

RFS for Installation of Grid Connected Roof Top Solar PV System at Dr. MCR
HRD Institute, Hyderabad

Tender Ref. No. TNREDCL/SE/SPV/MCR-500KWp/2017/Dated: 06.04.2017

Tender Document

For

Grid connected Rooftop Solar PV System at
Dr. MCR HRD Institute Admin Block and other Buildings,
Road No.25, Jubilee Hills, Hyderabad- TS



**TELANGANA NEW & RENEWABLE ENERGY DEVELOPMENT CORP. LTD
(TNREDCL)**

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RFS for Installation of Grid Connected Roof Top Solar PV System at Dr. MCR
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**TELANGANA NEW AND RENEWABLE ENERGY
DEVELOPMENT CORPORATION LTD.
(TNREDCL)
HYDERABAD**

Request for selection (RFS) of Bidders for Installation of
Grid Connected Roof Top Solar PV System **at Dr. MCR
HRD Institute Admin Block and other Buildings, Road
No.25, Jubilee Hills, Hyderabad**

NAME OF FIRM:.....

Tender Notice No: TNREDCL/SE/SPV/MCR-500KWp/2017/Dated: 06.05.2017

Closing Date : 25.05.2017 at 3.00 PM

**TELANGANA NEW AND RENEWABLE ENERGY
DEVELOPMENT CORPORATION LTD.
(TNREDC Ltd.) HYDERABAD-500001**

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CORPORATION LTD. (TNREDCL)**

5-8-207/2, Nampally, HYDERABAD-500001

RFS No: _____

Date: _____

TNREDCL (hereinafter called “Nodal Agency ”, invites bids from the eligible bidders to participate in the Request for Selection (RFS) of Bidders for Design, manufacture, supply, erection, testing and commissioning including warranty, operation & maintenance of Roof Top Solar PV power system at **Dr. MCR HRD Admin Block and other Buildings**, Hyderabad

For implementation of above mentioned work, Bidders should submit their bid proposal/application along with all supporting documents complete in all aspects on or before **25.05.2017 by 3 pm** in the office of “[TNREDCL, Hyderabad]” in prescribed format.

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 **25.05.2017 by 3.30 pm** in presence of authorized representatives of bidders/applicants who wish to be present. Bid proposals received without or lesser than the prescribed processing fee and **Bid Bond** 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” **tnredcl.telangana.gov.in**. Any amendment (s)/corrigendum/clarifications with respect to this Bid shall be uploaded on **tnredcl.telangana.gov.in** Website only. The Bidder should regularly follow up for any Amendment/Corrigendum/Clarification on the above website.

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DISCLAMIER:

1. Though adequate care has been taken while preparing the RFS document, the Bidders/Applicants 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 **Ten** (10) days from the date of notification of RFS/Issue of the RFS documents, it shall be considered that the RFS document is complete in all respects and has been received by the Bidder.
2. **TNREDCL** reserves the right to modify, amend or supplement this RFS document including all formats and Annexures.
3. While this RFS has been prepared in good faith, neither **TNREDCL** 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 RFS, even if any loss or damage is caused by any act or omission on their part.

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BID INFORMATION

Brief Description	This RFS document comprises for “Bidding process for supply, installation and commissioning of grid connected solar PV systems of different capacities on the roof tops of the various buildings in Dr. MCR HRD Admin Block and other Buildings aggregating to 500 KWp under CAPEX MODEL
Broad description of scope of work	The Scope of the work includes designing for shadow free installation of the SPV systems supply, installation and commissioning including 5 years CMC on the roof tops of Admin Block, Muchukunda Block, Godavari Hostel (Vamsadhara Residency), Gym and Vivekananda buildings located in Dr. MCR HRD Admin Block and other Buildings, Hyderabad
Pre-bid Conference/ Clarification Meeting	A pre-bid conference shall be held on 19.05.2017 at 11.00 AM along with the Dr. MCR HRD officials at Dr. MCR HRD premises for clarifications and ascertaining the actual site conditions. (The Bids will not be accepted without participation in pre bid meeting). Pre bid meeting participation is compulsory to ascertain the site conditions before quoting.
Last date & Time of Submission of response of RFS	25.05.2017 up to 3.00PM at TNREDCL, Head office, Nampally Hyderabad. (Pre bid meeting participation is must).
Bid Opening (Technical))	25.05.2017 at 3.30 PM at TNREDCL, Head office, Nampally Hyderabad
Financial Bid opening	31.05.2017 at 11.00 Am at TNREDCL, Head office, Nampally Hyderabad
Processing Fee (non-refundable)	Rs.50, 000/- + VAT (Rupees Fifty thousand plus vat only) to be furnished through Demand Draft (DD) drawn on “ TNREDCL”, payable at Hyderabad, along with Technical Bid.
BID SECURITY	Bid Security for Rs 15.00 Lakhs by way of Demand Draft in Favour of TNREDCL OR Bank Guarantee on any Nationalized Bank in favour of TNREDCL valid for one year period shall be submitted along with Technical Bid. . Firms claiming Exemptions for Bid Security shall submit letter from NSIC/ SSI for this work specifically.

Important Note: Prospective Bidders are requested to remain updated for any notices/amendments/clarifications etc. to the RfS document through the website. No separate notifications will be issued for such notices/amendments/clarification etc. in the print media or individually. All the information related to this RFS shall be updated on the TNREDCL Website only. The Bid Security /EMD amount paid by the successful Tenderer will be converted as Security deposit and will be released after completion of the works allotted. The un- successful bidders, the EMD/ Bid Security will be returned on allotment of the works.

