.3.2.

g. Bidder including its member of the consortium can submit one bid only**.**

## 1.3 ELIGIBILITY CRITERIA

### 1.3.1 GENERAL

The Bidder should be either a body incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto and engaged in the business of Solar Power.

**A copy of certificate of incorporation shall be furnished along with the bid in support of above.**

### 1.3.2 SPECIAL CONDITIONS OF CONSORTIUM

Where the Bidder is a Consortium, it should comply with the following additional requirements:

**a.** Number of members in a consortium should be limited to 3 (three).

**b.** subject to the provisions of clause (a) above, the Bid should contain the information required for each member of the Consortium;

**c.** members of the Consortium shall nominate one member as the lead member (the "**Lead Member**"), who shall be responsible for all the acts and deeds of all the Consortium members. The nomination(s) shall be supported by a Power of Attorney, as per the Format – 6. The Lead Member shall be a member who solely meets the Financial Capacity as per the clause 1.3.4.

**d.** the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and O&M obligations;

**e.** an individual Bidders cannot at the same time be member of Consortium bidding for the Project. Further, a member of a particular Bidders Consortium cannot be member of any other Bidders Consortium applying for bidding;

**f.** members of the Consortium shall enter into a binding Agreement (the "Joint Venture Agreement/ Agreement") for the purpose of making and submitting Bid. As per the Format – 10. The Agreement shall, inter alia

i. convey the intent in accordance with this RFP, which would enter into the Agreement and subsequently perform all the obligations of the selected Bidder in terms of the Agreement, in case the Project is awarded to the Consortium

ii. Clearly outline the lead member and other members roles & responsibilities at each stage.

iii. All members of the consortium shall be jointly and severally liable for all obligations of the Selected Bidder in relation to the Project until the completion of the project period as per the terms and conditions of the Agreement.

iv. A copy of the Joint Venture Agreement/Consortium Agreement should be submitted along with the Bid. The Joint Venture Agreement/Consortium Agreement entered into between the members of the Consortium should be specific to Project and should fulfill the above requirements, failing which the Bid shall be considered non-responsive.

**g.** Except as provided under this RFP, there shall not be any amendment to the Joint Venture Agreement/Consortium Agreement without the prior written consent of the Authority.

### 1.3.3 TECHNICAL ELIGIBILITY CRITERIA:

The Bidder shall have installed and commissioned at least one Grid connected Solar PV Power Project having a capacity of not less than 430 kW in last three years and at least one Grid connected Solar PV Power Project having a capacity of not less than 50 kW which should have been commissioned at least six months prior to Techno-Commercial Bid Opening date. The list of project commissioned at least 6 months prior to Techno-Commercial Bid Opening date, indicating whether the project is grid connected, along with a copy of the Commissioning certificate and Work order / Contract / Agreement/ from the Client/Owner shall be submitted in support.

### 1.3.4 FINANCIAL ELIGIBILITY CRITERIA:

a) The Bidder should have an Annual Turnover and Net worth as indicated below.

I. The Annual turnover of Rupees 1.0 Crore in any one of the last 3 financial years preceding the Bid Deadline subject to the condition that the Bidder should at least have completed one financial year.

Net worth equal to or greater than Rs. 1.00 Crore of capacity offered by the Bidder in its Bid. The Computation of Net worth shall be based on unconsolidated audited annual accounts of the last financial year immediately preceding the Bid Deadline. Share premium can be included in the Net-worth calculation in case of listed

companies in India only.

The formula of calculation of net-worth shall be as follows:

Net-worth = (Paid up share capital) + {(Free reserves - Share premium) +Share premium of listed companies)} - (Revaluation of reserves)-(Intangible assets) - (Miscellaneous expenditure to the extent not written off and carry forward losses).

For the purposes of meeting financial requirements, only unconsolidated audited annual accounts shall be used. However, audited consolidated annual accounts of the Bidder may be used for the purpose of financial requirements provided the Bidder has at least twenty six percent (26%) equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

Bidders shall furnish documentary evidence as per the **Format -7,** duly certified by Authorized Signatory and the Statutory Auditor / Practicing Chattered Accountant of the Bidding Company in support of their financial capability.

## 1.4 INCORPORATION OF A PROJECT COMPANY

**1.4.1** In case the Bidder wishes to incorporate a Project Company, in such a case, Bidder if selected as a Successful Bidder can incorporate a Project Company. Bidder shall be Request for Proposal (RFP) of Bidders for Implementation of Grid Connected Roof Top Solar PV System on SCC owned buildings under the Smart Cities Mission responsible to get all clearance required/obtained in the name of the Bidding Company transferred in the name of the Project Company.

The aggregate equity share holding of the Successful Bidder in the issued and paid up equity share capital of the Project Company shall not be less than fifty one percent (51%) up to a period of two (2) years from the date of commissioning of the entire Sanctioned Capacity of the Project Developer.

### 1.4.2 Special Conditions of Consortium

Where the Bidder is a Consortium, it should comply with the following additional requirements:

- **a.** Number of members in a consortium should be limited to 3 (three).
- **b.** subject to the provisions of clause (a) above, the Bid should contain the information required for each member of the Consortium;
- **c.** members of the Consortium shall nominate one member as the lead member (the "**Lead Member**"), who shall be responsible for all the acts and deeds of all the Consortium

members. The nomination(s) shall be supported by a Power of Attorney, as per the format at Appendix-III, signed by all the other members of the Consortium; The Lead Member shall be a member who solely meets the Financial Capacity as per the clause 1.3.4.

**d.** the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and O&M obligations;

**e.** an individual Bidders cannot at the same time be member of Consortium bidding for the Project. Further, a member of a particular Bidders Consortium cannot be member of any other Bidders Consortium applying for bidding;

**f.** members of the Consortium shall enter into a binding Agreement (the "Joint Venture Agreement/ Agreement") for the purpose of making and submitting Bid. The Agreement shall, inter alia

i. convey the intent in accordance with this RFP, which would enter into the Agreement and subsequently perform all the obligations of the selected Bidder in terms of the Agreement, in case the Project is awarded to the Consortium

ii. Clearly outline the lead member and other members roles & responsibilities at each stage.

iii. All members of the consortium shall be jointly and severally liable for all obligations of the Selected Bidder in relation to the Project until the completion of the project period as per the terms and conditions of the Agreement.

iv. A copy of the Joint Venture Agreement/Consortium Agreement should be submitted along with the Bid. The Joint Venture Agreement/Consortium Agreement entered into between the members of the Consortium should be specific to Project and should fulfill the above requirements, failing which the Bid shall be considered non-responsive.

**g.** Except as provided under this RFP, there shall not be any amendment to the Joint Venture Agreement/Consortium Agreement without the prior written consent of the Authority.

### 1.5 BID SUBMISSION BY THE BIDDER

**1.5.1** The information and/or documents shall be submitted by the Bidder as per the formats specified in Section-V & Section VI of this document.

**1.5.2** Strict adherence to the formats wherever specified, is required. Wherever, information has been sought in specified formats, the Bidder shall refrain from referring to brochures /pamphlets. Non-adherence to formats and / or submission of incomplete information may be a ground for declaring the Bid as non-responsive. Each format has to be duly signed and

stamped by the authorized signatory of the Bidder.

**1.5.3** The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria as indicated in Clause no. 1.3.1, 1.3.2, 1.3.3 and 1.3.4 to the satisfaction of Shivamogga Smart City Limited and shall also furnish unconsolidated/consolidated audited annual accounts in support of meeting financial requirement, which shall consist of balance sheet, profit and loss account, profit appropriation account, auditor's report, etc., as the case may be of Bidding Company or Financially Evaluated Entity for any of the last three(3) financial years immediately preceding the Bid Deadline which are used by the bidder for the purpose of calculation of Annual Turnover or of last Financial Year in case of Net Worth.

**1.5.4** In case the annual accounts for the latest financial year are not audited and therefore the bidder cannot make it available, the applicant shall give certificate to this effect from their directors. In such a case, the Applicant shall provide the Audited Annual Reports for 3(Three) years preceding the year or from the date of incorporation if less than 3 years for which the Audited Annual Report is not being provided.

### 1.6 BID SUBMISSION BY A BIDDING COMPANY

The Bidding Company should designate one person to represent the Bidding Company in its dealings with Shivamogga Smart City Limited.

The person should be authorized to perform all tasks including, but not limited to providing information, responding to enquires, signing of Bid etc. The Bidding Company should submit, along with Bid, a Power of Attorney in original (as per Format-6), authorizing the signatory of the Bid.

### 1.7 CLARIFICATION AND PRE-BID MEETING

**1.7.1** The Employer will not enter into any correspondence with the Bidders, except to furnish clarifications on RFP documents, if necessary. The Bidders may seek clarifications or suggest amendments to RFP in writing, through a letter or soft copy by e-mail to reach SSCL at the address, date and time mentioned in Bid information sheet.

**1.7.2** The Bidder(s) or their authorized representative(s) is /are invited to attend pre-bid meeting(s), which will take place on date(s) as specified in Bid information sheet, or any such other date as notified by RFP.

**1.7.3** The purpose of the pre-bid meeting will be to clarify any issues regarding the RFP including in particular, issues raised in writing and submitted by the Bidders.

**1.7.4** RFP is not under any obligation to entertain / respond to suggestions made or to incorporate modification sought for.

### 1.8 AMENDMENTS TO RFP

**1.8.1** At any time prior to the deadline for submission of Bids, the RFP may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFP document by issuing clarification(s) and/or amendment(s).

**1.8.2** The clarification(s) / amendment(s) (if any) will be notified on websites www.eproc.karnataka.gov.in at least Two (2) days before the proposed date of submission of the Bid. If any amendment is required to be notified within Two (2) days of the proposed date of submission of the Bid, the Bid Deadline may be extended for a suitable period of time.

**1.8.3** SSCL will not bear any responsibility or liability arising out of non-receipt of the information regarding Amendments in time or otherwise. Bidders must check the website for any such amendment before submitting their Bid.

**1.8.4** All the notices related to this Bid which are required to be publicized will be uploaded on www.eproc.karnataka.gov.in and **smart net** of MoUD website on receipt of request from the participating bidders.

## 1.9 BIDDING PROCESS

### BID FORMATS

The Bid in response to this RFP shall be submitted by the Bidders in the manner provided in Clause 1.2.3 & Clause 1.3. The Bid shall comprise of the following:

### 1.9.1 ENVELOP- I (COVERING LETTER, BID PROCESSING FEE, EMD AND BIDDER FORMAT EXCEL SHEET)

i. Covering Letter as per the prescribed Format-1
ii. Copy of PAN and TAN certificates of Bidding company.
iii. Bid processing fee as per e-portal.
iv. EMD of Rs 4,15,000/- thorugh e-portal.

### 1.9.2 ENVELOP- II TECHNO-COMMERCIAL DOCUMENTS

i. Original power of attorney issued by the Bidding Company in favour of the authorized person signing the Bid, in the form attached hereto as Format-6 or standard power of attorney in favour of authorized person signing the Bid**. (Power of Attorney must be supplemented by Board Resolution to above effect for the company).** However, Shivamogga Smart City Limited may accept general Power of Attorney executed in favour of Authorised signatory of the Bidder, if it shall conclusively establish that the signatory has been authorized by the Board of Directors to execute all documents on behalf of the Bidding Company.

ii. General particulars of bidders as per Format-2
iii. Shareholding certificate signed by the company secretary of the bidding company and shareholding certificate signed by the company secretary of the Parent company (if parent company credentials are used).
iv. Document in support of meeting Eligibility Criteria as per Clause no. 1.3.
v. Certificates of incorporation of Bidding company and parent company (if parent company credentials are used)
vi. Certificates of incorporation of bidding consortium, if technical consortium is envisaged in the bid submitted by bidder.
vii. Details for meeting Financial Eligibility Criteria as per Clause no. 1.3.4 in the prescribed Format-7 along with documentary evidence for the same.
viii. If credentials of Parent company are being used by the Bidding company/lead member of the bidding consortium than Format 8 shall be furnished.
ix. Undertakings from the Financially Evaluated Entity or its Parent Company /Ultimate Parent Company as per Format-9.
x. Board Resolution of the Parent Company /Ultimate Parent Company of the Bidding company duly certified by the Company Secretary to provide the Performance Bank Guarantee (PBG) in the event of failure of the Bidding Company to do so.
xi. Board resolution for Authorised signatory
xii. Digitally Signed and stamped Copy of RFP Documents including amendments & clarifications by Authorised signatory on each page.

**1.9.3 ENVELOPE III- PRICE BID(S) AS PER SECTION-V FOR BID SUBMISSION UNDER RESCO** The Bidder shall inter-alia take into account the following while preparing and submitting the Price Bid duly signed by an authorized signatory.

The Bidder shall submit Price Bid(s) in the format given in the **SECTION-V: PRICE BID FOR RESCO.**

**1.10 VALIDITY OF BID**

***1.10.1*** The bid and the Price Schedule included shall remain valid for **a period of 180 days** from the due date of submission of bid, with bidder having no right to withdraw, revoke or cancel his offer or unilaterally vary the offer submitted or any terms thereof. In case of the bidder revoking or cancelling his offer or varying any term & conditions in regard thereof or not accepting letter of Award, RFP shall forfeit the EMD / Bid Security furnished by him**.**

**1.10.2** In exceptional circumstances when letter of Award is not issued/, when the bid could not be

able to finalize/ could not able to open financial bid, the RFP may solicit the Bidder's consent to an extension of the period of validity. The request and the responses there to shall be made in writing. The EMD provided shall also be suitably extended. A Bidder may refuse the request without forfeiting its EMD. A Bidder granting the request will neither be required nor permitted to modify its Bid in any manner. **In case, if the bidder rejects to give consent for extension of bid validity, other bidders will be considered for evaluation of tender.**

## 1.11 METHOD OF BID SUBMISSION

The Bidders shall upload their bids through e-procurement platform. No other modes of submission are permitted. The entire bid process would be through website https://eproc.karnataka.gov.in. Detailed guidelines for viewing of Bids and submission of online bids are given in the website. The prospective bidders can submit their Bids online. However the Bidders are required to have enrolment/registration in the web site and should have valid Digital Signature Certificate (DSC). The DSC can be obtained from any authorized certifying agencies as given in the e-procurement portal. The bidders should register in the web site https://eproc.karnataka.gov.in . After this, the Bidders can log in the site through the secured login.

**Format and Signing of Bid**

The Bidders would need to provide all the information as per this RFP. Authority reserves the right to evaluate only those Bids that are received in the required format and within stipulated time, complete in all respects and in line with the instructions contained in this RFP, for each submission on the website https://eproc.karnataka.gov.in there would be slots available for uploading the relevant documents.

The Bid and its copy shall be typed or written in indelible ink and signed by the unauthorized signatory of the Bidder who shall also initial each page, in blue ink. In case of printed and published documents, only the cover shall be initialed. All the alterations, omissions, additions or any other amendments made to the Bid shall be initialed by the person(s) signing the Bid.

The documents accompanying the Bid submission shall be uploaded in the allocated slot on the https://eproc.karnataka.gov.in

**Key Submissions – Please refer to 1.9.1 and 1.9.2**

**Financial Bid - Please refer to 1.9.3**

The Authority will open/unlock the Bids uploaded through e-procurement platform as specified above, including modifications made pursuant to Table A: Key dates, online on the

date notified in the e-procurement portal in the presence of bidders or their authorized representatives, who choose to be present at the stipulated place as notified in the procurement portal. In the event of the specified date of opening being declared a holiday for the Authority, the Bids will be opened at the appointed time and location on the next working day. The Bidders can also view the contents after the opening of the Bids. The Bidder's representatives who are present shall produce authorization letter and shall sign evidencing their attendance.

**1.12** The bid shall be addressed to

Managing Director,
Shivamogga Smart City Limited
First Floor, SN Market
Nehru Road, Shivamogga - 577201

**1.13** All the queries related to the project shall be addressd to

Executive Engineer
Shivamogga Smart City Limited
First Floor, SN Market
Nehru Road, Shivamogga - 577201

**1.14 COST OF BIDDING**

The bidder shall bear all the costs associated with the preparation and submission of his offer, and the company will in no case be responsible or liable for those costs, under any conditions. The Bidder shall not be entitled to claim any costs, charges and expenses of and incidental to or incurred by him through or in connection with his submission of bid even though RFP may elect to modify / withdraw the invitation of Bid.

**1.15 Earnest Money Deposit**

Earnest Money Deposit/ Bid security

The supplier/contractor can pay the Earnest Money Deposit (EMD) in the e-Procurement portal using any of the following payment modes: (For detailed procedures visit e-procurement portal)

Credit Card

Direct Debit/ Net Banking

National Electronic Fund Transfer (NEFT)

Over the Counter (OTC) payment

The contractor shall furnish the requisite EMD only through e-payment, in favour of The MANAGING DIRECTOR, SHIVAMOGGA SMART CITY LIMITED, SHIVAMOGGA.

