



ब्रेथवैट एण्ड कम्पनी लिमिटेड
(भारत सरकार का एक उपक्रम)

BRAITHWAITE & CO LIMITED

(A Government of India Undertaking)

MINISTRY OF RAILWAYS

HEAD OFF. & REGD. OFF. : 5, HIDE ROAD, KOLKATA – 700 043,

TEL: +91 33 2439-7415, 2439-4114, 2439-6613, 2439-7413. Fax: +91 33 2439 7632 / 2439 5607

e-mail: purchase@braithwaiteindia.com, website-www.braithwaiteindia.com, CIN:

U74210WB1976GOI030798

TENDER ENQUIRY NO. BCL/PUR/SOLAR PVS/CW/VW/AW/2019 Dated: 27.02.2019

Sealed Tenders are invited in Two bid system for engagement of Agency for Implementation of Grid Connected Roof Top Solar PV System in Clive, Victoria and Angus units of Braithwaite & Co Ltd.

1. Tender condition and issue of tender documents: Interested parties can get the tender documents from the office of Sr. Manager (Purchase) Braithwaite & Co. Ltd., 5, Hide Road, Kolkata – 43 on all working days on payment of Rs. 1,000/- (Rupees One Thousand Only) by Bank Draft / Pay Order in favour of "Braithwaite & Co. Ltd." payable at Kolkata towards cost of tender document. Bidders who are registered with NSIC / MSME for the tendered job are exempted from submission of cost of tender document.

Sealed Tender, addressed to **Sr. Manager (Purchase), Braithwaite & Co. Ltd., 5, Hide Road, Kolkata – 700 043** to be dropped in person / by post in **Tender Box No 1** and the offer must reach by **14.30 hrs on 19.03.2019 (Due date)**. No offer shall be accepted after closing of the Tender Box in whatsoever mode of receipt. Tenderer should ensure timely delivery of the tender in the specific box.

2. Closing of tender Box: - **14.30 hrs. On 19.03.2019**
3. Opening of Part-I bid of the tender: - **15.00 hrs. On 19.03.2019**

The offer should comprise of parts as under: -

- Part-I : Techno-commercial bid & E.M.D
Part-II : Price bid

Both Part – I & part – II shall be inserted separately in two (2) envelopes, sealed and super-scribed with Tender No. and Part No. These two bids shall be put in a 3rd envelope, sealed & super-scribed with **Tender No. & Due Date**.

The techno commercial bid shall be opened on **19.03.2019 at 15.00 hrs**. Bidders may depute their authorized representative during opening of the tender. The price bid shall be opened for techno- commercially acceptable bidders for which opening date and time will be intimated in due course.

Tender documents can also be downloaded from our website www.braithwaiteindia.com. Bidders quoting against documents downloaded from website should submit a DD / Pay Order of Rs. 1,000/- along with Techno-commercial Bid towards cost of tender documents failing which their offer will not be considered. However, in respect of bidders who are NSIC registered units / MSME units for the tendered job, submission of cost of tender document is exempted.

For Braithwaite & Co. Ltd

Braithwaite & Co. Limited

TENDER No: BCL/PUR/SOLAR PVS/CW/VW/AW/2019 Dated: 19.03.2019

BCL(hereinafter called **Purchaser**), invites bids from the eligible bidders to participate in the Request for Bidders for Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Roof Top Solar PV power system for 15 years in each of the 3 units of BCL of capacities specified hereunder.

For the implementation of above mentioned work, Bidders should submit their bid proposal along with all supporting documents complete in all aspect on or before **19.03.2019 up to 2.30 p.m** in the office of BCL as per TENDER conditions.

Bidder shall submit bid proposal along with non-refundable processing fee, complete in all respect as per the Bid Information sheet. Techno-Commercial bids will be opened on **19.03.2019 at 3.00 p.m** in presence of authorized representatives of bidders who wish to be present. Bid proposals received without or lesser than the prescribed processing fee and Bid Bond for the [Location/State] will not be considered. In the event of any date indicated above is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.

Bid documents which include Eligibility criteria, "Technical Specifications", various conditions of contract, formats, etc. can be downloaded from website www.braithwaiteindia.com Any amendment (s)/corrigendum/clarifications with respect to this Bid shall be uploaded on www.braithwaiteindia.com website only. The Bidder should regularly follow up for any Amendment/Corrigendum/Clarification on the above website.

DISCLAIMER:

1. Though adequate care has been taken while preparing the tender document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within 21 (Twenty One) days from the date of notification of Issue of the TENDER documents, it shall be considered that the TENDER document is complete in all respects and has been received by the Bidder.
2. BCL reserves the right to modify, amend or supplement this TENDER document including all formats and Annexures.
3. While this TENDER has been prepared in good faith, neither BCL nor their employees or advisors make any representation or warranty, express or implied, or accept any responsibility or liability, whatsoever, in respect of any statements or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of this TENDER, even if any loss or damage is caused by any act or omission on their part.

BID INFORMATION SHEET

| | |
|---|--|
| Document Description | <p>I. This Tender document is for bidding to "Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Roof Top Solar PV power system for 15 years in each of the 3 units of BCL of capacities 0.3 MW, 0.9 MW and 2.5 MW in Victoria, Clive and Angus facilities of BCL" with the following details:</p> <p>a. Bidding is for RESCO model.</p> <p>b. Bidder can submit bids for RESCO as per above up to the respective tendered capacities mentioned only.</p> <p>II. Bidder can submit bids under RESCO for the units mentioned in Tender only.</p> |
| Tender No. & Date | Tender No. BCL/PUR/Solar PVS/2019 Dated 27.02.2019 |
| Broad scope of work for bidding | |
| Pre-bid conference / clarification meeting | A pre-bid conference shall be held on 11.03.2019 at 11.00 AM at BCL. |
| Last date & time of submission of response of tender. | 19.03.2019 up to 2.30 P.M. |
| Bid Opening (Techno-commercial) | 19.03.2019 at 3.00 PM |
| Cost of Tender Document (non-refundable) | Rs. 1,000/- (Rupees One Thousand only (words) inclusive of GST for each unit to be furnished through Demand Draft (DD) in favour of 'Braithwaite & Co. Limited' payable at Kolkata along with Bid. |
| Earnest Money Deposit (EMD) | Based on the Bid capacity proposed by the bidder in the bid. E.M.D shall be furnished for each unit separately along with the response to tender. |
| Performance Security (PBG) | PBG amount shall be furnished by the successful bidder after issue of Letter of Allocation by BCL. |
| Name, Designation, Address and other details (for submission of response to Tender) | Sr. Manager (Purchase), Braithwaite & Co. Limited, 5, Hide Road, Kolkata-700 043 (W.B.), India |
| Important Note: Prospective bidders are requested to remain updated for any notices / amendments / clarifications etc. to the Tender document through the Website www.braithwaiteindia.com . No separate notifications will be issued for such notices / amendments / clarifications etc., in the print media or individually. | |
| All the information related to this Tender shall be updated on the BCL website. | |

1.0 DEFINITIONS & ABBREVIATIONS

In this Bid / Tender document, the following words and expression if appearing will have the meaning as herein defined where the context so admits;

1.1 **"Affiliate"** shall mean a company that either directly or indirectly

- a) Controls or
- b) Is controlled by or
- c) Is under common control with

A Bidding Company and **"Control"** means ownership by one company of at least twenty six (26%) of the voting rights of the other company.

1.2 **"B.I.S."** shall mean specifications of Bureau of Indian Standards (BIS).