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1.0. DEFINITIONS & ABBREVIATIONS

In this “Bid / RFS Document” the following words and expression will have the meaning as herein defined where the context so admits:

- 1.1 **"B.I.S"** shall mean specifications of Bureau of Indian Standards (BIS);
- 1.2. **"Bid"** shall mean the Techno Commercial and Price Bid submitted by the Bidder along with all documents/credentials/attachments annexure etc., in response to this RFS, in accordance with the terms and conditions hereof.
- 1.3. **"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;
- 1.4. **"Bid Bond"** shall mean the unconditional and irrevocable bank guarantee to be submitted along with the Bid by the Bidder under Clause 3.15 of this RFS, in the prescribed Format- 3;
- 1.5. **"Bid Deadline"** shall mean the last date and time for submission of Bid in response to this RFS as specified in Bid information Sheet;
- 1.6. **"Bid Capacity"** shall means capacity offered by the bidder in his Bid under invitation.
- 1.7. **"CEA"** shall mean Central Electricity Authority.
- 1.8. **"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 VC & Managing Director, ..TNREDCL, Hyderabad himself and/or a person or group of persons Nominated by VC & MD 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 RFS.
- 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 * 365 * 24).*
- 1.14 **"Eligibility Criteria"** shall mean the Eligibility Criteria as set forth in Clause 3.6 of this RFS;

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1.15 “Financially Evaluated Entity” shall mean the company which has been evaluated for the satisfaction of the Financial Eligibility Criteria set forth in Clause 3.6.3 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 "O&M" shall mean Operation & Maintenance of Rooftop Solar PV system for 5 years;

1.25 “Project Cost / Project Price” shall mean the price offered by the Bidder for the Scope of work as per RFS document for a State.

1.24. “Performance Ratio” (PR) means

“Performance Ratio” (PR) means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured.

$$PR = (\text{Measured output in kW} / \text{Installed Plant capacity in kW} * (1000 \text{ W/m}^2 / \text{Measured radiation intensity in W/m}^2)).$$

1.25 “Price Bid” shall mean Envelope III of the Bid, containing the Bidder’s quoted Price as per the Section- IV of this RFS;

1.26 “Qualified Bidder” shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid as per Clause 3.1 stand qualified for opening and evaluation of their Price Bid;

1.27 "RFS" shall mean Request for Selection (RFS)/Bid document/Tender document

1.28 “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;

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1.29 “Successful Bidder(s) /Contractor/Project Developers(s)” shall mean the Bidder(s) selected by TNREDCL pursuant to this RFS for Implementation of Grid Connected Roof Top Solar PV System as per the terms of the RFS Documents, and to whom an Allocation Letter has been issued;

1.30 “SNA” shall mean State Nodal Agency.

1.31 “Tendered Capacity” shall mean the Total aggregate capacity in KWp

1.32 “Wp” shall mean Watt Peak.

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

1. INTRODUCTION

- 1.1 **Dr. MCR HRD Admin Block and other Buildings, Hyderabad** is the official Institute of the Telangana State. It is a wide campus with **Admin Block, Muchukunda Block, Godavari Hostel (Vamsadhara Residency), Gym and Vivekananda buildings**. The SPV Grid connected project with aggregate capacity of **500 Kwp** is proposed to be installed on the Roof Tops of **Admin Block, Muchukunda Block, Godavari Hostel (Vamsadhara Residency), Gym and Vivekananda buildings**.
- 1.2 The scheme targets installation of grid-connected roof top solar PV projects on the roofs of **Admin Block, Muchukunda Block, Godavari Hostel (Vamsadhara Residency), Gym and Vivekananda buildings**. 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.
- 1.3 TNREDCL, 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.
- 1.4 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.
- 1.5 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.

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2.0 BID DETAILS:

2.1.1 Bids are invited from the prospective bidders for the tendered capacity i.e Aggregate capacity of **500KWp** against each based on the Project Cost (CAPEX Model)

2.1.2 **Maximum allowable Project cost** for CAPEX Model is at the rate of **Rs.60/- per Wp** (As per latest MNRE Benchmark Cost) and the bids with project cost should be less than or equal to **Rs 60- per Wp** AND **BIDS more than Rs.60/- Per Wp will not be considered for evaluation and award.**

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 as indicated in Clause 3.6.3, shall be fulfilled by the Lead Member or Parent Company of the Lead Member while the Technical Eligibility Criteria shall be fulfilled by consortium member.
- c. In case bidder submitting bid through consortium, a Consortium Agreement as per the Format-10 shall be furnished along with the bid.
- d. Financial Consortium is not allowed in this Bidding Process. Consortium is only permitted for Technical partnership as per Format- 10.
- e. All members of the consortium should be registered as company only. However, Member of the Consortium may form the Project Company as specified in Clause 3.7.
- f. 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 as per Format- 9 and also furnish a certificate of relationship of Parent Company or Affiliate with the Bidding Company as per Format-8. 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 and engaged in the business of Solar Power.
- (b) The bidder should be empanelled with TNREDCL for the year 2016-17 as system integrator / manufacturer OR shall be MNRE registered channel partner for implementation of **GRID CONNECTED SOLAR PV SYSTEMS ONLY**

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 300 kWp (a single project of Grid connected rooftop) aggregate capacity at one location. This should have been commissioned at least six months prior to Techno-Commercial Bid Opening date. The list of project commissioned at least 6 months prior to Techno-Commercial Bid Opening date, indicating whether the project is grid connected, along with a copy of the Commissioning certificate and Work order / Contract / Agreement/ from the Client/Owner shall be submitted in support of Clause 3.3.2 above.