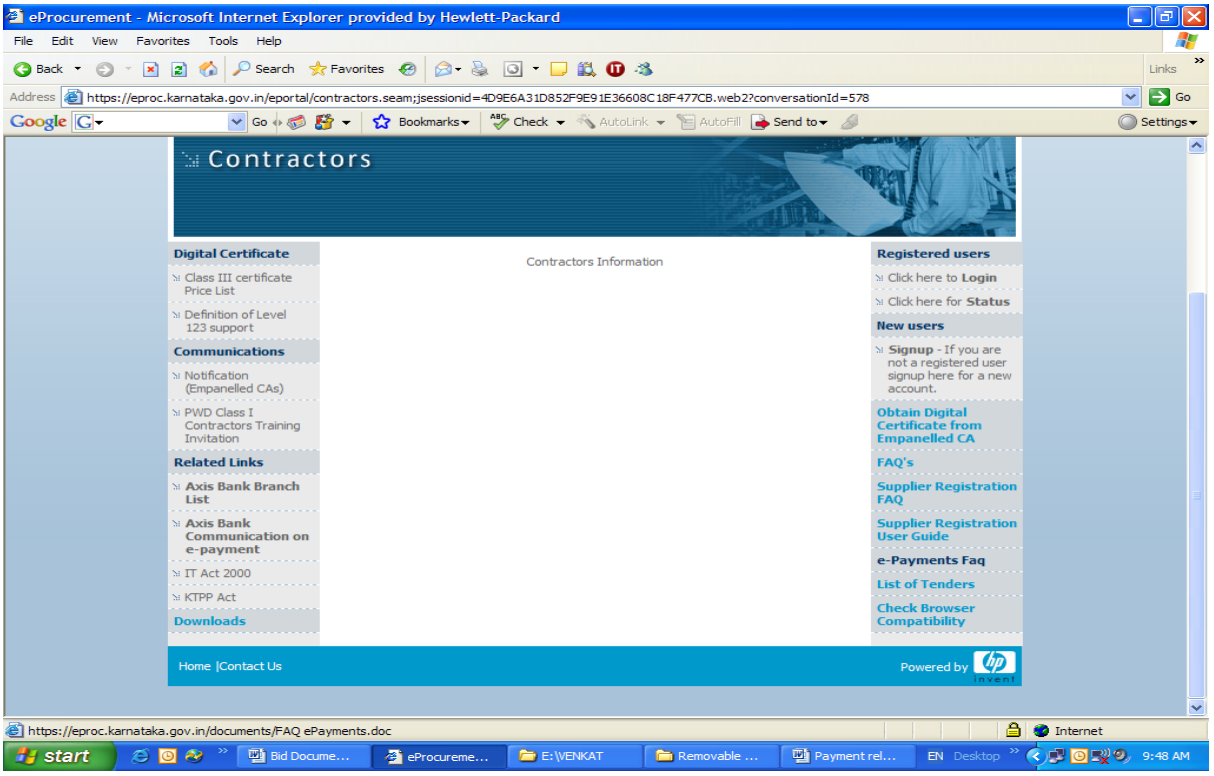
The supplier/contractor's bid will be evaluated only on confirmation of receipt of the payment

(EMD) in the Government of Karnataka central pooling a/c held at designated Bank

EMD amount will have to be submitted by the supplier/contractor taking into account the following conditions:

a. EMD will be accepted only in the form of electronic cash (and not through Demand Draft or Bank Guarantee) and will be maintained in the Govt.'s central pooling account at Designated Bank until the contract is closed.

b. The entire EMD amount for a particular tender has to be paid in a single transaction




**Refund of EMD**

Based on the instructions of Tender Accepting Authority (TAA) the EMD amount of the unsuccessful bidders will be refunded to the respective Bank a/c's of the supplier/contractor registered in the e-Procurement system.

1.15.1 Instruments having fixed validity issued as earnest money deposit for the tender shall be valid for 45 days beyond the validity of the tender

1.15.2 Any tender not accompanied by an acceptable earnest money deposit and not secured as indicated in Sub-Clauses above shall be rejected by the Employer as non-responsive.

1.15.3 The earnest money deposit of unsuccessful Bidders will be returned within 30 days of the end of the tender validity period.

1.15.4 The earnest money deposit of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security.

1.15.5 The earnest money deposit may be forfeited:

(a) if the Bidder withdraws the Tender after tender opening during the period of tender validity;

(b) if the Bidder does not accept the correction of the Tender Price.

(c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to

(i) sign the Agreement; or

(ii) furnish the required Security deposit

## 1.16 PERFORMANCE SECURITY / PERFORMANCE BANK GUARANTEE (PBG)

1.16.1 Within 20 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the SSCL a Performance Security in any of the forms given below for an amount equivalent to 5 % of the Construction Price valid upto 28 days beyond the Defect Liability Period and 5% of the awarded O&M cost valid upto the end of O&M Period.

- Banker's cheque/Demand draft,/Pay Order in favour of **THE MANAGING DIRECTOR, SHIVAMOGGA SMART CITY LIMITED payable at SHIVAMOGGA.**
- A bank guarantee in the form given in Section 10; or
- Specified Small Savings Instruments pledged to **THE MANAGING DIRECTOR, SHIVAMOGGA SMART CITY LIMITED payable at SHIVAMOGGA.**
- Fixed Deposit Receipts pledged in the name of **THE MANAGING DIRECTOR, SHIVAMOGGA SMART CITY LIMITED payable at SHIVAMOGGA.**

1.16.2 If the PBG is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either by a Nationalized/Scheduled bank.

1.16.3 The performance security if furnished in demand draft can, if requested, be converted to interest bearing securities at the cost of the contractor.

1.16.3 Failure of the successful Bidder to comply with the requirements of Sub-Clause 1.16.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Earnest Money Deposit.

1.16.4 The Performance Security shall be valid for a minimum period of 5 Years from the date of issue of Award letter(s) and shall be renewed / extended till the completion of 25 years of O&M from the date of commissioning.

## 1.17 OPENING OF BIDS

**1.17.1** All the technical bids will be opened on line on the date specified in page 2 of the document. And all the documents as specified in the earlier pages will be down loaded. The down loaded document will be considered for evaluation.

**1.17.2** Name of the Bidder, shall be read out to all the Bidders at the time of opening of Envelope-I and / or Envelope-II.

## 1.18 RIGHT TO WITHDRAW THE RFPAND TO REJECT ANY BID

**1.18.1** This RFP may be withdrawn or cancelled by the SSCL at any time without assigning any reasons thereof. The SSCL further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.

**1.18.2** The SSCL reserve the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the RFP and make its own judgment regarding the interpretation of the same. In this regard the SSCL shall have no liability towards any Bidder and no Bidder shall have any recourse to the SSCL with respect to the selection process. SSCL shall evaluate the Bids using the evaluation process specified in Section -I, at its sole discretion. SSCL decision in this regard shall be final and binding on the Bidders.

**1.18.3** SSCL reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance or rejection of bid by SSCL will be final.

**1.19 ZERO DEVIATION**

This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the Bid Document and submit their Bid accordingly. Tenders with any deviation to the bid conditions shall be liable for rejection.

**1.20 EXAMINATION OF BID DOCUMENT**

**1.20.1** The Bidder is required to carefully examine the Technical Specification, terms and Conditions of Contract, and other details relating to supplies as given in the Bid Document.

**1.20.2** The Bidder shall be deemed to have examined the bid document including the agreement/contract, to have obtained information on all matters whatsoever that might affect to execute the project activity and to have satisfied himself as to the adequacy of his bid. The bidder shall be deemed to have known the scope, nature and magnitude of the supplies and the requirements of material and labor involved etc. and as to all supplies he has to complete in accordance with the Bid document.

**1.20.3** Bidder is advised to submit the bid on the basis of conditions stipulated in the Bid Document. Bidder's standard terms and conditions if any will not be considered. The cancellation / alteration / amendment / modification in Bid documents shall not be accepted by SSCL.

**1.20.4** Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respects with requirements and conditions referred in this bid document.

# SECTION - II
# CONDITIONS OF CONTRACT (GCC)

## 2.1 SCOPE OF WORKS

The scope of the work for the bidder include **Design, Supply, Installation and Commissioning of Roof Top Solar Photovoltaic Systems on Net metering (as per KERC Regulations) – On the Rooftop of Government Buildings in Shivamogga (approximately 430 kWp)**. Design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of the grid connected rooftop solar PV project including operation and maintenance of the project for a period of 25 years after commissioning of the projects as per SSCL's acceptance. The scope also includes all clearances and approvals required from MESCOM for grid connectivity as well as compliance to all regulatory requirements of KERC.

## 2.2 TARIFF

**2.2.1** The tariff shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a "single responsibility" basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance for a period of 25 year's under RESCO model, goods and services including spares required if any during O&M period. The Bidder has to take all permits, approvals and licenses, Insurance etc., provide training and such other items and services required to complete the scope of work mentioned above.

**2.2.2** The tariff quoted is on lump sum turnkey basis and the bidder is responsible for the total Scope of Work described at Clause 2.1 above.

**2.2.3** The tariff shall remain firm and fixed and shall be binding on the Successful Bidder till completion of Agreement period. No escalation will be granted on 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 bidder shall assist SCC in filing necessary application with MNRE for claiming achievement linked incentive benefit through KREDL the state nodal agency.

**2.2.4** The tariff shall be inclusive of all duties, taxes and insurances. The prices quoted by the firm shall be complete in all respect and no price variation /adjustment is allowed.

**2.2.5** The operation & maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning Unit (PCU), spares, consumables & other parts for a period of

25 years under RESCO model.

**2.2.6** The tariff shall be specified in Award letter based on Successful Bidder's quote. The cost shall be in accordance with all terms, conditions, specifications and other conditions of the Contract as accepted by the Shivamogga Smart City Limited (SSCL) and incorporated into the Award letter.

**2.3** The Bidder shall complete the Price Bid for RESCO as per Format furnished in the Section V of RFP Documents.

## 2.4 CHARGES

The SCC, which owns the facility and pays the electricity bill to MESCOM (the distribution utility) will be implementing agency and is expected to access the "Achievement-linked-incentive-scheme for Government sector' announced by the Ministry of renewable energy on March 30, 2017 which would work out to Rs 16,250 per kw for achieving 80% of target before the end of implementation period. As the implementation agency and owner is the same corporation, the 3% (PMC charges) is not considered. Similarly, 5% service charge (for running the PMC) is also not considered for this assessment as the project is run by smart city's PMC consultants.

## 2.5 INSURANCE

**2.5.1** 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 supply of materials on site basis, storage of materials at site, erection, testing and commissioning. The bidder shall also take appropriate insurance during O&M period.

**2.5.2** The Bidder shall also take insurance for Third Party Liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the Contract. Before commencement of the work, the Bidder will ensure that all its employees and representatives are covered by suitable insurance against any damage, loss, injury or death arising out of the execution of the work or in carrying out the Contract. Liquidation, Death, Bankruptcy etc., shall be the responsibility of bidder.

## 2.6 WARRANTEES AND GUARANTEES

The Bidder shall warrant that the goods supplied under this contract are new Material from MNRE Approved supplier/vendors, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide system warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 25 years from the date of commissioning. The successful bidder has to transfer all the Guarantees /Warrantees of the

different components to the Owner of the project (SSCL). The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be joint responsibility of the Successful bidder and the owner of the project and Employer will not be responsible in any way for any claims whatsoever on account of the above. All the guarantee terms are as per MNRE specifications.

## 2.7 TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

**2.7.1** The Design, engineering, manufacture, supply, installation, testing and performance of the equipment shall be in accordance with latest appropriate IEC/Indian Standards as detailed in the Section- III (Technical specifications) of the bid document. Where appropriate Indian Standards and Codes are not available, other suitable standards and codes as approved by the MNRE shall be used.

**2.7.2** The specifications of the components should meet the technical specifications mentioned in Section III.

**2.7.3** Any supplies which have not been specifically mentioned in this Contract but which are necessary for the design, engineering, manufacture, supply & performance or completeness of the project shall be provided by the Bidder without any extra cost and within the time schedule for efficient and smooth operation and maintenance of the Solar PV plant.

## 2.8 OPERATION & MAINTENANCE (O&M) GUIDELINES TO BE MANDATORILY FOLLOWED BY BIDDERS

**2.8.1** The bidder shall be responsible for operation and maintenance of the Rooftop Solar PV system of all capacities provided on all the buildings covered under this RFP for a period of 25 years from the date of commissioning of the project. SSCL will monitor the project either through the Independent Chartered Engineer or Executive Engineer (Electrical) or any other competent authority appointed by SSCL for effective performance in line with the operations and maintenance guidelines provided in Inspection and maintenance schedule. During this period the bidder shall be responsible for ensuring preventive maintenance major overhauling of the plant,, replacement of defective modules, investors, PCUs etc and maintaining log sheets for operation details, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, complaint logging and its compliance.

**2.8.2** The entire equipment testing instrument required for Testing, Commissioning and O&M for the healthy operation of the Plant shall be maintained by the Bidder. The testing equipment’s must be calibrated once every 2 years from NABL accredited labs and the certificate of calibration must be kept for reference as required.

**2.8.3** If negligence / mal-operation on part of the Bidder's operator results in failure of equipment, such equipment should be repaired / replaced by the Bidder free of cost.

**2.8.4** Co-ordination with Owner / MESCOM / Chief Electrical Inspector as per the requirement for Joint Metering Report (JMR). The person in charge present at site from bidder's side shall take a joint meter reading in the presence of rooftop owner on a monthly basis. Furnishing generation data (JMR) each month to SSCL positively by 1st week of every month for the previous month.

**2.8.5** Online Performance Monitoring, controlling, troubleshooting, maintaining of logs & records. A maintenance record register is to be maintained by the bidder with effect from Commissioning to record the daily generation, regular maintenance work carried out as well as any preventive and breakdown maintenance along with the date of maintenance, reasons for the breakdown, duration of the breakdown, steps taken to attend the breakdown, etc.

**2.8.6** For any issues related to operation & maintenance, a toll-free number shall be made available to the rooftop owner / plant owner to resolve within 24 hours. If not attended within such stipulated time, a complaint may be raised to SSCL, pursuant to which, a penalty of Rs. 2,000 for full month or more shall be imposed for a system capacity above 10 kWp. Further, if the outage of the plant is more than 30 days continuously, then the 50% PBG amount shall be enchased by SSCL and if the outage is exceeding more than 60 days than complete PBG amount shall be enchased by SSCL. This will be applicable till 25 years of O&M as per the Scope of the RFP.

**2.8.7** If any jobs covered in O&M Scope as per RFP are not carried out by the contractor/ Bidders during the O&M period, the SSCL shall take appropriate action as deemed fit. SSCL reserves the right to make surprise checks/ inspection visits at its own or through authorized representative to verify the O&M activities being carried out by the Bidder. Failure to adhere to above guidelines, will result in penal action including debarring from participation in next tender.

## 2.9 METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the roof top solar PV system under this project would be the responsibility of the Bidder in accordance with the prevailing guidelines of the concerned MESCOM and / or KERC. SSCL could facilitate connectivity; however, the entire responsibility lies with bidder to get synchronized the system and to get all the statutory obligations.

## 2.10 PLANT PERFORMANCE EVALUATION

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period to the satisfaction of Independent Chartered Engineer/Executive Engineer (electrical). PR

should be shown minimum of 75% at the time of inspection for initial commissioning. Minimum CUF of 19% as approved by KERC shall be maintained for a period of 25 years. The bidder should send the periodic plant (fort nightly) output details to SSCL for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions and certification by the Independent Chartered Engineer / Executive Engineer (Electrical).

### 2.11 PROGRESS REPORT

The bidder shall submit the progress report weekly / monthly to SSCL in Prescribed Proforma. SSCL will have the right to depute his/their representatives to ascertain the progress of contract at the premises of works of the bidder.

#### 2.11.1 Submission of Project Completion Report (PCR)

The bidder shall submit the Project Completion Report received from Independent Chartered Engineer in (soft copy and signed copy) after commissioning of the project as per the Scope of RFP as per the Format given in **Annexure D**. Non submission of the report shall be considered as "Breach of Contract" and shall attract punitive actions as per the relevant provisions of the clauses. However, the decision of SSCL shall be final in this regard. SSCL reserves the right to do sample inspection checks of the projects both during commissioning stage and O&M stage.

#### 2.11.2 Submission of O&M Report (OMR)

The bidder shall submit the Monthly O&M Report mandatorily to SSCL as per the Format enclosed at **Annexure C**. Non submission of the report shall be considered as "Breach of Contract" and shall attract punitive actions as per the relevant provisions of the Contract. However, the decision of SSCL shall be final in this regard.

### 2.12 PROJECT INSPECTION.

The project progress will be monitored by SSCL & Independent Chartered Engineer / Executive Engineer (Electrical) and the projects will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from SSCL or any authorized agency/ experts designated / authorized by SSCL from time to time. SSCL shall depute a technical person(s) from the list of empanelled experts/ agencies updated from time to time for inspection, Third party verification, monitoring of system installed to oversee, the implementation as per required standards and also to visit the manufacturer's facilities to check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required. The cost of Inspection shall be borne equitably only. The projects shall be inspected at any time during commissioning or after the completion of the project(s) as follows:

Inspection shall be carried out by Inspecting officer(s) nominated by SSCL, SCC officials

or BEE Certified Energy Auditors or any other agencies to be notified by SSCL from time to time. (Preferably undergone Training from NISE or any such institutions authorized by MNRE.)

**2.13 APPLICABLE LAW**

The Contract shall be interpreted in accordance with the laws of the Union of India/Government of Karnataka.

**2.14 LANGUAGE**

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other date shall be in English Language. The contract agreement and all correspondence between the SSCL and the bidder shall be in English language.

**2.15 OTHER CONDITIONS**

**2.15.1** The Successful bidder shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party without the prior consent of SSCL in writing.

**2.16 SUCCESSORS AND ASSIGNS:**

**2.16.1** In case the SSCL or Successful bidder may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization & this contract is assigned to any entity (ies) partly or wholly, the contract shall be binding mutatis mutandis upon the successor entities & shall continue to remain valid with respect to obligation of the successor entities.

**2.17 SEVERABILITY:**

It is stated that each paragraph, clause, sub-clause, schedule or annexure of this contract shall be deemed severable & in the event of the unenforceability of any paragraph, clause sub-clause, schedule or the remaining part of the paragraph, clause, sub-clause, schedule annexure & rest of the contract shall continue to be in full force & effect.

**2.18 COUNTERPARTS:**

This contract may be executed in one or more counterparts, each of which shall be deemed an original & all of which collectively shall be deemed one of the same instrument.

**2.19 RIGHTS & REMEDIES UNDER THE CONTRACT ONLY FOR THE PARTIES:**

This contract is not intended & shall not be construed to confer on any person other than the SSCL & Successful bidder hereto, any rights and / or remedies herein.