- 1.3 **"Bid"** shall mean the Techno-commercial and Price Bid submitted by the Bidder along with all documents/credentials/attachments/annexures etc. in response to this Tender in accordance with the terms and conditions hereof.
- 1.4 **"Bidder / Bidding Company"** shall mean Bidding Company submitting the Bid. Any reference to the bidder includes bidding company / including its successors, executors and permitted assigns as the context may require.
- 1.5 **EMD'** shall mean the Earnest Money Deposit to be submitted along with the Bid by the bidder.
- 1.6 **'Bid Deadline'** shall mean the last date and time for submission of Bid in response to this Tender as specified in Bid Information Sheet.
- 1.7 **'Bid Capacity'** shall means capacity offered by the bidder in his Bid under invitation.
- 1.8 **'CEA'** shall mean Central Electricity Authority.
- 1.9 **'Chartered Accountant'** shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949.
- 1.10 **'Competent Authority'** shall mean (Designation of Competent Authority) of BCL himself and / or a person or group of persons nominated by CMD for the mentioned purpose herein.
- 1.11 **'Commissioning'** means successful operation of the Project / Works by the contractor for the purpose of carrying out Performance Test(s) as defined in Tender.
- 1.12 **'Company'** shall mean a body incorporated in India under the Companies Act, 1956 or Companies Act, 2013 including any amendment thereto.
- 1.13 **'Capacity Utilization Factor' (CUF)** shall mean the ratio of actual energy generated by SPV project over the year to the equivalent energy output at its rated capacity over the yearly period.
- CUF= actual annual energy generated from the plant in kWh / (installed plant capacity in kW x 365 x 24)
- 1.14 **'Eligibility Criteria'** shall mean the eligibility criteria as set forth in clause 3.3 of this Tender.
- 1.15 **'Financial Evaluation Entity'** shall mean the company which has been evaluated for the satisfaction of the Financial Eligibility Criteria set forth in clause 3.3.3 hereof.
- 1.16 **'IEC'** shall mean specifications of International Electro-technical Commission.
- 1.17 **'kWp'** shall mean kilo-Watt Peak
- 1.18 **'kWh'** shall mean kilo-Watt-hour
- 1.19 **'MNRE'** shall mean Ministry of New and Renewable Energy, Government of India.
- 1.20 **'Minimum Bid Capacity'** shall mean the MWp which is the minimum capacity tendered out for each unit for which the bidder can submit the bid. Bidder(s) quoting less the minimum bid capacity shall be outrightly rejected.

- 1.21 **“Maximum Bid Capacity”** shall mean the MWp which is the maximum capacity for which the bidder can submit its Bid.
- 1.22 **“O&M”** shall mean Operation & Maintenance of Rooftop Solar PV System for 15 years.
- 1.23 **“Owner of the Project”** shall mean BCL.
- 1.24 **“Project cost / Project price”** shall mean the price offered by the Bidder for the scope of work as per Tender document for a State.
- 1.25 **“Project Capacity”** means Capacity in kWp offered by the Bidder for each unit of BCL consisting of single or multiple roof tops. The project capacity specified is on exportable power only.
- 1.26 **“Performance Ratio” (PR) means** the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured. $PR = (\text{Measured output in kW} * (1000 \text{ W/m}^2 / \text{Measured radiation intensity in W/m}^2))$.
- 1.27 **“Project Company”** shall mean Company incorporated by the bidder as per Indian Laws.
- 1.28 **“Price Bid”** shall mean Envelope III of the bid containing the bidder’s quoted prices as Levellized Tariff calculated vide table at Section-IV.
- 1.29 **“Qualified Bidder”** shall mean the bidder(s) who, after evaluation of their Techno Commercial Bid stand qualified for opening and evaluation of their Price Bid.
- 1.30 **“Tender”** shall mean Request for Selection (Tender / Bid Document / Tender Document).
- 1.31 **“RESCO”** shall mean Renewable Energy Service Companies;
- 1.32 **“RESCO model”** shall mean where the bidders intend to take a roof top owned by some other entity on mutually agreed terms and conditions from the roof top owner(s) and enters into the PPA with rooftop owner / DISCOM / others for supply of Solar power for 15 years from the date of Commissioning of project.
- 1.33 **“Statutory Auditor”** shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or under the provisions of any other applicable governing law.
- 1.34 **“Successful Bidder(s) / Contractor / Project Developer(s)”** shall mean the Bidder(s) selected by BCL pursuant to this Tender for implementation of Grid Connected Roof Top Solar PV System as per the terms of the Tender documents, and to whom an Allocation Letter has been issued.
- 1.35 **“SNA”** shall mean State Nodal Agency.
- 1.36 **“Subsidy”** shall mean latest applicable subsidy % as per MNRE or of any applicable agency of Project Cost quoted by the successful bidder for this Project and shall accrue to BCL.
- 1.37 **“Tendered Capacity”** shall mean the total aggregate capacity against each unit, proposed to be ordered by BCL to the successful bidder through this bidding process as per terms and conditions specified therein.
- 1.38 **“Wp” shall mean Watt Peak.**

- 1.39 **1MWp** for the purpose of conversion in kWp shall be considered as 1000 kWp.

INTERPRETATIONS

1. Words comprising the singular shall include the plural & vice versa
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
4. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
5. The table of contents and any headings or sub headings in the contract has been inserted for case of reference only & shall not affect the interpretation of this agreement.

SECTION - I

A. INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

I. INTRODUCTION

- 1.1 Braithwaite and Company Ltd , (BCL) Kolkata operating since 1913, is a heavy engineering company, manufacturing railway Wagons, Cranes, Steel Bridges and other heavy Steel fabricated structures. It is a CPSU under ministry of Railways. BCL owns 3 facilities, Clive Works and Victoria Works at Hide Road Kolkata, near Garden Reach, and Angus Works at Bhadreswar, Hooghly district of West Bengal. Clive and Victoria works are located nearby mutually and Angus works is around 40 KM away from both.

BCL has identified roof top shadow free space to the tune of 10380 sq m in Clive Works, 6660 sq m in Victoria and over 16000 sq m in Angus Works. Said areas comprise partly of slanting roof areas also, all south facing. Apart from this north /East facing sides also are available for installation of Solar PV units.

The connected loads in these units are as follows, Clive – 900KW, Victoria 300KW and Angus 2500 KW. Said units operate mostly during day times , and mostly on a 6 day week cycle. The current monthly energy consumption pattern is as follows: Clive – 1, 80,000 units/month, Victoria- 65,000 units/month and Angus – 5, 50,000 units/month. All these units are connected with CESC grid at 6.6KV level. All 3 units are having their own consumer number and single meters. Copy of the energy bills can be shared on demand.

It is proposed to offer the said roof tops to solar developers for installing SPV based generating stations, with installed capacities as follows: Clive- 900 KW, Victoria 300 KW, and Angus 2500 KW on RESCO model and as specified in detail herein. Sufficient land space for installation of substation, Transformer room, switch gear room, control rooms etc shall be provided free of cost in the premises of BCL in the immediate vicinity of the respective roof tops. Utilities like Aux power, Water, facilities like material handling, drainage, storage during project stage, and yard illumination etc shall be provided free of cost by BCL.

The capacity selection for the said units was done based on the available information with us, regarding the maximum capacities allowed for installation of solar PV units under the present set up and at optimal cost. If the bidders intend to suggest higher capacities at no cost over head for BCL, they have to suggest the same during pre bid meeting based on which BCL may alter the tender document and bid submission date under public notification.

This specification calls for bidders to consider Space appraisal, Design, engineering, manufacture, supply, installation, testing and performance guaranteeing of the Solar Power Units of tendered capacities in all 3 units of BCL, and to conduct their Operation and maintenance for a 15 year period after commissioning, and to transfer the plants to BCL after the contract period under RESCO model, and subject to the specifications herein. Contract period shall be extended beyond 15 years on mutually agreeable basis.

- 1.2 **Bidder can-** submits bids for the Victoria, Clive and Angus units of BCL mentioned in Tender.
- 1.3 The scheme targets installation of grid-connected roof top solar PV projects on the roofs of Buildings / Shop floors of Victoria, Clive and Angus units of BCL. The generated solar power may be utilized for captive application and the surplus power will be fed to the grid. The scheme 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.
- 1.4 BCL 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.
- 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.
- 1.6 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.

2.0 **BID DETAILS:**

- 2.1 The bidding process under this Tender of the rooftop scheme is for Victoria, Clive and Angus units of BCL under 'RESCO' Model.
- 2.1.1 Bids are invited from the prospective bidders for the tendered capacity as indicted below against Victoria, Clive and Angus units of BCL based on the levelised tariff for RESCO model.
- 2.1.2 Bidders to please note that payment Levelized Tariff shall be paid only against total units generated. Party has to ensure annual generation of:

| | | |
|-------------------|---|-----------------|
| a) Clive Works | - | 11,03,700 Units |
| b) Victoria Works | - | 3,67,900 Units |
| c) Angus Works | - | 30,66,000 Units |

in the first 5 years of operation from date of commissioning with a 0.7 % reduction per year thereafter.

3. **INSTRUCTIONS TO THE BIDDERS**

- 3.1 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 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 shall be furnished along with the bid.
- (d) Financial Consortium is not allowed in this Bidding Process. Consortium is only permitted for Technical partnership.
- (e) Bidder including its member of the consortium can submit one bid only.

3.2 **USE OF TECHNICAL AND / OR FINANCIAL STRENGTH OF PARENT COMPANY**

- 3.2.1 Bidder can however use the technical and financial strength of its Parent Company or Affiliate to fulfill the Technical and/or Financial Eligibility criteria mentioned below. Members of consortium can also use the credentials of the parent company or Affiliate to fulfill the eligibility requirement.
- 3.2.2 In above case, Bidders shall submit an Undertaking from the Parent Company and also furnish a certificate of relationship of Parent Company or Affiliate with the Bidding Company. Company Secretary Certificate towards shareholding pattern of the Parent Company and the Bidding Company along with a Board resolution from the Parent Company shall also be submitted.
- 3.2.3 Only Technical consortium is allowed for submission of Bids.

3.3 **ELIGIBILITY CRITERIA**

3.3.1 **GENERAL**

- (a) The bidder should be either a body incorporated in India under the Companies Act, 1956 or 2013 including any amendment thereto or a partnership firm 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.

3.3.2 **TECHNICAL ELIGIBILITY CRITERIA**

The Bidder should have installed & commissioned at least one Grid connected Solar PV Power Project having a capacity of not less than 2 MW or 2 units each of 1 MW which should have been commissioned in last 5 (five) years. The list of projects commissioned 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 of clause 3.3.2 above.

3.3.3 **FINANCIAL ELIGIBILITY CRITERIA:**

- (a) The Bidder should have an Average Annual Turnover as indicated below:
 - i. **The average Annual turnover of Rupees 4.50 Crore per MW in any one of the last 3 financial years ending on 31.03.2018. Bidder must have earned net profit in any one of the last 3 (Three) financial years ending on 31.03.2018 and should have positive net worth as on 31.03.2018.**

Audited Balance Sheet and Profit & Loss Accounts for last 3 (Three) years ending on 31.03.2018 need to be submitted in support of above requirement.

Solvency Certificate from Banker for Rs. 10 Crore is to be submitted

3.4 **BID SUBMISSION BY THE BIDDER**

- 3.4.1 All information and/or documents shall be submitted by the Bidder required by this tender document.
- 3.4.2 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.

3.4.3 The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria indicated herein to the satisfaction of BCL 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 ending on 31.03.2018.

3.4.4 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.

3.5 **BID SUBMITTED BY BIDDING COMPANY:**

The Bidding Company should designate one person to represent the Bidding Company in its dealings with BCL

3.6 **CLARIFICATIONS AND PRE-BID MEETING**

3.6.1 The BCL will not enter into any correspondence with the Bidders, except to furnish clarifications on TENDER Documents, if necessary. The Bidders may seek clarifications or suggest amendments to TENDER in writing, through a letter or by fax (and also soft copy by e-mail) to reach BCL at the address, date and time mentioned in Bid information sheet.

3.6.2 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 BCL. Bidder has to bring to the notice of BCL any anomalies among the various clauses specified herein, any missing information, confusing information etc for enabling BCL to clarify and correct. If any assumption is made by the bidder unilaterally to the disadvantage of BCL during execution, party shall be liable for damages.

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

3.6.4 BCL is not under any obligation to entertain/ respond to suggestions made or to incorporate modifications sought for. However, BCL may alter the tender conditions based on discussions in order to facilitate more participation in bidding, without compromising the basic objectives inherent. Said alterations shall be uploaded as Corrigendum in the website.

3.6.5 A list of all documents / records required from BCL for the execution of the work is to be submitted by the party in the pre-bid meet.

3.6.6 Parties attending Pre-bid meet only shall be allowed to participate in the tender.

3.7 **AMENDMENTS TO TENDER**

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

3.7.2 The clarification(s) / amendment(s) (if any) may be notified on BCL's website www.braithwaiteindia.com 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.

3.7.3 BCL 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.

3.7.4 In case any amendment is notified after submission of the Bid (prior to the opening of Techno-Commercial Bid. Bids received by BCL shall be returned to the concerned Bidders on their request through registered post or courier and it will be for the Bidders to submit fresh Bids as the date notified by the BCL for the purpose.

3.7.5 All the notices related to this Bid which are required to be publicized shall be uploaded on website www.braithwaiteindia.com

3.8 BIDDING PROCESS

3.8.1 BID FORMATS

3.8.1.1 The Bid in response to this TENDER shall be submitted by the Bidders in the manner provided in this document. The Bid shall comprise of the following:

(A) ENVELOP- I (COVERING LETTER, BID PROCESSING FEE, BID BONDS AND BIDDER FORMAT EXCEL SHEET)

- i. Covering Letter indicating the Capacity quoted for each unit of BCL (i.e. Clive, Victoria & Angus).
- ii. Copy of PAN and TAN certificates of Bidding company.
- iii. Cost of Tender document @ Rs.1,000/-- separately for units viz., Clive, Victoria & Angus respectively.
- iv. EMD shall be submitted separately for each unit for the offered capacity in a separate envelop.
- v. Checklist for Bank Guarantee submission requirements.

(B) 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 favour of authorized person signing the Bid. **(Power of Attorney must be supplemented by Board Resolution to above effect for the company)**. However, BCL may accept general Power of Attorney executed in favour of Authorized 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.
- 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. 3.3.
- 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. 3.3.3 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.
- 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 Authorized signatory
- xii. Signed and stamped Copy of TENDER Documents including amendments & clarifications by Authorized signatory on each page.

(C) ENVELOPE-III- PRICE BID(S) AS PER SECTION-IV 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.

- i) The bidder shall submit sealed Price Bid(s) for Victoria, Clive and Angus units of BCL separately in the **Format-C for RESCO model at Section-IV**. Each envelope shall be super-scribed as "Price Bid" for **0.3MW, 0.9MW & 2.5 MW** capacities for **Victoria, Clive and Angus** unit under RESCO model. All the Price Bids shall be put in Envelope-III.

(D) **BID DUE DATE**

The Bidder should submit the Bids so as to reach the address indicated below by 14:30 hours (IST) on or before: **19.03.2019**.

3.9 **VALIDITY OF BID**

3.9.1 The Bid and the Price Schedule included shall remain valid for a period of 6 months from the date of techno-commercial bid opening 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 terms & conditions in regard thereof or not accepting letter of allocation, BCL shall forfeit the Bid Bond furnished by him. Confirmation regarding the Bid offer validity shall be clearly mentioned in the covering letter.

3.9.2 In exceptional circumstances when letter of allocation is not issued, the BCL may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The Bid Bond provided under Clause 3.15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Bond. A Bidder granting the request will neither be required nor permitted to modify its Bid in any manner.

3.9.3 **METHOD OF BID SUBMISSION**

3.9.3.1 Bids are required to be submitted in a single sealed cover envelope containing Envelope-I (covering letter, processing fee and Bid Bonds), Envelope-II (Techno-Commercial documents) and Envelope-III (Price Bids) each one duly sealed separately. Envelope should contain the documents as detailed in clause 3.9 above.

3.9.3.2 In case the bidder is offering capacity in more than one unit under RESCO, the price bid for each unit should be sealed in separate envelope and these envelopes shall be placed in Price Bid Envelope.

3.9.3.3 All the three envelopes shall be kept in a outermost envelope. All the envelopes should be super-scribed as "**Bid for implementation of Grid connected Roof Top Solar PV System Scheme in** Victoria, Clive and Angus units of BCL.

Envelope-I (Covering envelope) / Envelope-II (Techno-Commercial Bid) / Envelope-III (Price Bids) along with the Bid Due Date.

3.9.4 The bidders have the option of sending their bid either by registered post or speed post or courier or by hand delivery so as to reach BCL by the Bid Deadline. Bids submitted by Telex / Telegram / fax / e-mail shall not be considered under any circumstances. BCL shall not be responsible for any delay in receipt of the Bid. Any bid received after the bid deadline shall be returned unopened. It should be noted that except envelope-III, no other envelope shall contain any information / document relating to Price Bid. BCL shall not be responsible for premature opening of the Price Bids in case of non-compliance of above.

3.9.5 All pages of the bid except for the bid bond and any other document executed on non-judicial stamp paper, forming part of the bid and corrections in the bid, if any, must be signed by the authorized signatory on behalf of the bidder. It is clarified that the same authorized signatory shall sign all pages of the Bid. However, any published document submitted with the Bid shall be signed by the authorized signatory at least on the first and last page of such document bidders shall submit the Bid in original, duly signed by their authorized signatory of the bidder. No change or supplemental information to a bid will be accepted after the bid deadline unless the same is requested for by (Name of the organization).

3.9.6 If the outer cover envelope or Envelope-I (covering envelope) or Envelope-II (Techno-commercial envelope), Envelope-III (Price Bids) is / are not closed / sealed and not super-scribed as per the specified requirement, BCL will assume no responsibility for the bid's misplacement or premature opening.

3.9.7 All the envelopes shall be sealed properly & shall indicate the Name & Address of the bidder. The bid must be complete in all technical and commercial respect and should contain requisite certificates, drawings, informative literature etc. as required in the Bid document. Each page of the Bid document should be signed & stamped. Bids with any type of change or modification in any of the terms & conditions of this document shall be rejected. If necessary, additional papers may be attached by the Bidder to furnish / submit the required information. Any term / condition proposed by the bidder in his bid which is not in accordance with the terms and conditions of the tender document or any financial conditions, payment terms, rebates etc. mentioned in Price bid shall be considered as a conditional Bid and will make the Bid invalid.

3.10 **COST OF BIDDING**

3.10.1 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 BCL may elect to modify / withdraw the invitation of Bid.

3.11 **EARNEST MONEY DEPOSIT (EMD)**

- a. Earnest Money Deposit of Rs. 2,00,000/- (Rupees Two Lakh Only) is required to be submitted by Crossed A/C Payee Demand Draft/ Pay Order in favour of **Braithwaite & Co. Limited**, payable at **Kolkata**, or in the form of Bank Guarantee. In case of Bank Guarantee the validity period initially be 120 days from the date of opening of tender. The units registered with DGS&D, SSI units registered with NSIC / MSME for the tendered items only and PSU units may be exempted from submission of EMD. Necessary documentary evidence shall have to be submitted along with the techno-commercial bid.
- b. EMD is liable to be forfeited if the bidder withdraws or amends impairs or derogates from the tender in any respect within the period of validity of this tender.
- c. EMD shall be returned to unsuccessful bidder after finalization of the tender without any interest. For successful bidder, the same will be retained by BCL till completion of the job or till submission of Security Deposit or if so decided by the bidder adjusted against Security Deposit for the said job.

Bidders are responsible for authenticity of their submitted documents submitted in their bid. In the event of fraudulent effort the same is liable for rejection.

3.11.1 The successful bidder shall sign and stamp the Allocation Letter and return the duplicate copy of the same to BCL within 30 days from the date of its issue.

3.12 **PERFORMANCE SECURITY / PERFORMANCE BANK GUARANTEE (PBG)**

The contractor shall have to submit Performance Bank Guarantee for 5% of Contract amount, as per format to be provided by BCL, within 15 days from date of issue of Purchase Order. In respect of vendors being NSIC, MSME units, SSI, DGS & D, and RDSO registered or PSU qualifying for exemption of submission of security deposit, Performance Bank Guarantee for 5% of order value is to be submitted by them. The Performance Bank Guarantee shall remain valid up to the warranty period.

The Security Deposit, if submitted, may be converted to Performance Guarantee. The contractors who will submit Security Deposit, no performance Bank Guarantee is required to be submitted by them in such case.

Contractors are responsible for the quality of the materials, workmanship, smooth operation etc. During the Guarantee period, if any defect is detected for supply item or poor workmanship, the agency is responsible for replacement of defective component or repairing of wagon wherever applicable, within 2 weeks from the date of receipt of intimation at free of cost.

NOTE:

- (1) In case Security Deposit / Performance Guarantee is not submitted in time, a penalty of 1.5% of value of SD/PBG per month or per thereof will be applicable for the delay period which will be deducted from party's bills.
- (2) MSE vendors may opt for submission of S.D. or PBG as per their choice.

3.12.1 Within 30 days from the date of issue of Allocation letter, successful bidder shall furnish the Performance security for the amount of Rs.....**PBG** shall be submitted separately for each Victoria, Clive and Angus units of BCL.

3.12.2 The PBG shall be forfeited as follows without prejudice to the bidder being liable for any further consequential loss or damage incurred to BCL.

- (a) If the successful bidder is not able to commission the projects within the specified time or to the satisfaction of BCL, PBG amount, pro-rata to the capacity not commissioned by the successful bidder shall be forfeited alongwith no return of equipments, panels etc, supplied & installed..
- (b) In all the above cases corresponding non-commissioned capacity shall stand cancelled.

3.12.3 The Performance Security shall be valid for a minimum period of 18 months from the date of issue of Allocation letter(s) and shall be renewed / extended till the completion of 15 years of O&M from the date of commissioning.

3.13 **OPENING OF BIDS**

3.13.1 Envelope-I of the bidders shall be opened at 15:00 hours on Bid Deadline date at BCL's Office in the presence of one representative from each of the Bidders who wish to be present.

3.13.2 Name of the bidder, capacity offered for each State shall be read out to all the bidders at the time of opening of Envelope-I and / or Envelope-II.

3.14 **RIGHT TO WITHDRAW THE TENDER AND TO REJECT ANY BID**

3.14.1 This tender may be withdrawn or cancelled by the BCL at any time without assigning any reasons thereof. The BCL 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.

3.14.1.1 The BCL reserve the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the tender and make its own judgment regarding the interpretation of the same. In this regard BCL shall have no liability towards any Bidder and no Bidder shall have any recourse to the BCL with respect to the selection process. BCL shall evaluate the bids using the evaluation process specified in Section-I at its sole discretion. BCL's decision in this regard shall be final and binding on the bidders.

3.14.1.2 BCL 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 BCL will be final.

3.15 **DEVIATIONS**

3.15.1 This is a ZERO Deviation Bidding Process. Bidder is to ensure compliance of all provisions of the Bid Document and submit their Bid accordingly. However, if bidders feel the necessity of any deviation due to reasons applicable in general, or due to errors appeared in this tender document they have to raise them during pre-bid meeting so as to facilitate BCL to alter the tender document and extend tender submission date with public notification.

3.16 **EXAMINATION OF BID DOCUMENT**

- 3.16.1 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.
- 3.16.2 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 labour involved etc. and as to all supplies he has to complete in accordance with the Bid document.
- 3.16.3 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 BCL.
- 3.16.4 Bid not submitted as per the instructions to bidders is liable to be rejected. Bid shall confirm in all respect with requirements and conditions referred in this bid document.
- 3.16.5 Bidders should visit the sites, interact with the concerned and understand fully the scope of the work, site specific features, constraints etc before offering their bids.

B) CONDITIONS OF CONTRACT

3.17 **SCOPE OF WORK**

- 3.17.1 The scope of work for the bidder include identification of roof top areas in Victoria, Clive and Angus units of BCL for 15 years, obtaining No Objection Certificate (NOC) from Distribution Company (DISCOM) for grid connectivity, complete design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of the grid connected rooftop solar PV project including operation and maintenance (O&M) of the project for a period of 15 years after commissioning.
- 3.17.2 Agency has to inspect the roof top structures for their strength in supporting the solar equipments and in aiding maintenance activities if any strengthening is required, it falls under party's scope. Bid has to consider this aspect also. It is preferred that the agency do a thorough inspection of such structures before pre-bid meeting. All steel, gas, electrodes etc. required for such work shall be under Party's scope.

3.18 **LEVELLIZED TARIFF**

- 3.18.1 Levellized 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 15 years 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.
- 3.18.2 The levellized tariff quoted is on lump sum turnkey basis and the bidder is responsible for the total Scope of Work described herein.
- 3.18.3 The levellized tariff shall remain firm and fixed and shall be binding on the Successful Bidder till completion of contract period. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, for any reasons whatsoever during the 15 year period.
- 3.18.4 The levellized tariff shall be inclusive of all duties and taxes, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation /adjustment shall be payable
- 3.18.5 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 15 years under RESCO model.

3.18.6 **PPA.** The successful bidder shall enter into a PPA with BCL at the levellised tariff finalized by BCL through this tendering process, for a period of 15 years. After the expiry of 15 years (Contract period) , the contract period may be extended upon mutually agreeable terms and conditions. Format C for RESCO is the basis for levellised tariff arrival by the bidder.

3.18.7 The Bidder shall complete the Price Bid for RESCO as per Format-C for each unit of BCL separately.

3.19 **INSURANCE**

3.19.1 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.

3.19.2 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.

3.20 **WARRANTIES AND GUARANTEES**

3.20.1 The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide system warranty covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 15 years from the date of commissioning. The successful bidder has to transfer all the Guarantees /Warranties of the different components to the Owner of the project. The responsibility of operation of Warranty 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 BCL will not be responsible in any way for any claims whatsoever on account of the above.

3.21 **TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP**

3.21.1 The Design, engineering, manufacture, supply, installation, testing and performance guaranteeing 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.

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

3.21.3 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 SPV plant.

3.22 **OPERATION & MAINTENANCE (O&M)**

3.22.1 The bidder shall be responsible for Operation and Maintenance of the Roof top Solar PV system for a period of 15 years, during which BCL will monitor the project for effective performance in line with conditions specified elsewhere in the bid document.

During this period, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled and preventive maintenance, major overhauling of the plant, replacement of defective modules, inverters, PCU's etc and maintaining log sheets for operation detail, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, complaint logging & its attending.

3.23 **METERING AND GRID CONNECTIVITY**

Metering and grid connectivity of the roof top solar PV system under this scheme would be the responsibility of the Bidder in accordance with the prevailing guidelines of CESC and / or CEA (as applicable). BCL could facilitate connectivity; however the entire responsibility lies with bidder only.

3.24 **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. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance. Minimum CUF of 14% should be maintained for a period of 5 years, thereafter a deterioration of 0.7% per year only can be allowed. The bidder should send the periodic plant output details to BCL for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions.

| Year | CUF% |
|------|------|
| 1 | 14 |
| 2 | 14 |
| 3 | 14 |
| 4 | 14 |
| 5 | 14 |
| 6 | 13.9 |
| 7 | 13.8 |
| 8 | 13.7 |
| 9 | 13.6 |
| 10 | 13.5 |
| 11 | 13.4 |
| 12 | 13.3 |
| 13 | 13.2 |
| 14 | 13.1 |
| 15 | 13.0 |

3.25 **PROGRESS REPORT**

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

3.26 **PROJECT INSPECTION.**

The project progress will be monitored by BCL 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 BCL or any authorized agency/ experts.

3.26.1 BCL reserves the right to do sample inspection checks for the projects commissioned by the Bidder.

3.26.2 BCL may also depute technical experts for inspection, Third party verification, monitoring of system installed to oversee, the implementation as per required standards and also to visit the manufactures facilities to check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required.

3.27 **APPLICABLE LAW**

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

3.28 **SETTLEMENT OF DISPUTE**

3.28.1 If any dispute of any kind whatsoever arises between BCL and Successful bidder in connection with or arising out of the contract including without prejudice to the generality of the foregoing, any question regarding the existence, validity or termination, the parties shall seek to resolve any such dispute or difference by mutual consent. .

3.28.2 If the parties fail to resolve, such a dispute or difference by mutual consent, within 45 days of its arising, then the dispute shall be referred by either party by giving notice to the other party in writing of its intention to refer to arbitration as hereafter provided regarding matter under dispute. No arbitration proceedings will commence unless such notice is given. Any dispute, in respect of which a notice of intention to commence arbitration has been given in accordance with Sub Clause 3.31.2, shall be finally settled by arbitration.

3.29 **IN CASE THE CONTRACTOR IS A PUBLIC SECTOR ENTERPRISE OR A GOVERNMENT DEPARTMENT.**

3.29.1 In the event of any dispute or difference relating to the interpretation and application of the provisions of the contracts, such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India, In-charge of the Department of Public Enterprise.

The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary / Additional Secretary, when no authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively? The parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

3.30 **IN CASE THE CONTRACTOR IS NOT A PUBLIC SECTOR ENTERPRISE OR A GOVERNMENT DEPARTMENT.**

3.30.1 All questions, disputes or difference whatsoever shall arise between the purchaser and the supplier upon or in relation to or in connection with the contract, either party may forthwith give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudicator of sole arbitrator. Managing Director / CMD shall have the right and authority to appoint any officer of the Company as arbitrator not below the rank of a General Manager who is not directly connected with the Purchase Order.

Such a reference submitted to the Arbitrator shall be deemed to be the submission to the Arbitrator within the meaning of the Arbitration and Conciliation Act, 1996 statutory modification thereof. The proceedings of the Arbitration shall be held in Kolkata.

3.30.2 The BCL and the Contractor shall each appoint one arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the two arbitrators do not succeed in appointing a third arbitrator within Thirty (30) days after the latter of the two arbitrators has been appointed, the third arbitrator shall, at the request of either party, be appointed by the Appointing Authority for third arbitrator which shall be the President, Institution of Engineers.

3.30.3 Any legal dispute that may arise will be settled within the jurisdiction of court of Kolkata.

3.31 **FORCE MAJEURE**

3.31.1 Notwithstanding the provisions of clauses contained in this TENDER document; the contractor shall not be liable to forfeit (a) Security deposit for delay and termination of contract; if he is unable to fulfill his obligation under this contract due to force majeure conditions.

3.31.2 For purpose of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes etc. Whether a "Force majeure" situation exists or not, shall be decided by BCL and its decision shall be final and binding on the contractor and all other concerned.

3.31.3 In the event that the contractor is not able to perform his obligations under this contract on account of force majeure, he will be relieved of his obligations during the force majeure period. In the event that such force majeure extends beyond six months, BCL has the right to terminate the contract in which case, the security deposit shall be refunded to him.

3.31.4 If a force majeure situation arises, the contractor shall notify BCL in writing promptly, not later than 14 days from the date such situation arises. The contractor shall notify BCL not later than 3 days of cessation of force majeure conditions. After examining the cases, BCL shall decide and grant suitable additional time for the completion of the work, if required.

3.32 **LANGUAGE**

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

3.33 **OTHER CONDITIONS**

3.33.1 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 BCL in writing.

3.33.2 The Successful bidder shall not display the photographs of the work and not take advantage through publicity of the work without written permission of BCL and owner of the Rooftop.

3.33.3 The Successful bidder shall not make any other use of any of the documents or information of this contract, except for the purposes of performing the contract.

3.34 **SUCCESSORS AND ASSIGNS:**

In case the BCL 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.

3.35 **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.

3.36 **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.

3.37 **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 BCL& Successful bidder hereto, any rights and / or remedies herein.

3.38 **PRICE PREFERENCE FOR M.S.M.E**

All benefits are available to MSMEs subject to compliance of provision of MSMED Act,2006 and its amendment thereof.

3.39 **CORRESPONDENCE**

Bidder requiring any clarification on bid documents may contact in writing or by Fax /E Mail.

| Sl. No | Name | Contact Number | Email id |
|--------|------|----------------|----------|
| 1. | | | |
| 2. | | | |

**SECTION-II
EVALUATION CRITERIA**

4(i) BID EVALUATION

i.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

Step III

Evaluation of Price Bid, through E- Reverse Auction method. The price bid of the bidder emerging successful through ERA shall be cross checked with their submitted price bid and the lower among both will be the awarded levelled price.

Step IV

Successful Bidders(s) selection- BCL reserves the right to select multiple parties for different unit but at the levelled price discovered through above step.

i.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 TENDER subject to Clause 3.3.1, Clause 3.3.2, and Clause 3.3.3. Any of the following may cause the Bid to be considered "Non-responsive", at the sole discretion of BCL

- 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 Bid Bond, etc.;
- b. Bid not signed by authorized signatory and /or stamped in the manner indicated in this TENDER;
- 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 TENDER;
- e. Bid being conditional in nature;
- f. Bid not received by the Bid Deadline;
- g. Bid having Conflict of Interest;
- h. More than one Member of a Bidding Company using the credentials of the same Parent Company /Affiliate;
- i. Bidder delaying in submission of additional information or clarifications sought by BCL as applicable;
- j. Bidder makes any misrepresentation.

Each Bid shall be checked for compliance with the submission requirements set forth in this TENDER before the evaluation of Bidder's fulfillment of Eligibility Criteria is taken up. Clause 3.3 shall be used to check whether each Bidder meets the stipulated requirement.

5. PRELIMINARY EXAMINATION

- 5.1. The BCL 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.

- 5.2. Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total Amount that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total amount shall be corrected. If there is a discrepancy between words and figures, the amount written in words will prevail.

6. EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA

- 6.1. 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 3.3. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid to be non-responsive.

6.2. EVALUATION OF PRICE BID

Price Bid (Envelope III) of the Qualified Bidders shall be opened in presence of the representatives of such Qualified Bidders, who wish to be present, on a date as may be intimated by BCL to the Bidders through BCL website www.braithwaiteindia.com 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 TENDER. Any Bid not meeting any of the requirements of this TENDER may cause the Bid to be considered "Non-responsive" at the sole decision of the [NAME OF THE ORGANISATION]. The Price bids for the for each unit shall be evaluated separately as follows:

6.2.2. RESCO (Part-A)

The tariff quoted for each unit shall be evaluated separately as follows;

- a. The tariff for each unit shall be evaluated separately on levellized tariff basis

6.3. SUCCESSFUL BIDDER(S) SELECTION

- 6.3.1. Bids qualifying techno commercially shall only be evaluated in this stage. Such bidders will be invited for a E reverse auction, the date and platform particulars of which will be intimated in advance.
- 6.3.2. The Levellized Tariff requirement shall be quoted in all Price Bids of Qualified Bidders. Price bids shall not be opened till finalization of the E Reverse auction. The Price bid submitted by the lowest bidder emerging successful in ERA shall be opened and the lowest among the two will be considered for finalization of levellised tariff.
- 6.3.3. Letter(s) of Allocation (LOA): The Letter(s) of Allocation (LOA) shall be issued to all Successful Bidders(s) selected
- 6.3.4. Each Successful Bidder shall acknowledge the LOA and return duplicate copy with signature & stamp of the authorized signatory of the Successful Bidder to the BCL within Thirty (30) days of issue of LOA.
- 6.3.5. If the Successful Bidder, to whom the Letter of Allocation has been issued does not fulfill any of the conditions specified in Bid document, the BCL reserves the right to annul/cancel the award of the Letter of Allocation of such Successful Bidder and forfeit the PBG/Bid Bond.
- 6.3.6. The BCL at its own discretion, has the right to reject any or all the Bids without assigning any reason whatsoever, at its sole discretion
- 6.3.7. There shall be no negotiation on the quoted Project cost or Subsidy requirement between the BCL and the Bidder(s), during the process of evaluation.

6.6. NOTIFICATION TO SUCCESSFUL BIDDERS

- 6.6.1. The name of Successful Bidders shall be notified indicating the allocated capacity and the awarded project price in a state on BCL website and also shall be notified individually through letter of allocation.

6.8. **PROJECT ALLOCATION AND SANCTION**

- 6.8.1. The Bidders, however, in their own interest are advised to make a preliminary survey of availability of roof tops in the units for which they intend to Bid, as well as issue of Grid connectivity, as non-availability/ non usability of roof tops and non-completion of other formalities after allocation of project will result in forfeiture of Bid Bond/PBG amount submitted by them.
- 6.8.2. The Successful Bidders selected as above shall be issued Letter of Allocation (LOA) indicating the awarded capacity & Levellized tariff.
- 6.8.3. The bidders who have been notified as Successful Bidders, shall be given 6 months from the date of issue of Letter of Allocation for commissioning of the awarded capacity in which roofs identification is also in the bidders scope
- 6.8.3.1. Preference should be given to BCL identified roofs first. In the event of offer given by BCL to the Bidder to execute the project in the BCL identified roof, the time for submission of project sanction documents by the bidder to BCL will be 15 days from the date of issue of allocation letter which can be extended depending upon the merit of the case. Failure of non-compliance of same shall lead to forfeiture of PBG for that unit
- 6.8.3.2. Further, Successful Bidders can start submitting their Project sanction documents as soon as they receive LOA from BCL. Project sanction documents shall be submitted to with maximum up to the awarded capacity of respective unit. If after 6 months, the successful bidder could not identify and commission the rooftop(s) capacity up to the allocated capacity and submit Project sanction documents, in such case PBG for unidentified allocated capacity may be forfeited and the unidentified allocated capacity gets cancelled and bidder including its affiliates/GROUP COMPANIES/ Parent / Ultimate parent company may be debarred to participate in BCL 's future tenders for a period as decided by the competent authority of BCL
- 6.8.3.3. Successful bidders shall share the time and date stamping photographs of the roofs and location details with BCL before entering into any legal agreement with the Owner. This has to ensure that the location identified by the Successful bidder is freshly identified and strictly complying the norms provided in Clause 13.2 below.
- 6.8.4. For identification of projects, BCL may provide help. However the entire responsibility of finding the buildings lies with the Bidder.
- 6.8.5. Onus of identifying the buildings/rooftops and completing the other documentation like finalizing the Project report and entering into agreements with the buildings/rooftops owners lies with the Successful Bidder within the above mentioned time frame even for the buildings/rooftops identified by BCL for preferential installation.
- 6.8.6. After the Project Sanctioned Document have been submitted by the Successful Bidder/ Project Developer and accepted by BCL", BCL will issue the Sanction Letter(s) for the Project (s) indicating the subsidy amount(s) which will be disbursed in line with the provisions of the TENDER document. The Bidder shall complete the design, engineering, manufacture, supply, storage, civil work, erection, testing & commissioning of each project within 6 months from the date of issue of allocation Letter.
- 6.8.7. If the Bidder fails to commission the project within specified time, penalty on per day basis calculated for the Performance Security on a 6 month's period would be levied. After 6 months, the project will get cancelled and the total PBG would be forfeited.

7.0 **Performance Guarantee**

For every unit deficit in generation from Solar PV Plant wrt. Minimum guaranteed generation, a value of 35% of the then existing energy charge per unit (CESC rate) will be levied on the party as a penalty. Such deficits will be calculated for every financial year ending on 31st March. Excess generation in one financial year will not be carry forward to next financial year for this purpose.

8.0 OTHER CONDITIONS

8.1. Bidder has to obtain all the necessary Approvals/Consents/Clearances required for Erection, Testing, Commissioning and O&M of the project including Grid connectivity. BCL shall not have any responsibility in this regard.

8.2. EMD and Tender Document Cost submission:

EMD shall be submitted separately for each State for the offered capacity in a separate envelop (along with Processing fee) superscripted with name of State for which Bid is being quoted & other details .However, Processing fee for all the States for which the bid are being submitted may be consolidated and a single DD may be furnished.

8.3. 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. BCL in no case will be responsible for providing any tax exemptions to the bidder.

8.4. REQUIREMENT OF APPROVALS ON MAKES OF THE COMPONENTS:

8.4.1. 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 TENDER.

8.5. OPERATION OF THE SYSTEM DURING WEEKENDS AND GENERAL HOLIDAYS AND CALCULATION OF 'CUF':

8.5.1. During grid failure, the SPV system stops generating. Any instances of grid failure need to be mentioned in the monthly report and those instances need to be authorized by local DISCOM. Then the period will be excluded in calculation of CUF.

8.6 Taxes and duties shall be paid extra by the bidder as applicable on the BCL service charges and the bid processing fee.

9. PENALTY FOR DELAY IN PROJECT IMPLEMENTATION

9.1. BCL will issue the Work Order (s) for the Project (s) in line with the provisions of the tender document. The Bidder shall complete the design, engineering, manufacture, supply, storage, civil structural work, erection, testing & commissioning of each project within 6 months from the date of issue work order.

9.2. If the bidder fails to commission the ordered capacity within 6 months from date of issue of work, Penalty on per day basis calculated for the Performance Security on a 6 months period would be levied. After 6 months ordered capacity will get cancelled and the PBG amount pro-rata to non-commissioned capacity would be forfeited.

10. TIME OF COMPLETION OF ALLOCATED CAPACITY:

10.1 Project completion shall be **6 months from the date of issue of LOA**. Failure of non-compliance of same shall lead to forfeiture of PBG for that State in proportion to the capacity not identified.

10.2 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 Engineer-in-Charge.

10.3 A joint programme of execution of the Work will be prepared by the Engineer-in-Charge or its representative nominated for the purpose and Successful bidders based on priority requirement of this project. This programme will take into account the time of completion mentioned in clause 9.1 above and the time allowed for the priority Works by the Engineer-in-Charge.

10.4 Monthly/Weekly implementation programme will; be drawn up by the Engineer-in-Charge jointly with the Successful bidder, based on availability of Work fronts as per Clause 9.4 above. Successful bidder shall scrupulously adhere to these targets /programmes by deploying adequate personnel, tools and tackles and he shall also supply himself all materials of his scope of supply in good time to achieve the targets/programmes. In all matters concerning the extent of targets set out in the weekly and monthly programmes and the degree of achievements, the decision of the Engineer-in-Charge will be final and binding.

11. **INSPECTION AND AUDIT BY BCL**

11.1. The Successful bidder shall permit the BCL to inspect the Successful bidder's site, accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the BCL , if so required by the BCL any time.

12. **COMMISSIONING /COMPLETION CERTIFICATE:**

12.1. Application for completion/commissioning certificate:

When the Successful bidder fulfils his obligation under the Contract, he shall be eligible to apply for Completion Certificate. The Engineer-in-Charge shall normally issue to the Successful bidder 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.

12.1.1. **DOCUMENT SUBMISSION FOR ISSUE OF COMMISSIONING / COMPLETION CERTIFICATE:**

For the purpose of Clause 12.1 above the following documents will be deemed to form the completion documents:

- a. Checklist for inspection of Roof top SPV power plants as per BCL format.
- b. Project completion report from successful bidder as per BCL format
- c. Project completion/satisfaction certificate from roof top owners/project developers.

12.1.2. **FINAL DECISION AND FINAL CERTIFICATE:**

12.1.2.1. Upon completion of 15 years of O&M and subject to the Engineer-in-Charge being satisfied, the Engineer-in-Charge shall (without prejudice to the rights of the BCL 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 Engineer-in-Charge 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 ie BCL

12.2. **DEDUCTIONS FROM THE CONTRACT PRICE:**

12.2.1. All costs, damages or expenses which BCL 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 BCL. All such claims shall be billed by the BCL 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 BCL 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 BCL of such claims.

12.3. **CORRUPT OR FRAUDULENT PRACTICES**

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

- 12.3.1. defines, for the purposes of this provision, the terms set forth as follows :
- 12.3.2. "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
- 12.3.3. "fraudulent practice" means a misrepresentation of facts in order to influence a bid process or the execution of a contract to the detriment of BCL, 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 BCL of the benefits of free and open competition;
- 12.3.4. will declare a firm ineligible/debarred, either indefinitely or for a specific period of time, a contract if at any time it is found that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, the contract.

13. **DEBARRED FROM PARTICIPATING IN BCL'S ROOF TOP TENDER**

- 13.1. BCL 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 TENDER, such Bidders may be debarred from participating in BCL's any future tender for a period as decided by the competent authority of BCL

SECTION-III TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below. Any shortcomings will lead to cancelation of subsidy in full or part as decided by BCL & Competent Authority's decision will be final and binding on the bidder.

14. **DEFINITION**

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features to supplement the grid power during day time. Components and parts used in the SPV 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 modules.
- Grid interactive Power Conditioning Unit with Remote Monitoring System
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections.
- IR/UV protected PVC Cables, pipes and accessories

14.1. **SOLAR PHOTOVOLTAIC MODULES:**

14.1.1. The PV modules used should be made in India.

14.1.2. 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-2- requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

- a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701
- b) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum **330** Wp and above wattage. Module capacity less than minimum **330** watts should not be accepted
- c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
- d) PV modules must be tested and approved by one of the IEC authorized test centers.
- e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. [NAME OF THE ORGANISATION]/owners shall allow only minor changes at the time of execution.
- g) Other general requirement for the PV modules and subsystems shall be the Following:
 - I. The rated output power of any supplied module shall have tolerance of +/-3%.

14... 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.

III. 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.

IV. IV curves at STC should be provided by bidder.

14.1.3. Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).

- 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, I_m , V_m 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

14.1.4. **Warranties:**

a) **Material Warranty:**

- i. 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 (05) years from the date of sale to the original customer ("Customer")
- ii. Defects and/or failures due to manufacturing
- iii. Defects and/or failures due to quality of materials
- iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option

b) **Performance Warranty:**

- i. 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.

14.1.5 CIVIL

- a) All associated civil work like office cum control room, sheds for Transformer, switch gear, Meter installation etc.
- b) Furnished office cum Stores building along with requisite furniture, computer, air-conditioning, other equipment etc.
- c) All other civil installations necessary for the O&M of the plants.

14.1.16 DESIGN

- a) Design should take care of all relevant standards and statutes applicable.
- b) Design should take care of ease of maintenance.
- c) Design should facilitate expansion of the system in future/ up-gradation to state of the art features in future.
- d) Design should consider the site specific factors which affect the life of the equipments selected, with a view to maximize trouble free life in the existing environments.
- e) Design should be submitted for the approval by BCL, however that approval shall not absolve the developers from their responsibility for fulfillment of satisfactory performance and life by the system.
- f) Necessary studies of Isolation, etc shall be done by the bidders.
- g) Any changes in statutory regulations or standards that may evolve after LOA and before commissioning are to be taken care of the party.
- h) Liaisoning with all statutory and regulatory authorities is in party's scope. However applicable statutory fees shall be paid by BCL. Obtaining all clearances and licenses, necessary for 15 year operation of the plant is in bidder's scope.

15. ARRAY STRUCTURE

- a) Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insulation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location of each of the 3 units. 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 BCL. Suitable fastening arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed.
- c) The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- d) Structural material shall be corrosion resistant and electrolytic ally compatible with the materials used in the module frame, its fasteners, and nuts and bolts. Aluminium 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.
- e) 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 SPV panels
- f) Regarding civil structures the bidder need to take care of the load baring capacity of the roof and need arrange suitable structures based on the quality of roof.
- g) The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m².
- h) The minimum clearance of the structure from the roof level should be 300 mm.

16. **JUNCTION BOXES (JBs)**

- a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.
- c) 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 monitoring and disconnection for each of the groups.
- d) 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

17. **DC DISTRIBUTION BOARD:**

- a) DC Distribution panel to receive the DC output from the array field.
- b) DC DPBs shall have sheet from enclosure of dust & vermin proof 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.

18. **AC DISTRIBUTION PANEL BOARD:**

- a) AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.
- b) All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.
- c) The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- d) 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
- e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g) Should conform to Indian Electricity Act and rules (till last amendment).
- h) 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 |

19. **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.

20. **PCU/ Inverter:**

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)". 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 | :415 V, 3 Phase, 50 Hz |
| (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 degree C to 50 degree C |
| Humidity | 95% non-condensing |
| Protection of enclosure | IP-20 (Minimum) for indoor |
| | IP-65 (Minimum) for outdoor |
| Grid Frequency tolerance range | + 3 or more |
| Grid Voltage tolerance | -20% & + 15% |
| No-load losses | Less than 1% of rated power |
| Inverter efficiency (minimum) | >93% (in case of 10kW or above) |
| Inverter efficiency (minimum) | >90% (in case of less than 10 kW) |
| THD | <3% |
| PF | >0.9 |

- a) Three phase PCU/ inverter shall be used with each power plant system (10kW and/or above) but In case of less than 10kW single phase inverter can be used.
- b) PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- c) The output of 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.
- d) Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- e) The 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.
- f) The charge controller (if any) / 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.
- g) 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 international test houses.

21. **INTEGRATION OF PV POWER WITH GRID:**

The output power from SPV would be fed to the inverters which converts DC produced by SPV 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. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

22. **DATA ACQUISITION SYSTEM / PLANT MONITORING**

- i. Data Acquisition System shall be provided for each of the solar PV plant.
- ii. 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.
- iii. 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.
- iv. 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
- v. 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).
- vi. 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.
- vii. 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.
- viii. 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.
- ix. 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.
 - x. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- xi. 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.
- xii. All instantaneous data shall be shown on the computer screen.
- xiii. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- xiv. Provision for Internet monitoring and download of data shall be also incorporated.
- xv. 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.
- xvi. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- xvii. 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.

- a Remote Monitoring and data acquisition through Remote Monitoring System software at the owner /BCL 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 supplier. Provision for interfacing these data on BCL server and portal in future shall be kept.

23. **TRANSFORMER "IF REQUIRED" & METERING:**

- a) Dry/oil type relevant kVA, 6 kV/415V, 50 Hz Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.
- b) The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy.
- c) The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to BCL before commissioning of SPV plant.
- d) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

24. **POWER CONSUMPTION:**

- a) Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Policies of appropriate authority like DISCOM, state regulator may be followed.

25. **PROTECTIONS**

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

25.1. **LIGHTNING PROTECTION**

The SPV 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 SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide barristers (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

25.2. **SURGE PROTECTION**

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and -ve terminals to earth (via Y arrangement)

25.3. **EARTHING PROTECTION**

- i. Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/BCLAs and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.
- ii. 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.

25.4. **GRID ISLANDING:**

- i. 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.

- ii. A manual disconnect 4pole 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 locked by the utility personnel

26. **CABLES**

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

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range: -10°C to $+80^{\circ}\text{C}$.
- iii. Voltage rating 660/1000V
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible
- vi. 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 to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- vii. 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.
- viii. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- x. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured 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.
- xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.
- xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

27. **CONNECTIVITY**

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. 6.6 KV voltage level is the grid connecting voltage preferred.

- i. DISCOMS may be consulted before finalization of the voltage level, and capacity of plant before quoting.
- ii. For the tendered PV systems the solar power can be generated at low voltage levels and stepped up to 6.6 kV level through the step up transformer. The transformers and associated switchgear would require to be provided by the SPV bidders.

28. **TOOLS & TACKLES AND SPARES:**

- i. After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the bidder for maintenance purpose. List of tools and tackles to be supplied by the bidder for approval of specifications and make from BCL.

- ii. 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

29. **DANGER BOARDS AND SIGNAGES:**

Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Three signage shall be provided one each at battery –cum- control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with BCL

30. **FIRE EXTINGUISHERS:**

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

- a) Portable fire extinguishers in the control room for fire caused by electrical short circuits
- b) Sand buckets in the control room
- c) The installation of Fire Extinguishers should conform to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof or site where the PV arrays have been installed.

31. **DRAWINGS & MANUALS:**

- i. 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.
- ii. Approved ISI and reputed makes for equipment be used.
- iii. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to BCL before progressing with the installation work

32. **PLANNING AND DESIGNING:**

- i. The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor. The bidder should submit the array layout drawings along with Shadow Analysis Report to BCL for approval.
- ii. BCL 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.
- iii. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder submits three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

33. **DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT**

- i. The Contractor shall furnish the following drawings Award/Intent and obtain approval
- ii. General arrangement and dimensioned layout
- iii. Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- iv. Structural drawing along with foundation details for the structure.
- v. Itemized bill of material for complete SV plant covering all the components and associated accessories.
- vi. Layout of solar Power Array
- vii. Shadow analysis of the roof

34. 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 meeting up to 90% of 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 DISCOMs.

35. 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 guidelines etc.

Bidder Name _____

FORMAT-'C'

SECTION-IV
PRICE BID FOR RESCO

(To be submitted online in a separate envelope for different units of BCL_____ super scribing name of the unit)

TENDER No: _____ dated _____

| Year of Operation | Tariff (Rs./kWh) | Discount factor at 8% (or as applicable) | Discounted Tariff (Rs./kWh) |
|--|------------------|--|-----------------------------|
| (1) | (2) | (3) | 4 = (2 x 3) |
| Year 1 with effect from the date of commercial operation to 31 st March of immediately succeeding financial year. | | 1.000 | X1 |
| Year 2 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.920 | X2 |
| Year 3 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.850 | X3 |
| Year 4 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.780 | X4 |
| Year 5 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.720 | X5 |
| Year 6 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.660 | X6 |
| Year 7 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.610 | X7 |
| Year 8 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.560 | X8 |
| Year 9 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.510 | X9 |
| Year 10 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.470 | X10 |
| Year 11 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.430 | X11 |
| Year 12 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.400 | X12 |
| Year 13 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.370 | X13 |
| Year 14 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.340 | X14 |
| Year 15 with effect from 1 st April to 31 st March immediately succeeding financial year. | | 0.310 | X15 |
| | | 8.920 | |

| | |
|--|----------------------------------|
| Total | $X = X1 + X2 + X3 + \dots + X15$ |
| Levellized Tariff for 15 years (in Rs./ kWh) = [X / 8.920] | |
| Levellized Tariff for 15 years in words | |

Note:

- The levellized tariff shall be calculated up to three decimal places. However in case of a tie it may be expanded to break the tie.
- Tariff stream quoted by the bidder shall be levellized with a discounting rate of 8% only.
- Bids not in conformity with above provisions will be rejected.
- Levellised tariff for 15 years in Rs./Kwh arrived above is the final figure for bid evaluation.

Dated :

Signature:

Place:

Printed Name.....