3.3.3 FINANCIAL ELIGIBILITY CRITERIA:

- (a) The Bidder should have an Annual Turnover as indicated below.
- i. The Annual turnover of Rupees **5.0 Crore** in any one of the last 3 financial years preceding the Bid Deadline subject to the condition that the Bidder should at least have completed one financial year.

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

3.4 BID SUBMISSION BY THE BIDDER

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

3.4.2 The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria as indicated in Clause no. 3.3.1, 3.3.2 and 3.3.3 to the satisfaction of TNREDCL and shall also furnish unconsolidated/consolidated audited annual accounts in support of meeting financial requirement, which shall consist of balance sheet, profit and loss account, profit appropriation account, auditor's report, etc., as the case may be of Bidding Company or Financially Evaluated Entity for any of the last three(3) financial years immediately preceding the Bid Deadline which are used by the bidder for the purpose of calculation of Annual Turnover or of last Financial Year in case of Net Worth.

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

3.6 CLARIFICATIONS AND PRE-BID MEETING

3.6.1 The TNREDCL will not enter into any correspondence with the Bidders, except to furnish clarifications on RFS Documents, if necessary. The Bidders may seek clarifications or suggest amendments to RFS in writing, through a letter or by fax (and also soft copy by e-mail) to reach TNREDCL 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 TNREDCL.

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

3.6.4 TNREDCL is not under any obligation to entertain/ respond to suggestions made or to incorporate modifications sought for.

3.7 AMENDMENTS TO RFS

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

3.7.2 The clarification(s) / amendment(s) (if any) may be notified on TNREDCL website tnredcl@telangana.gov.in 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.

3.7.2 TNREDCL 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.

3.7.3 In case any amendment is notified after submission of the Bid (prior to the opening of Techno-Commercial Bid. Bids received by TNREDCL shall be returned to the concerned Bidders on their request through registered post or

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courier and it will be for the Bidders to submit fresh Bids as the date notified by the TNREDCL for the purpose.

3.7.4. All the notices related to this Bid which are required to be publicized shall be uploaded on website tnredcl@telangana.gov.in

3.8 BIDDING PROCESS

3.8.1 BID FORMATS

3.8.2 The Bid in response to this RFS shall be submitted by the Bidders in the following manner. The Bid shall comprise of

(A). ENVELOP- I (COVERING LETTER, BID PROCESSING FEE, BID BONDS, TECHNO-COMMERCIAL DOCUMENTS)

- i. Covering Letter indicating the profile of the company and Capacity quoted as per the prescribed Format-1.
- ii. Copy of PAN and TAN certificates of bidding company.
- iii. Bid processing fee @ **Rs.50,000/- plus VAT** by way of DD drawn in favour of TNREDCL payable at Hyderabad .
- iv. Bid Bond, /EMD for **Rs 15 Lakhs** by way of DD or BG in favour of TNREDCL
- v. Checklist for Bank Guarantee submission requirements as prescribed in Format- 5

TECHNO-COMMERCIAL DOCUMENTS

- i. Original power of attorney issued by the Bidding Company in favour of the authorized person signing the Bid, in the form attached hereto as Format-6 or standard power of attorney in favour of authorized person signing the Bid. **(Power of Attorney must be supplemented by Board Resolution to above effect for the company)**. However, TNREDCL may accept general Power of Attorney executed in favour of Authorised signatory of the Bidder, if it shall conclusively establish that the signatory has been authorized by the Board of Directors to execute all documents on behalf of the Bidding Company.
- ii. General particulars of bidders as per Format-2
- iii. Shareholding certificate signed by the company secretary of the bidding company and shareholding certificate signed by the company secretary of the Parent company (if parent company credentials are used).
- iv. Document in support of meeting Eligibility Criteria as per Clauses mentioned above.

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- 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 Clauses mentioned above in the prescribed Format-7 along with documentary evidence for the same.
- viii. If credentials of Parent company are being used by the Bidding company/lead member of the bidding consortium than Format 8 shall be furnished.
- ix. Undertakings from the Financially Evaluated Entity or its Parent Company /Ultimate Parent Company as per Format-9.
- x. Board Resolution of the Parent Company /Ultimate Parent Company of the Bidding company duly certified by the Company Secretary to provide the Performance Bank Guarantee (PBG) in the event of failure of the Bidding Company to do so.
- xi. Board resolution for Authorized signatory
- xii. Signed and stamped Copy of RFS Documents including amendments & clarifications by Authorised signatory on each page.

Note: All formats and relevant documents as required in the RFS shall be spiral bounded and should be flagged separately. Details of flag should be mentioned in the covering letter.

ENVELOPE II- PRICE BID(S) AS PER SECTION-IV FOR BID SUBMISSION

UNDER CAPEX

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 **500KWp** capacity in the **Format-B for CAPEX Model** the envelope shall be superscripted as **“Price Bid for 500KWp capacity SPV Grid connected project for Dr. MCR HRD Admin Block and other Buildings, Hyderabad.**

NO OTHER DOCUMENT MUST BE PLACED IN THIS ENVELOPE

(D) BID DUE DATE

The Bidder should submit the Bids so as to reach the address indicated below by 3.00 pm on or before 03.05.2017.