**2.20 PREFERENCE FOR M.S.M.E/ STATE OR CENTRAL PSUS**

As per the Public Procurement Policy for Micro and Small Enterprise (MSEs) order 2012, issued vide Gazette Notification number 503, dated 23.03.2012 by Ministry of

Micro, Small and Medium Enterprise of Govt. of India, and specific to this tender, MSEs must be registered with any of the following agencies/bodies shall be exempted from EMD submission on production of valid registration certificate.

(i) District Industries Centre (DIC) /Udhyog Aadhaar

(ii) National Small Industries Corporation (NSIC)

MSME participating in the tender must submit the certificate of registration with any one of the above agencies. The registration certificate issued from any of the above agencies must be valid as on close date of the tender. The MSEs, who have applied for registration or renewal of registration with any of the above agencies/ bodies, but have not obtained the valid certificate as on close date of the tender, are not eligible for exemption/preference.

## 2.21 CORRESPONDENCE

Bidder requiring any clarification on bid documents may contact in writing or by Fax /E Mail given in bid information of this document. Verbal clarifications and information given by the SSCL or its employees or its Representatives shall not be in any way entertained.

## 2.22 Power Purchase Agreement

The Successful bidder has to enter into an Agreement with the respective Building Owners for supply of solar power for 25 years at the tariff quoted. **He shall also facilitate the building owners to enter in to a PPA with MESCOM as per KERC tariff order under gross/net metering arrangement.**

# SECTION - III
# EVALUATION CRITERIA OF BIDS

## 3.1 BID EVALUATION

The evaluation process comprises the following four steps:

Step I - Responsiveness check of Techno Commercial Bid

Step II-Evaluation of Bidder's fulfillment of Eligibility Criteria as per Clause 3.3 of Section-I

Step III - Evaluation of Price Bid

Step IV -Successful Bidders(s) selection

## 3.2 RESPONSIVENESS CHECK OF TECHNO COMMERCIAL BID

The Techno Commercial Bid submitted by Bidders shall be scrutinized to establish responsiveness to the requirements laid down in the RFP subject to Clause 1.3. Any of the following may cause the Bid to be considered "Non-responsive", at the sole discretion of SSCL

a. Bids that are incomplete, i.e. not accompanied by any of the applicable formats inter alia covering letter, power of attorney supported by a board resolution, applicable undertakings, format for disclosure, valid EMD, etc.;
b. Bid not signed by authorized signatory and /or stamped in the manner indicated in this RFP;
c. Material inconsistencies in the information /documents submitted by the Bidder, affecting the Eligibility Criteria;
d. Information not submitted in the formats specified in this RFP;
e. Bid being conditional in nature;
f. Bid having Conflict of Interest;
g. More than one Member of a Bidding Company using the credentials of the same Parent Company /Affiliate;
h. Bidder delaying in submission of additional information or clarifications sought by SSCL as applicable;
i. Bidder makes any misrepresentation.

Each Bid shall be checked for compliance with the submission requirements set forth in this RFP before the evaluation of Bidder's fulfillment of Eligibility Criteria is taken up. Clause 1.3 shall be used to check whether each Bidder meets the stipulated requirement.

### 3.3 PRELIMINARY EXAMINATION

**3.3.1** SSCL will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed and stamped and whether the Bids are otherwise in order.

**3.3.2** There shall not be any arithmetical error as the bid will be quoted online, even if thee is any same will be corrected by the bidder depending upon the nature of error. The corrections will be biding upon the bidder.

### 3.4 EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA

Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed Formats and related documentary evidence in support of meeting the Eligibility Criteria as specified in Clause 1.3 Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid to be nonresponsive.

### 3.5 EVALUATION OF PRICE BID

Price Bid (Envelope III) of the Qualified Bidders shall be opened **online** in presence of the representatives of such Qualified Bidders, who wish to be present, on a date as may be intimated by SSCL to the Bidders through website www.eproc.karnataka.gov.in or Email. The evaluation of Price Bid shall be carried out based on the information furnished in Envelope III (Price Bid). The Price Bid submitted by the Bidders shall be scrutinized to ensure conformity with the RFP any Bid not meeting any of the requirements of this RFP may cause the Bid to be considered "Non-responsive" at the sole decision of the SSCL.

#### 3.5.1 RESCO

The tariff quoted shall be evaluated as follows;

a. Since the maximum allowable tariff over 25 years as per KERC generic tariff order is only Rs. 3.57/kwh, bidder submitting bid above the maximum allowable project cost shall be rejected.

### 3.6 SUCCESSFUL BIDDER(S) SELECTION

**3.6.1** Bids qualifying in Clause 1.3 shall only be evaluated in this stage.

**3.6.2** Based on the Tariff quoted in all Price Bids of Qualified Bidders shall be ranked in the ascending order. (Automatic selection will be done in online tenders)

**3.6.3** For all purposes, lowest bidder will be declared as the successful bidder.

**3.6.4** In the event that two or more Bidders quote the same tariff (the "Tie Bidders"), the Authority shall identify the Selected Bidder by taking into account the Experience of each

such bidder from the Qualification Cover, wherein the Bidder with the higher installation capacity (Quantity and or centrally controlled online monitored system) shall be adjudged the Selected Bidder.

**3.6.5** In the event that the Lowest Bidder withdraws or is not selected for any reason in the first instance (the **"first round of bidding"**), the Authority may invite all the remaining Bidders to revalidate or extend their respective Bid Security, as necessary, and match the Bid of the aforesaid Lowest Bidder (the **"second round of bidding"**). If in the second round of bidding, only one Bidder matches the Lowest Bidder, it shall be the Selected Bidder. If two or more Bidders match the said Lowest Bidder in the second round of bidding, then the Bidder whose Bid was lower as compared to other Bidder(s) in the first round of bidding shall be the Selected Bidder. For example, if the third and fifth lowest Bidders in the first round of bidding offer to match the said Lowest Bidder in the second round of bidding, the said third Lowest Bidder shall be the Selected Bidder.

**3.6.6** In the event that no Bidder offers to match the Lowest Bidder in the second round of bidding as specified in Clause 3.6.5, the Authority may, in its discretion, invite fresh Bids (the **"third round of bidding"**) from all Bidders except the Lowest Bidder of the first round of bidding, or annul the Bidding Process, as the case may be. In case the Bidders are invited in the third round of bidding to revalidate or extend their Bid Security, as necessary, and offer fresh Bids, they shall be eligible for submission of fresh Bids provided, however, that in such third round of bidding only such Bids shall be eligible for consideration which are lower than the Bid of the second Lowest Bidder in the first round of bidding.

**3.6.7** The qualified bidders except the L1 bidder will be given 10 days from the date of notification of L1 price on Shivamogga Smart City Limited (SSCL) website and also through e mails to give their consent to execute the work at L1 price, failing which it will be assumed that they are not interested to match L1 price. In case of more than one such response is received expressing their consent to match the L1 price and to execute the capacity then the preference shall be given in the ascending order of the bid quoted by the bidder. i.e. first preference will be given to L2 then L3. The bidder who matches the L1 price will also be declared Successful bidder.

**3.6.8** L1 bidder will be given 15 days time for entering into the agreement. If L1 bidder does not turn within 15 days from the date of issue of Letter of Acceptance, L2 Bidder will be invited.

**3.6.9** Letter(s) of Award (LOA): The Letter(s) of Award (LOA) shall be issued to the

Bidders selected as explained in 3.6.4 to 3.6.8.

**3.6.10** Successful Bidder shall acknowledge the LOA and return duplicate copy with signature & stamp of the authorized signatory of the Successful Bidder to the SSCL within 15 (fifteen) days of issue of LOA.

**3.6.11** If the Successful Bidder, to whom the Letter of Award has been issued, does not fulfill any of the conditions specified in Bid document, the SSCL reserves the right to annul/cancel the award of the Letter of Award of such Successful Bidder and forfeit the PBG/EMD and can award the work to the other bidder as per the original list of preferences i.e., L2,L3,L4...

**3.6.12** The SSCL at its own discretion, has the right to reject any or all the Bids without assigning any reason whatsoever, at its sole discretion.

**3.6.13** There shall be no negotiation on the levellized tariff between the SSCL and the Bidder(s), during the process of evaluation.

**3.6.14** After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the selected Bidder to execute the Agreement within the period prescribed in Table A : Key dates. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

**3.6.15** Deleted.

### 3.7 INCREASE/DECREASE OF BIDDER ALLOCATED CAPACITY – not applicable –

### 3.8 TRANSFER OF CAPACITY – not applicable -

### 3.9 NOTIFICATION TO SUCCESSFUL BIDDERS.

The name of Successful Bidders shall be and the awarded project price on the website www.eproc.karnataka.gov.in and also shall be notified individually through letter of Award.

### 3.10 -Deleted

### 3.11 ACHIEVEMENT–LINKED INCENTIVESDISBURSEMENT:

In letter no. 03/88/2015-16/GCRT OF GOI, MNRE (Solar ENERGY group) dated 30.03.2017 has approved for 'Achievement–Linked Incentives and Awards" under 'Grid connected rooftop and small solar power plants program' on government buildings. The details are as follows:

i. The implementing agency (Central Ministry jDepartment, State Government Department, PSU or Other Govt. organization / SNA / ULB) willing to participate in the scheme will submit their proposal online along with the list of selected buildings.

ii. The Achievement-linked incentives vis-a-vis sanctioned/approved capacity / allocated

targets will be applicable to all Government Institutions including Ministries/Departments/Organizations of both Central and State Governments and PSUs.The provisions for achievement-linked incentives will be as follows:

| S. No. | Achievement vis-a-vis Target Allocation | **Incentives for General Category States/UTs |
|---|---|---|
| 1. | 80% and above within the sanctioned period | Rs.16,250/- per kW |
| 2. | Below 80% and above 50% ( | Rs.9,750/- per kW |
| | including 50 %) within the sanctioned period | |
| 3. | Below 50% and above 40% ( including 40 %) within the sanctioned period | Rs.6,500/- per kW |
| 4. | Below 40% within the sanctioned period | Nil |

In case of RESCO mode:

In addition to the above cash awards along with certificates/shields will be given as per above circular by the ministry

The following are incentives under this scheme (RESCO Mode):

- The developers are selected through a tariff-based reverse bidding
- The incentive amount will be up to 25% of the bench mark cost as mentioned
- The benefit of the incentive should be passed on to the customer in the form of reduced tariff by factoring incentive
- The implementing agency shall be eligible to avail necessary service charges up to 3% of the eligible incentives from MNRE as prescribed in the Grid Connected Rooftop Solar programme. 40% of the services charges may be released in advance.
- The implementing agency may also obtain PMC charges from the successful bidder up to 5% of the quoted project cost/MNRE benchmark cost (whichever is lower, minus incentives)
- Timelines for completion of the project will be 15 months from the date of sanction by the Ministry

### 3.12 OTHER CONDITIONS

**3.12.1** Bidder of the building has to obtain all the necessary approvals/Consents/Clearances

required for Erection, Testing, Commissioning and O&M of the project including Grid connectivity. SSCL shall not have any responsibility in this regard.

**3.12.2** EMD and Bid document fee submission shall be made online at the time of submission of bid document.

### 3.13 TAX EXEMPTIONS:

Price bids are invited inclusive of Taxes and duties. However, Tax exemptions including certificates of any sort, if available may be dealt with the concerned Dep't of Govt. of India by the bidder. SSCL in no case will be responsible for providing any tax exemptions to the bidder.

### 3.14 REQUIREMENT OF APPROVALS ON MAKES OF THE COMPONENTS:

**3.14.1** The modules should be manufactured in India only. Rest of the components can be procured from any source. However these items should meet the Technical specification and standards mentioned in RFP.

### 3.15 OPERATION OF THE SYSTEM DURING WEEKENDS AND GENERAL HOLIDAYS AND CALCULATION OF CUF:

**3.15.1** During grid failure, the Solar PV system stops generating. Any instances of grid failure need to be mentioned in the monthly report and those instances need to be authorized by representatives of MESCOM. Then the period will be excluded in calculation of CUF. The Bidder has to come up with a mechanism for month on month certification procedure by MESCOM authorities which will be coordinated by SCC/Independent Chartered Engineer.

**3.15.2** Taxes, duties and service charges are included in the rates of the *bid processing fee*.

### 3.16 LIQUIDATED DAMAGES (LD) FOR DELAY IN PROJECT IMPLEMENTATION

**3.16.1** SSCL will issue the Award letter(s) for the Project with the provisions of the RFP document. The Bidder shall complete submission of project Award documents as per the requirement of RFP. Design, Engineering, Manufacture, Supply, storage, civil work, erection, testing & commissioning of project within 4 months from the date of issue of Award letter.

**3.16.2** If the bidder fails to commission the Awarded project within specified time, liquidated Damages on per day basis calculated for the Performance Security on a 4 months period would be levied. After 4 months the project will get cancelled and the total PBG amount would be forfeited.

Ex: If a project is delayed by 36 days then the Liquidated Damages will be levied as given below.

Liquidated Damages = ((Performance Security)/120 days)*delayed days = ( PS/MWp) /120)*36

**3.17 TIME OF COMPLETION :**

**3.17.1** Project completion shall be **4 months from the date of issue of Award letter**. Failure of non- compliance of same shall lead to forfeiture of PBG as explained in 3.16.2 above.

**3.17.2** The submission of project Award documents shall be to the satisfaction of SCC/SSCL.

**3.17.3** The period of construction given in Time Schedule includes the time required for mobilization as well as testing, rectifications if any, retesting and completion in all respects to the entire satisfaction of the SCC/SSCL.

**3.17.4** A program of execution of the Work will be prepared by the Successful bidders based on priority requirement of this project and shall be discussed and finalized with SCC/SSCL/ Independent Chartered Engineer. While approving the work plan SCC will take into consideration the interventions (removal of extension pillars, attending to minor civil/structural damages, missing reinforcements) required from its side to enable the Bidder for successful implementation of this project. This program will take into account the time of completion mentioned in clause 3.17.1 above and the time allowed for the priority Works by the SCC/SSCL.

**3.17.5** Monthly/Weekly implementation plan will be prepared by the Successful bidder, so as to deploy adequate personnel, tools and tackles and all materials for completion of the scope in good time to achieve the targets. In all matters concerning the extent of targets set out in the weekly and monthly program and the degree of achievements, the decision of the SCC/SSCL will be final and binding.

**3.18 INSPECTION AND AUDIT BY THE GOVERNMENT**

**3.18.1** The Successful bidder shall permit SCC/SSCL to inspect the site, generation, accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the SSCL, if so required by the SSCL any time.

**3.19 COMMISSIONING /COMPLETION CERTIFICATE:**

Application for completion/commissioning certificate:

When the Successful bidder fulfills his obligation under the Contract, he shall be eligible to apply for Completion Certificate. After ensuring that the work is completed as per the scope of work, approved technical specifications and regulatory norms, the Independent Chartered Engineer appointed by SCC/SSCL shall recommended

SCC/SSCL to issue the Completion Certificate within one month after receiving any application therefore from the Successful bidder after verifying from the completion documents and satisfying himself that the Work has been completed in accordance with and as set out in Contract documents.

### 3.20 DOCUMENT SUBMISSION FOR ISSUE COMMISSINONING/ COMPLETION CERTIFICATE:

For the purpose of Clause 3.18 above the following documents will be deemed to form the completion documents:

a. Checklist for inspection of Roof top SPV power plants as per RFP format.

b. Project completion report from successful bidder as per RFP format

**c.** Project completion/satisfaction certificate from roof top owners.

**d.** Ensuring all compliance with MESCOM and obtaining Form -9 – Grid synchronization certificate

### 3.21 FINAL DECISION AND FINAL CERTIFICATE:

**3.21.1** Upon completion of 25 years of O&M and subject to the SSCL being satisfied, the SSCL shall (without prejudice to the rights of the SSCL to retain the provisions of relevant Clause hereof) otherwise give a certificate herein referred to as the Final Certificate to that effect and the Successful bidder shall not be considered to have fulfilled the whole of his obligations under Contract until Final Certificate shall have been given by the SSCL notwithstanding any previous entry upon the Work and taking possession, working or using of the same or any part thereof by the Owner of Roof/SSCL.

### 3.22 DEDUCTIONS FROM THE CONTRACT PRICE:

**3.22.1** All costs, damages or expenses which SSCL may have paid or incurred, which under the provisions of the Contract, the Successful bidder is liable/will be liable, will be claimed by the SSCL. All such claims shall be billed by the SSCL to the Contractor within 15 (fifteen) days of the receipt of the payment request and if not paid by the Successful bidder within the said period, the SSCL may, then, deduct the amount from any moneys due i.e., Performance Security or becoming due to the contractor or Successful bidder under the contract or may be recovered by actions of law or otherwise, if the Successful bidder fails to satisfy the SSCL of such claims.

### 3.23 CORRUPT OR FRAUDULENT PRACTICES

The SSCL requires that Successful Bidders/ Contractors should follow the highest standard of ethics during the execution of contract. In pursuance of this policy, the RFP:

**3.23.1** defines, for the purposes of this provision, the terms set forth as follows :

**3.23.2** "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the bid process or in contract execution; and

**3.23.3** "fraudulent practice" means a misrepresentation of facts in order to influence a bid process or the execution of a contract to the detriment of the Shivamogga Smart City Limited (SSCL)/Govt. scheme, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the SSCL of the benefits of free and open competition;

**3.23.4** Will declare a firm ineligible/debarred, either indefinitely or for a specific period of time, a GOVT contract if at any time it is found that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government/ SSCL schemes.

### 3.24 DEBARRED FROM PARTICIPATING IN 'S ROOF TOP TENDER

**3.24.1** SSCL reserves the right to carry out the performance review of each Bidder from the time of submission of Bid onwards. In case it is observed that a bidder has not fulfilled its obligations in meeting the various timelines envisaged, in addition to the other provisions of the RFP, such Bidders may be debarred from participating in SSCL's any future tender for a period as decided by the competent authority of SSCL.

**3.24.2** The Successful bidder must ensure and coordinate with SCC/SSCL to avail the incentives available from the Government.