3.9 VALIDITY OF BID

3.9.1 The bid and the Price Schedule included shall remain valid for **a period of 12 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 term & conditions in regard thereof or not accepting letter of allocation, TNREDCL 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 TNREDCL 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 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.

3.10.1 METHOD OF BID SUBMISSION

3.10.3.1 Bids are required to be submitted in a single sealed cover envelope containing Envelope-I (Covering letter, Processing fee and Bid Bonds Techno-Commercial documents) and Envelope II (Price Bid) each one duly sealed separately. Envelope should contain the documents as detailed in Clause 3.8 above.

3.10.3.2 All the two envelopes shall be kept in a outermost Envelope. All the envelopes should be superscribed as **“Bid for Implementation of Grid connected Roof Top Solar PV System Scheme in Dr. MCR HRD Admin Block and other Buildings, Hyderabad” (Strikeout whichever is not applicable) –Envelope-I (Covering envelope-Techno-Commercial Bid) / Envelope-II (Price Bid)**

“BID DUE DATE”.

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- 3.10.4 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 TNREDCL by the Bid Deadline. Bids submitted by telex/telegram/fax/e-mail shall not be considered under any circumstances. TNREDCL shall not be responsible for any delay in receipt of the Bid. Any Bid received after the Bid Deadline shall be returned unopened.
- 3.10.5 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 the 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 ORGANISATION].
- 3.10.6 If the outer cover envelope or Envelope I (Covering Envelope, Techno-Commercial Envelope) Envelope II (Price Bid) is/are not closed/sealed and not super scribed as per the specified requirement, TNREDCL will assume no responsibility for the Bid's misplacement or premature opening.
- 3.10.7 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 RFS 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.
- 3.11 **COST OF BIDDING**
- 3.11.1 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 TNREDCL may elect to modify / withdraw the invitation of Bid.

3.14 RIGHT TO WITHDRAW THE RFS AND TO REJECT ANY BID

3.15.1 This RFS may be withdrawn or cancelled by the TNREDCL at any time without assigning any reasons thereof. The TNREDCL 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.

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

3.15.1.2 TNREDCL 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 TNREDCL will be final.

3.16 ZERO DEVIATION

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

3.17 EXAMINATION OF BID DOCUMENT

3.17.1 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.

3.17.2 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.

3.17.3 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 TNREDCL

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

B. CONDITIONS OF CONTRACT

3.18 SCOPE OF WORK

- 3.18.1 The scope of work for the bidder include complete design, shadow analysis of roof top, 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 Five years after commissioning at locations identified in the **Dr. MCR HRD Admin Block and other Buildings campus, Hyderabad** as detailed below .
- a) Admin Block**
 - b) Muchukunda Block.**
 - c) Godavari Hostel (Vamsadhara Residency)**
 - d) Gym building**
 - e) Vivekananda buildings**

NOTE: It is expected that total aggregate capacity of installations feasible on the above building is 500KWp. However the excess capacity if feasible may also be considered for installation.

3.19 PROJECT COST

- 3.19.1 The Project cost 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 5 years (under CAPEX 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.
- 3.19.2 The project cost quoted is on lump sum turnkey basis and the bidder is responsible for the total Scope of Work described at Clause 3.18.1 above.
- 3.19.3 The project cost shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work for payment of subsidy amount irrespective of his actual cost of execution of the project. No escalation will be granted on any reason whatsoever. The bidder shall not be

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entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.

- 3.19.4 The project cost shall be inclusive of all duties and taxes, insurance etc .The prices quoted by the firm shall be complete in all respect and no price variation /adjustment shall be payable
- 3.19.5 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 5 years
- 3.20 **TNREDCL SERVICE CHARGES @ 3% plus Service Tax as applicable of the actual project completion cost shall be deducted at the time of release of payment**

3.21 INSURANCE

- 3.21.1 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.
- 3.21.2 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.

3.22 WARRANTIES AND GUARANTEES

- 3.22.1 The Bidder shall warrant that the goods supplied under this contract are new, unused, and as per **MNRE specifications** 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 5 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 TNREDCL will not be responsible in any way for any claims whatsoever on account of the above.

3.23 TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

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

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

3.23.3 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.

3.24 OPERATION & MAINTENANCE (O&M)

3.24.1 The bidder shall be responsible for Operation and Maintenance of the Roof top Solar PV system of capacity installed for a period of 5 years, during which TNREDCL 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.

3.25 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 the DISCOM and / or CEA (if available by the time of implementation). TNREDCL could facilitate connectivity; however the entire responsibility lies with bidder only.

3.26 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 to qualify for release of payment. Minimum CUF of 15% should be maintained for a period of 5years. The bidder should send the periodic plant output details to TNREDCL for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions.

3.27 PROGRESS REPORT

The bidder shall submit the progress report monthly to TNREDCL in Prescribed Proforma. TNREDCL will have the right to depute his/their

representatives to ascertain the progress of contract at the Admin Block and other Buildings of works.

3.28 PROJECT INSPECTION.

The progress of the project above will be monitored by TNREDCL and the will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from TNREDCL, **Dr. MCR HRD Institute** or any authorized agency/ experts.

3.28.1.1 TNREDCL reserves the right to do sample inspection checks for the projects commissioned by the Bidder.

3.29 TNREDCL may also depute a technical person(s) for pre delivery inspection of SPV Modules and other components from its list of empanelled 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.

3.30 APPLICABLE LAW

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

3.31 SETTLEMENT OF DISPUTE

3.31.1 If any dispute of any kind whatsoever arises between TNREDCL 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. .

3.31.2 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 shall be finally settled by arbitration.

3.31.4.1 In all other cases, any dispute submitted by a party to arbitration shall be heard by an arbitration panel composed of three arbitrators, in accordance with the provisions set forth below.

3.31.4.2 The TNREDCL 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.

3.31.4.3 If one party fails to appoint its arbitrator within thirty (30) days after the other party has named its arbitrator, the party which has named an arbitrator may request the Appointing Authority to appoint the second arbitrator.

3.31.4.4 If for any reason an arbitrator is unable to perform its function, the mandate of the Arbitrator shall terminate in accordance with the provisions of applicable laws as mentioned in Clause 3.34 (Applicable Law) and a substitute shall be appointed in the same manner as the original arbitrator.

3.31.4.5 Arbitration proceedings shall be conducted with The Arbitration and Conciliation Act, 1996. The venue or arbitration shall be New Delhi.

3.31.4.6 The decision of a majority of the arbitrators (or of the third arbitrator chairing the arbitration panel, if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction as decree of the court. The parties thereby waive any objections to or claims of immunity from such enforcement.

3.31.4.7 The arbitrator(s) shall give reasoned award.

3.31.5 Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the agreement unless they otherwise agree.

3.31.6 Cost of arbitration shall be equally shared between the Successful bidder or Contractor and TNREDCL

3.32 FORCE MAJEURE

3.32.1 Notwithstanding the provisions of clauses contained in this RFS document; the contractor shall not be liable to forfeit

(a) Security deposit for delay and

(b) termination of contract; if he is unable to fulfill his obligation under this contract due to force majeure conditions.

3.32.2 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 TNREDCL and its decision shall be final and binding on the contractor and all other concerned.

3.32.3 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, TNREDCL has the right to terminate the contract in which case, the security deposit shall be refunded to him.

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

3.33 LANGUAGE

3.33.1 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 TNREDCL and the bidder shall be in English language

3.34 OTHER CONDITIONS

3.34.1 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 TNREDCL in writing.

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

3.34.3 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.

3.34.4 SUCCESSORS AND ASSIGNS:

In case the TNREDCL 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.

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3.34.5 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.

3.34.6 COUNTER PARTS:

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.

**3.34.7 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 TNREDCL& Successful bidder hereto, any rights and / or remedies herein.

3.34.9 CORRESPONDENCE

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

Sl. No	Designation	Contact Number	Email id
1.	General Manager	040 – 23201502/03	infotnredcl@gmail.com / se@tnredcl.telangana.gov.in
2.	Executive Engineer	040 – 23201502/03	infotnredcl@gmail.com / se@tnredcl.telangana.gov.in

4(i) BID EVALUATION AND PAYMENT TERMS

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 as per Clause 3.3 of Section-I
- Step III -Evaluation of Price Bid
- Step IV -Successful Bidders(s) selection

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 RFS 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 TNREDCL

- 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 RFS;
- 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 RFS;
- 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 TNREDCL as applicable;
- j. Bidder makes any misrepresentation.

Each Bid shall be checked for compliance with the submission requirements set forth in this RFS 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 TNREDCL 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 II) 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 TNREDCL to the Bidders through TNREDCL website tnredcl@telangana.gov.in Email. The evaluation of Price Bid shall be carried out based on the information furnished in Envelope II (Price Bid). The Price Bid submitted by the Bidders shall be scrutinized to ensure conformity with the RFS. Any Bid not meeting any of the requirements of this RFS may cause the Bid to be considered "Non-responsive" at the sole decision of the TNREDCL.

6.3. SUCCESSFUL BIDDER(S) SELECTION

6.3.1. Bids qualifying in Clause 3.6 shall only be evaluated in this stage. IN ORDER TO SPEED UP THE IMPLEMENTATION THE WORKS MAY BE DISTRIBUTED AMONG TWO OR THREE BIDDERS AT L1 RATE TO THE L2,L3, BIDDERS ON THEIR ACCEPTANCE

6.3.2 Letter(s) of Allocation (LOA): The Letter(s) of Allocation (LOA) shall be issued to all such Successful Bidders(s) selected as per the provisions of this Clause 6.3.1

6.3.3. Each Successful Bidder shall acknowledge the LOA and return duplicate copy with signature & stamp of the authorized signatory of the Successful Bidder to the TNREDCL within Thirty (10) days of issue of LOA.

6.3.4. If the Successful Bidder, to whom the Letter of Allocation has been issued does not fulfil any of the conditions specified in Bid document, the TNREDCL reserves the right to annul/cancel the award of the Letter of Allocation of such Successful Bidder and forfeit the PBG/Bid Bond.

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

6.3.6. There shall be no negotiation on the quoted Project cost between the TNREDCL and the Bidder(s), during the process of evaluation.

6.3.7. If the Bidder fails to commission the project within specified time, penalty on per day basis calculated for the Performance Security on a 3 month's period would be levied. After 3 months, the project will get cancelled and the total PBG would be forfeited.