## SECTION-IV : TECHNICAL SPECIFICATIONS

**The proposed projects shall be commissioned as per the technical specifications given below. SCC/SSCL`s decision shall be final and binding on the bidder. The Bidder shall have to coordinate with MESCOM/ SCC for all network / Grid connectivity issues and ensure strict compliance of MESCOM procedures and KERC regulations.**

### 4.1 DEFINITION

A Grid Tied Solar Rooftop Photo Voltaic (SRPV) power plant consists of SRPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables, Junction boxes, Distribution boxes and switches. PV Array is mounted on a suitable structure. Grid tied SRPV system is without battery and **s**hould be designed with necessary features to supplement the grid power during day time. Components and parts used in the SRPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable. Solar PV system shall consist of following equipments/components.

- Solar PV modules consisting of required number of **Crystalline** PV cells.
- Grid interactive Power Conditioning Unit with Remote Monitoring System Mounting structures
- Junction Boxes.
- Earthing and lightening protections.
- IR/UV protected PVC Cables, Conduits and accessories

### 4.2 SOLAR PHOTOVOLTAIC MODULES:

**4.2.1** The PV modules used should be made in India.

**4.2.2** The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-1 - requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

**4.2.3** For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701.

**4.2.4** The total solar PV array capacity should not be less than allocated/sanctioned capacity (kWp) and should comprise of solar crystalline modules of minimum 300 Wp and above wattage. Module capacity less than minimum 300 Wp shall not be accepted.

**4.2.5** Protective devices against surges at the PV module shall be provided. Low voltage drop

bypass diodes shall be provided.

**4.2.6** PV modules must be tested and approved by one of the IEC authorized test centers.

**4.2.7** The module frame shall be made of corrosion resistant materials, preferably/ shall be anodized aluminum.

**4.2.8** The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. SHIVAMOGGA SMART CITY LIMITED/owners shall allow only minor changes at the time of execution.

**4.2.9** Efficiency of PV modules at standard test conditions (STC) shall not be less than 15.5% and fill factor of the module shall not be less than 0.80.

**4.2.10** Modules shall be made of light weight cells, resistant to abrasion, hail impact, rain, water and environmental pollution. The PV modules shall be provided with anti-reflection coating

**4.2.11** Other general requirement for the PV modules and subsystems shall be as follows:

a) The rated output power of any supplied module shall have tolerance within +/-3%.
b) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
c) The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

**4.2.12** I-V curves at STC should be provided by bidder.

**4.2.13** Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each module. This should be inside the laminate only.

a) Name of the manufacturer of the PV module
b) Name of the manufacturer of Solar Cells.
c) Month & year of the manufacture (separate for solar cells and modules)
d) Country of origin (separately for solar cells and module)
e) I-V curve for the module Wattage, Im, Vm and FF for the module
f) Unique Serial No and Model No of the module
g) Date and year of obtaining IEC PV module qualification certificate.
h) Name of the test lab issuing IEC certificate.
i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

## 4.3 WARRANTIES:

### 4.3.1 Material Warranty:

- Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (25) years from the date of sale to the original customer ("Customer")
- Defects and/or failures due to manufacturing
- Defects and/or failures due to quality of materials
- Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the Bidder shall ensure that the same is repaired by the Original manufacturer or replace the solar module(s) at no cost to SCC/SSCL.

### 4.3.2 Performance Warranty:

- The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% after ten years period of the full rated original output.

## 4.4 CIVIL FOUNDATIONS AND ARRAY STRUCTURE

**4.4.1** All Civil foundations and structures shall be designed to last for a period of 30 years.

**4.4.2** The structures shall resist the worst combination of the required/ specified loads / stresses under test and working conditions; these include dead load, live load, equipment load, water pressure, soil pressure, wind load, seismic load, stresses due to temperature changes, shrinkage and creep in materials, dynamic loads.

**4.4.3** Hot dip galvanized Iron mounting structures shall be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insulation ($15^0$). However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

**4.4.4** The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (like Shivamogga-wind speed of 110 km/ hour as per IS 875 Part 3). Bidder may design the structures to sustain wind speed as required for the location. It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to SHIVAMOGGA SMART CITY LIMITED. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.

**4.4.5** The structures shall be designed taking into considerations the Seismic zone

(earthquake loading) for the region. This shall be computed as per I.S. 1893. The site falls in Zone II as per IS: 1893 (2002). An importance factor appropriate to the type of structure shall be considered for design of all the structures. Environmental condition shall be considered appropriate as per IS 456, IS 800.

**4.4.6** The individual members of the frame shall be designed for worst combination of forces such as bending moment, axial force, shear force and torsion as applicable. Permissible stresses for different load combinations shall be taken as per latest IS456.

**4.4.7** The mounting structure GI shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.

**4.4.8** As far as possible non penetrative methods shall be preferred for mounting the structures over conventional penetrative method for the foundations for all kinds of roofs – GI /M.S. sheet as well as RCC roofs tops.

**4.4.9** Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, and nuts and bolts. Aluminum structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.

**4.4.10** The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SRPV panels

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

**4.4.12** The total load of the structure (when installed with PV modules) on the terrace should be less than 75 kg/m2.

**4.4.13** The minimum clearance of the structure from the roof level should be 300 mm.

### 4.5 JUNCTION BOXES (JBs)

**4.5.1** The junction boxes are to be provided in the PV array for termination of connecting cables. The JBs shall be made of Polycarbonate/GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement.

**4.5.2** It should be UV resistant in accordance with suitable for outdoor application at an ambient of 50°C.

**4.5.3** The junction boxes shall have IP protection of IP 65 for outdoor and IP21 for Indoor as per IEC 529.

**4.5.4** All wires/cables must be terminated through cable lugs. The JBs shall be such that input

& output termination can be made through suitable cable glands.

**4.5.5** Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Double compression cable glands. Provision of earthlings. It should be placed at 5 feet height or above for ease of accessibility.

**4.5.6** All the component including the Hardware that are required for mounting shall be included in the scope of work.

**4.5.7** Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement for disconnection of each of the groups.

**4.5.8** Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.

**4.5.9** The fuses shall be provided on both positive and negative terminal of the incoming string.

**4.5.10** All fuses (Input Side) shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

**4.5.11** Array Junction Box shall have isolator that will be used to disconnect both positive and negative sides simultaneously on output side.

**4.5.12** Array Junction Box shall have the sensors to monitor below parameters

(a) Analog signals: 1. String currents 2. String Voltage

(b) Digital signals: 1. Isolator ON/OFF status

**4.5.13** There shall be provision for mounting RTD element on String Monitoring device

**4.5.14** Either shunt-based (or) CT/hall-effect sensor (LEM)-based Mechanism shall be employed for sensing string currents together with Analog to digital converters for converting above current, voltage and temperature signals.

**4.5.15** Monitoring of the following parameter shall be possible using SCADA

a) DC Switch ON/OFF Status
b) SPD operated
c) Ambient and Junction box Temperature
d) Bus Voltage
e) Current through individual string
f) Overall Output Current

**4.5.16** Insulated pin type and ring type lugs, ferrules, cable ties etc. required for connecting the communication cables to the combiner boxes shall be in the bidder scope.

**4.5.17** Routine tests shall be conducted, as per relevant standards (IS, IEC etc), shall be

carried out on the string combiner box and all the tests may be witnessed by Client/ Client representatives. Bidder shall submit manufacturing quality plan, indicating relevant IS/IEC standards for Client's approval. Following shall be the minimum checks

a) Visual inspection check
b) Bill of materials check
c) Electrical continuity check
d) HV insulation tests
e) Functional checks

Test reports shall be submitted prior to dispatch of the system to the site

**4.5.18** Type test report for Temperature rise test performed at NABL accredited Lab shall be submitted for approval for Client/ Client's representative.

**4.6 DC DISTRIBUTION PANEL BOARD:**

**4.6.1** DC Distribution Board is required if there are large number of strings of PV array hence the large number of the Array junction box .

**4.6.2** It receives the DC output from the array Junction box and supplies to the Inverter.

**4.6.3** DC DPBs shall have a dust & vermin proof enclosure of conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

**4.7 AC DISTRIBUTION PANEL BOARD:**

**4.7.1** AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. ACDB shall be connected to Main 415 V Power Distribution Panel or Power Control Centre (PCC) of the OWNER's system while in grid tied mode.

**4.7.2** All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III. The entire system shall be fuse less system.

**4.7.3** The changeover switches, cabling work should be undertaken by the bidder as part of the project.

**4.7.4** All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz

**4.7.5** The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.

**4.7.6** All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better with rain canopy and double door. the panel shall be mounted at-least 300mm above the Finished Floor Level (FFL) on steel structural

support.

**4.7.7** Should conform to CEA guidelines-2010 (till last amendment).

**4.7.8** All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

| | |
|---|---|
| Variation in supply Voltage | +/- 10 % |
| Variation in supply Frequency | +/- 3 Hz |

**4.8 PCU/ARRAY SIZE RATIO:**

a. The combined wattage of all inverters should not be less than rated capacity of power plant under STC.

b. Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

**4.9 PCU / Inverter:**

**4.9.1** As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the “Power Conditioning Unit (PCU)”.

**4.9.2** In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive, if necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

| | |
|---|---|
| Switching devices | IGBT/MOSFET |
| Control | Microprocessor /DSP |
| Nominal AC output voltage and Frequency | 415V, 3 Phase, 50Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.) |
| Output frequency | 50 Hz |
| Grid Frequency Synchronization range | + 3 Hz or more |
| Ambient temperature considered | -20$^{o}$ C to 50$^{o}$ C |
| Humidity | 95 % Non-condensing |
| Protection of Enclosure | IP-20(Minimum) for indoor.<br>IP-65(Minimum) for outdoor. |
| Grid Frequency Tolerance range | + 3 or more |

| | |
|---|---|
| Grid Voltage tolerance | -0.20 to 0.15 |
| No-load losses | Less than 1% of rated power |
| Inverter efficiency(minimum) | >93% (In case of 10 kW or above with in-built galvanic isolation)<br>>97% (In case of 10 KW or above without in-built galvanic isolation) |
| THD | < 3% |
| PF | > 0.9 |
| Surge Protection | Required on both AC as well as DC side |
| Enclosure | Shall be made of non corrosive material |

**4.9.3** PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.

**4.9.4** The output power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power; inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.

**4.9.5** Built-in meter and data logger to monitor plant performance through external computer shall be provided. It shall have multi-line display to indicate following parameters

a) Output Voltage
b) Output Current
c) Output frequency
d) Harmonics
e) Power Factor
f) KW (Output )
g) kWH (Output )
h) DC Input Voltage
i) DC Input Current
j) KW (input )
k) kWH (input )

**4.9.6** The inverter control system shall be fully compatible for remote operation via communication link.

**4.9.7** Bidder to indicate the type of communication protocol supported by the system along with the details of links provided in the system. The control system shall operate on windows or equivalent platform.

**4.9.8** Alarm shall be produced for the following operating conditions

a) Inverter failure
b) IGBT/MOSFET over temperature
c) Breaker / Dis-connecter failure

d) Over load
e) Over load shutdown
f) Emergency shutdown
g) DC circuit breaker/switch open
h) AC Main failure
i) Fan failure
j) Asynchronous condition and Synchronous condition
k) Control power failure
l) DC ground fault

**4.9.9** The communication protocol in inverter shall be compatible with the Data acquisition system implemented for the entire solar plant.

**4.9.10** Anti-islanding (Protection against Islanding of grid): The PCU shall have anti-islanding protection in conformity to IEEE 1547/UL 1741/ IEC 62116 or equivalent BIS standard.

**4.9.11** Successful Bidders shall be responsible for galvanic isolation of solar roof top power plant with electrical grid or LT panel.

**4.9.12** In PCU/Inverter, there shall be a direct current isolation provided at the output by means of a suitable isolating transformer. If Isolation Transformer is not incorporated with PCU/Inverter, there shall be a separate Isolation Transformer of suitable rating provided at the output side of PCU/PCU units for capacity.

**4.9.13** The PCU/ inverter generated harmonics, flicker, DC injection limits, Voltage Range, Frequency Range and Anti-Islanding measures at the point of connection to the utility services should follow the latest CEA (Technical Standards for Connectivity Distribution Generation Resources) Guidelines and shall also be within the specified limits in IEEE 519.

**4.9.14** Power conditioning units / inverters should comply with applicable IEC / equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std.

**4.9.15** The MPPT units environmental testing should qualify IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS std. The junction boxes/ enclosures should be IP 65 (for outdoor) / IP 54 (indoor) and as per IEC 529 specifications.

**4.9.16** The PCU/ inverters should be tested from the MNRE approved test centers/ NABL/ BIS/ IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by accredited international test houses. Bidder shall furnish copies of all type test reports required.

**4.9.17** The Inverter shall have the option of Positive or Negative grounding. The inverter shall

have less power consumption when in service and shall have minimum power consumption on standby mode. Inverter DC input side shall be provided with DC Circuit breaker and output side provided with AC circuit breaker

**4.9.18** The minimum following devices shall be provided to protect the inverter:

a) Reverse polarity
b) Reverse power
c) Short Circutit
d) Over-current
e) Earth fault protection
f) Islanding
g) Under / Overvoltage
h) Over / Under frequency
i) Surge Protection on both AC and DC side

**4.9.19** The BIDDER shall clearly bring out the earthing philosophy to be adopted for the Inverter electronics, protective earthing (PE) and neutral earthing. The requirement of separate earth pit independent of the plant electrical system earth pits shall be clearly brought out.

**4.9.20** Types including Heat run test and routine tests certificates for all components used in the inverter system shall be furnished. Testing of components shall be as per relevant standards.

**4.9.21** Bidder shall furnish copies of all type test reports required as per the relevant standards. The type test should have been carried out in last five years on equipment of similar rating. Without the type test reports the Contract shall be considered incomplete.

**4.9.22** Bidder shall furnish his quality assurance plan for the equipment offered. The quality assurance plan shall include bought out component and assemblies used in the Inverter system.

**4.9.23** System tests shall be performed on the completely assembled inverter system. System tests shall include frequency regulations. Voltage regulation, current limiting feature and harmonic content tests in addition to the tests to prove the functional requirements such synchronization with range of adjustments, overload and under voltage conditions.

**4.9.24** Heat run test shall be carried out on inverter system at rated load under relevant ambient conditions for a period of 8 hours. This test shall be conducted as a routine test on all inverters being supplied.

## 4.10 INTEGRATION OF PV POWER WITH GRID:

The output power from SRPV would be fed to the inverters which converts DC produced by SRPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. 4 pole isolation of inverter output with respect to the grid power connection need to be provided.

## 4.11 DATA ACQUISITION SYSTEM / PLANT MONITORING

**4.11.1** Data Acquisition System shall be provided for each of the solar PV plant.

**4.11.2** Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.

**4.11.3** Solar Irradiance: An integrating Pyranometer / Solar cell based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.

**4.11.4** Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system

**4.11.5** The following parameters are accessible via the operating interface display in real time separately for solar power plant:

a) AC Voltage.
b) AC Output current.
c) Output Power
d) Power factor.
e) DC Input Voltage.
f) DC Input Current.
g) Time Active.
h) Time disabled.
i) Time Idle.
j) Power produced
k) Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.
l) Parameters mentioned in Clause 17.

**4.11.6** All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and

logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.

**4.11.7** PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.

**4.11.8** Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.

**4.11.9** String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.

**4.11.10** Computerized AC energy monitoring shall be in addition to the digital AC energy meter.

**4.11.11** The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.

**4.11.12** All instantaneous data shall be shown on the computer screen. It shall show the mimic diagram indicating status of each system component and value of each system parameters

**4.11.13** Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.

**4.11.14** Provision for instantaneous Internet monitoring and download of historical data shall be also incorporated.

**4.11.15** Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.

**4.11.16** Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.

**4.11.17** Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.

**4.11.18** Remote Monitoring and data acquisition through Remote Monitoring System software at the SHIVAMOGGA SMART CITY LIMITED location with latest software/hardware configuration and service connectivity for online / real time data monitoring / control complete to be supplied and operation and maintenance / control to be ensured by the bidder.

**4.11.19** The bidders shall be obligated to push real-time plant monitoring data on a specified intervals (say 15 minute) through open protocol at receiver location (cloud server) in XML/JSON format, preferably. Suitable provision in this regard will be intimated to the bidders.

**4.11.20** All the Alarm as indicated in the Clause 21.9 shall be displayed on the computer screen.

### 4.12 TRANSFORMER "IF REQUIRED" & METERING:

**4.12.1** Dry/oil type relevant kVA, 11kV/415V, 50 Hz Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.

**4.12.2** The bidirectional electronic energy meter (0.5 S classes) shall be installed for the measurement of import/Export of energy. The Meter shall be as per MESCOM norms.

**4.12.3** The bidder must intimate to the Concerned MESCOM for the connectivity, technical feasibility, and synchronization of SRPV plant with distribution network and submit the same to SCC/SHIVAMOGGA SMART CITY LIMITED before commissioning of SRPV plant.

**4.12.4** The Reverse power relay shall be provided by bidder (if necessary), as per the MESCOM requirement.

### 4.13 POWER CONSUMPTION:

Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid.

### 4.14 PROTECTIONS

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

#### 4.14.1 LIGHTNING PROTECTION

The SRPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SRPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standards. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

#### 4.14.2 SURGE PROTECTION

Internal surge protection shall consist of three MOV type surge-arrestors connected

from +ve and –ve terminals to earth (via Y arrangement).

### 4.14.3 EARTHING PROTECTION

a) Each array structure of the PV yard should be grounded/ earthed properly as per IS: 3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Appropriate Statutory Department/SHIVAMOGGA SMART CITY LIMITED & SCC as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.

b) Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

### 4.15 GRID ISLANDING:

a) In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “Islands.” Powered Islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.

b) A manual disconnect 4-pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be provided with locking facility to be locked by the utility personnel for taking outage clearances.