7. OTHER CONDITIONS

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

7.2. 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. TNREDCL in no case will be responsible for providing any tax exemptions to the bidder.

7.3 REQUIREMENT OF APPROVALS ON MAKES OF THE COMPONENTS:

7.3.1. 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 RFS.

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

8. PENALTY FOR DELAY IN PROJECT IMPLEMENTATION

8.1. If the bidder fails to commission the allocated capacity within 2 months from date of issue of allocation letter, Penalty on per day basis calculated for the Performance Security on a 2 months period would be levied. After 2 months allocated capacity will get cancelled and the PBG amount pro-rata to non-commissioned capacity would be forfeited.

Example: If a project of 500 kW is delayed by 36 days then the LD will be levied as given below.

$$\text{PENALTY} = ((\text{Performance Security})/60 \text{ days}) * \text{delayed days} = (15,00,000 / 60) * 36$$

9. TIME OF COMPLETION OF ALLOCATED CAPACITY:

9.1 Project completion shall be **2 months from the date of issue of allocation letter**. Failure of non-compliance of same shall lead to forfeiture of PBG in proportion to the capacity not commissioned.

9.2 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.

9.3 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 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.

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 of TNREDCL and Raj Bhavan officials shall normally issue to the Successful bidder the Completion Certificate within 15days 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

12.1.1. DOCUMENT SUBMISSION FOR ISSUE COMMISSINONING/ 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 TNREDCL format.
- b. Project completion report from successful bidder as per MNRE format
- c. Project completion/satisfaction certificate from **Dr. MCR HRD** officials.

12.1.2. FINAL DECISION AND FINAL CERTIFICATE:

- 12.1.2.1. Upon completion of 5 years of O&M and subject to the **Dr. MCR HRD** officials being satisfied, the TNREDCL shall give a certificate herein referred to as the Final Certificate to that effect and the Successful bidder to have fulfilled the whole of his obligations under Contract

DEDUCTIONS FROM THE CONTRACT PRICE: SPECIAL ATTENTION

While preparing the Bid-Price the Bidders shall also take into account the following:

- i) Infrastructure & Construction Facilities, Preliminary, Enabling & Ancillary works whatsoever required by them for successful completion of the Project in the specified time schedule.
- ii) Indian Income Tax and Surcharge on Income Tax on Salaries of Expatriates etc.
- iii) Corporate Income Tax.

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- iv All Taxes, Duties and expenses such as Excise Duty, Sales Tax on Indian Supplies, Customs Duty and Custom Clearance on imported items, transportation and storage at site etc.
 - v) All local duties, royalties, octroi etc.
 - vi) All applicable taxes, cess charges etc., on works contract etc. in the State of Telangana.

The following recoveries will be made towards Taxes.

- VAT TDS at 5.00% or as applicable will be recovered.
1. Income Tax at 2.00 % or as applicable
 2. Service Tax @15 % or as applicable on I&C Component shall be deducted.
 3. TNREDCL service charges @ 3% and Service Tax as applicable will be deducted
 4. 0.1% of the contract value shall be deducted towards corpus fund of National academy of construction.
 5. 0.5% of the contract value shall be deducted towards krishi kalyan cess
 6. Any other applicable Taxes.

PAYMENT TERMS:

Payment will be settled as per the below:

- 1) **70%** of purchase order value will be settled on installation and commissioning of systems and handing over of the systems to **Dr. MCR HRD** officials after joint inspection of TNREDCL, **Dr. MCR HRD** officials and supplier.
- 2) Contractor shall submit the performance and Warranty Certificates for a period of 5 Years for Inverter& other components and performance guaranty, warranty of SPV modules as per MNRE guidelines.
- 3) **20%** will be paid after 30 days of Successful performance and satisfactory of beneficiary.
- 4) **Balance 10%** of the contract value shall be released in installment basis at rate of 2%per annum (i.e. CMC part) for CMC period of 5 years from the date of commissioning

12.2. CORRUPT OR FRAUDULENT PRACTICES

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

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 the TNREDCL /Govt scheme, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the TNREDCL 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 GOVT contract if at any time it is found that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government/ TNREDCL schemes.

13. DEBARRE FROM PARTICIPATING IN TNREDCL’S ROOF TOP TENDER

13.1. TNREDCL 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 RFS, such Bidders may be debarred from participating in TNREDCL’s any future tender for a period as decided by the competent authority of TNREDCL.

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 TNREDCL & 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 lightening 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.

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- 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 **250Wp** and above wattage. Module capacity less than minimum **250** 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. TNREDCL/ **Dr. MCR HRD** 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 **ONLY POSITIVE** tolerance
 - II. 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 **LAMINATED INSIDE**. The following information must be mentioned in the RFID used on each modules (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)

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- 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.

15. ARRAY STRUCTURE

- a) Hot dip galvanized MS mounting structures as per MNRE standards may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements. Minimum of 45cm ground clearance shall be given on the lower side of the structure
- b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (wind speed of 150 km/ hour). **It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind**

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loading calculation sheet to TNREDCL. 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 electrolytically compatible with the materials used in the module frame, its fasteners, 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 bearing 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/m^2 .
- h) The minimum clearance of the structure from the roof level should be 450 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

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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 : 415V, 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 : -20⁰ C to 50⁰ 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%

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- THD : < 3%
 - PF : > 0.9
- a) Three phase PCU/ inverter shall be used with each power plant system.
 - 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 centres / 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.

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- 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.

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- 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.
- xviii. Remote Monitoring and data acquisition through Remote Monitoring System software at the **Dr. MCR HRD Admin Block/TNREDCL** 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 TNREDCL server and portal in future shall be kept.

23. TRANSFORMER “IF REQUIRED” & METERING:

- a) Dry/oil type relevant kVA, 11kV/415V, 50 Hz Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.
- b) The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy.

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- 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 TNREDCL 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. Finalization of tariff is not under the purview of TNREDCL or MNRE. Decisions 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 varistors (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/TNREDCL as 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.

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- 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. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

Plant Capacity	Connecting voltage
Above 10kW and up to 100 kW	415V – three phase
Above 100kW	At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules

- i. The maximum permissible capacity for rooftop shall be 1 MW for a single net metering point.
- ii. Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.
- iii. For large PV system (Above 100 kW) for commercial installation having large load, the solar power can be generated at low voltage levels and stepped up to 11 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 TNREDCL

- 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 TNREDCL/ RAJ BHAVAN.

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 confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof 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 [NAME OF THE ORGANISATION]/owners before progressing with the installation work

32. PLANNING AND DESIGNING:

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- 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 TNREDCL for approval.
- ii. TNREDCL 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. 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 Offer Reference No _____

**SECTION-IV
PRICE BID**

(To be submitted in a separate envelope)

S.no	Particulars of the works	Capacity	Rate per unit (Kwp)	Total amount quoted (Rupees in Figures and Words)	Remarks
01	Design, Engineering, Manufacturing, Storage, Civil Work, Supply, Erection, Testing & Commissioning of aggregate capacity of 500 KWp SPV Grid Connected Systems, including trail Operation, Operation & Maintenance and other requirements as per the RFS.	500KWp			

Note:

1. Unit Rate (Rs/Wp) for Capacity shall not exceed Rs 60 per Watt (*latest MNRE Benchmark Price*).
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.

Date: Signature:.....

Place: Name of the Firm/ Tenderer

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SECTION -V
FORMATS FOR SUBMITTING RFS

Format-1

Covering Letter

(The covering letter should be on the Letter Head of the Bidding Company)

Ref. No. _____ Date: _____

From: _____(Insert name and address of Bidding Company)

_____, _____
Tel.#: _____ Fax#: _____ E-mail address# _____

To

M/s. TNREDCL ,
Nampally, Hyderabad.

Address

Sub:- Bid for “Implementation of Grid connected Roof Top Solar PV Systems at Dr. MCR HRD Admin Block and other Buildings, Hyderabad ” – Reg.

Dear Sir,

We, the undersigned....[insert name of the ‘Bidder’] having read, examined and understood in detail the RFS Document for Implementation of Grid connected Roof Top Solar PV System Scheme in **Dr. MCR HRD Admin Block and other Buildings**, Hyderabad , hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid RFS.

1. We give our unconditional acceptance to the RFS, dated.....and RFS Documents attached thereto, issued by TNREDCL , as amended. This shall also be construed as a token of our acceptance to the RFS Documents including all its amendments and clarifications uploaded on TNREDCL website .

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

2. Bid Bond

We have enclosed a Bid Bond of Rs.....(Insert Amount) , in the form of bank guarantee no.....(Insert number of the bank guarantee) dated.....[Insert date of bank guarantee] as per Formatfrom.....(Insert name of bank providing Bid Bond) and valid up toin

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3. Processing Fee

We have enclosed DD of Rs.....{Insert Amount as per Clause 7.2 and Clause 3.12.1.1 A (iii)}, in the form of DD no.....(Insert number of the DD) dated.....[Insert date of DD] from(Insert name of bank providing DD). Further, We have enclosed DD of **Rs. /-** (Rs. _____only) inclusive of Service tax, in the form of DD no.....(Insert number of the DD) dated.....[Insert date of DD] from(Insert name of bank providing DD).

4. We have submitted our Price Bid strictly as per Section IV of this RFS, without any deviations, conditions and without mentioning any assumptions or notes for the Price Bid in the said format(s).
5. In case we are a Successful Bidder, we shall furnish a declaration at the time of commissioning of the Project to the effect that neither we have availed nor we shall avail in future any subsidy from MNRE

7. Acceptance

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

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

8. Familiarity with Relevant Indian Laws & Regulations

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

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

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFS and subsequent communications from TNREDCL. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the RFS and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of 12 months from the Bid deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive.

Dated the _____ day of _____, 20....

Thanking you,

We remain,

Yours faithfully,

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

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Format-2

GENERAL PARTICULARS OF THE BIDDER

	Name of the Company	
	Registered Office Address	
	Telephone, Telex, Fax No	
	E-mail	
	Web site	
	Authorized Contact Person(s) with name, designation Address and Mobile Phone No., E-mail address/ Fax No. to whom all references shall be made	
	Year of Incorporation	
	Bidding company PAN Number	
	Bidding company TAN Number	
	Have the bidder/Company ever been debarred By any Govt. Dept. / Undertaking for undertaking any work.	
	Reference of any document information attached by the Bidder other than specified in the RFS.	
	Whether the Bidder wishes to form a Project Company for execution of work	Yes/No/May be