### 4.16 CABLES

Cables of appropriate size to be used in the system shall have the following characteristics:

**4.16.1** Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards

**4.16.2** Temp. Range: –10 deg C to +80 deg C.

**4.16.3** Voltage rating 660/1000V (1100V)

**4.16.4** Excellent resistance to heat, cold, water, oil, abrasion, UV radiation

**4.16.5** Flexible

**4.16.6** Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire

solar system shall not exceed 2%.

**4.16.7** For the DC cabling, XLPE or, XLPO insulated and sheathed, UV-stabilized single core multi-stranded flexible copper cables shall be used; Multi-core cables shall not be used.

**4.16.8** For the AC cabling, PVC or, XLPE insulated and PVC sheathed single or, multi-core multi-stranded flexible copper cables shall be used; Outdoor AC cables shall have a UV-stabilized outer sheath.

**4.16.9** The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. Outer sheath of cables shall be electron beam cross-linked XLPO type and black in color.

**4.16.10** The DC cables from the SHIVAMOGGA SMART CITY LIMITED module array shall run through a UV-stabilized PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm.

**4.16.11** Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers

**4.16.12** All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm; the minimum DC cable size shall be 4.0 mm2 copper; the minimum AC cable Size shall be 4.0 mm2 copper.

**4.16.13** In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires.

**4.16.14** Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. In addition, cable drum no. / Batch no. to be embossed/ printed at every one meter.

**4.16.15** Cable Jacket should also be electron beam cross-linked XLPO, flame retardant, UV resistant and black in color.

**4.16.16** All cables and connectors for use for installation of solar field must be of solar grade which can withstand harsh environment conditions including High temperatures, UV radiation, rain, humidity, dirt, salt, burial and attack by moss and microbes for 25 years and voltages as per latest IEC standards. DC cables used from solar modules to array junction box shall be solar grade copper (Cu) with XLPO insulation and rated for 1.1kV as per relevant standards only.

**4.16.17** Bidder shall indicate size and length as per system design requirement. All the cables required for the plant shall be provided by the bidder. All cable schedules/ layout drawings shall be approved prior to installation.

**4.16.18** Multi Strand, Annealed high conductivity copper conductor PVC type ‘A’ pressure

extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.

**4.16.19** The total voltage drop on the cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%.

**4.16.20** The total voltage drop on the cable segments from the solar grid inverter to the building distribution board shall not exceed 2.0%.

### 4.17 CONNECTIVITY

KERC in its KERC (Implementation of Solar Rooftop Photovoltic Power Plants regulations 2016 dated 15/12/2016) has specified the interconnection procedure for SRTPV plants with the distribution system. The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar developer cum operator.

| Sl. No. | Installed Capacity of SRTPV | Voltage level |
|---|---|---|
| 1. | Upto 5 kW | 230 V- single phase |
| 2. | Above 5 kW and upto 50 kW | 400 V-Three phase |
| 3. | Above 50 kW and upto 1000kW | 11kV HT |

**4.17.1** Depending on the type of supply taken by the consumer i.e, LT or HT, application has to be submitted to MESCOM for feasibility and Award

**4.17.2** The maximum permissible capacity for rooftop shall be 1 MW for a single net metering point.

**4.17.3** Utilities may have voltage levels other than above; MESCOM may be consulted before finalization of the voltage level and specification is made accordingly.

### 4.18 TOOLS & TACKLES AND SPARES:

**4.18.1** After completion of installation & commissioning of the power plant, necessary tools & tackles shall be maintained at the site by the Bidder for maintenance purpose.

**4.18.2** A list of requisite spares in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc

along with spare set of PV modules be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished.

**4.19 DANGER BOARDS AND SIGNAGES:**

Danger boards of appropriate voltage level shall be provided as and where necessary as per CEA guidelines 2010 as amended up to date. Appropriate Signage shall be provided at appropriate locations to identify the equipment, indicate the purpose etc. The Text of the signage may be finalized in consultation with SHIVAMOGGA SMART CITY LIMITED / OWNER.

**4.20 FIRE EXTINGUISHERS:**

The firefighting system for proposed power plant for fire protection shall be consisting of:

**4.20.1** Portable fire extinguishers (CO2) in the control room for fire caused by electrical short circuits

**4.20.2** Sand buckets in the control room – One stand with 4 Buckets

**4.20.3** The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof where the PV arrays have been installed.

**4.21 DRAWINGS & MANUALS:**

**4.21.1** Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

**4.21.2** Approved ISI and reputed makes for equipment offered/ to be used.

**4.21.3** For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to SHIVAMOGGA SMART CITY LIMITED & SCC before progressing with the installation work

**4.22 PLANNING AND DESIGNING:**

**4.22.1** The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The bidder should submit the array layout drawings along with Shadow Analysis Report to SHIVAMOGGA SMART CITY LIMITED / SCC for approval.

**4.22.2** SHIVAMOGGA SMART CITY LIMITED reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per

local site conditions/requirements.

**4.22.3** The Bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any, shall submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

### 4.23 DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT

The Bidder shall furnish the following drawings and obtain approval

**4.23.1** General arrangement of PV Panels and other equipment with dimensions and section layouts indicating all views for each location wherever Bidder's equipment shall be installed.

**4.23.2** Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.

**4.23.3** Detailed Single line Diagram (SLD) indicating the Rating of components including switchgear, bus-bar, CT, PT, cables etc.; Configuration of components; Protection details; interlocks; indications & annunciations provided; etc. for each system.

**4.23.4** Supporting calculations with formulae, reference to standards and assumptions shall be submitted for each system.

**4.23.5** Structural drawing along with foundation details for the structure.

**4.23.6** Itemized bill of material for complete SV plant covering all the components and associated accessories.

**4.23.7** Layouts of solar Power Array, cable tray routing, earthing including down comers, lightning arrestors and earth pits with building dimensions, inverters, lighting, metering etc.

**4.23.8** Shadow analysis of the roof

**4.23.9** Type Test certificates of the components from Accredited Laboratories.

### 4.24 SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT

The Solar PV system on the rooftop of the selected buildings will be installed for Net Metering for meeting the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the office buildings will be met by drawing power from grid at commercial tariff of MESCOMs. Wherever Gross Metering is allowed as per KERC regulations the same will be followed.

### 4.25 SAFETY MEASURES:

The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules regulations applicable as per Electricity Act, 2003 and CEA/KERC guidelines etc from time to time.

Since the Job involves Working at Height more than 3 m, all safety measures related to Working at height shall be followed as per standard engineering practice including mounting of Pipe Scaffolding, Safety Net, Personal protective equipment, Safety Belt, Special vehicle mounted elevator etc.

Also for Maintenance purpose on regular basis working of mangalore tiles type Roofs, adequate foolproof safe arrangements shall be provided for the operator and workmen to carry out their routine work without and risk of accident.

Refer Safety Guidelines enclosed with this document for further requirements.

A write up of the steps to be followed and equipment to be used for installation, testing, operation and maintenance shall be provided as a part of evaluation document.

## 4.26 DISPLAY BOARD

The bidder has to display a board at the project site mentioning the following:

**4.27** Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar, wind etc.), and Date of commissioning, details of tie-up with transmission and distribution companies, Power generation and Export FY wise.

**4.27.1** Financial Assistance details from SCC/ SHIVAMOGGA SMART CITY LIMITED/MNRE/Any other financial institution apart from loan. This information shall not be limited to project site but also be displayed at site offices/head quarter offices of the successful bidder.

**4.27.2** The size and type of board and display shall be approved by SCC/ SHIVAMOGGA SMART CITY LIMITED before site inspection.

**Please refer table under 4.31 for IEC standards to be mandatorily adhered.**

## 4.28 OPERATION AND MAINTENANCE GUIDELINES

For the optimal operation of a PV plant, maintenance must be carried out on a regular basis.

All the components should be kept clean. It should be ensured that all the components are fastened well at their due place.

Maintenance guidelines for various components viz. solar panels, inverter, wiring etc. are discussed below:

## 4.29 SOLAR PANELS

Although the cleaning frequency for the panels will vary from site to site depending on soiling, it is recommended that

- The panels are cleaned at least once every fifteen days.
- Any bird droppings or spots should be cleaned immediately.
- Use water and a soft sponge or cloth for cleaning.

- Do not use detergent or any abrasive material for panel cleaning.
- Isopropyl alcohol may be used to remove oil or grease stains.
- Do not spray water on the panel if the panel glass is cracked or the back side is perforated.
- Wipe water from module as soon as possible.
- Use proper safety belts while cleaning modules at inclined roofs etc.
- The modules should not be cleaned when they are excessively hot. Early morning is particularly good time for module cleaning.
- Check if there are any shade problems due to vegetation or new building. If there are, make arrangements for removing the vegetation or moving the panels to a shade-free place.
- Ensure that the module terminal connections are not exposed while cleaning; this poses a risk of electric shock.
- Never use panels for any unintended use, e. g. drying clothes, chips etc.
- Ensure that monkeys or other animals do not damage the panels.

## 4.30 CABLES AND CONNECTION BOXES

- Check the connections for corrosion and tightness.
- Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
- There should not be vermin inside the box.
- Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire.
- If the wire is outside the building, use wire with weather-resistant insulation.
- Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
- If some wire needs to be changed, make sure it is of proper rating and type.

## 4.31 INVERTER

- The inverter should be installed in a clean, dry, and ventilated area which is separated from, and not directly above, the battery bank.
- Remove any excess dust in heat sinks and ventilations. This should only be done with a dry cloth or brush.
- Check that vermin have not infested the inverter. Typical signs of this include spider webs on ventilation grills or wasps' nests in heat sinks.
- Check functionality, e.g. automatic disconnection upon loss of grid power supply, at least once a month.

- Verify the state of DC/AC surge arrestors, cable connections, and circuit breakers.

### 4.32 SHUTTING DOWN THE SYSTEM

- Disconnect system from all power sources in accordance with instructions for all other components used in the system.
- Completely cover system modules with an opaque material to prevent electricity from being generated while disconnecting conductors.
- To the extent possible, system shutdown will not be done during day time or peak generation.

**INSPECTION AND MAINTENANCE SCHEDULE**

| Component | Activity | Description | Interval | By |
|---|---|---|---|---|
| PV Module | Cleaning | Clean any bird droppings/dark spots on module | Immediately | User/Technician |
| | Cleaning | Clean PV modules with plain water or mild dishwashing detergent. Do not Use brushes, any types of solvents, abrasives, or harsh detergents. | Fortnightly or as per the site conditions | User/Technician |
| | Inspection (for plants>100kWp) | Use infrared camera to inspect for hot spots; bypass diode failure | Annual | Technician |
| PV Array | Inspection | Check the PV modules and rack for any damage. Note down location and serial number of damaged modules. | Annual | User/Technician |
| | Inspection | Determine if any new objects, such as vegetation growth, are causing shading of the array and move them if possible. | Annual | User/Technician |
| | Vermin | Remove bird nests or vermin from array and rack area. | Annual | User/Technician |
| Junction Box | Inspection | Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required Check position of switches and breakers. Check operation of all protection devices. | Annual | Electrician |
| Wiring | Inspection | Inspect cabling for signs of cracks, defects, lose connections, overheating, arcing, short or open circuits, and ground faults. | Annual | Electrician |

| | | | | |
|---|---|---|---|---|
| Inverter | Inspection | Observe instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required. | Monthly | Electrician |
| Instruments | Service | Clean or replace any air filters. | As needed | Electrician |
| | Validation | Spot-check monitoring instruments (pyranometer etc.) with standard instruments to ensure that they are operational and within specifications. | Annual | PV Specialist |
| Transformer | Inspection | Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc. | Annual | Electrician |
| Tracker (if Present) | Inspection | Inspect gears, gear boxes, bearings as Required. | Annual | Technician |
| | Service | Lubricate tracker mounting bearings, Gearbox as required. | BI-annual | Technician |
| Plant | Monitoring | Daily Operation and Performance Monitoring | Daily | Site in charge |
| Spare Parts | Management | Manage inventory of spare parts. | As needed | Site in charge |
| Log Book | Documentation | Document all O&M activities in a workbook available to all service personnel | Continuous | Site in charge |

## 4.33 Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the successful mass-scale implementation of this technology. It is also imperative to put in place an efficient and rigorous monitoring mechanism, adherence to these standards. Hence, all components of grid-connected rooftop solar PV system/ plant must conform to the relevant standards and certifications given below:

| **Solar PV Modules/Panels** | |
|---|---|
| IEC 61215/ IS 14286/IEC61646 | Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules |
| IEC 61701/IS 61701 | Salt Mist Corrosion Testing of Photovoltaic (PV) Modules |
| IEC 61853- Part 1/ IS 16170: Part 1 | Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating |
| IEC 62716 | Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing<br>(As per the site condition like dairies, toilets) |
| IEC 61730-1,2 | Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing |
| IEC 62804 | Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon<br>(mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC) |
| IEC 62759-1 | Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units |
| **Solar PV Inverters** | |
| IEC 62109-1, IEC 62109-2 | Safety of power converters for use in photovoltaic power systems – |
| | Part 1: General requirements, and Safety of power converters |

| | |
|---|---|
| | for use in photovoltaic power systems<br><br>Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting) |
| IEC/IS 61683<br>(as applicable) | Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions) |
| BS EN 50530<br>(as applicable) | Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered. |
| IEC 62116/ UL 1741/ IEEE 1547<br><br>(as applicable) | Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures |
| IEC 60255-27 | Measuring relays and protection equipment – Part 27: Product safety requirements |
| IEC 60068-2 (1, 2, 14, 27, 30 & 64) | Environmental Testing of PV System – Power Conditioners and Inverters<br>a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold<br>b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat<br>c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - |
| | Test N: Change of temperature |
| | d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - |
| | Test Ea and guidance: Shock |
| | e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - |
| | Test Db: Damp heat, cyclic (12 h + 12 h cycle) |
| | f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - |
| | Test Fh: Vibration, broadband random and guidance |
| | |

| | |
|---|---|
| IEC 61000- 6– 1/3; IEC 61000- 3– 2/3 | Electromagnetic Interference (EMI) and Electromagnetic |
| (as applicable) | Compatibility (EMC) testing of PV Inverters |
| **Switchgear** | |
| IS/IEC 60947 (Part 1, 2 & 3), EN 50521 | General safety requirements for connectors, switches, circuit breakers (AC/DC):<br>a) Low-voltage Switchgear and Control-gear, Part 1: General Rules<br>b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers<br>c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnections, switch-disconnections and fuse-combination Units<br>d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests |
| IEC 60269-6 | Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy Systems |
| **Surge Arrestors** | |
| IEC 62305-4 | Lightening Protection Standard |
| IEC 60364-5-53/ IS 15086-5 (SPD)<br><br>IEC 61643-11:2011 | Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and Control<br><br>Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods |
| **Cables** | |
| IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947 | General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation) |
| BS EN 50618 | Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables |
| **Earthing /Lightning** | |
| IEC 62561 Series | IEC 62561-1 |

| | |
|---|---|
| (Chemical earthing) | Lightning protection system components (LPSC) - Part 1: Requirements for connection components<br>IEC 62561-2<br>Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes<br>IEC 62561-7<br>Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds |
| **Junction Boxes** | |
| IEC 60529 | Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use |
| **Energy Meter** | |
| IS 16444 or as specified by the DISCOMs | A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements) |
| **Solar PV Roof Mounting Structure** | |
| IS 2062/IS 4759 | Material for the structure mounting |

Note- Equivalent standards may be used for different system components of the plants. In case of clarification following person/agencies may be contacted.

- Ministry of New and Renewable Energy (Govt. of India)
- National Institute of Solar Energy
- The Energy & Resources Institute
- UV Rheinland and UL

## SECTION-V : PRICE BID FOR RESCO

**RFP NO** :

Please refer e-portal for Price bid

**Note**:

a. **The bids with tariff in excess of the above (KERC approved tariff rates) shall be out rightly rejected.**

b. The tariff shall be calculated up to three decimal places. However in case of a tie it may be expanded to break the tie.

c. Bids not in conformity with above provisions will be rejected.

d. As per KERC order no. S/03/1 Date: 2nd May, 2016 “The Commission, in supersession of its Order dated 10th October, 2013, decides that the norms and tariff determined in this Order shall be applicable to all new grid connected solar rooftop and small solar photovoltaic power plants, entering into Power Purchase Agreement (PPA) and commissioned on or after 2nd May, 2016 and upto 31st March, 2018”. However, if there is any revision or amendment to this order same will prevail.

Date: _____ Signature: _____

Place: _____ Printed Name _____

Business Address: Designation _____

(Company Stamp) _____

## FORMATS FOR SUBMITTING RFP
### Format-1 : Covering Letter
**(The covering letter should be on the Letter Head of the Bidding Company)**

**Ref. No. _____** **Date:_____**

**From:**

**(Insert name and address of Bidding Company)**

_____

**Tel.#:**

**Fax#:**

**E-mail address#**

**To,**

**The Managing Director,**

Shivamogga Smart City Limited

First Floor, SN Market

Nehru Road, Shivamogga - 577201

**Sub: Bid for "Implementation of Grid Connected Rooftop Solar PV Systems on the Rooftop of Government Buildings in Shivamogga"**

Dear Sir,

We, the undersigned….[insert name of the 'Bidder'] having read, examined and understood in detail provided in the RFP Document for Implementation of Grid connected Roof Top Solar PV System Scheme in SSCL hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid RFP.

1) We give our unconditional acceptance to the RFP, dated……and RFP Documents attached thereto, issued by Shivamogga Smart City Limited , as amended. This shall also be construed as a token of our acceptance to the RFP Documents including all its amendments and clarifications uploaded on e-portal website.

   We shall ensure that we execute such RFP Documents as per the provisions of the RFP and all provisions of such RFP Documents shall be binding on us.

2) **Bid Capacity**

   We have the bid for bid capacity allocated in the RFP

3) **Earnest Money Deposit**

   We have submitted EMD as mentioned in clause 1.15 of RFP.

4) **Processing Fee**

   We have submitted processing fees as per e-portal standareds.

5) We have submitted our Price Bid strictly as per Section IV of this RFP, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).

6) In case we are a Successful Bidder, we shall furnish a declaration at the time of commissioning of the Project to the affect that neither we have availed nor we shall avail in future any subsidy other than received from Shivamogga Smart City Limited for implementation of the project.

7) **Acceptance**

   We hereby unconditionally and irrevocably agree and accept that the decision made by Shivamogga Smart City Limited in respect of any matter regarding or arising out of the RFP shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

   We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regard to execution of projects of capacity offered by us.

   Request for Selection (RFP) of Bidders for Implementation of Grid Connected Roof Top Solar PV System on SCC owned building under the Smart Cities Mission

8) **Familiarity with Relevant Indian Laws & Regulations**

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

9) We are enclosing herewith the Envelope-I (Covering letter, Processing fee and EMDs) Envelope-II (Techno-Commercial documents) and Envelope III (Price Bids) containing duly signed formats, each one duly sealed separately, in one original as desired by you in the RFP for your consideration.

   It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFP and subsequent communications from Shivamogga Smart City Limited. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFP and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of 180 days from the Bid deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the_____day of_____,20….

Thanking you,

We remain,

Yours faithfully,

**Name, Designation and Signature of Authorized Person in whose name Power of Attorney/Board Resolution as per Clause…….is issued.**

## Format-2 : General Particulars Of The Bidder

| | | |
|---|---|---|
| | Name of the Company | |
| | Registered Office Address | |
| | Telephone, Telex, Fax No | |
| | E-mail | |
| | Web site | |
| | Authorized Contact Person(s) with name, designation Address and Mobile Phone No., E-mail address/ Fax No. to whom all references shall be made | |
| | Year of Incorporation | |
| | Bidding company PAN Number | |
| | Bidding company TAN Number | |
| | Have the bidder/Company ever been debarred By any Govt. Dept. / Undertaking for undertaking any work. | |
| | Reference of any document information attached by the Bidder other than specified in the RFP. | |
| | Whether the Bidder wishes to form a Project Company for execution of work | Yes/No/May be |
| | Bidding company is listed in India | Yes/No |
| | Details of the Ownership structure (Details of persons owning 10% or more of the Total Paid up equity of the Bidding Company in the Format as below | |
| | EMD Bank guarantee No | |
| | Validity of EMD | |
| | □ Banker E-mail ID,<br>□ FAX No of the banker<br>□ Correspondence address & Pin Code | |

**(Signature of Authorized Signatory)**
**With Seal**

**Format-A(Shareholding Certificate)**

| Name of the Equity holder | Type and Number of shares owned | % of equity holding | Extent of Voting Rights |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**(Signature of Authorized Signatory & Company Secretary)**
**With Seal**

**Stamp and Signature of the Company Secretary / Chartered Accountant**

## Format-3 : Format For Earnest Money Deposit

Deleted

## Format-4 : Format For Performance Bank Guarantee (PBG)

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

In consideration of the ----- [Insert name of the Bidder] (hereinafter referred to as selected Successful Bidder(SB)) submitting the response to RFP inter alia for selection of the Project under Roof Top scheme in response to the RFP No_____ dated……. issued by Shivamogga Smart City Limited (hereinafter referred to as Shivamogga Smart City Limited ) considering such response to the RFP of ……[insert the name of the Successful Bidder] (which expression shall unless repugnant to the context or meaning thereof include its executers, administrators, successors and assignees) and selecting the Solar Power Project of the Solar Power Developer and issuing Letter of allocation No ---------- to----------(insert the name of the Successful Bidder(SB)) as per terms of RFP and the same having been accepted by the selected SB or a Project Company, M/s ---------- {a Special Purpose Vehicle (SPV) formed for this purpose}, if applicable ]. As per the terms of the RFP, the _____ [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to Shivamogga Smart City Limited at_____ [Insert Name of the Place from the address of the Shivamogga Smart City Limited ] forthwith on demand in writing from Shivamogga Smart City Limited or any Officer authorized by it in this behalf, any amount upto and not exceeding Rupees------ [Total Value] only, on behalf of M/s _____ [Insert name of the selected Successful Bidder(SB)/ Project Company]

This guarantee shall be valid and binding on this Bank up to and including…….[*insert date of validity in accordance with Clause 1.15 of this RFP]*. and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only).

Our Guarantee shall remain in force until…….. Shivamogga Smart City Limited shall be entitled to invoke this Guarantee till …….

The Guarantor Bank hereby agrees and acknowledges that Shivamogga Smart City Limited shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by Shivamogga Smart City Limited, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to Shivamogga Smart City Limited.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----------[Insert name of the Successful Bidder(SB)/ Project Company as applicable] and/or any other person. The Guarantor Bank shall not require Shivamogga Smart City Limited to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against Shivamogga Smart City Limited in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Shivamogga shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly Shivamogga Smart City Limited shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Successful Bidder(SB) / Project Company , to make any claim against or any demand on the Successful Bidder(SB)/ Project Company or to give any notice to the Successful Bidder(SB)/ Project Company or to enforce any security held by Shivamogga Smart City Limited or to exercise, levy or enforce any distress, diligence or other process against the Successful Bidder(SB)/ Project Company. Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only) and it shall remain in force until ……..

We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if Shivamogga Smart City Limited serves upon us a written claim or demand.

Signature _____

Name_____

Power of Attorney No._____

Email ID_____

For

_____[Insert Name of the Bank]__

Banker's Stamp and Full Address.

Dated this ____ day of ____, 20__

Witness:

1. ……..

Signature

Name and Address

2. ……..

Signature

Name and Address

Notes:

1. The Stamp Paper should be in the name of the Executing Bank and of appropriate value.

## Format-5 : Check List For Bank Guarantees

| Sl.No. | Details of checks | YES/NO. |
|---|---|---|
| a) | Is the BG on non-judicial Stamp paper of appropriate value, as per applicable Stamp Act of the place of execution | |
| b) | Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG). | |
| c) | Has the executing Officer of BG indicated his name, designation and Power of Attorney No./Signing Power no. on the BG? | |
| d) | Is each page of BG duly signed / initialed by executant and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed Performa? | |
| e) | Does the Bank Guarantees compare verbatim with the Performa prescribed in the Bid Documents? | |
| f) | Are the factual details such as Bid Document No. / Specification No., / LOA No. (if applicable) / | |
| 9 | Is the BG on non-judicial Stamp paper of appropriate value, as per applicable Stamp Act of the place of execution | |
| i) | Whether overwriting/cutting if any on the BG have been properly authenticated under signature & seal of executant | |

## Format-6 : Power Of Attorney

**(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)**

**Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory's authority.**

Know all men by these presents, We …….. (name and address of the registered office of the Bidding Company as applicable) do hereby constitute, appoint and authorize Mr./Ms. …….. (name & residential address) who is presently employed with us and holding the position of …… as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid for implementation of grid connected Roof top solar PV scheme in SSCL in response to the RFP. No …… dated ……..issued by Shivamogga Smart City Limited (SSCL), Shivamogga including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the Shivamogga Smart City Limited may require us to submit. The aforesaid Attorney is further authorized for making representations to the Shivamogga Smart City Limited , Shivamogga and providing information / responses to Shivamogga Smart City Limited , Shivamogga representing us in all matters before Shivamogga Smart City Limited , Shivamogga and generally dealing with Shivamogga Smart City Limited , Shivamogga in all matters in connection with this Bid till the completion of the bidding process as per the terms of the above mentioned RFP.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFP.

**Signed by the within named**

**…….. (Insert the name of the executant company)**

**through the hand of**

**Mr. ……**

**duly authorized by the Board(vide Board resolution No_____) to issue such Power of**

**Attorney**

**Dated this …… day of ……**

**Accepted**

……..

Signature of Attorney

(Name, designation and address of the Attorney)

**Attested**

**……**

**(Signature of the executant)**

**(Name, designation and address of the executant)**

**……**

**Signature and stamp of Notary of the place of execution**

**Common seal of …… has been affixed in my/our presence pursuant to Board of Director's Resolution dated…….(Board of Director's Resolution is also enclosed)**

**WITNESS**

**1. ……..**

**(Signature)**

**Name……**

**Designation ……**

**2. ……**

**(Signature)**

**Name……**

**Designation ……**

**Notes:**

The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executants(s) affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

The person authorized under this Power of Attorney, in the case of the Bidding Company / Lead Member being a public company, or a private company which is a subsidiary of a public company, in terms of the Companies Act, 1956, with a paid up share capital of more than Rupees Five crores, should be the Managing Director / whole time director/manager appointed under section 269 of the Companies Act, 1956. In all other cases the person authorized should be a director duly authorized by a board resolution duly passed by the Company.

Also, wherever required, the executant(s) should submit for verification the extract of the chartered documents and documents such as a Board resolution / power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

## Format -7 : Financial Eligibility Criteria Requirement (As Per Clause 1.3)
## (To be submitted on the letterhead of Bidding Company / Lead Member)

To,
The Managing Director,
Shivamogga Smart City Limited,
First Floor, SN Market
Nehru Road
Shivamogga 577201

Dear Sir,

Sub: Bid for "Implementation of Grid Connected Rooftop Solar PV Systems on the Rooftop of Government Buildings in Shivamogga"

a) We submit our Bid(s) for the total capacity of …….kWp (Insert total offered capacity in kWp and submit details of our Financial Eligibility Criteria as follows:

**Bid Details**

| Sl No | Buildings type | Capacity in kwp |
|---|---|---|
| | | |
| | | |
| | | |

**Financial eligibility criteria**

| Name of Financially Evaluated Entity* | Relationship with Bidding Company** | Financial year | Year of Incorporation of the Bidding company | ***Total Maximum Annual Turnover (Rs. Crore) | Net worth as per Clause 3.6.3 (in Rs. Crore) |
|---|---|---|---|---|---|
| | | | | | |

* The Financially Evaluated Entity may be the Bidding Company itself.

** The column for "Relationship with Bidding Company" is to be filled only in case financial capability of Parent Company and/or Affiliate has been used for meeting Qualification Requirements.

*** Bidder shall furnish maximum annual turnover in any of the last three financial years.

Yours faithfully

(Signature and stamp (on each page) of Authorized Signatory of Bidding Company.

Name: …….

Date: ……..…

Place: ……..

(Signature and stamp (on each page) of Chartered Accountant/Statutory Auditors of Bidding Company.

Name: ……..

Date: ……..

Place: ……

**Notes:**

Audited consolidated annual accounts of the Bidder may also be used for the purpose of financial criteria provided the Bidder has at least 26% equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

## Format-8 : Format For Certificate Of Relationship Of Parent Company Or Affiliate With The Bidding Company.

To,

The Managing Director,
Shivamogga Smart City Limited,
First Floor, SN Market
Nehru Road
Shivamogga 577201

Dear Sir,

Sub: Bid for "Implementation of Grid Connected Rooftop Solar PV Systems on the Rooftop of Government Buildings in Shivamogga"

We hereby certify that M/s……,M/s……..,M/s…….are the Affiliate(s) /Parent Company of the Bidding Company as per the definition of Affiliate/Parent Company as provided in this RFP and based on details of equity holding as on seven (7) days prior to the Bid Deadline.

The details of equity holding of the Affiliate/Parent Company/Bidding Company or vice versa as on seven (7) days prior to the Bid Deadline are given as below:

| Name of Bidding Company/applicant company | Name of the Affiliate of the Bidding Company/Applicant company/ Name of the Parent Company of the Bidding Company | Name of the Company having common control on the affiliate and the Bidding Company | Percentage of Equity Holding of Parent Company in the Bidding Company/ Applicant company |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

*Strike out whichever is not applicable.
……..

**(Insert Name and Signature of Statutory Auditor or practising Company Secretary of the Bidder)**

## Format-9 : Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company

**(On the Letter Head of the Financially Evaluated Entity or its Parent Company/Ultimate Parent Company)**

Name:

Full Address:

Telephone No.:

E-mail address:

Fax/No.:

To,

The Managing Director,
Shivamogga Smart City Limited,
First Floor, SN Market
Nehru Road
Shivamogga 577201

Dear Sir,

We refer to the RFP No……..dated……..for "Implementation of Grid Connected Rooftop Solar PV Systems on the Rooftop of Government Buildings in Shivamogga".

"We have carefully read and examined in detail the RFP, including in particular, Clause ….of the RFP, regarding submission of an undertaking, as per the prescribed Format ____of the RFP.

We confirm that M/s……(Insert name of Bidding Company/) has been authorized by us to use our Technical and or financial capability for meeting the Technical and or Financial Eligibility as specified in Clause….of the RFP referred to above.

We have also noted the amount of the Performance Guarantee required to be submitted as per Clause….of the RFP the ……..(Insert the name of the Bidding Company) in the event of it being selected as the Successful Bidder".

In view of the above, we hereby undertake to you and confirm that in the event of failure of ……..(Insert name of the Bidding Company) to submit the Performance Guarantee in

full or in part at any stage, as specified in the RFP, we shall submit the Performance Guarantee not submitted by ……(Insert name of the Bidding Company)".

We have attached hereto certified true copy of the Board Resolution Whereby the Board of Directors of our Company has approved issue of this Undertaking by the Company.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the RFP.

**Signature of Managing Director/Authorised signatory**

**Common seal of …….has been affixed in my/our presence pursuant to Board of Director's Resolution dated……**

**WITNESS**

**……..**
**(Signature)**
**Name……**
**Designation……..**
**……..**
**(Signature)**
**Name……**
**Designation……..**

## Format-10 : Consortium Agreement

***(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution)***

THIS Consortium Agreement ("Agreement") executed on this_____ day of _____2014 between M/s [insert name of Lead Member]_____ a Company incorporated under the laws of _____ and having its Registered Office at _____(hereinafter called the "Lead Member", which expression shall include its successors, executors and permitted assigns)

and

M/s _____ a Company incorporated under the laws of _____ and having its Registered Office at _____ (hereinafter called the "Technical Member", which expression shall include its successors, executors and permitted assigns, which expression shall include its successors, executors and permitted assigns)

WHEREAS, each Member individually shall be referred to as the "Member" and both the Members shall be collectively referred to as the "Members" in this Agreement.

WHEREAS the Shivamogga Smart City Limited (hereinafter called Shivamogga Smart City Limited) ,a section ___Company incorporated under the Company's Act, 1956 has invited response to RFP No. _____ dated _____for Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance for a period of 5 years under CAPEX and 25 years under RESCO of Roof Top Solar PV power system in selected States in India.

WHEREAS the RFP documents stipulates that the Lead Member may enter into a Technical Consortium Agreement with another Company / Corporate entity to fulfill the Technical Eligibility Criteria as stipulated in the RFP document. The Members of the Bidding Consortium will have to submit a legally enforceable Consortium Agreement in a format enclosed with the RFP document.

**NOW THEREFORE, THIS AGREEMENT WITNESSTH AS UNDER:**

In consideration of the above premises and agreements all the Members in this Consortium do hereby mutually agree as follows:

1. We, the Members of the Consortium and Members to the Agreement do hereby unequivocally agree that (M/s_____), shall act as the Lead Member as defined in the RFP for self and agent for and on behalf of Technical Member _____. Lead Member as defined in the RFP for self and agent for and on behalf of Technical Member _____.
2. The Lead Member is hereby authorized by the Technical Member of the Consortium to bind the Consortium and receive instructions for and on their behalf.
3. The Lead Member shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging all of their respective obligations. Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.
4. Subject to the terms of this Agreement, the Technical member shall be responsible for providing technical knowledge for "Design, Manufacture, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance for a defined period as per RFP of Roof Top Solar PV power system in selected Cities/States in India to the lead member.
5. In case of any breach of any commitment by any of the Consortium Members, the Lead Member shall be liable for the consequences thereof.
6. This Agreement shall be construed and interpreted in accordance with the Laws of India and courts at Shivamogga alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.
7. It is hereby further agreed that in case of being shortlisted, the Members do hereby agree that they shall abide by the terms & conditions of the RFP document.
8. It is further expressly agreed that this Agreement shall be irrevocable and shall form an integral part of the RFP submitted to Shivamogga Smart City Limited and shall remain valid till completion of the job assigned to the Contractor.
9. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to RFP.

10. It is hereby expressly understood between the Members that no Member at any given point of time, may assign or delegate its rights, duties or obligations under this agreement without the explicit permission of Shivamogga Smart City Limited .
11. This Agreement
    a) Has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each such Member;
    b) Sets forth the entire understanding of the Members hereto with respect to the subject matter hereof; and
    c) May not be amended or modified except in writing signed by each of the Members and with prior written consent of Shivamogga Smart City Limited.

IN WITNESS WHEREOF, the Members have, through their authorized representatives, executed these present on the Day, Month and Year first mentioned above.

For M/s----------[Lead Member]

---

(signature, Name & Designation of the person authorized vide Board Resolution Dated [●])

Witnesses:

1. Signature_____ 2) Signature_____

Name: Name:

Address: Address:

For M/s----------[Technical Member]

---

(signature, Name & Designation of the person authorized vide Board Resolution Dated [●])

## DOCUMENTS REQUIRED FOR PROJECT AWARD

Following documents will be required to be submitted for project Award:

1. Agreement between the bidder and the owner of the Project and Building/Roof top (Notarized original agreement on stamp paper of appropriate value should be enclosed).
2. All Agreement shall generally have reference to the SSCL's RFP No. and Letter of Award and provisions as per terms and conditions, technical specification and performance parameter in line with the SSCL's RFP Document against which Letter of Award has been issued. In addition, it shall indicate the price / tariff payable by the roof top Owner to the developer, payment terms, completion period along with other conditions of contract like insurance, warranty, force majeure, arbitration, jurisdiction, governing law, site access for the developer, and, site access for SSCL officials for the entire plant life, obligation of the roof top owner regarding providing of data to SSCL as per the RFP Document etc.
3. Intimation to the concerned MESCOM for grid connectivity as per Annexure-A or CEIG approval (In case CEIG approval is suffice for grid connectivity). Undertaking of Successful Bidder on stamp Paper for-3 pages only as per Format indemnification of SSCL shall be furnished in case approval of CEIG is only furnished for grid connectivity. (Not mandatory during project identification, however mandatory for project commissioning/operation).

## Annexure A : Application available in MESCOM portal for installation of roof top solar PV.

MESCOM ELECTRICITY SUPPLY COMPANY LIMITED
(Wholly owned Government of Karnataka Undertaking)

**Format-1**

**Application Form for Grid Connectivity Solar Roof Top PV Generation system on Gross/ Net Metering Basis**

Please affix recent passport size photograph of applicant.

### 1. *Applicant Details*

| ☐ Individual | ☐ Company/Trust / Co-operative | ☐ Partnership |
|---|---|---|

| | |
|---|---|
| ***Name of the Applicant*** | |
| ***Address & Contact details*** | |
| House/Flat/Shop No. | Cross |
| Main | Location |
| Street | City |
| Landmark | Pin code |
| Land Line Ph. No. | Mobile |
| Email | |

### 2. *Installation Details*

| | |
|---|---|
| Sub-division code | |
| RR Number | |
| Account ID No. | |
| Awarded Load in kW…….. | Contract Demand in KVA …….. |
| ☐ Single Phase | ☐ Three phase |
| Category of Installation (please tick (√) on the appropriate box) | |

| | | |
|---|---|---|
| ☐ Residential | ☐ Commercial | ☐ Industrial |
| ☐ Educational Institution | ☐ Government Organization | ☐ Others |

***3.Rooftop System details****(please tick (√) on the appropriate box)*

| | | | | | |
|---|---|---|---|---|---|
| Proposed Capacity of Solar RTPV power plant in kW peak | | | | | |
| Type of Installation | ☐ Single phase LT (Upto and inclusive 5kWp) | ☐ Three phase LT (above 5kWp upto 50kWp) | ☐ HT(above50kWpupto 500kWp) | | |
| Approximate shadow free area of Rooftop in sq. mts. | | | | | |

***4. Subsidy***

| | | |
|---|---|---|
| Whether applicant wish to avail MNRE subsidy | ☐ Yes | ☐ No |
| Whether MNRE Subsidy is Awarded or not | ☐ Yes | ☐ No |

***Documents enclosed:***

| | | | |
|---|---|---|---|
| 1 | Copy of latest Electricity bill | ☐ Yes | ☐ No |
| 2 | Copy of the Subsidy Award letter from MNRE | ☐ Yes | ☐ No |
| 3 | Self-certification for not availing subsidy from MNRE | ☐ Yes | ☐ No |

Certificate:

1. The above stated information's are true to best of my knowledge.
2. **Certified** that my building can take up the proposed weight of Solar PV system.

Place: Signature of the applicant

Date: Name:

## Instructions:

1. The application forms in Kannada and English can be downloaded from MESCOM website www.MESCOM.co.in

2. The filled-in application along with the necessary documents shall be submitted to jurisdictional O&M, Sub-division office, MESCOM.

3. **On-line application:** Application can also be registered through online. Copy of the online filled application alongwith necessary documents with registration fee shall be submitted to jurisdictional O&M, Sub-division office, MESCOM.

4. The fee payable shall be payable in cash and are as follows:

| Sl. No. | Capacity of proposed SRTPV system | Registration fee | Facilitation fee |
|---|---|---|---|
| 1. | Upto and inclusive of 5.0 kWp | Rs.500/- | Rs.1000/- |
| 2. | Above 5.0 kWp and below 50 kWp (67 Hp/59 kVA) | Rs.1000/- | Rs.2000/- |
| 3. | Above 50 kWp (67 Hp/59 kVA) and upto 500 kWp | Rs.2000/- | Rs.5000/- |

5. The applicant is required to select a reputed system installer to install the SRTPV System, who has experience in design, supply and installation of SRTPV system.

6. After installation of SRTPV system, AEE(Ele,), O&M Sub-division, MESCOM is the inspecting authority for SRTPV systems upto 10kWp. For above 10kWp SRTPV systems, Electrical Inspectorate, Government of Karnataka is the inspecting authority to meet safety standards.

7. Only MESCOM empanelled Grid tied inverter and meter should be used.

## General Terms and Conditions:

1. The rooftop/terrace must have easy access.

2. If consumer is not availed subsidy, shall furnish self-certification for not availing subsidy from MNRE.

3. The authorization Format-1A and self-certification Format-1A can be downloaded from the website.

4. Application registered is not transferable.

5. MESCOM shall not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.

6. The tariff for injecting surplus energy by rooftop installation will be as per the prevailing tariff determined by KERC from time to time.

**Format-1A**

## Certification for not availing subsidy from MNRE(on Rs. 100 Judicial Stamp Paper)

[[

This is to certify that I_____ (Name of applicant) have applied for installation of SRTPV system at our premise_____(address) with _____ (Installation RR No.) and have not availed any subsidy or grant from Ministry of New and Renewable Energy (MNRE) or from any other State and Central agency in this regard.

I hereby also agree not to claim any subsidy or grant in future either from MNRE or from any other State / Central agency for the same.

**Place:** **Signature of Applicant**

**Date:** **Name:**

## SOLAR ROOFTOP PHOTOVOLTAIC SYSTEMS APPLICATION REGISTER

| Sl. No. | Registration | | Name of the Applicant | Address | RR No. | Sanctioned Load in kW / KVA | DTC details | | Type of connivity ( Gross / net metering) | Proposed SRTPV Capacity in kWp | Registration Fee details | | | Feasibility Report date | SRTPV installation approval reference | | | Facilitation Fee details | | | Date of PPA with HESCOM | Chief Electrical Inspectorate Approval reference (above 10kWp only) | | Commissioning Approval reference | | | Date of Commission & Synchronize | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Date | | | | | Capacity | TIMS code No. | | | Amount | Receipt No. | Date | | Authority (AEE/EE) | Number | Date | Amount | Receipt No. | Date | | Number | Date | Authority (AEE/EE) | Number | Date | | |
| 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 | 26 | 27 | 28 | 29 |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: Once the Solar RTPV installation is synchronized, the RR No. of the SRTPV installation shall be prefixed with the existing RR Number. For ex: SRTPV - RR No.

**Format - 3**

**MESCOM Electricity Supply Company Limited**

*(Wholly owned by Government of Karnataka Undertaking)*

| **RevenueReport (To be submitted by the AAO/SA)** | | | | |
|---|---|---|---|---|
| **Sl. No.** | **Parameter** | **Utility Observation** | | |
| **A** | **Applicant details** | | | |
| 1 | Name of the Applicant | ☐ Yes | ☐ No | |
| 2 | RR Number | ☐ Yes | ☐ No | |
| 3 | Type of connection: | ☐ 1ph LT | ☐ 3ph LT | ☐ HT |
| 4 | Awarded load in kW/KVA | | | |
| 5 | Tariff applicable | | | |
| 6 | Arrears/ Audit short claims (if any) | | | |

(Signature and Name in capital letters)

**Assistant Account Officer / Senior Assistant,**
**O&M Sub-division/ Section**
**_____,MESCOM**

**Format - 4**

**MESCOM Electricity Supply Company Limited**

*(Wholly owned by Government of Karnataka Undertaking)*

| **Technical Feasibility Report (To be submitted by the Section officer)** | | |
|---|---|---|
| **Sl No.** | **Parameter** | **Utility Observation** |
| **A** | **Applicant details** | |
| 1 | Name of the Applicant | |
| 2 | RR Number | |
| 3 | Application Registration Number | |
| 4 | Tariff | |
| 5 | Type of connection: 1phLT or 3ph LT/HT | |
| 6 | Pole Number | |
| 7 | Next RR Number | |
| 8 | Awarded Load in kW / Contract demand in KVA | |
| **B** | **Distribution Transformer Details** | |
| 1 | Location | |
| 2 | Capacity in KVA | |
| 3 | Total Connected load in kW | |
| 4 | Tongtester reading of current in all 3 phases and neutral | |
| 5 | SRTPV already Proposed/connected in kWp | |
| 6 | Proposed SRTPV capacity in kWp | |
| 7 | Total Generation Capacity (5+6) in kWp | |
| 8 | Whether the transformer capacity is adequate to deliver the proposed SRTPV system in addition to existing solar RTPV systems* | Yes/No |
| **C** | **Feeder Details(Existing Only)** | |
| 1 | Name of the 11kV feeder | |
| 2 | Feeder Number | |
| 3 | Name of the Sub-Station | |
| 4 | Type of the conductor/cable(size) | |
| 5 | Total connected load on the feeder in kVA | |
| 6 | Total capacity(kWp) of SRTPV systems connected on the feeder | |

| | | |
|---|---|---|
| 7 | Peak load on the feeder in Amps | |
| 8 | Proposed SRTPV installationis technically feasible, if the total SRTPV capacity is less than or equal to the 11kV feeder capacity. | Yes/No (if it is not feasible, state reasons) |

The Transformer shall be loaded upto 80% of capacity.

**Enclosure: 11kV feeder &LT Distribution sketch of the transformer.**

I hereby certifythat the above said SRTPV installation is technically feasible.

**Signature and Name**

**Section officer,**
**O&M Section _____,**
**MESCOM**

**Format - 5**

| | |
|---|---|
| | **MESCOM Electricity Supply Company Limited**<br>*(wholly owned Government of Karnataka undertaking)* |
| Telephone :<br>Email ID :<br>Ref No.: | Office of the<br>…….<br>…….<br>Date: |

**To,**

(Name & address of the applicant)
……
……

**Madam/Sir,**

**Sub:**Execution of Power Purchase Agreement(PPA) for gross / net metering.

**Ref:**Application Reg. No. ……. dtd: ……....

With reference to your application cited under reference for gross/ net metering, it is pleased to inform that your application is technically feasible for grid connectivity and you are requested to enter into the Power Purchase Agreement(PPA) within 10 days for the date of this letter, failing which your application will be treated as cancelled.

The standard Power Purchase Agreement approved by KERC is available in the MESCOM website. www.MESCOM.co.in.

Yours faithfully,

**AEE/Executive Engineer(Ele)**
**O&M …….. sub-div/division,**
**MESCOM, .....**

**Format – 6a**

## Gross-metering

(**Applicable for Domestic, Hospital and Educational institution**)

**Not Applicable**

**Format – 6A**

**Net-metering**

(**Applicable for Industrial, Commercial and all categories of consumers other than Domestic, Hospital and Educational institution categories**)

| | |
|---|---|
| | **MESCOM Electricity Supply Company Limited**<br>*(wholly owned Government of Karnataka undertaking)* |
| Telephone :<br>Email ID :<br>Ref No.: | Office of the<br>……<br>……<br>Date: |

To,

(Name & address of the applicant)

……

……

**Madam/Sir,**

**Sub:** Approval for installing …….. kWp solar RTPV system under Net- metering.

**Ref:** 1. Application Reg. No. …… dtd: ……....
2. PPA executed date:. ……

With reference to your SRTPV application, approval is herewith accorded for installing Solar RTPV system of …… kWp on your rooftop under Net-metering basis as per following terms and conditions:

1. As per CEA guide lines, you are responsible for planning, design, construction, reliability, protection and safe operation of all the equipment's subject to the regulations for construction, operation maintenance, connectivity and other statutory provisions.

2. You can select a reputed system installer of your choice, who have experience in design, supply, installation and commissioning of SRTPV system.

3. Only MESCOM empaneled inverters and meter shall be used. The empaneled list of inverters and meters are available in MESCOM website.

4. Upgradation of infrastructure, if required, (service main, meter with CT, upgrade) upto the grid connectivity point is to be done at your cost.

5. All the other components of Solar RTPV system shall comply with applicable IS/IEC standards. The Technical specification of each equipment is available in MESCOM website.
6. The work of grid connectivity shall be carried out in accordance with the Net- metering schematic diagram available in MESCOM website.

7. Bi-directional meter (whole current/ CT operated) shall be provided before the point of interconnection and the existing meter shall be shifted to the generation side of SRTPV plant to measure solar power generation.

8. Both the meters shall be within the same proximity and easily accessiblefor taking monthly reading by the meter reader.

9. The Applicant shall provide Bi-directional check meter in series with the proposed Bi-directional meter (Main meter) when the SRTPV system capacity is more than 20kWp.

10. Approval of Electrical Inspectorate, GoK is required if capacity of SRTPV system is more than 10kWp.

11. You should complete the SRTPV installation work before **dd/mm/yyyy.**

12. After completion of the work in all respects, you have to submit the work completion report in Format – 7 along with following documents:

    a. Test reports of PV modules and other equipment's (except Grid tied inverter and bi-directional meter) as per IS/ IEC standards.
    b. Test certificate of Bi-directional meter issued by MT division, MESCOM.
    c. First sheet of Bank pass book containing details of Name of the Bank, Type of account, Account No, Name of the Branch, IFSC code etc.
    d. Receipt of facilitation fee.

13. If for any reason the date of commissioning is delayed beyond the date of commissioning agreed, the tariff payable by the MESCOM shall be lower of the:
    i. Tariff agreed to in the PPA. **OR**
    ii. Tariff as per the average pooled power purchase cost notified by the Commission prevailing on the date of commissioning.

Please note that MESCOM will not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.

Yours faithfully,

**AEE/Executive Engineer(Ele)**
**O&M …….. sub-div/division,**
**MESCOM .....**

**Format –7**

## MESCOM Work completion report
## (To be submitted by the applicant)

**To,**

The Assistant Executive Engineer (Ele) / Executive Engineer (Ele),

…….. O & M, Sub-division/Division

……..

**Madam/Sir,**

**Sub:**Submission of work completion report.

**Ref:** Your letter no ……....dtd:……(Format-6/ 6a). Dtd ……..

With reference to the above, the work of installation of SRTPV system is completed and I would like to submit the following information for your kind needful.

**A. Facilitation fee paid details:**

| | | |
|---|---|---|
| 1 | Facilitation fee in Rs. | |
| 2 | Receipt no. | |
| 3 | Date | |

**B. Solar PV module**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Type of the module | |
| 3 | Capacity of each module in kWp | |
| 4 | No. of Modules | |
| 5 | Sl.No. of Modules | |
| 6 | Total Capacity in kWp | |

**C. Inverter**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Type | |
| 3 | Capacity | |
| 4 | No. of Inverters | |
| 5 | Sl.No. | |

**D. Cables: DC**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Size & Type | |

**E. AC wiring**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Size & Type | |

**F. DC distribution box**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Sl. No. | |
| 3 | DC Surge Protection Device | |
| 4 | MCB / Isolator quantity &capacity | |

**G. AC distribution box**

| | | |
|---|---|---|
| 1 | Make | |
| 2 | Sl. No. | |
| 3 | AC Surge Protection Device | |
| 4 | MCB / MCCB quantity & capacity | |

**H. Earthing**

| | | |
|---|---|---|
| 1 | Earth resistance<br>(less than 5 ohms) | |
| 2 | Size of the Earth flat<br>( 3 x 70 sq.mm galvanic iron flat) | |
| 3 | Three separate earthing points<br>1. Modules &DC Surge arrester:<br>2. Inverter &AC Surge arrester<br>3. Lightening Arrester: | |

**I. Bi-directional meter details (please enclose the test report of bi-directional meter issued by MT division, MESCOM)**

| Sl.No. | Particulars | Main Meter | Check Meter |
|---|---|---|---|
| 1 | Make | | |
| 2 | Type | | |
| 3 | Sl.No. | | |
| 4 | Single Ph/Three Ph. | | |

| Sl.No. | Particulars | Main Meter | Check Meter |
|---|---|---|---|
| 3 | CT Ratio | | |
| 4 | PT Ratio | | |
| 5 | Date of Test by MT, MESCOM | | |

**j. Caution signs**

Size of the caution label: 105 mm width X 20 mm height, with white letters on a red background

| | | |
|---|---|---|
| 1 | Panels | |
| 2 | Inverters | |
| 3 | DC/ AC distribution box | |

**k. Provision of manual and automatic switch : Yes / No**

**l. Installation inspection date:**

The SRT PVsystem has been installed and inspected in compliance with the Electricity Act 2003, the Indian Eectricity rules 1956 (Rule 47A).

| Inspection by | Inspection date |
|---|---|
| AEE, O&M, Sub-division(for SRTPV below 10kWp) | |
| Electrical inspectorate (Solar RTPV systems above 10kWp)<br>Approval letter shall be submitted | |

Certified that the above said SRPTV system was installed by me and the equipments used comply the Technical and Safety standards issued by MESCOM.

Applicant Signature
Name: _____
Date: _____

System Installer Signature & seal
Name of the firm: _____
Date: _____

**Format - 8**

| | |
|---|---|
| | **MESCOM Electricity Supply Company Limited**<br>*(wholly owned Government of Karnataka undertaking)* |

**Commissioning report of SRTPV system ( Net / Gross metering)**

| | | | | |
|---|---|---|---|---|
| **A** | **Consumer Details** | | | |
| 1 | Name of the Consumer | | | |
| 2 | Category | | | |
| 3 | RR No./Account ID/Connection ID | | | |
| 4 | Pole Number | | | |
| **B** | **Meter Details** | **Bi-directional Meter** | | **Existing meter** |
| | | **Main Meter** | **Check Meter** | |
| 1 | Meter make: 1ph / 3 ph | | | |
| 2 | Type | | | |
| 3 | Serial number | | | |
| 4 | Capacity | | | |
| 5 | Meter constant | | | |
| 6 | Initial reading (Tri vector parameters) | | | |
| | i) Import | | | |
| | ii) Export | | | |
| Note:<br>1. The Bi-directional meter records solar generation and existing meter records installation consumption in case of Gross metering.<br>2. The Bi-directional meter records export of solar energy to grid and Import of energy by the installation. Existing meter records the total solar energy generated. | | | | |
| **C** | **Grid Tied Inverter** | | | |
| 1 | Make | | | |

| | | |
|---|---|---|
| 2 | Serial number | |
| 3 | Capacity | |
| 4 | Input voltage | |
| 5 | Output voltage | |
| 6 | Whether Anti-islanding feature is in working condition | Yes/No |
| **D** | **PV Module** | |
| 1 | Make | |
| 2 | Serial number | |
| 3 | Type of module | |
| 4 | Capacity of each module | |
| 5 | Number of modules | |
| 6 | Total capacity of module | |
| E | Earthing verified: DC earthing,AC earthing, LA earthing of SRTPV system | Yes/No |
| F | Details of protective system available | • AC &DC DB: Yes/No<br>• Manual Switch solar side:Yes/No<br>• Relay operated automatic switch at net-meter side: Yes/No |
| G | CEI, GoK/AEE, MESCOM inspection&approval letter obtained | Yes/No |
| H | Work completion report of SRTPV system obtained from agency | Yes/No |
| I | Date of synchronizing with MESCOM grid | dd/mm/yyyy |

**AEE(Ele.)/EE(Ele.)**
**MT S/D/Dvn, ----------, MESCOM**

**AEE(Ele.)/EE(Ele.)**
**O&M ----------, MESCOM**

**Name &**
**Signature of Consumer**

**Format–9**

| | |
|---|---|
| | **MESCOM Electricity Supply Company Limited**<br>*(wholly owned Government of Karnataka undertaking)* |
| Telephone :<br>Email ID :<br>**Ref No.:** | Office of the<br>……<br>……..<br>……<br>Date: |

**To,**

(Name & address of the applicant)
……
……

**Madam/Sir,**

**Sub:** Certificate of synchronization of your…… kWP SRTPV system
**Ref:** Application Reg. No. …… dtd: ……....

Synchronizationtest of Solar Rooftop PV system of ……. kWp, installed on the roof of your installation bearing RR No.: …….. has been conducted and your SRTPV system successfully synchronized with the MESCOM gridat ..... voltage level on dd/mm/yyyy.

Yours faithfully,

**AEE/Executive Engineer(Ele)**

**O&M …….. sub-div/division,**
**MESCOM .....**

**Copy submitted to:**

1. General Manager(Tech), Corporate Office, BESCOM, K.R. Circle, Bangalore.
2. EE, C, O & M ……...Division, MESCOM.
3. Copy for information EE of MT division.
4. MF/OC

**Note :**

1. Copy is to be marked to CE, LDC, CGM(Op) if the SRTPV capacity is more than 500kWp.
2. The file along with all the documents is to be sent to revenue section for billing purpose.

## Annexure-B : Project Report Format

**Format for Summary Project Report for Grid Connected Rooftop and Small Solar PV**

**Power Plants**

1. Name of Bidder
2. RFP no.

3.Project details (Site location & Address)

4. Brief about the Rooftop Solar Power Generation System
5. Details of the beneficiary
6. Specifications of the Components and Bill of Material/ Quantities

| Sl. no | Component | Specifications | Quantity | Make |
|---|---|---|---|---|
| A | Solar PV module | | | |
| A.1 | Aggregate Solar PV capacity (kWp) | | | |
| B | Grid Tie inverter (Type and Capacity) | | | |
| B.1 | Aggregate Inverter capacity (kVA) | | | |
| C | Module mounting structure (Certified by a Structural Engineer(Mandatory for 101 kWpto 500 kWp) | | | |
| D | Array Junction Box | | | |
| E | AC Distribution Board | | | |
| F | Cable (All type) | | | |
| G | Earthing Kit(maintenance free) | | | |
| H | Meters | | | |
| I | Online monitoring system | | | |
| J | Any other component | | | |
| K | Transformer | | | |

7. Unit cost of solar power generation
8. Cost benefit analysis, payback period
9. Expected output/annum
10. Respective drawings for layout, electrical wiring connections, earthing, components etc.
11. Connectivity details with grid and metering arrangement (with sketch diagram)

12. Copy of electricity bill of the beneficiary and consumer number
13. Any other information
14. Documentary proof regarding beneficiary type

**(The above information should be limited up to 2-3 pages only)**

## Annexure C : Monthly O & M Report

**Month and year:**

**Name of the bidder:**

**RFP ref no.:**

**Project Capacity:**

**Address of the site:**

**Part A**

| Component | Activity | Description | Date | Name/ Signature | *Remarks |
|---|---|---|---|---|---|
| PV module | Cleaning | Immediate clean any bird droppings/ dark spots on modules | | | |
| | Cleaning | Clean PV modules with plain water or mild dishwashing detergent | | | |
| | Inspection (for plants> 100KWp) | Infrared camera inspection for hot spots: bypass diode failure | | | |
| PV Array | Inspection | Check the PV modules and rack for any damage | | | |
| | Inspection | If any new object, such as vegetation growth etc.., are causing shading of the array. Remove if any | | | |
| | Vermin removal | Remove bird nests or vermin from array and rack area | | | |
| Junction boxes | Inspection | Inspect electrical boxes for corrosion, intrusion of water or vermin | | | |
| | | Check position of switches and Breakers | | | |
| | | Check status of all protection devices. | | | |
| | | Inspect cabling for sign of cracks, defects ,lose connections | | | |

| **Component** | **Activity** | **Description** | **Date** | **Name/ Signature** | ***Remarks** |
|---|---|---|---|---|---|
| Wiring | Inspection | Overheating, arcing, short or open circuits and faults | | | |
| inverters | Inspections | Observe instantaneous operational indicators on the faceplate | | | |
| | | Inspect inverter housing or shelter for any physical maintenance | | | |
| | | Check for connections tightness | | | |
| inverters | Service | Clean or replace any air filter | | | |
| Instruments | Validations | Verify monitoring instruments (pyranometer etc..,) with standard instruments to verify their operation within tolerance limits | | | |
| Transformer | Inspection | Inspect transformeroil level, temperature gauges, breather, silica gel, meter, connections etc | | | |
| Plant | Monitoring | Daily operationsand performance and monitoring | | | |
| Spare parts | Managements | Manage inventory of spare parts | | | |
| Log book | Documentation | Maintain daily log records | | | |

| **Component** | **Activity** | **Description** | **Date** | **Name/ Signature** | ***Remarks** |
|---|---|---|---|---|---|
| Trackers | Inspection | Inspect gears , gear boxes, bearingand motors | | | |
| | service | Lubricate bearing, gears as required | | | |

Provide details of any replacement of systems/components, damages, plant/inverter shut down (planned/forced), breakdown, etc under remarks.

*Daily register is to be maintained by the bidder at each location greater than 50 kWp. The same may be inspected by SSCL or its authorized representative at any time 25 years of O&M period. The Register will have the information about the daily generation, Inverter downtime if any, Grid outages.

**Part B**

| Date | Generation kWh | Grid outage (hh:mm) | Inverter down period (hh:mm) | Remarks |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| -- | | | | |
| -- | | | | |

Total generation for the month in kWh:

Cumulative generation since commissioning in kWh: CUF for month in %:

Cumulative CUF since commissioning in %:

Date:

Signature of the Authorised signatory of the Bidder

## Annexure D : Project Completion Report for Grid-Connected Rooftop

| | | | |
|---|---|---|---|
| Financial year * : | | | |
| Approval No. * : | | | |
| Proposal Title : | | | |
| Installed by agency : | | | |
| Project initiated by : | | | |
| **Title of the Project* :** | | Capacity (kWp)*: | |
| **Category of the organization / beneficiary*** | | Name of the contact person* | |
| Address of contact person* : | | | |
| State* : | | District/City* : | |
| Mobile* : | | Email* : | |
| Telephone No. : | STD code- | Website : | |
| **Other info** | | | |
| Electricity Distribution Company Name : | | | |
| Electricity consumer account no. as per electricity bill : | | as on Date : | |

**Bank Details of Beneficiary**

Name of A/c holder :

Name of Bank :

Name of Branch and Address :

Bank IFSC Code :

9 Digit Micr Code :

Type of Account :

Account No. :

Aadhaar Card Number :

## Annexure E : Technology Description & System Design /Specification

**(Compliance to BIS/IEC Standards is mandatory)**

| | | |
|---|---|---|
| **1. Module** | | |
| Capacity/Power of each PV Module(Wp)* : | 1. Capacity/Power<br>2. Capacity/Power | 1. Nos:<br>2. Nos: |
| Cumulative Capacity of Modules(KWp): | | |
| Solar cell technology : | | |
| Module efficiency (in Percentage) : | | |
| **Inverters** | | |
| Type of inverter : | | |
| Make of inverter : | | |
| Capacity/Power of each PCU/inverters (VA)* : | Capacity/Power Nos. | |
| Capacity/Power of PCU/inverters (KVA) : | | |
| Inverter efficiency (Full load) : | | |
| (in percentage) | | |
| **Metering Arrangement** | | |
| Details of Metering | | |
| Type of Meter* : | | |
| Make of Meter : | | |
| **5. Other information** | | |
| Units of electricity generated by the solar plant as per meter (in KWh): | | |
| **Monitoring Mechanism :** | | |
| No. of personnel to be trained in O&M : | | |
| Task & Expected Schedule(in Months) : | | |
| Grid connectivity level | | |

| | | |
|---|---|---|
| **1. Module** | | |
| Grid connectivity level phase* : | | Grid connectivity level Voltage* : |
| | | |
| Costing of Project | | |
| Hardware cost : | Rs. | Total Cost of Installation (Rs) : |
| | | |
| **Means of Finance** | | |
| Envisaged Central Financial Assistance from MNRE* | Rs. | |
| Contribution of Beneficiaries* | Rs. | |
| Other Source (s) of Funding | Rs. | |

## Annexure F : Intimation to MESCOM for Implementation of Grid Connected Rooftop Solar PV Plant under Scheme

To, Date:

_____

_____ (Designated Officer, MESCOM)

| | | | | | |
|---|---|---|---|---|---|
| 1. | Name of SPD/Implementing Agency | | | | |
| 2 | Name of the Consumer* | | | | |
| Site Details* | | | | | |
| 3 | Address of the Rooftop Project Site:* | H No: | | | |
| | | Street Name: | | | |
| | | Village Name: | | | |
| | | District Name: | | | |
| | | State: | | | |
| | | Pin Code: | | | |
| 4 | Phone/Mobile No. | | | | |
| 5 | Email Id: | | | | |
| 6 | Electricity Consumer No. * | | | | |
| 7 | *Category (Please) | Residential | Commercial | Industrial | |
| | | Educational | Government | Others, Specify | |
| 8 | Installed Plant Capacity (kWp)* | | | | |
| 9 | Connected load (kVA)* | | | | |
| 10 | Voltage level at interconnection* | 415 V | 11 kV | above 11 kV | |
| 11 | Nearest Transformer Details | Location: | | Capacity: | |
| 12 | Details of Inverter with Anti-Islanding | | | | |
| | Protection* | Make: | Capacity. | | |
| | Phase (Φ): (Please) | Single phase | 3-Phase | | |
| | Galvanic Isolation (Please ) | Inside Inverter | Outside Inverter | | |
| 14 | Both AC and DC components of the SPV power plants Earthed*: | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15 | CEIG Inspection required* | | Yes | No | | |
| 16 | If, Yes, Inspection date * | | | | | |
| | (Attach copy of CEIG Certificate) | | | | | |
| 18 | Bank Account details | Account No. | | | | |
| | | Bank | | | Branch | |
| 19 | Date of Grid Synchronization* | | | | | |
| 20. | Net metering and grid connectivity | Applied on: | | | | |
| | (Attach Acknowledgment from MESCOM, if received) | Fees Deposited On: | | | | |

*to be provided mandatorily

It is certified that the information furnished above is true to the best of my knowledge.

Consumer /Authorized Signatory of Implementing Agency on behalf of consumer

Copy To:

Engineer In-charge, ShivamoggaSmart City Limited, Shivamogga

## Annexure – G : Undertaking from the Bidding Company on their Letter Head

Name:

Full Address:

Telephone No.:

E-mail address:

Fax/No.:

To,

The Managing Director,

ShivamoggaSmart City Limited,

_____,

_____

Dear Sir,

We refer to the RFP No..... dated..... for "**Design, Supply, Installation and Commissioning of Roof Top Solar Photovoltaic Systems on Net metering (as per KERC Regulations) – On the Rooftop of Government Buildings in Shivamogga (approximately 430 kWp)**".

We have carefully read and examined in detail the RFP, including its amendments and clarifications as available on SSCL website.(www.eprockarnataka.gov.in)

We confirm that M/s..... (Insert name of Bidding Company/) has fulfilled all the requirements of KERC Act and as per the acknowledgement/certificate of KERC provided by ..... (Insert name of Authority who has provided the KERC Certificate), we are eligible for execution of the Solar PV project for which the bid has been submitted by us in pursuance to the SSCL's RFP No..... dated.....

Further, we are complying and will continue to comply all terms and conditions of acknowledgement/certificate of KERC until any further orders from the KERC authority. Any change in the acknowledgement/certificate of KERC, submitted to SSCL, shall be immediately appraised to SSCL for their any further decision in this regard.

Further, we are also eligible for the benefits provided under KERC Act, 2006 and any further order issued by Govt. of India in this regard prior to last date of bid submission for the aforementioned RFP.

In case any information provided/documents submitted or anything material or otherwise is found w.r.t above undertaking, SSCL shall have the right to cancel the capacity allocated/Awarded to us and forfeit the Performance Bank Guarantee submitted by us. In addition to above, we (including our affiliate/parent/assigns) may also be debarred by SSCL to participate in any future tender.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the RFP.

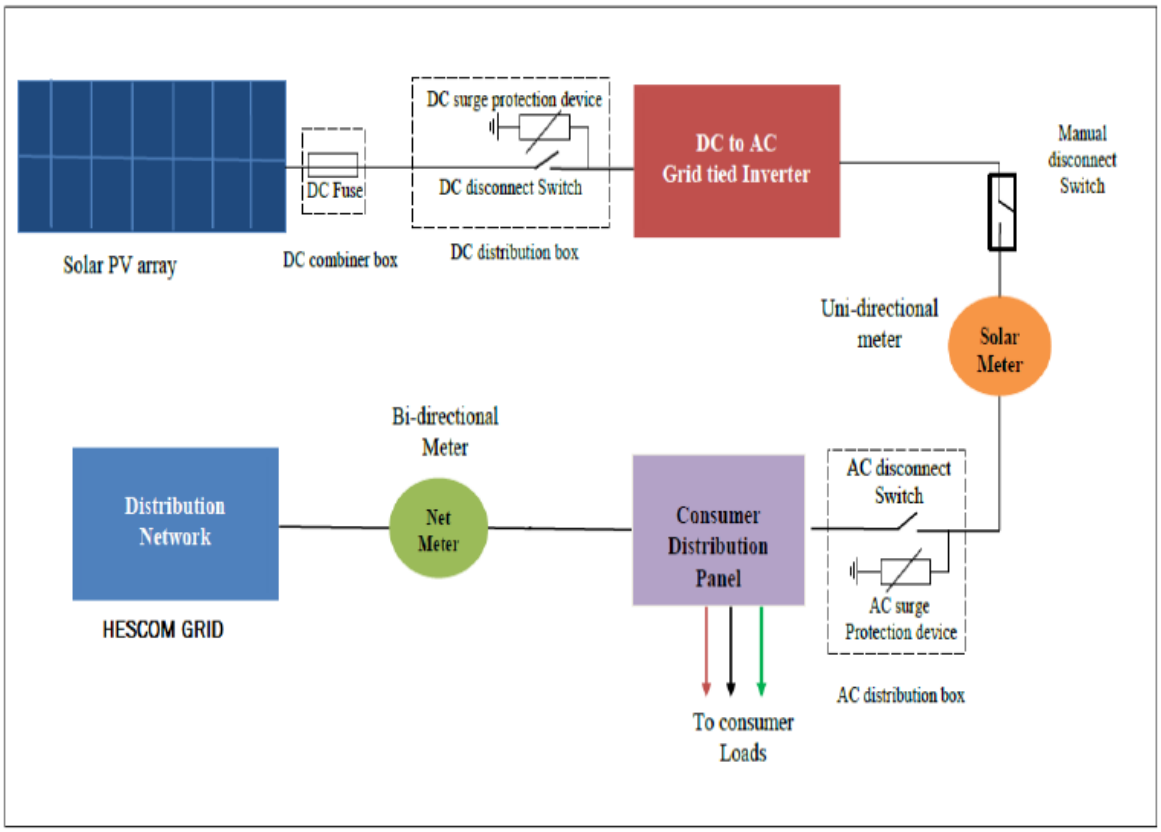
**Signature of Managing Director/Authorized signatory (with company Stamp)**

## Annexure H; Size of the project

| Capacity | Number of Buildings covered | Total kWp to be installed |
|---|---|---|
| 1 kWp to 10 kWp | - | - |
| > 10 kWp to 50 kWp | 3 | 101.0 |
| > 50 kWp to 100 kWp | 2 | 110.0 |
| >100 kWp to 500 kWp | 1 | 219.0 |
| **Total** | **6** | **430.0** |

## Annexure – I ; Reference Diagrams

*Single Line Diagram of Rooftop Facility for Net Metering Interconnection*



## Annexure – J: Project Structuring

| Sr. No | Activity | Month | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1 | Site preparatory work & Pre engineering | | | | |
| 2 | Engineering design finalization | | | | |
| 3 | Electrical (design) | | | | |
| 4 | Mechanical (design) | | | | |
| 5 | Evaluation of material and quotations | | | | |
| 6 | Ordering materials | | | | |
| 7 | Delivery of materials | | | | |
| 8 | Approvals | | | | |
| 9 | Installation, erection and commissioning | | | | |
| 10 | Testing | | | | |
| 11 | Start-up of production | | | | |

Approvals:

Bidder has to take permission / NOC from following stakeholders:

- NOC from building owners for availability of roof for solar roof top installation and agreement for power purchase between building owner and bidder.
- PPA from MESCOM
- Permission from MESCOM for installation of solar roof top and net metering installation after commissioning of plant.
- Synchronising permission of solar roof top before start-up of production.
- For >10kW solar roof top then bidder has to take permission from Chief electrical inspector, GOK.