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	Bidding company is listed in India	Yes/No
	Details of the Ownership structure (Details of persons owning 10% or more of the Total Paid up equity of the Bidding Company in the Format as below	
	Bid Bond Bank guarantee No	
	Validity of Bid Bond	
	<ul style="list-style-type: none">• Banker E-mail ID,• FAX No of the banker• Correspondence address & Pin Code	

(Signature of Authorized Signatory)

With Seal

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Format-3

FORMAT FOR BID BOND/ BG

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

Ref. _____

Bank Guarantee No. _____

Date: _____

In consideration of the -----[Insert name of the Bidder] (hereinafter referred to as 'Bidder') submitting the response to RfS inter alia for selection of the Project for the aggregate capacity of 500KWp *Grid connected Rooftop Solar PV System at Dr. MCR HRD Admin Block and other Buildings, Hyderabad* in response to the RfS No. _____ dated ____ issued by TNREDCL (hereinafter referred to as TNREDCL considering such response to the RfS of

.....[insert the name of the Bidder] as per the terms of the RfS, the

_____ [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to TNREDCL at Hyderabad forthwith on demand in writing from TNREDCL or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees -----

This guarantee shall be valid and binding on this Bank up to and including

_____ [insert date of validity in accordance with Clause 3.15 of this RfS] and shall not be terminable by notice or any change in the constitution of the Bank or the term of contract or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only). Our Guarantee shall remain in force until

_____ [insert date of validity in accordance with Clause 3.15 of this RfS]. TNREDCL shall be entitled to invoke this Guarantee till _____ [Insert date which is 30 days after the date in the preceding sentence].

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

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

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----- [*Insert name of the Bidder*] and/or any other person. The Guarantor Bank shall not require TNREDCL to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against TNREDCL in respect of any payment made hereunder.

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

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

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

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly TNREDCL shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the Bidder, to make any claim against or any demand on the Bidder or to give any notice to the Bidder or to enforce any security held by TNREDCL or to exercise, levy or enforce any distress, diligence or other process against the Bidder.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. _____ (Rs. _____ only) and it shall remain in force until _____ [*Date to be inserted on the basis of Clause 3.15 of this RfS*] with an additional claim period of thirty (30) days thereafter. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if TNREDCL serves upon us a written claim or demand.

Signature _____

Name _____

Power of Attorney No. _____

Email ID _____

For _____ [*Insert Name of the Bank*] _____ Banker's Stamp and Full Address. Dated this _____ day of _____, 20____

Notes:

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

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CHECK LIST FOR BANK GUARANTEES

Sl. No	Details of Checks	Yes /No
A	Is the BG on non-judicial Stamp paper of appropriate value, as Per Applicable Stamp Act of the place of execution	
B	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG).	
C	Has the executing Officer of BG indicated his name, designation and Power of Attorney No./Signing Power no. on the BG?	
D	Is each page of BG duly signed / initialled by executant and whether stamp of Bank is affixed thereon? Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed Performa?	
E	Does the Bank Guarantees compare verbatim with the Performa prescribed in the Bid Documents?	
F	Are the factual details such as Bid Document No/ Specification No., / LOA No. (if applicable) / Amount of BG and Validity of BG correctly mentioned in the BG	
G	Whether overwriting/cutting if any on the BG have been properly authenticated under signature & seal of executant?	

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Format-8

Format for certificate of relationship of Parent Company or Affiliate with the Bidding Company.

To,

.....

Dear Sir,

Sub: Bid for Implementation of Grid connected Roof Top Solar PV System Scheme in selected States in India.

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

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

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

*Strike out whichever is not applicable.

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

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CONSORTIUM AGREEMENT

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

THIS Consortium Agreement (“Agreement”) executed on this _____ day of
_____ 2014 between M/s [insert name of Lead
Member] _____ a Company
incorporated under the laws of _____ and having its Registered

Office at _____ (hereinafter called the “Lead Member”, which
expression shall include its successors, executors and permitted assigns)

and

M/s _____ a Company incorporated under the
laws of _____ and having its Registered Office
at _____ (hereinafter called the

“Technical Member”, which expression shall include its successors, executors and
permitted assigns), which expression shall include its successors, executors and
permitted assigns)

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

WHEREAS the [Name of the Organisation](hereinafter called [NAME OF THE
ORGANISATION] or [NAME OF THE ORGANISATION]) ,a section ___ Company
incorporated under the Company’s Act, 1956 has invited response to RFS No. _____
dated _____ for Design, manufacture, supply, erection, testing and commissioning
including warranty, operation & maintenance for a period of 5 years under CAPEX Roof
Top Solar PV power system .

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

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NOW THEREFORE, THIS AGREEMENT WITNESSTH AS UNDER:

In consideration of the above Admin Block and other Buildings and agreements all the Members in this Consortium do hereby mutually agree as follows:

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

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9. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to RFS.
10. It is hereby expressly understood between the Members that no Member at any given point of time, may assign or delegate its rights, duties or obligations under this agreement without the explicit permission of TNREDCL.
11. This Agreement
- (a) Has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each ~~such Member;~~
 - (b) Sets forth the entire understanding of the Members hereto with respect to the subject matter hereof; and
 - (c) May not be amended or modified except in writing signed by each of the Members and with prior written consent of TNREDCL .

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

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

(signature, Name & Designation of the person authorized vide Board Resolution

Dated [●])

Witnesses:

1) Signature-----

2) Signature -----

Name:

Name:

Address:

Address:

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

(signature, Name & Designation of the person authorized vide Board Resolution

Dated [●])

Witnesses: