इंडिया एसएमई टेक्नोलॉजी सर्विसेस लिमिटेड
INDIA SME TECHNOLOGY SERVICES LIMITED
(A Joint Initiative of SIDBI, SBI, OBC, IOB and Indian Bank)

CIN: 74140DL2005PLC142633
ई-1, प्रथम तल, बलुजा हाउस,
झंडेवालान एक्सटेंशन,
नई दिल्ली – 110055

निविदा सूचना

पृथ्वी विज्ञान मंत्रालय में सोलर रूफटॉप पीवी सिस्टम्स का प्रतिस्थापन

पृथ्वी विज्ञान मंत्रालय के नई दिल्ली, हैदराबाद, चेन्नई, नोएडा और पुणे स्थित संस्थाओं में RESCO मॉडल के तहत 1266.50 kWp ग्रिड से जुड़े सोलर रूफटॉप पीवी सिस्टम्स के प्रतिस्थापन (आरएफएस सं: ISTSL/Solar/RFS/2016-17/ 02) हेतु इंडिया एसएमई टेक्नोलॉजी सर्विसेस लि. निविदाएँ आमंत्रित करता है। प्री-बिड बैठक : नवम्बर 07, 2016 सुबह 11:00 बजे। निविदा प्रस्तुत करने की अंतिम तारीख: नवम्बर 18, 2016 सायं 4:00 बजे।

टेंडर दस्तावेज निम्नलिखित वेबसाइट से डाउनलोड किया जा सकता है - http://www.techsmall.com/tenders.php; और http://eprocure.gov.in/

मुख्य कार्यपालक अधिकारी
इंडिया एसएमई टेक्नोलॉजी सर्विसेस लि.

इंडिया एसएमई टेक्नोलॉजी सर्विसेस लिमिटेड
INDIA SME TECHNOLOGY SERVICES LIMITED
(A Joint Initiative of SIDBI, SBI, OBC, IOB and Indian Bank)

CIN: 74140DL2005PLC142633
E-1, First Floor, Baluja House
Jhandewalan Extension,
New Delhi – 110055

TENDER NOTICE - Implementation of Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences

India SME Technology Services Limited (ISTSL) invites bids on behalf of Ministry of Earth Sciences (MoES) for Implementation of 1266.50 kWp Grid Connected Rooftop Solar PV System at New Delhi, Chennai, Hyderabad, Pune and Noida under RESCO model (RFS No.: ISTSL/ Solar/ RFS/ 2016-17/ 02). Date & Time for Pre-Bid meeting: 7th November 2016 at 11:00 AM. Last Date for submission of Bid: 18th November 2016 at 4:00 PM.

Tender document can be downloaded from the following websites:- http://www.techsmall.com/tenders.php and http://eprocure.gov.in/

CEO, ISTSL

India SME Technology Services Ltd

(A Joint Initiative of SIDBI, SBI, OBC, IOB and Indian Bank)

Invites Request for Selection (RFS) of Bidders

For

Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences

(Under RESCO model)

Ref No.: ISTSL/ Solar/ RFS/ 2016-17/ 02

Dated: 26/10/2016

ON BEHALF OF
Ministry of Earth Sciences (MoES)

इंडिया एसएमई टेक्नोलॉजी सर्विसेस लिमिटेड
INDIA SME TECHNOLOGY SERVICES LIMITED

E-1, First Floor, Baluja House Jhandewalan Extension
New Delhi – 110055
Email: ISTSL@techsmall.com
Tel: 011 - 43526652, 23631804

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INDIA SME TECHNOLOGY SERVICES LIMITED

RFS No: ISTSL/ Solar/ RFS/ 2016-17/ 02 **Date: 26/10/2016**

- India SME Technology Services Ltd. is a Joint Venture of Small Industries Development of India (SIDBI) and four public sector banks including SBI, IOB, OBC and Indian Bank, having its registered office at E-1, First Floor, Baluja House, Jhandewalan Extension, New Delhi – 110055.

- The Ministry of Earth Sciences, Government of India having its Office at Prithvi Bhavan, Lodhi Road, New Delhi – 110003 is mandated to look after Atmospheric Sciences, Ocean Science & Technology and Seismology in an integrated manner. Institutions such as India Meteorological Department (IMD), National Centre for Medium Range Weather Forecasting (NCMRWF), Indian Institute of Tropical Meteorology (IITM), National Institute of Ocean Technology (NIOT), and Indian National Centre for Ocean Information Services (INCOIS) are under the administrative control of the Ministry.

- India SME Technology Services Ltd., (hereinafter called "ISTSL" or "Authorized Representative") is acting as a Project Management Consultant to Ministry of Earth Sciences (hereinafter referred to as "MoES" or the "Employer") for installation of Rooftop Solar PV Systems in the buildings of MoES and its Institutions located in New Delhi, Hyderabad, Chennai, Pune and Noida. ISTSL invites bids from the eligible bidders to participate in the Request for Selection (RFS) for design, manufacture, supply, erection, testing, commissioning, grid connectivity under State net-metering Scheme including warranty and operation & maintenance of Rooftop Solar PV System for a period of 25 years after commissioning under RESCO model .

- All the activities related to bid process management starting from publishing of RFS till signing of agreement between successful bidder(s) and MoES and its Institutions and project monitoring, inspection and control till the successful commissioning of Rooftop Solar PV System will be done by ISTSL on behalf of "the Employer".

- The bidding process will be a single stage two part process. This RFS document comprising of eligibility criteria, technical specifications, various conditions of contract, formats etc. can be downloaded from ISTSL website. Bids are invited for a cumulative capacity of 1,266.5 kWp. The bidders will submit a techno-commercial bid comprising of technical and commercial qualification documents with all the necessary supporting documents and a price bid corresponding to the schedule of requirements, in two separate envelopes packed in a cover envelope on or before the bid submission due date.

- Any amendment(s) / corrigendum/ clarifications with respect to this RFS shall be uploaded on ISTSL's website (www.techsmall.com) and CPPP portal (https://eprocure.gov.in/cppp/) website only. The Bidder should regularly follow the above mentioned websites for any amendment/ corrigendum/ clarification to the RFS. The Tender Document will be also available in the websites of MoES (www.moes.gov.in).

- Bidders shall ensure that their bids, complete in all respects, are dropped in the Tender Box located at **India SME Technology Services Ltd (ISTSL), E-1, First Floor, Baluja House, Jhandewalan Extension, New Delhi – 110055** on or before the closing date and time i.e. **on or before 4.00 PM November 18, 2016 (Friday)**, failing which the bids will be treated as late and rejected.

- In the event of any of the above mentioned dates being declared as a holiday / closed day for ISTSL, the bids will be received / opened on the next working day at the appointed time.

The Tender Documents are not transferable.

Sd/-

The Chief Executive Officer
M/s India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House, Jhandewalan Extension, New Delhi – 110055
Ph.: +91-11-43526652, 23631804

DISCLAIMER:

1. Though adequate care has been taken while preparing the RFS document, the Bidders shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within seven (07) days from the date of notification of RFS document, it shall be considered that the RFS document is complete in all respects and has been received by the Bidder.

2. India SME Technology Services Ltd (ISTSL) 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 ISTSL 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.

BID INFORMATION SHEET

Document Description	❖ The bidding process under this RFS is for a cumulative capacity of 1,266.50 kWp in five sites comprising of MoES and its Institutions located in New Delhi, Hyderabad, Chennai, Pune and Noida under RESCO Model ❖ Bidder can bid for mentioned capacity as per the eligibility criterion of RFS. Bidder can apply for a minimum of one site and a maximum of 5 sites for the total capacity for each site.
Ref No. & Date	ISTSL/ Solar/ RFS/ 2016-17/ 02 Dated:26-10-2016
Broad Scope	❖ Complete Design, Engineering, Manufacture, Supply, Civil work, Erection, Testing, Grid connectivity under State net-metering Scheme/ Regulations/ Policy & Commissioning of the grid connected rooftop solar PV project including warranty and Operation and Maintenance (O&M) of the project for a period of 25 years after commissioning. ❖ Successful bidder(s) will sign PPA with the Employer at the quoted L1 tariff. ❖ **Total timeline for the above Scope of Work up to Commissioning of project is 3 Months.**
Pre-bid Conference/ Clarification Meeting	A pre-bid meeting shall be held on **November 7th, 2016 (Monday) at 11:00 A.M** at ISTSL's office located in E-1, First Floor, Baluja House, Jhandewalan Extension, New Delhi – 110055. Only two persons from one company are allowed to attend the same.
Last date & Time for Submission of Bid	On or before 4.00 PM (Indian Standard Time) on **November 18, 2016 (Friday)**. Bids received after the stipulated time and date will be rejected and returned unopened to the bidders.
Bid Opening (Techno-Commercial)	**4.30 PM November 18, 2016 (Friday)** and same address as mentioned above.

Bid Processing Fee (non-refundable)	❖Bidders have to submit bid processing fee of **Rs. 15,000/-** (Rs. Fifteen Thousand only) plus applicable Service tax for participating in the tender ❖The processing fee is to be furnished through Demand Draft (DD) from a nationalised scheduled bank drawn in favour of "India SME Technology Services Limited (ISTSL)", payable at New Delhi. Processing fee has to be submitted along with the technical bid and the bidders are requested to refer Clause 3.10.1.1(ii) for details. **NB: Bids received without Processing Fee as indicated above will be rejected.**
BID BOND	Based on the no. of sites and capacity bid by the bidder, Bid Bond shall be furnished separately for each site along with the response to RFS. Information related to submission of Bid Bond is provided in Clause 3.14 of Section-I. Bid Bond(s) shall be enclosed in a sealed envelope and shall be submitted along with the technical bid envelope. Bids received without bid bond(s) will be rejected. The validity of Bid Bond shall be for a period of **3 months from the Bid Submission Deadline i.e. up to 16th February 2017.**
Performance Security (PBG)	The PBG amount shall be furnished for each site by the successful bidder within 21 days after issue of Letter of Award by Employer. Please refer Clause 3.15 of Section-I for details.
Bid Process	Single Stage, Two Bid Process 1. Techno-Commercial Bid and 2. Price Bid.
Name, Designation, Address and other details (For Submission of Response to RFS)	The Chief Executive Officer M/s India SME Technology Services Ltd (ISTSL) E-1, First Floor, Baluja House Jhandewalan Extension New Delhi – 110055 +91 11 43526652, 23631804

Important Note:

Prospective bidders are requested to remain updated for any notices/ amendments/ clarifications etc. to the RfS document through the website www.techsmall.com/ 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 in the ISTSL website www.techsmall.com/ and CPPP website eprocure.gov.in/

1.0. DEFINITIONS & ABBREVIATIONS

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

a. controls or

b. is controlled by or

c. is under common control with

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

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

1.3. **"Bid"** shall mean the Techno Commercial and Price Bid submitted by the Bidder along with all documents/ credentials/ attachments annexure etc., in response to this RFS, in accordance with the terms and conditions hereof.

1.4. **"Bidder/ Bidding Company"** shall mean Bidding Company submitting the Bid. Any reference to the Bidder includes Bidding Company / including its successors, executors and permitted assigns as the context may require";

1.5. **"Bid Bond"** shall mean the unconditional and irrevocable bank guarantee to be submitted along with the Bid by the Bidder under Clause 3.14 of this RFS, in the prescribed Format- 3;

1.6. **"Bid Deadline"** shall mean the last date and time for submission of Bid in response to this RFS as specified in Bid information Sheet;

1.7. **"Bid Capacity"** shall means capacity offered by the bidder in his Bid under invitation.

1.8. **"CEA"** shall mean Central Electricity Authority.

1.9. **"Chartered Accountant"** shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949;

1.10. **"Competent Authority''** shall mean Chief Executive Officer (CEO) of ISTSL himself and/ or a person or group of persons nominated by CEO 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)** means the ratio of the annual output of the plant in kWh versus installed plant capacity for number of days.

CUF = plant output in kWh / (installed plant capacity in kW X 365X24).

1.14. **"Eligibility Criteria"** shall mean the Eligibility Criteria as set forth in Clause 3.4 of this RFS;

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 3.4.3 hereof;

1.16. **"IEC"** shall mean specifications of International Electro-technical Commission;

1.1. **"Incentives"** available from Ministry of New and Renewable Energy (MNRE) for Government/ PSU Buildings is differentiated for general category and special category states as tabulated below:

Sl. No.	Achievement vis-à-vis Target Allocation	Incentive# for General Category States	Incentive for Special Category States/UTs
1.	80% and above within the sanctioned period.	Rs. 18,750/- per kW	Rs. 45,000/- per kW
2.	Below 80% and upto 50% within the sanctioned period.	Rs. 11,250/- per kW	Rs. 27,000/- per kW
3.	Below 50% / Delayed commissioning up to 6 months beyond the sanctioned period.	Rs. 7,500/- per kW	Rs. 18,000/- per kW

#Incentive shall be released by MNRE to the Successful Bidder(s) through ISTSL after commissioning of the projects. ISTSL shall not be responsible for any delay in release of incentive by MNRE.

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;

1.21. **"Model(s)"** RESCO model

1.22. **"O&M"** shall mean Operation & Maintenance of Rooftop Solar PV system;

1.23. **"Owner of project"** shall mean anyone who has invested 100% of project cost in the rooftop Project or the Project Developer who has taken the roof on mutually agreed terms and conditions from the roof top owner(s) and enters into a PPA for supply of Solar Power for at least 25 years from the date of Commissioning of project.

1.24. **"Levellized Tariff"** shall mean the tariff offered by the Bidder for 25 years as per the Scope of work mentioned in RFS document.

1.25. **"Project capacity"** means Capacity in kWp awarded to the Bidder for different sites, as mentioned in RFS document. Each project shall consist of single or multiple roof tops. The project capacity specified is on "DC" output Side only.

1.26. **"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= (Measured output in kW /Installed Plant capacity in kW * (1000 W/m^2/Measured radiation intensity in W/m^2).

1.27. **"Parent Company"** shall mean a company that holds at least twenty six percent (26%) of the paid-up equity capital directly or indirectly in the Bidding Company as the case may be;

1.28. **"Project Company"** shall mean Company incorporated by the bidder as per Indian Laws in accordance with Clause no 3.5.

1.30. **"Price Bid"** shall mean Envelope II of the Bid, containing the Bidder's quoted Price as per the Section- IV of this RFS;

1.31. **"Qualified Bidder"** shall mean the Bidder(s) who, after evaluation of their Techno-Commercial Bid as per Clause 3.4 stand qualified for opening and evaluation of their Price Bid;

1.32. **"RFS"** shall mean Request for Selection (RFS)/ Bid document/ Tender document

1.33. **"RESCO"** shall mean Renewable Energy Service Companies

1.34. **"RESCO model"** shall mean where the bidders intend to take a roof top owned by some other entity on mutually agreed terms and conditions from the roof top owner(s) and enters into the PPA with rooftop owner / DISCOM / others for supply of Solar power for 25 years from the date of Commissioning of project.

1.35. **"Statutory Auditor"** shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or under the provisions of any other applicable governing law;

1.36. **"Successful Bidder(s)/ Contractor/ Project Developers"** shall mean the Bidder(s) selected by ISTSL 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 Letter of Award has been issued;

1.38. **"SNA"** shall mean State Nodal Agency.

1.40. **"Tendered Capacity"** shall mean the Total aggregate capacity of 1,266.5 kWp in five sites of MoES, proposed to be awarded by MoES to the Successful Bidder through this bidding process as per terms and conditions specified therein;

1.41. **"Ultimate Parent Company"** shall mean a company which directly or indirectly owns at least twenty six percent (26%) paid up equity capital in the Bidding Company) and/or in the Financially Evaluated Entity and such Bidding Company and /or the Financially Evaluated Entity shall be under the direct control or indirectly under the common control of such company;

1.42. "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 The Government of India has set an ambitious target of 40 GW rooftop solar systems by 2022. In order to achieve this objective, MNRE is operating a scheme called "Grid Connected Rooftop and Small Solar Power Plants Programme". Under this programme, MNRE has appointed ISTSL as Project Management Consultant for various ministries & government departments for installation of grid connected rooftop solar PV systems in their Offices.

Through this RFP, ISTSL is inviting bids for installation of grid connected rooftop solar PV systems of aggregate capacity 1,266.50 kWp for the Ministry of Earth Sciences (MoES) and its Institutions located in New Delhi, Hyderabad, Chennai, Pune and Noida. The generated solar power from these systems may be utilized for captive application and the surplus power may be fed to the grid. This aims to reduce the fossil fuel based electricity and make buildings self-sustainable from the point of electricity, to the extent possible.

1.2 MNRE is operating an Award-cum-Incentive Scheme for the installation of grid connected rooftop solar PV systems in Government / PSU buildings. Details of this scheme are available in the MNRE notification no. 3/88/2015-16/GCRT dated 04/05/2016 and a brief summary is given below.

Table 1.2.1

Incentive shall be available to the following Categories		
(i)	**Government Buildings**	Buildings of Both Central & State Government, local government covering all Government offices.
(ii)	**Government Institutions**	Government Institutions, Public Sector Undertakings, all buildings owned by Government directly or by any Government owned societies, companies, corporations, Institutions or organizations, Government educational/ health institutions.

Table 1.2.2

Sl. No.	**Achievement vis-à-vis Target Allocation**	**Incentive[#] for General Category States**
1	80% and above within the sanctioned period	Rs. 18,750/- per kWp
2	Below 80% and upto 50% within the sanctioned period	Rs. 11,250/- per kWp
3	Below 50% / Delayed commissioning up to 6 months beyond the sanctioned period	Rs. 7,500/- per kWp

[#]Incentive shall be released by MNRE to the Successful Bidder(s) through ISTSL after commissioning of the projects. ISTSL shall not be responsible for any delay in release of incentive by MNRE.

1.3 On behalf of MoES, ISTSL, 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 1,266.50 kWp grid-connected Rooftop Solar Photovoltaic Projects as per RFS.

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

2.0 BID DETAILS:

2.1 The bidding process under this RFS is for a total of 1,266.50 kWp capacity for 5 sites of MoES. The Bidders may submit their bids for a minimum of one site and a maximum of 5 sites as per details of system capacities- provided in section 2.1.1. However, bids have to be submitted for the total capacity of any individual site and any bids quoted for lesser capacities than this will not be considered and will be rejected.

2.1.1 Bids in (RESCO model)

Bids are invited from the prospective bidders for the Tendered Capacity of 1,266.50 kWp on RESSCO Model. Bidders will be required to furnish year on year tariff for 25 years starting from the date of commissioning of the Project. Tariff stream quoted by the bidder shall be then levellized with a discounting rate of 11%. Project Capacity will be awarded based on the lowest levellized tariff for 25 years quoted by the bidder for different sites subject to Clause 6.3.5 of RFS.

The bidder who has quoted lowest tariff per site shall be declared as successful (L1) bidder and shall be awarded the contract.

Details of Sites with Capacity	
MoES Institution	**Rooftop Solar PV System Capacity (kWp)**
Office of the Ministry of Earth Sciences, Prithvi Bhawan, Lodhi Road, New Delhi	100.0
National Institute of Ocean Technology (NIOT), Velachery-Tamabaram Road, Narayanapuram, Pallikaranai, Chennai, Tamil Nadu	121.5
Indian Institute of Tropical Meteorology (IITM), Dr. Homi Bhabha Road, Pashan, Pune, Maharashtra	230.0
Indian National Centre for Ocean Information Services (INCOIS), Ocean Valley, Pragati Maidan (B.O), Nizampat (S.O), Hyderabad, Telangana	561.0
National Centre for Medium Range Weather Forecasting (NCMRWF), A-50, Sector-62, Noida, Uttar Pradesh – 201309	254.0
Total	**1266.50**

Details of above can be refered at Annexure-S

Maximum allowable levellized tariff over 25 years assuming the discounting rate of 11% only as follow:

For General Category States	Levellized Ceiling Tariff (Rs./ kWh)
With a maximum of Rs. 18,750/ kWp Incentive from MNRE	5.68 (As per CERC Order dated March 30, 2016)

The bids with levellized tariff in excess of above said levellized ceiling tariffs shall not be accepted.

2.1.1.1 Bids not in conformity with above provisions will not be considered.

2.2 SIZE OF THE PROJECTS:

2.2.1 The size of each project shall be as per the details provided in Clause 2.1.1. One project shall comprise of one or more than one roof. Each rooftop unit can separately connect with the grid and may have separate meters.

2.2.2 DELETED

2.4 BID CAPACITY

2.4.1 The Bidder shall apply for a minimum of one site and a maximum of five sites under RESCO Model. However, bids have to be submitted for the total capacity of any individual site and any bids quoted for lesser capacities than this will not be considered and will be rejected.

2.4.2 ISTSL/ Employer reserves the right to award part capacity also to the bidder on the basis of outcome of the bidding.

3 INSTRUCTIONS TO THE BIDDERS

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

In case of a Bidding Consortium, the Financial Eligibility criteria like Annual turnover as indicated in Clause 3.4.2, shall be fulfilled by the Lead Member or Parent Company of the Lead Member while the Technical Eligibility Criteria shall be fulfilled by consortium members. In case bidder is a consortium, a Consortium Agreement as per the Format-10 shall be furnished along with the bid.

3.1.1. Financial Consortium is not allowed in this Bidding Process. Consortium is only permitted for Technical partnership as per Format-10. Further, in-case where the bidding company has used the financial eligibility criteria of its parent company then it needs to be ensured that no change in the controlling equity of the Bidding Company is done before 2 years from the date of commissioning of the awarded capacity without prior approval of ISTSL.

All members of the consortium should be registered as a Company only.

3.1.2. Bidder can however use the technical and financial strength of its Parent Company/ Affiliates to fulfill the Technical and/ or Financial Eligibility criteria mentioned below. In such 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 and Company Secretary certificate towards shareholding pattern of the Parent

Company and the Bidding Company along with a Board resolution from the Parent Company.

NB: If the bidder's submitted information is found to be false declaration or misrepresentation, the bidder(s) shall be out rightly rejected or debarred or blacklisted from ISTSL's future tenders.

3.2 Void

3.3 DELETED

3.4 **ELIGIBILITY CRITERIA**

3.4.1 **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.

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

Limited Liability partnership firms shall be allowed for bidding.

The bidder should have valid CST/ State VAT/ TIN registration certificate. Registration document (s) to be provided by the bidder where it is presently operational / Company is registered. (Copy to be furnished in support).

TECHNICAL ELIGIBILITY CRITERIA:

a. The bidder should have designed, supplied, erected and commissioned Rooftop Solar PV based grid connected power plant(s) of cumulative installed capacity not less than 100 kWp in the last three years and at least one Rooftop Solar PV based Grid connected project having a capacity of not less than 50 kWp which should have been commissioned and successfully performing for at least six months prior to Techno-Commercial Bid Opening date. The list of project(s) 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 and Power Generation/ Joint Metering Reports shall be submitted in support of Clause 3.4.2 (a) above.

FINANCIAL ELIGIBILITY CRITERIA:

The Bidder should have an Annual Turnover of not less than Rupees 75,000 per kWp of the capacity quoted in its bid in any one of the last 3 financial years preceding the Bid Deadline subjected to the condition that the Bidder should at least have completed one financial year. In case of more than one Price Bid submitted by the Bidder, the financial eligibility criteria must be fulfilled by such bidder for the sum total of the capacities being offered by the Bidder it in its Price Bid.

In case of a JV/ consortium, the Financial Eligibility criteria like Annual turnover shall be fulfilled by the Lead bidder while the Technical Eligibility Criteria shall be fulfilled by both members.

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

3.5 DELETED

3.6 **BID SUBMISSION BY THE BIDDER**

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

3.6.2 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.

3.6.3 The Bidder shall furnish documentary evidence in support of meeting Eligibility Criteria as indicated in Clause no. 3.4.2 to the satisfaction of ISTSL. Under RESCO MODEL, Bidder shall also furnish unconsolidated/ consolidated audited annual accounts in support of meeting financial requirement, which shall consist of unabridged balance sheet, profit and loss account, profit appropriation account, auditors 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.

3.6.4 In case the annual accounts for the latest financial year are not audited and therefore the bidder cannot make it available, the applicant shall give certificate to this effect from the Statutory Auditor and Authorized signatory along with provisional Annual Account signed by directors of the company and certificate by 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.

3.7 BID SUBMITTED BY A BIDDING COMPANY

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

3.8 CLARIFICATIONS AND PRE-BID MEETING

3.8.1 ISTSL 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 through e-mail or through written communication to ISTSL at the address, date and time mentioned in Bid information sheet within twelve (12) days from the date of notification of RFS document.

3.8.2 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 ISTSL.

3.8.3 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.

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

3.9 AMENDMENTS TO RFS BY ISTSL

3.9.1 At any time prior to the deadline for submission of Bids, ISTSL 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).

3.9.2 The clarification(s)/ amendment(s) (if any) may be notified on ISTSL website www.techsmall.com and CPPP portal at least two (2) days before the proposed deadline for submission of bid. If any amendment is required to be notified within two (2) days of the proposed deadline for submission of Bid, the Bid Deadline may be extended for a suitable period of time.

3.9.3 ISTSL 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.

3.9.4 In case any amendment is notified after submission of the Bid (prior to the opening of Techno-Commercial Bid. Sealed bids received shall be returned unopened to the concerned Bidders on their written request and it will be for the Bidders to submit fresh Bids as per the date notified by the ISTSL for the purpose.

3.9.5 All the notices related to this Bid which are required to be publicized shall be uploaded on ISTSL Website and CPPP Portal.

3.10 BIDDING PROCESS

3.10.1 BID FORMATS

3.10.1.1 The Bid in response to this RFS shall be submitted by the Bidders in the manner provided in Clause 3.6 of Section-I. The Bid shall comprise of the following:

(A). ENVELOPE- I

The Bidder shall submit Techno-commercial Bid in the envelope that shall be superscribed as "Techno-commercial Bid for Site(s) _____ of __kWp capacity under RESCO MODEL. All the documents related to techno-commercial bid shall be enclosed in Envelope-I.

i) (COVERING LETTER, BID PROCESSING FEE AND BID BONDS etc)

i. Covering Letter as prescribed Format-1.
ii. Copy of PAN and TAN Certificate of Bidder.
iii. Demand Draft drawn in favour of India SME Technology Services Limited, New Delhi, payable at New Delhi against payment of bid processing fee
iv. Bid Bond, as per the prescribed Format-3 or Demand Draft drawn in favour of "India SME Technology Services Limited", payable at New Delhi shall be submitted separately for each site for the quoted capacity under RESCO MODEL as per Clause 3.14.
v. Checklist for Bank Guarantee submission requirements as prescribed in Format- 5.
vi. 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 incorporated under Company Act 1956 or Company Act 2013).** However, ISTSL 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.

vii. Original copy of the Consortium Agreement, If any

ii) TECHNO-COMMERCIAL DOCUMENTS

i. DELETED.
ii. Certificate of Incorporation of Bidding company / Bidding consortium/ Parent company as applicable
iii. General particulars of bidders as per Format-2
iv. Bidder's composition and ownership structure as per prescribed Format-A as Shareholding certificate certified by Director/ practicing Chartered Accountant/ Company Secretary and Authorised signatory of the company.
v. Document in support of meeting Eligibility Criteria as per Clause no. 3.4.2.
vi. Details for meeting Financial Eligibility Criteria as per Clause no. 3.4.2.
vii. Undertakings from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company as per Format-9, if applicable.
viii. Format 8, if applicable, supported by Board Resolution of the Parent Company / Ultimate Parent Company of the Bidding Company duly certified by the Company Secretary or Authorized signatory to provide the Performance Bank Guarantee (PBG) in the event of failure of the Bidding Company to do so.
ix. Signed and stamped Copy of RFS Documents including amendments & clarifications by Authorised signatory on each page.
x. Technical Compliance Sheet as per Annexure-Q
xi. Checklist as per Annexure-R

(B). ENVELOPE- II - PRICE BID(S) AS PER Format B

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 for each site separately in the **Format B in Section-IV**. Each envelope shall be superscribed as "Price Bid for Site _____ of kWp capacity for RESCO Model. All the sealed Price Bids shall be enclosed in Envelope-II.

ii.) Any price bid found opened along with the technical bid will not be considered for further evaluation and will be rejected.

3.11 **BID DUE DATE**

The Bidder should submit the Bids so as to reach the address indicated below by **04.00 pm (IST) on or before 18th November 2016 (Friday)**.

The Chief Executive Officer
M/s India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House, Jhandewalan Extension
New Delhi – 110055
Phone No: +91 11 43526652, 23631804

NB: A bid, which is received after the specified date and time for receipt of bids will be treated as "late" tender and will be ignored. No request to consider such Bidders will be entertained.

3.12 **VALIDITY OF BID**

3.12.1 The bid shall remain valid for **a period of 3 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 award, ISTSL shall forfeit the Bid Bond furnished by him. *Confirmation regarding the Bid offer validity shall be clearly mentioned in the covering letter.*

3.12.2 In exceptional circumstances when letter of award is not issued, ISTSL may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The Bid Bond provided under Clause 3.14 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 be permitted to modify its Bid in any manner.

3.12.3 **METHOD OF BID SUBMISSION**

3.12.3.1 Bids are required to be submitted in a single sealed cover envelope following two Bid System, in two parts. First part will be known as 'Techno - Commercial Bid' (Covering letter, Processing fee and Bid Bonds etc.) as referred under clause 3.10.1.1 above and the second part 'Price Bid'. Bidder shall seal 'Techno - Commercial Bid' and 'Price Bid' separately and covers will be suitably superscribed. Both these sealed covers shall be put in a bigger cover and sealed. The bids should be duly sealed and signed by the authorized signatory.

3.12.3.2 The bigger cover shall indicate the name and address of the bidder. To enable the tender to be returned unopened in case it is declared "late". The bigger cover of the tender should be clearly marked as "**Bid for Implementation of Grid Connected Rooftop Solar PV Systems of 1,266.50 kWp capacity in five Institutions of MoES along with the "Not To Be Opened Before 18th November, 2016 4.30 pm" From Bidders Name & Address.**

3.12.4 The Bidders have the option of sending their Documents either by registered post; or speed post; or courier; or by hand delivery, so as to reach ISTSL by the Bid Deadline. Documents submitted by telex/ telegram/ fax/ e-mail shall not be considered under any circumstances. ISTSL shall not be responsible for any delay in receipt of the Bid. Any Bid received after the Bid Deadline shall be returned unopened. *It should be noted that the envelope consisting of technical bid shall not contain any information/ document relating to Price Bid*. ISTSL shall not be responsible for premature opening of the Price Bids in case of non-compliance of above.

3.12.5 All pages of the documents, 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. Bidders shall submit the Bid in original, duly signed by the 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 ISTSL.

3.12.6 If the outer cover envelope or Envelope-I (Covering Envelope) is not enclosed and not super scribed as per the specified requirement, ISTSL will assume no responsibility for the Bid's misplacement or premature opening.

3.12.7 The envelope 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.

3.13 COST OF BIDDING

3.13.1 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 submission of bid even though ISTSL may elect to modify/ withdraw the invitation of Bid.

3.14 BID BOND

The Bidder shall furnish Interest free Bid Bond in the form of Bank Guarantee (BG)/ Demand Draft drawn in favour of "India SME Technology Services Limited", payable at New Delhi. Bidders have to submit bid bond separately for each site for which the bidder is submitting the price bid. The Bid Bond of unsuccessful bidders shall be returned within 30 days from the date of issue of Letter of Award(s) on bidder's request. Bid bond(s) of Successful bidder shall be released after the receipt of PBG in the format prescribed by ISTSL and after the receipt of confirmation of their PBG's from their respective banker.

The formula applicable to calculate the Bid Bond amount under RESCO MODEL will be:

Bid Bond amount = (Rs. 1,500) X Bid Capacity in kWp.

Value of Bid Bond to be furnished by the Bidder for each site for which the bidder is submitting its price bid is given in the following table.

Sl. No.	Details of the MoES Institutions	Capacity (kWp)	Value of Bid Bond (INR)
1	Office of the Ministry of Earth Sciences, Prithvi Bhawan, Lodhi Road, New Delhi	100.0	1,50,000
2	National Institute of Ocean Technology (NIOT), Velachery-Tamabaram Road, Narayanapuram, Pallikaranai, Chennai, Tamil Nadu	121.5	1,82,250
3	Indian Institute of Tropical Meteorology (IITM), Dr. Homi Bhabha Road, Pashan, Pune, Maharashtra	230.0	3,45,000
4	Indian National Centre for Ocean Information Services (INCOIS), Ocean Valley, Pragati Maidan (B.O), Nizampat (S.O), Hyderabad,	561.0	8,41,500
5	National Centre for Medium Range Weather Forecasting (NCMRWF), A-50, Sector-62, Noida, Uttar Pradesh – 201309	254.0	3,81,000

3.14.1 The Bid Bond shall be denominated in Indian Rupees and shall:

i. At the Bidder's option, be in the form of either a demand draft, or a bank guarantee from a List of banks as given in Annexure-B
ii. Be confirmed for payment by the branch of the bank giving the bank guarantee at

New Delhi.

iii. Be submitted in its original form; copies will not be accepted; and remain valid for a minimum period of 3 months from the date of Techno Commercial bid opening, or beyond any period of extension subsequently requested under Clause 3.12.2.

3.14.2 The Successful Bidder shall sign and stamp the Letter of Award and return the signed & stamped duplicate copy of the same to ISTSL within 7 days from the date of its issue.

3.14.3 The Bid Bond shall be forfeited without prejudice to the Bidder being liable for any further consequential loss or damage incurred to ISTSL under following circumstances:

a. Hundred percent (100%) of Bid Bond amount of the quoted capacity, if a Bidder withdraws/ revokes or cancels or unilaterally varies his bid for any site in any manner during the period of Bid Validity specified in the RFS document and in accordance with the Clause 3.12.2 of Section-I.

b. Hundred percent (100%) of Bid Bond amount of the awarded capacity, if the Successful Bidder fails to unconditionally accept the letter of Award within 7 days from the date of its issue.

c. Hundred percent (100%) of Bid Bond amount of the awarded capacity, if the Successful Bidder fails to furnish the "Performance Security" for any Site within 21 days from the date of issue of award letter.

3.15 PERFORMANCE SECURITY/ PERFORMANCE BANK GUARANTEE (PBG)

3.15.1 In case of RESCO MODEL

Within 21 days from the date of issue of Letter of Award, Successful Bidder shall furnish the Performance Security for the awarded capacity only. PBG shall be submitted separately for each site.

The formula applicable to calculate the PBG amount will be:

PBG amount = INR 22,500 per kWp of awarded capacity for each site

3.15.2 Further, any delay beyond 21 days shall attract interest @ 1.25 % per month on the total amount, calculated on day to day basis. ISTSL at its sole discretion may cancel the awarded capacity and forfeit 100% of Bid bond, in case Performance security is not submitted within 21 days of issue of Letter of Award as per Clause 3.14.3(c). However, total project completion period shall remain same. Part PBG shall not be accepted.

3.15.3 The Performance Security shall be denominated in Indian Rupees and shall be in one of the following forms:

a. A demand draft, or a bank guarantee from the List of banks as given in Annexure-B

b. Be confirmed for payment by the branch of the bank giving the bank guarantee at New Delhi.

3.15.4 The PBG shall be forfeited as follows without prejudice to the Bidder being liable for any further consequential loss or damage incurred to ISTSL.

If the Successful Bidder is not able to commission the projects to the satisfaction of the Employer/ ISTSL, PBG amount, pro-rata to the capacity not commissioned by the Successful Bidder. In this case, corresponding non-commissioned capacity shall stand cancelled.

3.15.5 The Performance Security shall be valid for a minimum period of 5 years from the date of issue of letter (s) of award and shall be renewed/ extended till the completion of 5 years of O&M period. The Performance security shall be released after 5 years from the date of commissioning with the compliance of entire obligations in the contract.

NB: In case, the successful bidder is not able to furnish the PBG for 5. years of validity, then, PBG with initial validity period of 2 years may also be accepted by Employer provided the successful bidder shall renew/ extend the PBG, 30 days before the expiry of the same. If the successful bidder does not extend the PBG, the same shall be forfeited by the Employer.

3.16 OPENING OF BIDS

3.16.1 Techno-commercial Bids shall be opened at 4.30 pm on Bid Deadline date at the venue indicated herein above, in the presence of one representative from each of the Bidders who wish to be present.

The bidders are required to submit the documents in a Sealed Envelope as per clause 3.10.1.1 above, failing which the Technical bids will not be opened.

3.16.2 Name of the Bidder, and capacity offered in RESCO MODEL, shall be read out to all the Bidders at the time of opening of Envelope-I.

3.17 RIGHT TO WITHDRAW THE RFS AND TO REJECT ANY BID

3.17.1 This RFS may be withdrawn or cancelled by ISTSL at any time without assigning any reasons thereof. ISTSL 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.

3.17.1.1 ISTSL reserves 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, ISTSL shall have no liability towards any Bidder and no Bidder shall have any recourse to ISTSL with respect to the selection process. ISTSL shall evaluate the Bids using the evaluation process specified in Section-I, at its sole discretion. ISTSL's decision in this regard shall be final and binding on the Bidders.

3.17.2 ISTSL reserves its right to vary, modify, revise, amend or change any of the terms and conditions of this RFS document before submission of bid by bidders. The decision regarding acceptance of bid by ISTSL will be full and final.

3.18 ZERO DEVIATION

3.18.1 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.

3.19 EXAMINATION OF BID DOCUMENT

3.19.1 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.

3.19.2 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.

3.19.3 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 ISTSL.

3.19.4 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.

GENERAL CONDITIONS OF CONTRACT (GCC)

3.20 SCOPE OF WORK

The scope of work for the bidder include Obtaining No Objection Certificate (NOC) from Distribution Company (DISCOM) for grid connectivity, complete design, engineering, manufacture, supply, civil work, erection, testing, grid connectivity under State net-metering Scheme/ Regulations/ Policy & commissioning of the grid connected rooftop solar PV project including warranty and operation and maintenance (O&M) of the project for a period of 25 years after commissioning.

3.21 LEVELLIZED TARIFF

3.21.1 The Levellized Tariff of 25 years shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a "single responsibility" basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of Design, Supply, Erection, Testing and Commissioning including Warranty, Operation & Maintenance for a period of 25 years, 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.

3.21.2 The Levellized tariff for 25 years quoted is on lump sum turnkey basis and the bidder is responsible for the total scope of work described at Clause 3.21.1 above.

3.21.3 The Levellized tariff for 25 years shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work irrespective of his actual cost of execution of the project. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, even though it may be necessary to extend the completion period for any reasons whatsoever.

3.21.4 The Levellized tariff for 25 years 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

3.21.5 The operation & maintenance of Solar Photovoltaic Power Plant would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors/ Power Conditioning Unit (PCU), spares, consumables & other parts for a period of 25 years.

3.21.6 DELETED

3.21.7 The Bidder shall complete the Price Bid (Format-B) for each site (the details of which are furnished in the RFS Document) for which the bidder is interested to bid. Bidder shall submit bids for a minimum of one site and a maximum of five sites. However, the bidder has to bid for the full capacity of any site and bids quoted for lesser capacity than this will not be accepted.

3.22 ISTSL SERVICE CHARGES

3.22.1 In General Category States, service charges of ISTSL shall be computed as 5 % of 70% of Rs 7.5 Crores per MWp i.e. Rs. 26.25 Lakhs Only. These charges are exclusive of Service Tax which shall be paid extra as per applicable norms.

3.22.2 **ISTSL service charges are non-refundable and for each project the service charges have to be paid at the time of submission of Performance Bank Guarantee by the successful bidder(s)**. In the absence of ISTSL's service charges as per clause 3.22.1, PBG shall not be accepted.

3.23 INSURANCE

3.23.1 DELETED

3.23.2 DELETED

3.23.3 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, if required.

3.23.4 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.

3.23.5 WARRANTEES AND GUARANTEES

The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials. The bidder shall provide warrantee covering the rectification of any and all defects in the design of equipment, materials and workmanship including spare parts for a period of 25 years from the date of commissioning. The successful bidder has to transfer all the Guarantees/ Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be the responsibility of the Successful bidder and ISTSL will not be responsible in any way for any claims whatsoever on account of the above.

3.24 TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP

3.24.1 DELETED

3.24.2 DELETED

3.24.3 Complete 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.

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

3.24.5 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.

3.25 OPERATION & MAINTENANCE (O&M)

The bidder shall be responsible for operation and maintenance of the Rooftop Solar PV system for a period of 25 years for the projects, during which MoES 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, PCUs 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.

3.26 METERING AND GRID CONNECTIVITY

Net Metering and grid connectivity of the Rooftop solar PV system would be the responsibility of the Bidder in accordance with the prevailing guidelines of the concerned DISCOM and / or CEA (if available by the time of implementation). Entire responsibility lies with bidder only.

3.27 PLANT PERFORMANCE EVALUATION

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels of the location during the O&M period. PR should be shown minimum of 75% at the time of inspection for initial commissioning acceptance. Minimum CUF of 15% for each of the sites should be maintained for a period of 5 years for fulfilling one of the conditions for release of PBG. The bidder should send the periodic plant output details to the Employer/ ISTSL for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions.

3.28 PROGRESS REPORT

The bidder shall submit the progress report monthly to ISTSL and to the Employer in Prescribed Performa. ISTSL and the Employer will have the right to depute it's representatives to ascertain the progress of contract at the premises of works of the bidder. During such visits, it is the responsibility of the Successful Bidder to answer the queries/ clarifications raised by ISTSL/ the Employer and submit all the required documents regarding quality of work and purchase procedure followed for the execution of work.

3.28.1 DELETED

3.28.2 DELETED

3.28.3 Submission of Project Completion Report (PCR)

The bidder shall submit the Project Completion Report in (soft copy and signed hard copy) after commissioning of the project as per the Scope of RFS to ISTSL and the Employer as per the Format given in **Annexure L**. Non submission of the report shall be considered as "Breach of Contract" and shall attract punitive actions as per the relevant provisions of the Contract . However, the decision of the project owner shall be final in this regard.

3.28.4 **Submission of O&M Report (OMR)**

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

3.29 **PROJECT INSPECTION**

The project progress will be monitored by ISTSL and the Employer and the projects will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from ISTSL/ Employer or any agency/ experts designated/ authorised by ISTSL/ Employer from time to time. ISTSL/ Employer shall depute a technical person(s) from its list of empanelled experts/ agencies updated from time to time for inspection, third party verification, monitoring of system installed to oversee the implementation as per required standards and also to visit the manufacturer's facilities to check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required. Cost of all the visits for inspection is to be borne by vendor.

3.30 PBG shall be forfeited, in case average CUF falls below 15%, anytime during the entire O&M period of 25 years.

3.30.1 **CANCELLATION OF INCENTIVE**

MNRE will not release the incentive for any shortcomings in commissioning as per technical specifications mentioned or for performance ratio (PR) below the specified limit (75%) after commissioning. Also the performance related incentive will not be released in case CUF falls below 15% during O&M period of 25 years.

3.31 **APPLICABLE LAW**

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

3.32 **SETTLEMENT OF DISPUTE**

3.32.a. If any dispute of any kind whatsoever arises between Employer 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.

3.32.b. If the parties fail to resolve, such a dispute or difference by mutual consent, within 45 days of its arising, then the dispute shall be referred by either party by giving notice to the other party in writing of its intention to refer to arbitration as hereafter provided regarding matter under dispute. No arbitration proceedings will commence unless such notice is given. Any dispute in respect of which a notice of intention to commence arbitration has been given in accordance with Sub Clause 3.32.2 of Section I, shall be finally settled by arbitration.

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

3.32.1.1 In case the Contractor is a Public Sector Enterprise or a Government Department, the dispute shall be referred for resolution in Permanent Machinery for Arbitration (PMA) of the Department of Public Enterprise, Government of India. Such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary / Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusive. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

3.32.2 IN ALL OTHER CASES

3.32.2.1 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.

3.32.2.2 Employer 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 later 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.

3.32.2.3 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.

3.32.2.4 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.

3.32.2.5 Arbitration proceedings shall be conducted as per The Arbitration and Conciliation (Amendment) Act, 2015. The venue or arbitration shall be New Delhi.

3.32.2.6 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.

3.32.2.7 The arbitrator(s) shall give reasoned award.

3.32.3 Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the agreement unless

they otherwise agree.

3.32.4 Cost of arbitration shall be equally shared between the Successful bidder or Contractor and Employer.

3.33 FORCE MAJEURE

3.33.1. Notwithstanding the provisions of clauses contained in this RFS document; the employer shall not be liable (a) to forfeit PBG for delay and (b) for termination of contract; if the successful bidder is unable to fulfill his obligation under this contract due to force majeure conditions.

3.33.2. 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 the following:

i. Acts of God (including, but not limited to lightning, fire not caused by contractors' negligence and explosion (to the extent originating from a source external to the site), earthquake (above 7.0 magnitude on Richter Scale), volcanic eruption, landslide, unprecedented flood, cyclone, typhoon or tornado), Epidemics etc.

ii. Any act of war (whether declared or undeclared) (invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action, quarantine)

iii. Radioactive contamination or ionizing radiation originating from a source in India or resulting from• another Force Majeure Event mentioned above.

Whether a "Force majeure" situation exists or not, shall be decided by the Employer and its decision shall be final and binding on the contractor and all other concerned.

3.33.3. 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 two months, the Employer has the right to terminate the contract in which case, the PBG shall be refunded to the contractor.

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

3.34 LANGUAGE

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

3.35 OTHER CONDITIONS

3.35.1. 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 ISTSL/ Employer in writing.

3.35.2. DELETED

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

3.35.4. ISTSL will not be bound by any Power of Attorney granted/ issued by the Successful bidder or its subcontractors or by any change in the composition of the firm made during or subsequent to the execution of the contract. However, recognition to such Power of Attorney and change (if any) may be given by ISTSL after obtaining proper legal advice, the cost of which will be chargeable to the Successful bidder concerned.

3.35.5. **SUCCESSORS AND ASSIGNEES:**

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

3.35.6. **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.

3.35.7. **COUNTERPARTS:**

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

3.35.8. **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 Employer/ ISTSL & Successful bidder hereto, any rights and/ or remedies herein.

As per the Public procurement Policy for Micro and Small Enterprise (MSEs) order 2012, issued vide Gazette Notification number 503, dated 23.03.2012 by Ministry of Micro, Small and Medium Enterprise of Govt. of India, and specific to this tender, MSEs registered with any of the following agencies/ bodies shall be exempted from bid bond submission on production of valid registration certificate.

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

(ii) National Small Industries Corporation (NSIC)

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

3.35.9. **CORRESPONDENCE**

Bidder requiring any Techno-Commercial clarification of the bid documents may contact in writing or by E Mail at istsl@techsmall.com.

Verbal clarifications and information given by the ISTSL or its employees or its Representatives shall not be in any way entertained.

Sub-contracting

The Supplier shall not assign, either in whole or in part, its contractual duties, responsibilities and obligations to perform the contract, except with ISTSL's prior written permission.

3.36 Carrying out part work at risk & cost of contractor

If contractor:

(i) At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 days in this respect from ISTSL/ Employer; or

(ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 days even after a notice in writing is given; or

(iii) Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf.

Employer without invoking action under clause 3 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to Government, by a notice in writing to take the part work/ part incomplete work of any item(s) out of his hands and shall have powers to:

(a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or

(b) Carry out the part work / part incomplete work of any item(s) by any means at the risk and cost of the contractor.

The Employer shall determine the amount, if any, is recoverable from the contractor for completion of the part work/ part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by the Employer because of action under this clause shall not exceed 10% of the contract value of the work.

In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Owner as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the department are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.

Any excess expenditure incurred or to be incurred by the Employer in completing the part work/ part incomplete work of any item(s) or the excess loss of damages suffered or may be suffered by the Employer as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Government in law or per as agreement be recovered from any money due to the contractor on any account, and if such money is insufficient, the contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the contractor fails to pay the required sum within the aforesaid period of 30 days, the Employer shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.

In the event of above course being adopted by the Employer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

3.37 **Breach & Cancellation of the Contract**

In case of non-Performance, in any form or change of the covenant and conditions of the Contract by the Contractor, ISTSL/ Employer shall have the power to annul, rescind, cancel or terminate the order and upon its notifying in writing to the Contractor that it has so done, this Contract shall absolutely determine. The decision of ISTSL/ Employer in this regard shall be final and binding.

The following conditions shall contribute to the breach of contract:

i. If the Contractor fails to deliver any or all of the deliverables within the period(s) specified in the Contract from the date of signing of contract.
ii. If the Contractor fails to perform any of their obligations(s) under the Contract.
iii. If the Contractor, in either of the above circumstances does not rectify his failure within a period as ISTSL/ the Employer may authorize in writing after receipt of the default notice from ISTSL/ the Employer.
iv. If the Contractor fails to submit the PBG and unable to commence the scheduled work as per the contract within 21 days from the date of issue of letter of award.

3.38 **Applicability of Labour Laws**

The Bidder shall ensure payment of minimum wages as per labour laws, and shall comply with all labour laws applicable to it under Indian law.

SECTION-II

4. EVALUATION CRITERIA

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 3.4 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 3.4.1, Clause 3.4.2. Any of the following may cause the Bid to be considered "Non-responsive", at the sole discretion of ISTSL:

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, Bid Bond, bid processing fee 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 ISTSL 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 3.4 shall be used to check whether each Bidder meets the stipulated requirement.

5. PRELIMINARY EXAMINATION

5.1. ISTSL 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 3.4. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid non-responsive.

6.2. **EVALUATION OF PRICE BID**

Price Bid 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 ISTSL to the Bidders through Email/ Phone Calls etc. The evaluation of Price Bid shall be carried out based on the information furnished in Financial Bid (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 ISTSL. The responsive bids will be evaluated and compared separately for each site as per the price bid quoted by the bidders. Bidders shall submit bids for a minimum of one site and a maximum of all the 3 sites as mentioned in the RFS document.

6.2.1. **RESCO MODEL**

a. The Price bids for different sites shall be evaluated separately.

b. Since the maximum allowable levellized tariff is Rs 5.89/kWh, so bids above the maximum allowable price shall also be rejected.

c. The levellized tariff shall be calculated up to three decimal places.

However, in case of a tie, the project shall be awarded to the bidder having maximum turnover.

6.3. **SUCCESSFUL BIDDER(S) SELECTION**

6.3.1. Bids qualifying in Clause 3.4 shall only be evaluated in this stage.

6.3.2. Project Cost requirement quoted in all Price Bids of Qualified Bidders shall be ranked from the lowest to the highest.

6.3.3 DELETED

6.3.4. **Award of Capacity**

6.3.4.1. **For RESCO MODEL:** Based on the price bid quoted by the bidders, ISTSL/ Employer shall award the capacity as mentioned above to the lowest technically qualified successful bidder (L1).

6.3.4.2. The Letter(s) of Award (LOA) shall be issued to the such Successful Bidders(s) selected as per the provisions of this Clause 6.3.4.

6.3.5. Successful Bidder(s) shall acknowledge the LOA and return duplicate copy with signature of the authorized signatory of the Successful Bidder to ISTSL within seven (7) days of issue of LOA.

6.3.6. If the Successful Bidder, to whom the Letter of Award has been issued does not fulfil any of the conditions specified in Bid document, ISTSL / Employer reserves the right to annul/ cancel the award of the Letter of Award of such Successful Bidder.

6.3.7. ISTSL, has the right to reject any or all the Bids without assigning any reason

whatsoever, at its sole discretion

6.3.8. There shall be no negotiation on the quoted price between ISTSL/ Employer and the Bidder(s) during the process of valuation.

6.4. **INCREASE/ DECREASE OF BIDDER AWARDED CAPACITY**

6.4.1. Employer/ ISTSL reserves the right to increase/ decrease the Bidder(s) awarded capacity up to fifty percent (50%) for each site at its sole discretion.

6.4.2. In case capacity is enhanced by ISTSL as per Clause 6.4.1 above, Successful bidder shall submit the equivalent amount of PBG to ISTSL within 7 days from the date of issue of Letter of Award, failing which awarded capacity shall stand cancelled.

6.5. **TRANFER OF CAPACITY**

6.5.1. In case a Successful Bidder is facing genuine difficulty in execution of project in the States as per letter of award. ISTSL may allow transfer of allocated capacity in full or part depending on the merit of the case.

6.5.2. ISTSL may allow transfer of capacity from one state to another at the sole discretion of ISTSL. However, inter-state transfer of allocated capacity shall be done at the price quoted by Successful bidder or at the L1 price of the new State, whichever is lower.

6.5.3. Amended Performance security (PBG pertaining to additional capacity allocated or capacity transferred shall be submitted by bidder within 30 days from the date of issue of such notification.

Note: It is the prerogative of ISTSL to increase / decrease /transfer the Successful Bidder Capacity at the time of Allocation. If ISTSL intends to increase the capacity of the Successful bidder, it will be done with mutual consultation.

7. NOTIFICATION TO SUCCESSFUL BIDDERS

7.1. The name of Successful Bidders shall be notified indicating the awarded capacity and the offered price on ISTSL website and also shall be notified individually through letter of award.

8. PROJECT AWARD

8.1. The Bidders, in their own interest are advised to make a preliminary survey of Rooftops for which they intend to Bid and as prescribed in the RFS, as well as issue of Grid connectivity. However, prior to the visit, bidders shall get written permission from Employer/ ISTSL for such visits.

8.2. The Successful Bidders selected as described in Clause 6.3 above shall be issued Letter of Award (LoA) indicating the allocated capacity & Levelized tariff etc.

8.3. The bidders who have been notified as Successful Bidders, shall be given 3 months from the signing of contract for execution of the capacity for each site. Failure of non-compliance of conditions stipulated above shall lead to forfeiture of PBG for that Site in proportion to the capacity awarded.

8.4. If the Bidder fails to commission the awarded project within specified time i.e. 3 months from the date of signing of contract, penalty/ Liquidated Damages (LD) on per day basis calculated for the Performance Security on a 1 month period would be levied. After 1 month, the project will get cancelled and the total PBG would be forfeited.

In case, due to delay, PBG submitted by the bidder(s) is forfeited in full/part, bidder has to

resubmit the PBG of requisite amount and validity as per the RfS.

9. **INCENTIVE DISBURSEMENT:**

9.1. MNRE will release incentive to the Successful Bidder(s) through ISTSL as per the provisions provided in table 1.2.2. ISTSL will not be responsible for any delay in the release of incentive by MNRE.

10. **OTHER CONDITIONS**

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

10.2. **BID BOND AND PROCESSING FEE SUBMISSION**:

Bid bond shall be submitted separately for each site for the quoted capacity in a separate envelope (along with processing fee) superscribed with name of the site & other details.

10.3. **TAX EXEMPTIONS**:

Price bids are invited inclusive of Taxes and duties. However, Tax exemptions including certificates of any sort, if available may be dealt with the concerned Department of Govt of India by the bidder. ISTSL in no case will be responsible for providing any tax exemptions to the bidder.

10.4. Eligibility of standalone system:

10.4.1. Standalone system is not allowed. The system should be grid-interactive.

10.5. Requirement of approvals on makes of the Components:

10.5.1. 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.

10.6. **OPERATION OF THE SYSTEM DURING WEEKENDS AND GENERAL HOLIDAYS AND CALCULATION OF CUF:**

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

11. **LIQUIDATED DAMAGES (LD) FOR DELAY IN PROJECT IMPLEMENTATION**

11.1 DELETED

11.2. If the successful bidder fails to commission the awarded project within specified / sanctioned time, Liquidated Damages on per day basis calculated for the Performance Security on a 1 month period would be levied. After 1 month of commencement of LD period (4 months after sanctioned period is over), the project will get cancelled and the total PBG amount would be forfeited.

E.g.: If a project of 100 kWp is delayed by 18 days from sanctioned period(-here it is 3 months) then

(1) The Liquidated Damages will be levied as given below.

Liquidated Damages = ((Performance Security (10% of Contract Value))/30 days)*delayed days

TIME OF COMPLETION/ DELIVERY PERIOD OF AWARDED CAPACITY

11.3. The Bidder shall do complete design, engineering, manufacture, supply, civil work, erection, testing & commissioning of awarded project(s) within 3 **months** from the date signing of contract. However, it may be enhanced on the approval of Competent Authority at MOES/ ISTSL. In case of delay beyond scheduled commissioning period, the bidder shall be liable for Liquidated Damages as per Clause 11.

11.3.1. The period of commissioning, i.e. 3 months, given in Time Schedule includes the time required for mobilisation as well as testing, rectifications if any, retesting and completion in all respects to the entire satisfaction of the ISTSL/ MOES.

11.3.2. A joint programme of execution of the Work will be prepared by the Employer / ISTSL 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 clause12.1 above and the time allowed for the priority Works by the Employer / ISTSL.

11.3.3. Monthly/ Weekly implementation programme will be drawn up by the Employer / ISTSL jointly with the Successful bidder, based on availability of Work fronts as per Clause 9.1.2 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 Employer / ISTSL will be final and binding.

12. **SUBMISSION OF PROJECT PROGRESS ON BI-WEEKLY BASIS**

Successful bidder's authorised representative, in whose name PoA has been executed and submitted along with the bid, shall submit the project progress on **biweekly** basis to Employer / ISTSL for each site awarded. Non submission of the progress shall be considered as no progress and shall attract punitive actions as per the relevant provision of the Contract. However, the decision of Employer / ISTSL shall be final in this regard.

13. **INSPECTION AND AUDIT BY THE GOVERNMENT**

13.1. The Successful bidder shall permit the Employer / ISTSL/ MNRE/ SNA/ Any Other Government Agency to inspect the Successful bidder's site, accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Employer / ISTSL/ MNRE/ SNA/ Any Other Government Agency , if so required.

14. **COMMISSIONING /COMPLETION CERTIFICATE:**

14.1. Application for completion/ commissioning certificate:

When the Successful bidder fulfils his obligation under the Contract, he shall be eligible to apply for Completion/ Commissioning Certificate. The Employer/ ISTSL shall normally issue to the Successful bidder the Completion Certificate within one month after receiving any application therefore from the Successful bidder after verifying from the completion documents and satisfying himself that the Work has been completed in accordance with and as set out in Contract documents.

14.1.1. **DOCUMENT SUBMISSION FOR ISSUE OF COMMISSINONING/ COMPLETION**

CERTIFICATE:

For the purpose of Clause 14.1 above the following documents will be deemed to form the completion documents:

a. Checklist for inspection of Rooftop SPV power plants as per ISTSL/ MOES/ MNRE format.

b. Project completion/ satisfaction certificate from Employer.

14.1.2. **FINAL DECISION AND FINAL CERTIFICATE:**

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

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

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

14.3. **CORRUPT OR FRAUDULENT PRACTICES**

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

14.3.1. Defines, for the purposes of this provision, the terms set forth as follows :

14.3.2. “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

14.3.3. “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 ISTSL/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 ISTSL/ MOES of the benefits of free and open competition;

14.3.4. 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 Scheme/ ISTSL projects.

15. DEBARRED FROM PARTICIPATING IN ISTSL'S ROOFTOP TENDER

15.1. ISTSL 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 ISTSL's any future tender for a period as decided by the competent authority of ISTSL.

SECTION-III TECHNICAL SPECIFICATIONS

The proposed projects shall be commissioned as per the technical specifications given below. Any shortcomings will lead to cancellation of Incentive in full or part or forefeiture of Performance Security as decided by ISTSL. M o E S / ISTSL's decision will be final and binding on the bidder. Bidder has to submit Technical Compliance Sheet as per Annexure-Q, along with the techno-commercial bid.

16.0 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

16.1. **SOLAR PHOTOVOLTAIC MODULES:**

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

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

a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701

b) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum **250** Wp 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. ISTSL/owners shall allow only minor changes at the time of execution.

g) Other general requirement for the PV modules and subsystems shall be the Following:

I. The rated output power of any supplied module shall have tolerance of +/- 3%.

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.curves at STC should be provided by bidder.

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

a) Name of the manufacturer of the PV module

b) Name of the manufacturer of Solar Cells.

c) Month & year of the manufacture (separate for solar cells and modules)

d) Country of origin (separately for solar cells and module)

e) I-V curve for the module Wattage, Im, Vm and FF for the module

f) Unique Serial No and Model No of the module

g) Date and year of obtaining IEC PV module qualification certificate.

h) Name of the test lab issuing IEC certificate.

i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

16.1.4. **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.

17. ARRAY STRUCTURE

a) Hot dip galvanized MS mounting structures may be used for mounting the modules / panels / arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.

b) The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (like Delhi-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 loading calculation sheet to ISTSL. 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 300 mm.

18. **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 JBs shall be such that input & output termination can be made through suitable cable glands.

b) Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands. Provision of earthings. It should be placed at 5 feet height or above for ease of accessibility.

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

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

19. **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.

20. **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

21. **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.

22. **PCU/ Inverter:**

As SPV array produce direct current electricity, it is necessary to convert this direct currentinto 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 : -20^{o}C to 50^{o} C
- Humidity : 95 % Non-condensing
- Protection of Enclosure : IP-20(Minimum) for indoor. : IP-65(Minimum) for outdoor.
- Grid Frequency Tolerance range : + 3 or more
- Grid Voltage tolerance : - 20% & + 15 %
- No-load losses : Less than 1% of rated power
- Inverter efficiency(minimum) : >93% (In case of 10kW or above)
- Inverter efficiency (minimum) : > 90% (In case of less than 10 kW)
- THD : < 3%

- PF : > 0.9

a) Three PCU/ inverter shall be used with each power plant system (10kW and/or above) but In case of less than 10kW single phase inverter can be used.

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

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

d) Built-in meter and data logger to monitor plant performance through external computer shall be provided.

e) The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068- 2(1,2,14,30)

/Equivalent BIS Std.

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

g) The PCU/ inverters should be tested from the MNRE approved test centres / NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

23. 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.

24. DATA ACQUISITION SYSTEM / PLANT MONITORING

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

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

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

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

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

a. AC Voltage.

b. AC Output current.

c. Output Power

d. Power factor.

e. DC Input Voltage.

f. DC Input Current.

g. Time Active.

h. Time disabled.

i. Time Idle.

j.Power produced

k. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage.

vi. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.

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

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

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

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

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

xii. All instantaneous data shall be shown on the computer screen.

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

xiv. Provision for Internet monitoring and download of data shall be also incorporated.

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

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

xvii. Simultaneous monitoring of DC and AC electrical voltage, current, power,

energy and other data of the plant for correlation with solar and environment data shall be provided.

xviii. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner /ISTSL 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 ISTSL server and portal in future shall be kept.

25. **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.

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 ISTSL before commissioning of SPV plant.

d) Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

26. **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 ISTSL or MNRE. Decisions of appropriate authority like DISCOM, state regulator may be followed.

27. **PROTECTIONS**

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

27.1. **LIGHTNING PROTECTION**

a) 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 62305standard. 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.

27.2. **SURGE PROTECTION**

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

27.3. **EARTHING PROTECTION**

a) Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside

the array field. Earth Resistance shall be tested in presence of the representative of Department/ISTSL as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly.

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

27.4. **GRID ISLANDING:**

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

b) A manual disconnect 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.

28. **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°C.

iii. Voltage rating 660/1000V

iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation

v. Flexible

vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.

vii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.

viii. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.

ix. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules / layout drawings approved prior to installation.

x. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be

provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V ,UV resistant for outdoor installation IS /IEC 69947.

xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

xii. The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2 %.

29. **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**
Up to 10 kW	240V-single phase or 415V-three phase at the option of the consumer
Above 10kW and up to 100 kW	415V – three phase
Above 100kW	At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules

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

b) Utilities may have voltage levels other than above, DISCOMS may be consulted before finalization of the voltage level and specification be made accordingly.

c) 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.

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

a) 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 ISTSL/ owner.

b) 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.

31. **DANGER BOARDS AND SIGNAGES:**

a) 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 ISTSL/ owner.

32. **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.

33. **DRAWINGS & MANUALS:**

a) 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.

b) Approved ISI and reputed makes for equipment be used.

c) For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to ISTSL / owners before progressing with the installation work

34. **PLANNING AND DESIGNING:**

a) 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 ISTSL/Owner for approval.

b) ISTSL 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.

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

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

a) The Contractor shall furnish the following drawings Award/Intent and obtain approval

b) General arrangement and dimensioned layout

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

d) Structural drawing along with foundation details for the structure.

e) Itemized bill of material for complete SV plant covering all the components and

associated accessories.

f) Layout of solar Power Array

g) Shadow analysis of the roof

36. **SOLAR PV SYSTEM ON THE ROOFTOP FOR MEETING THE ANNUAL ENERGY REQUIREMENT**

The Solar PV system on the rooftop of the selected buildings will be installed for meeting upto 90% of the annual energy requirements depending upon the area of rooftop available and the remaining energy requirement of the office buildings will be met by drawing power from grid at commercial tariff of DISCOMs.

37. **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.

38. **DISPLAY BOARD**

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

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

b. Financial Assistance details from ISTSL/MNRE/Any other financial institution apart from loan. This information shall not be limited to project site but also be displayed at site offices/head quarter offices of the successful bidder

c. The size and type of board and display shall be approved by Engineer-in- charge before site inspection.

FORMAT-B

SECTION-IV PRICE BID FOR RESCO

(PART-II)

(To be submitted in a separate envelope for Different Sites_____super scribing name of the Site)

RFS No: …… **dated _**

Year of Operation	Tariff (Rs/kWh)	Discount Factor at 11%	Discounted Tariff (Rs/kWh)
(1)	(2)	(3)	4=(2)X(3)
Year 1 w.e.f. date of commercial operation to 31st March of immediately succeeding financial year		1.000	X1
Year 2 w.e.f 1st April to 31st March of immediately succeeding financial year		0.901	X2
Year 3 w.e.f 1st April to 31st March of immediately succeeding financial year		0.812	X3
Year 4 w.e.f 1st April to 31st March of immediately succeeding financial year		0.731	X4
Year 5 w.e.f 1st April to 31st March of immediately succeeding financial year		0.659	X5
Year 6 w.e.f 1st April to 31st March of immediately succeeding financial year		0.593	X6
Year 7 w.e.f 1st April to 31st March of immediately succeeding financial year		0.535	X7
Year 8 w.e.f 1st April to 31st March of immediately succeeding financial year		0.482	X8
Year 9 w.e.f 1st April to 31st March of immediately succeeding financial year		0.434	X9
Year 10 w.e.f 1st April to 31st March of immediately succeeding financial year		0.391	X10
Year 11 w.e.f 1st April to 31st March of immediately succeeding financial year		0.352	X11
Year 12 w.e.f 1st April to 31st March of immediately succeeding financial year		0.317	X12
Year 13 w.e.f 1st April to 31st March of immediately succeeding financial year		0.286	X13
Year 14 w.e.f 1st April to 31s March of immediately Succeeding financial year		0.258	X14

Year 15 w.e.f 1st April to 31st March of immediately succeeding financial year		0.232	X15
Year 16 w.e.f 1st April to 31st March of immediately succeeding financial year		0.209	X16
Year 17 w.e.f 1st April to 31st March of immediately succeeding financial year		0.188	X17
Year 18 w.e.f 1st April to 31st March of immediately succeeding financial year		0.170	X18
Year 19 w.e.f 1st April to 31st March of immediately succeeding financial year		0.153	X19
Year 20 w.e.f 1st April to 31st March of immediately succeeding financial year		0.138	X20
Year 21 w.e.f 1st April to 31st March of immediately succeeding financial year		0.124	X21
Year 22 w.e.f 1st April to 31st March of immediately succeeding financial year		0.112	X22
Year 23 w.e.f 1st April to 31st March of immediately succeeding financial year		0.101	X23
Year 24 w.e.f 1st April to 31st March of immediately succeeding financial year		0.091	X24
Year 25 w.e.f 1st April to 31st March of immediately succeeding financial year		0.082	X25
Total		9.351	**X=X1+X2+X3+……+X25**
Levellized Tariff for 25 years(in Rs /kWh)=X/9.351			
Levellized Tariff for 25 years in words			

Yours faithfully

Note:

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

b. Tariff stream quoted by the bidder shall be levellized with a discounting rate of 11% only.

c. Maximum allowable levellized tariff for this part is Rs.5.89 Per kWh.

d. Tariff in the first three years shall not exceed Rs.5.89 Per kWh.

e. Tariff in any year shall either be equal to or more than the tariff in the immediately preceding year.

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

Date: …… Signature:.....

Place: .....Printed Name.....

Business Address:

Designation:.....

..... (Company Stamp).....

FORMAT-C

SECTION-IV

VOID

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

The Chief Executive Officer
M/s India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House
Jhandewalan Extension
New Delhi – 110055

Sub: R F S for "Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences"

Dear Sir,

1. We, the undersigned [insert name of the 'Bidder'] having read, examined and understood in detail the RFS Document for Implementation of Grid connected Rooftop Solar PV System 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.

2. We give our unconditional acceptance to the RFS, dated……and RFS Documents attached thereto, issued by India SME Technology Services Limited, as amended. As a token of our acceptance to the RFS Documents, the same have been initialled by us and enclosed to the Bid. We shall ensure that we execute such RFS Documents as per the provisions of the RFS and provisions of such RFS Documents shall be binding on us.

3. **Bid Capacity**

We have bid for the capacity of _____kWp in (Insert the name of the sites) for the RFS No._____

4. **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 Format ……from ……..(Insert name of bank providing Bid Bond) and valid up to …….in terms of Clause ……of this RFS. The offered quantum of power by us is _____kWp (Insert total capacity offered).

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

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

1. **Acceptance**

We hereby unconditionally and irrevocably agree and accept that the decision made by India SME Technology Services Limited 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.

2. **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.

3. **Contact Person**

Details of the contact person are furnished as under:

Name : ……

Designation : ……..

Company : …….

Address : …….

Phone Nos. : …….

Fax Nos. : …….

E-mail address : …….

4. We are enclosing herewith the Envelope-I (Covering letter, Processing fee and Bid Bonds etc as per clause 3.10.1.1.A of the RfS and Techno-Commercial documents) and Envelope II (Price Bids) containing duly signed formats, each one duly sealed separately, in one original as desired by you in the RFS for your consideration as per clause 3.10.1 of the RfS.

It is confirmed that our Bid is consistent with all the requirements of submission as stated in the RFS and subsequent communications from India SME Technology Services Limited. 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 3 months from the Bid deadline. We confirm that we have not taken any deviation so as to be deemed non-responsive. We understand that

in case any deviation is found in the above statement at any stage, the company/ firm will be black-listed by ISTSL. Also, I hereby confirm that my organization has not been debarred/ black-listed by MNRE/ any Govt. Dept./ PSU etc.

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/Declaration (Annexure J).

Format-2

GENERAL PARTICULARS OF THE BIDDER

	Name of the Company	
	Registered Office Address	
	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 (Attach Certificate of Incorporation)	
	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.	
	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	
	Whether company is MSME as on the bidding date as per clause 3.35.9	Yes/No

(Signature of Authorized Signatory)

With Stamp

Format-A (Shareholding certificate)

Name of the Equity holder	Type and Number of shares owned	% of equity holding	Extent of Voting rights

(Signature of Authorized Signatory)

With Stamp

(Signature of Company Secretary/Director/Chartered Accountant)

Format-3

FORMAT FOR BID BOND

(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 of the capacity of ___kWp in the Site ___ (Insert the names of sites) in response to the RfS No._____dated_issued by India SME Technology Services Limited (hereinafter referred to as ISTSL) and ISTSL 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 ISTSL at [*Insert Name of the Place from the address of ISTSL]* forthwith on demand in writing from ISTSL *or* any Officer authorized by it in this behalf, any amount upto and not exceeding Rupees ------[*Insert amount not less than that derived on the basis of Rs. 1,500 per kWp of total capacity proposed in (Insert the name of sites quoted for)*] only, on behalf of M/s. _____[*Insert name of the Bidder*] .

This guarantee shall be valid and binding on this Bank up to and including _____[*insert date of validity in accordance with Clause 3.14 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 liabilityunder this Guarantee is restricted to Rs._____(Rs._____ only). Our Guarantee shall remain in force until _____ *[insert date of validity in accordance with Clause 3.14 of this RfS]*. ISTSL 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 ISTSL shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

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

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 ISTSL to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against ISTSL 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 ISTSL 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 ISTSL 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 3.14 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 ISTSL serves upon us a written claim or demand.

Signature _____

Name_____

Power of Attorney No._____

For

_____[Insert Name of the Bank]____

Banker's Stamp and Full Address. Dated this _

_____day of _____, 20___

Format-4

FORMAT FOR PERFORMANCE BANK GUARANTEE (PBG)

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

In consideration of the ----- [Insert name of the Bidder] (hereinafter referred to as selected Solar Power Developer') submitting the response to RfS inter alia for selection of the Project of the capacity of _____ kWp, at ……[Insert name of the Site] in response to the RfS no……. dated…… issued by India SME Technology Services Limited (hereinafter referred to as ISTSL) and ISTSL considering such response to the RfS of ……[insert the name of the selected Solar Power Developer] (which expression shall unless repugnant to the context or meaning thereof include its executers, administrators, successors and assignees) and selecting the Solar Power Project of the Solar Power Developer and issuing Letter of Award No ------- to (Insert Name of selected Solar Power Developer) as per terms of RfS and the same having been accepted by the selected SPD. As per the terms of the RfS, the _____ [insert name & address of bank] hereby agrees unequivocally, irrevocably and unconditionally to pay to MoES at [Insert Name of the Place from the address of the MoES] forthwith on demand in writing from MoES or any Officer authorised by it in this behalf, any amount upto and not exceeding Rupees------ [Total Value] only, on behalf of M/s _____selected Solar Power Developer / Project Company] [Insert name of the company]

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

Our Guarantee shall remain in force until…….. MoES shall be entitled to invoke this Guarantee till …….The Guarantor Bank hereby agrees and acknowledges that MoES shall have a right to invoke this BANK GUARANTEE in part or in full, as it may deem fit.

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

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by ----------[Insert name of the selected bidder]. The Guarantor Bank shall not require MoES to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against ISTSL 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 MoES shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the selected Solar Power Developer / Project Company , to make any claim against or any demand on the Successful bidder or to give any notice to the selected Solar Power Developer / Project Company or to enforce any security held by MoES or to exercise, levy or enforce any distress, diligence or other process against the selected Solar Power Developer / Project Company .

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. _____(Rs. _____only) and it shall remain in force until …….. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if MoES serves upon us a written claim or demand.

Signature _____

Name_____

Power of Attorney No._____

For

_____[Insert Name of the Bank]____

Banker's Stamp and Full Address.

Dated this _____day of _____, 20___

Witness:

1. …….

Signature

Name and Address

2. ……..

Signature

Name and Address

Notes:

1. The Stamp Paper should be in the name of the Executing Bank and of appropriate value.
2. The Performance Bank Guarantee (PBG) shall be executed by any of the Bank from the List of Banks enclosed as per Annexure-B

Format-5

CHECK LIST FOR BANK GUARANTEES

Sl.No.	Details of checks	YES/NO.
a)	Is the BG on non-judicial Stamp paper of appropriate value, as per applicable Stamp Act of the place of execution	
b)	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor? (The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG).	
c)	Has the executing Officer of BG indicated his name, designation and Power of Attorney No./Signing Power no. on the BG?	
d)	Is each page of BG duly signed / 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., / LOI 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?	
h)	Contact details of issuing bank including email id, mobile number etc.	

Format-6

POWER OF ATTORNEY

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

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

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

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

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

Signed by the within named

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

through the hand of

Mr. ……

duly authorized by the Board to issue such Power of Attorney

Dated this …… day of ……

Accepted

……..

Signature of Attorney

(Name, designation and address of the Attorney)

Attested

……

(Signature of the executant)

(Name, designation and address of the executant)

……

Signature and stamp of Notary of the place of execution

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

WITNESS

1. **……..**

(Signature) Name……

Designation ……

2. **…….**

(Signature)

Name……

Designation ……

Notes:

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

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

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

Format -7

FINANCIAL ELIGIBILITY CRITERIA REQUIREMENT (AS PER CLAUSE 3.4) (To be submitted on the letterhead of Bidding Company)

To,

The Chief Executive Officer
M/s India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House
Jhandewalan Extension
New Delhi – 110055

Dear Sir,

Sub: **RFS for "Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences**" in response to the RFS No:ISTSL/Solar/RFS/2016-17/02dated: 26th October 2016

We submit our Bid/Bids for the total capacity of _____ kWp put together for which details of our Financial Eligibility Criteria Requirements are as follows.

Further, we certify that the Financially Evaluated Entity (ies) had an Annual Turnover

Name of Financially Evaluated Entity*	Relationship with Bidding Company**	Financial year	Year of Incorporation	Annual Turnover (Rs. Crore)

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

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

Yours faithfully

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

Name: …… Date: …… Place: ……..

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

Name: …….. Date:

…….. Place:

……

Notes:

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

Format-8

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

To,

……

Dear Sir,

Sub: RFS for "**Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences**".

We hereby certify that M/s……,M/s……..,M/s…….are the Affiliate(s) /Parent Company of the Bidding Company as per the definition of Affiliate/Parent Company as provided in this 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	Name of the Affiliate of the Bidding 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

*Strike out whichever is not applicable.

……..

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

Format-9

Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company

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

Name:
Full Address:
Telephone No.:
E-mail address:
Fax/No.:

To,

…….

Dear Sir,

We refer to the RFS No: ISTSL/Solar/RFS/2016-17/02dated 26th October 2016 **For "Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences".**

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

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

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

In view of the above, we hereby undertake to you and confirm that in the event of failure of ……..(Insert name of the Bidding Company) to submit the Performance Guarantee in full or in part at any stage, as specified in the RFS, we shall submit the Performance Guarantee not submitted by ……(Insert name of the Bidding Company)".

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

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

Signature of Authorised Signatory

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

WITNESS

……. (Signature)

Name……

Designation……..

……. (Signature)

Name……

Designation……..

Format-10

CONSORTIUM AGREEMENT

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

THIS Consortium Agreement ("Agreement") executed on this day of 2016 between M/s [insert name of Lead Member] a Firm / 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 Firm / 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 India SME Technology Services Limited (hereinafter called ISTSL or ISTSL), a section -25 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 of Rooftop Solar PV power system in (Insert the name of the sites).

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.

NOW THEREFORE, THIS AGREEMENT WITNESS AS UNDER:

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

1. We, the Members of the Consortium and Members to the Agreement do hereby unequivocally agree that (M/s_____), shall act as the Lead Member as defined in the 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" 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 Delhi 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 ISTSL and shall remain valid till completion of the job assigned to the Contractor.
9. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to 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 ISTSL.
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 ISTSL.

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---------- Name:

Address:
2) Signature ---------- Name:

Address:

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

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

Witnesses:

Annexure-A

VOID

Annexure-B

List of Banks

1. SCHEDULED COMMERCIAL BANKS	2. OTHER PUBLIC SECTOR BANKS
SBI AND ASSOCIATES	1. IDBI Bank Ltd.
1. State Bank of India	**3. FOREIGN BANKS**
2. State Bank of Bikaner & Jaipur	1. Bank of America NA
3. State Bank of Hyderabad	2. Bank of Tokyo Mitsubishi UFJ Ltd.
4. State Bank of Indore	3. BNP Paribas
5. State Bank of Mysore	4. Calyon Bank
6. State Bank of Patiala	5. Citi Bank N.A.
7. State Bank of Travancore	6. Deutsche Bank A.G
NATIONALISED BANKS	7. The HongKong and Shanghai Banking Corpn. Ltd.
1. Allahabad Bank	8. Standard Chartered Bank
2. Andhra Bank	9. Societe Generale
3. Bank of India	10. Barclays Bank
4. Bank of Maharashtra	11. Royal Bank of Scotland
5. Canara Bank	12. Bank of Nova Scotia
6. Central Bank of India	13. Development Bank of Singapore (DBS, Bank Ltd.)
7. Corporation Bank	14. Credit Agricole Corporate and Investment Bank
8. Dena Bank	**4. SCHEDULED PRIVATE BANKS**
9. Indian Bank	1. Federal Bank Ltd.
10. Indian Overseas Bank	2. ING Vysya Bank Ltd.
11. Oriental Bank of Commerce	3. Axis Bank Ltd.
12. Punjab National Bank	4. ICICI Bank Ltd.
13. Punjab & Sind Bank	5. HDFC Bank Ltd.
14. Syndicate Bank	6. Yes Bank Ltd.
15. Union Bank of India	7. Kotak Mahindra Bank
16. United Bank of India	8. IndusInd Bank Ltd
17. UCO Bank	9. Karur Vysya Bank
18. Vijaya Bank	**Others**
19. Bank of Baroda	1. Small Industries Development Bank of India

Annexure-C

VOID

Annexure-D

Operation and Maintenance Guidelines of Grid Connected PV Plants

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

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

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

1. SOLAR PANELS

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

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

2. CABLES AND CONNECTION BOXES

- Check the connections for corrosion and tightness.
- Check the connection box to make sure that the wires are tight, and the water seals are not damaged.
- There should be no vermin inside the box.
- Check the cable insulating sheath for cracks, breaks or burns. If the insulation is damaged, replace the wire.
- If the wire is outside the building, use wire with weather-resistant insulation.
- Make sure that the wire is clamped properly and that it should not rub against any sharp edges or corners.
- If some wire needs to be changed, make sure it is of proper rating and type.

3. INVERTER

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

4. SHUTTING DOWN THE SYSTEM

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

INSPECTION AND MAINTENANCE SCHEDULE

Component	Activity	Description	Interval	By
PV Module	Cleaning	Clean any bird droppings / dark spots on module	Immediately	User/Technician
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent. Do not use brushes, any types of solvents, abrasives, or harsh detergents.	Fortnightly or as per the site conditions	User/Technician
	Inspection (for plants > 100 kW_p)	Use infrared camera to inspect for hot spots; bypass diode failure	Annual	Technician
PV Array	Inspection	Check the PV modules and rack for any damage. Note down location and serial number of damaged modules. Determine if any new objects, such as vegetation growth, are causing shading of the array and move them if possible.	Annual	User/Technician
	Vermin Removal	Remove bird nests or vermin from array and rack area	Annual	User/Technician

Junction Boxes	Inspection	Inspect electrical boxes for corrosion or intrusion of water or insects. Seal boxes if required. Check position of switches and breakers. Check operation of all protection	Annual	Electrician
Wiring	Inspection	Inspect cabling for Signs of cracks, defects, lose connections, overheating, arcing, short or open circuits, and ground	Annual	Electrician
Inverter	Inspection	Observe instantaneous operational indicators on the faceplate of the inverter to ensure that the amount of power being generated is typical of the conditions. Inspect Inverter housing or shelter for physical maintenance, if required.	Monthly	Electrician
Inverter	Service	Clean or replace any air filters.	As needed	Electrician
Instruments	Validation	Spot-check monitoring instruments (pyranometer etc.) with standard instruments to ensure that they are operational and within specifications.	Annual	PV Specialist
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.	Annual	Electrician
Tracker (if present)	Inspection	Inspect gears, gear boxes, bearings as required.	Annual	Technician
	Service	Lubricate tracker Mounting bearings, gearbox as required.	Bi-annual	Technician
Plant	Monitoring	Daily Operation and Performance Monitoring	Daily	Site in charge
Spare Parts	Management	Manage inventory of spare parts.	As needed	Site in charge
Log Book	Documentation	Document all O&M activities in a workbook available to all service	Continuous	Site in charge

Annexure- G

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

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

Solar PV Modules/Panels	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH3) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
IEC 62759-1	Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems Part 2: Particular requirements for inverters. Safety
	compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)

BS EN 50530 (as applicable)	Overall efficiency of grid-connected photovoltaic inverters: This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid- connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	Environmental Testing of PV System – Power Conditioners and Inverters a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
IEC 61000 – 2,3,5 (as applicable)	Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PV Inverters
Fuses	
IS/IEC 60947 (Part 1, 2 & 3), EN 50521	General safety requirements for connectors, switches, circuit breakers (AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: General rules b) Low-Voltage Switchgear and Control-gear, Part 2: Circuit Breakers c) Low-voltage switchgear and Control-gear, Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units d) EN 50521: Connectors for photovoltaic systems – Safety requirements and tests
IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
Surge Arrestors	
IEC 62305-4	Lightening Protection Standard

IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings - Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
Cables	
IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1 & 2)/ IEC69947	General test and measuring method for PVC (Polyvinyl chloride) insulated cables (for working voltages up to and including 1100 V, and UV resistant for outdoor installation)
BS EN 50618	Electric cables for photovoltaic systems (BT(DE/NOT)258), mainly for DC Cables
Earthing /Lightning	
IEC 62561 Series (Chemical earthing)	IEC 62561-1 Lightning protection system components (LPSC) - Part 1: Requirements for connection components IEC 62561-2 Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes IEC 62561-7 Lightning protection system components (LPSC) - Part 7: Requirements for earthing enhancing compounds
Junction Boxes	
IEC 60529	Junction boxes and solar panel terminal boxes shall be of the thermo-plastic type with IP 65 protection for outdoor use, and IP 54 protection for indoor use
Energy Meter	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2 — Specification (with Import & Export/Net energy measurements)
Solar PV Roof Mounting Structure	
IS 2062/IS 4759	Material for the structure mounting

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

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

Annexure-H

VOID

Annexure K

Monthly O & M Report

Month and year:

Name of the bidder: RFS ref no.:

Project Capacity: Address of the site:

Part A

Component	Activity	Description	Date	Name / Signature	*Remarks
PV Module	Cleaning	Immediately clean any Bird droppings/ dark spots on module.			
	Cleaning	Clean PV modules with plain water or mild dishwashing detergent.			
	Inspection (for plants > 100 kW_p)	Infrared camera inspection for hot spots; bypass diode failure.			
PV Array	Inspection	Check the PV modules And rack for any damage.			
	Inspection	If any new objects, such as vegetation growth etc., are causing shading of the array. Remove if any.			
	Vermin Removal	Remove bird nests or vermin from array and rack area.			
Junction Boxes	Inspection	❖ Inspect electrical boxes for corrosion, intrusion of water or vermin. ❖ Check position of switches and breakers. ❖ Check status of all protection devices.			
Wiring	Inspection	Inspect cabling for signs of cracks, defects, lose connections, corrosion,			
		overheating, arcing, short or open circuits, and ground faults.			

Inverter	Inspection	❖ Observe instantaneous operational indicators on the faceplate. ❖ InspectInverter housing or shelter for any physical maintenance. ❖ Check for connection tightness.			
Inverter	Service	Clean or replace any air filters.			
Instruments	Validation	Verify monitoring instruments (pyranometer etc.) with standard instruments to verify their operation within tolerance limits.			
Transformer	Inspection	Inspect transformer oil level, temperature gauges, breather, silica gel, meter, connections etc.			
Plant	Monitoring	Daily Operation and Performance Monitoring.			
Spare Parts	Management	Manage inventory of spare parts.			
Log Book	Documentation	Maintain daily log records.			
Tracker (if any)	Inspection	Inspect gears, gear boxes, bearings, motors.			
	Service	Lubricate bearings, gear as required.			

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

*Daily register is to be maintained by the bidder at each location greater than 50 kWp. The same may be inspected by ISTSL or its authorised representative at any time 5 years of O&M period. The Register will have the information about the daily generation, Inverter downtime if any, Grid outages.

Part

Date	Generation kWh	Grid outage (hh:mm)	Inverter down period (hh:mm)	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

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

Date:

Signature of the Authorised signatory of the Bidder

Annexure L

Project Completion Report for Grid-Connected Rooftop			
Financial year * :			
Approval No. * :			
Proposal Title :			
Installed by agency :			
Project initiated by :			
Title of the Project* :		Capacity (kWp)*:	
Category of the organization / beneficiary* :		Name of the contact person* :	
Address of contact person* :			
State* :		District/City* :	
Mobile* :		Email* :	
Telephone No. :	STD code-	Website :	
Other info			
Electricity Distribution Company Name :			
Electricity consumer account no. as per electricity bill :		as on Date :	
Bank Details of Beneficiary			
Name of A/c holder :			
Name of Bank :			
Name of Branch and Address :			
Bank IFSC Code :			
9 Digit Micr Code :			
Type of Account :			
Account No. :			
Adhar Card Number :			
Technology Description & System Design /Specification			
(Compliance to BIS/IEC Standards is mandatory)			
1. Module			
Capacity/Power of each PV Module(Wp)* :	1. Capacity/Power 2. Capacity/Power		1. Nos: 2. Nos:
Cumulative Capacity of Modules(KWp):			
Solar cell technology :			
Module efficiency (in Percentage) :			
2. Inverters			
Type of inverter :			
Make of inverter :			
Capacity/Power of each PCU/inverters (VA)* :	Capacity/Power Nos.		
Capacity/Power of PCU/inverters (KVA) :			
Inverter efficiency (Full load) :			
(in percentage)			
3. Metering Arrangement			
Details of Metering			

Type of Meter* :			
Make of Meter :			
5. Other informations			
Units of electricity generated by the solar plant as per meter (in KWh):			
Monitoring Mechanism :			
No. of personnel to be trained in O&M :			
Task & Expected Schedule(in Months) :			
Grid connectivity level			
Grid connectivity level phase* :		Grid connectivity level Voltage* :	
Costing of Project			
Hardware cost :	Rs.	Total Cost of Installation :	Rs.
Means of Finance			
Envisaged Central Financial Assistance from MNRE*	Rs.		
Incentive from states if any	Rs.		
Contribution of Beneficiaries*	Rs.		
Other Source (s) of Funding	Rs.		

Annexure-M

Intimation to DISCOM for Implementation of Grid Connected Rooftop Solar PV Plant under RESCO MODEL

To, Date:

_____

_____ (Designated Officer, DISCOM)

1.	Name of SPD/Implementing Agency	
2	Name of the Consumer*	
Site Details*		
3	Address of the Rooftop Project Site:*	H No:
		Street Name:
		Village Name:
		District Name:
		State:
		Pin Code:
4	Phone / Mobile no. *	
5	Email Id:	
6	Electricity Consumer No. *	
7	Category (Please) *	Residential Commercial Industrial Educational Government Others, Specify
8	Installed Plant Capacity (kWp)*	
9	Connected load (kVA)*	
10	Voltage level at interconnection*	415 V 11 kV above 11 kV
11	Nearest Transformer Details	Location: Capacity:
12	Details of Inverter with Anti-Islanding Protection* Phase (Φ): (Please) Galvanic Isolation (Please)	Make: Capacity: Single phase 3-Phase Inside Inverter Outside Inverter
14	Both AC and DC components of the SPV power plants Earthed*:	
15	CEIG Inspection required*	Yes No
16	If, Yes, Inspection date * (Attach copy of CEIG Certificate)	
18	Bank Account details	Account No. Bank Branch
19	Date of Grid Synchronisation*	
20.	Net metering and grid connectivity (Attach acknowledgment from DISCOM)	Applied on:
		Fees Deposited On:

*to be provided mandatorily

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

Consumer / Authorised Signatory of Implementing Agency on behalf of consumer

Copy To: India SME Technology Services Limited, New Delhi-55

Appendix-N

Undertaking from the Bidding Company on their Letter Head for MSEs

Name:
Full Address: Telephone No & Fax/No.:
E-mail address:

To,

India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House, Jhandewalan Extension
New Delhi – 110055

Dear Sir,

We refer to the RFS No…….dated…….for "**Implementation of 1,266.50 kWp Grid Connected Rooftop Solar PV Systems for Ministry of Earth Sciences**".

We have carefully read and examined in detail the RFS, including its amendments and clarifications as available on ISTSL website and CPP Portal.

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

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

Further, we are also eligible for the benefits provided under MSME Act, 2006 and any further order issued by Govt. of India in this regard prior to last date of bid submission for the aforementioned RFS.
In case any information provided/ documents submitted or anything material or otherwise is found w.r.t above undertaking, ISTSL shall have the right to cancel the capacity allocated/sanctioned to us and forfeit the Performance Bank Guarantee submitted by us. In addition to above, we (including our affiliate/parent/assigns) may also be debarred by ISTSL to participate in any future tender.

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

Signature of Managing Director/Authorised signatory (with company Stamp)

ANNEXURE-O

M/s India SME Technology Services Ltd (ISTSL)
E-1, First Floor, Baluja House, Jhandewalan Extension, New Delhi – 110055
Ph.: +91-11-43526652, 23631804

Letter No:_____ **Date: _____**

Draft LETTER OF AWARD
TO PROCEED WITH THE WORK

To,

(Kind Attention: _____)

Subject: **For Implementation of 100 kWp/ 121.5 kWp/ 230 kWp/ 561 kWp/ 254 kWp Grid Connected Rooftop Solar PV System in MoES Institutions in New Delhi/ Chennai/ Pune/ Hyderabad/ Noida**

Ref:

a. **Our Bid No. _____ dated _____**
b. **Your bid Reference No. _____ dated ___ and all subsequent correspondence.**

Dear Sirs,

This is to notify you that your Bid dated _____ to execute the work **for Implementation of 100 kWp/ 121.5 kWp/ 230 kWp/ 561 kWp/ 254 kWp Grid Connected Rooftop Solar PV System in MoES Institutions in New Delhi/ Chennai/ Pune/ Hyderabad/ Noida**. (*Including supply, civil work, erection and commissioning, testing etc.*) for the contract price (levelized tariff) of INR/kWh ***_____/- (Rupees in words)***., is hereby accepted by us.

You are hereby requested to furnish performance security for an amount of ***Rs. _____ (Rupees _____)*** within 21 days of the receipt of this LoA. The Performance Security in the form of Bank guarantee or a Demand draft payable at New Delhi in favour of **"*Ministry of Earth Sciences*"** shall be valid till the expiry of the period of operation and maintenance i.e. upto five (05) years from the date of commissioning of the project. Failure to furnish the Performance Security within 21 days of the receipt of this LoA will result in cancellation of this offer. You are also requested to deposit in the form of Demand Draft towards the cost of **ISTSL SERVICE** charges as per RFS Clause 3.22.
You are also requested to sign the agreement form and proceed with the work not later than _____ under the instructions of MOES or as nominated and ensure the completion of work within _____.

Yours faithfully,

(Chief Executive Officer)

ANNEXURE-P

Draft PPA Agreement Format For

For Implementation of 100 kWp/ 121.5 kWp/ 230 kWp/ 561 kWp/ 254 kWp Grid Connected Rooftop Solar PV System in MoES Institutions in New Delhi/ Chennai/ Pune/ Hyderabad/ Noida (Under RESCO model)

(To be provided Latter)

Annexure - Q

TECHNICAL COMPLIANCE SHEET

We confirm the following technical specifications:

Sl. No.	Item Description	Confirmation Details
1.	SPV Modules for the quoted capacity as per specifications	
a.	Capacity	
b.	Make	
c.	Module type (Monocrystalline/ Polycrystalline)	
d.	No. of SPV Modules	
e.	Efficiency	
2.	SPV Module Mounting Structure suitable for accommodating SPV modules for quoted capacity	
3.	PCU/ Inverter as per specifications	
4.	Array Junction Boxes	
5.	Main Junction Boxes	
6.	Data Logging Systems with remote monitoring as per specifications	
7.	DC distribution units as per specifications	
8.	AC distribution units as per specifications	
9.	Fire Extinguisher in accordance with BIS codes for electrical short circuit fires along with sand buckets	
10.	Lightning Arrester complete set as per specification	
11.	Earthing complete set as per specification	
12.	Providing training to Engineers and side staffs for operating, maintenance and troubleshooting skills	
13.	Comprehensive Operation and Maintenance of power plant for a period of five years (after successful commissioning)	

Sl. No.	Item Description	Confirmation Details
14.	Operation and Maintenance manuals of the SPV Engineering, Electrical Drawings and Installations and O&M Manuals	
15.	Any other equipment required to complete the installation (As per Technical Specifications mentioned in Section-II)	
16.	Cabling	
17.	Transmission, Distribution and Point Wiring	
18.	Monitoring, Control and Protective Device	
19.	Civil Works including design and drawings etc.	

(Signature with date)

(Full name, designation & address of the person duly authorised sign on behalf of the Bidder)
For and on behalf of

(Name, address and stamp of the bidding firm)

Annexure - R CHECKLIST

Name of Bidder:

Sl No.	Activity	YES / NO/ NA	Page No. in the bid document	Remarks
1.	Have you enclosed Bid Processing Fee for Rs 15,000/- plus applicable service tax in the form of Demand Draft?			
2. a.	Have you enclosed duly filled forms as per format in bid bond and other necessary Annexures			
b.	Have you enclosed Power of Attorney in favour of the signatory?			
3.	Have you enclosed the price bid in a sealed and separate envelope as per format D			
4.	Have you enclosed clause-by-clause technical compliance statement for the quoted equipments vis-à-vis the Technical specifications?			
5. a.	Have you submitted satisfactory performance certificate of the earlier awarded work?			
b.	Have you submitted copy of the order(s) and end user certificate?			
6.	Have you kept validity of 90 days from the Techno Commercial Bid Opening date as per the tender document?			
7.	Have you furnished Income Tax Account No., service tax no. & PAN card copies as allotted by the Income Tax Department of Government of India?			
8.	Have you fully accepted payment terms as per bid document?			
9.	Have you fully accepted as per RFS document?			
10.	Have you submitted the certificate of incorporation?			

Sl No.	Activity	YES / NO/ NA	Page No. in the bid document	Remarks
11.	Have you accepted the warranty clause as per RFS document?			
12.	Have you accepted terms and conditions of RFS document?			
13.	Have you furnished documents establishing your eligibility & qualification criteria as per RFS documents?			
14	Have you furnished Annual Report (Balance Sheet and Profit & Loss Account) for last three years prior to the date of bid opening?			
15	Have you at any time banned, suspended, blacklisted or debarred from quoting by any Govt departments, PSUs etc, if so what time.			
16	Technical Compliance Sheet as per Annexure-Q			

N.B.

1. All pages of the Tender should be page numbered and indexed.
2. The Bidder may go through the checklist and ensure that all the documents/confirmations listed above are enclosed in the tender and no column is left blank. If any column is not applicable, it may be filled up as NA.
3. It is the responsibility of tendered to go through the tender document to ensure furnishing all required documents in addition to above, if any.

(Signature with date)

(Full name, designation & address of the person duly authorised sign on behalf of the Bidder)
For and on behalf of

(Name, address and stamp of the bidding firm)

Annexure-S

Brief of Ministry of Earth Sciences Prithvi Bhawan, Lodhi Road, New Delhi-110003

1. Brief Summary of Assessment

S. No.	Particulars	Description
1	Name of the Office/ Institution	Ministry of Earth Sciences (MoES)
2	Office/ Institution Address	Prithvi Bhawan, Lodhi Road, New Delhi-110003
3	Current Contract Demand (kVA)	837.62
4	Average Yearly Electricity Consumption (kWh)	15,22,700
5	Current Average Electricity Rate (INR/ kWh)	7.15 (Based on Electricity Bill Analysis)
6	Usable Roof Area available for Grid Connected Solar PV System (sq. m)	**1,200**
7	Estimated Rooftop Solar PV Potential based on usable roof area available (kWp)	**100**

2. Brief about the Office/ Institution

The Department of Ocean Development (DOD) was created in July 1981 as a part of the Cabinet Secretariat directly under the charge of the Prime Minister and came into existence as a separate Department in March 1982. The Erstwhile DoD functioned as a nodal Ministry for organizing, coordinating and promoting ocean development activities in the country. In February, 2006, the Government notified the Department as the Ministry of Ocean Development (MoOD).

The Government of India further reorganized the Ministry of Ocean Development and the new Ministry of Earth Sciences (MoES) came into being vide Presidential Notification dated the 12th July, 2006 bringing under its administrative control India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM) and National Centre for Medium Range Weather Forecasting (NCMRWF).

3. Existing Power Scenario

Grid Connection Details:

a) Name of the DISCOM **: New Delhi Municipal Corporation**
b) Contract Demand **: 837.62 kVA**
c) Transformer Capacity **: 1,000 kVA * 2/ HT Connection**
d) Voltage **: 433 V**

4. Photographs of Buildings

Admin Building	Admin Building
	
	

Admin Building	Admin Building
	

Brief of National Institute of Ocean Technology, Chennai, Tamil Nadu

5. Brief Summary of Assessment

S. No.	Particulars	Description
1	Name of the Office/ Institution	National Institute of Ocean Technology (NIOT)
2	Office/ Institution Address	Velacherry-Tambaram Main Road, Narayanapuram, Pallikaranai, Chennai - 600100, Tamil Nadu
3	Current Contract Demand (kVA)	750
4	Average Yearly Electricity Consumption (kWh)	21,79,369
5	Current Average Electricity Rate (INR/ kWh)	6.35 (Based on Electricity Bill Analysis)
6	Usable Roof Area available for Grid Connected Solar PV System (sq. m)	**1,594**
7	Estimated Rooftop Solar PV Potential based on usable roof area available (kWp)	**121.5**

6. Brief about the Office/ Institution

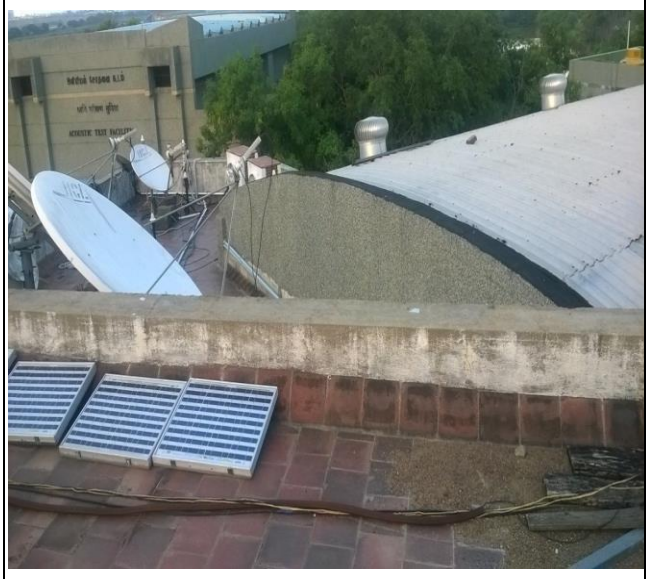
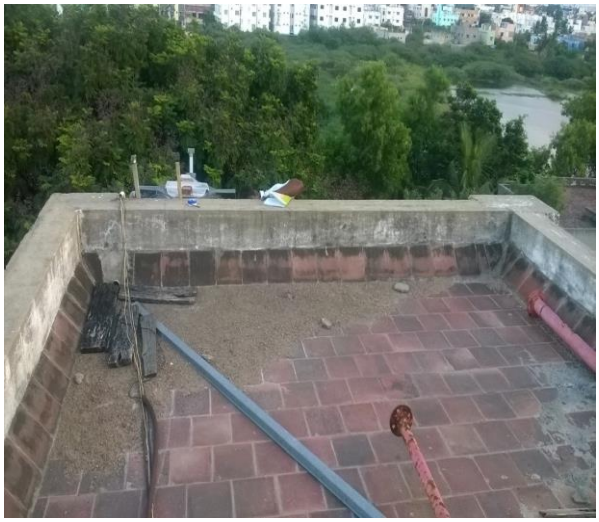
The National Institute of Ocean Technology (NIOT) was established in November 1993 as an autonomous society under the Ministry of Earth Sciences, Government of India. The major objective of NIOT is to develop reliable indigenous technology to solve various engineering problems associated with harvesting of non-living and living resources in the Indian Exclusive Economic Zone (EEZ). NIOT Campus located in Chennai is spread across 50 acres and is comprised of various buildings such as Acoustic Test Facility Building, Auditorium Building, Main Building, Security Building, Utility Building etc.

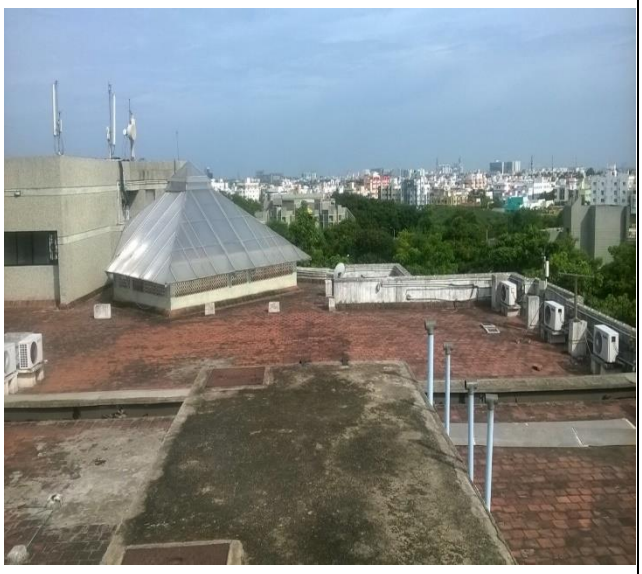
7. Existing Power Scenario

Grid Connection Details:

e) Name of the DISCOM **: TANGEDCO**
f) Contract Demand **: 750 kVA**
g) Transformer Capacity **: 315 kVA, 500 kVA / HT Connection**
h) Voltage **: 11 kV**

8. Photographs of Buildings

Acoustic Test Facility Building	Acoustic Test Facility Building
	
Auditorium Building	**Auditorium Building**
	
Buoy Building	**Buoy Building**
	

Canara Building	Canara Building
	
Main Building	**Main Building**
	
Security Building	**Security Building**
	
Utility Building	**Utility Building**

	
VMC Building	**VMC Building**
	

Brief of Indian Institute of Tropical Meteorology (IITM), Pune, Maharashtra

9. Brief Summary of Assessment

S. No.	Particulars	Description
1	Name of the Office/ Institution	Indian Institute of Tropical Meteorology (IITM)
2	Office/ Institution Address	Dr. Homi Bhabha Road, Pashan, Panchawati, Pune- 411008
3	Current Contract Demand (kVA)	5,200
4	Average Yearly Electricity Consumption (kWh)	1,45,46,400
5	Current Average Electricity Rate (INR/ kWh)	8.50
6	Usable Roof Area available for Grid Connected Solar PV System (sq. m)	2,536
7	Estimated Rooftop Solar PV Potential based on usable roof area available (kWp)	230

10. Brief about the Office/ Institution

Indian Institute of Tropical Meteorology (IITM) is a premiere research Institute in the Country to generate scientific knowledge in the field of meteorology and atmospheric sciences that has potential application in various fields such as agriculture, economics, health, water resources, transportation, communications, etc. IITM was founded in Pune in 1962. The Institute is spread across 48 acres comprising of 4 buildings such as Admin building, Library, HPC Data Centre and CCCR Data Centre.

11. Existing Power Scenario

Grid Connection Details:

i) Name of the DISCOM **: MSEDCL**
j) Contract Demand **: 5,200 kVA**
k) Transformer Capacity **: 2,500 kVA * 2/ HT Connection**
l) Voltage **: 11 kV/ 433 V**

12.Photographs of Buildings

Admin Building	Admin Building
 Rooftop South Side View of Admin Building at IITM-PUNE	 Rooftop East Side View of Admin Building at IITM-PUNE
Library Building	**Library Building**
 Rooftop South Side View of Library Building at IITM Pune	 Rooftop East Side View of Library Building at IITM- PUNE
CCCR Data Centre	**CCCR Data Centre**
 Rootop East Side View of CCCR Building at IITM-PUNE	 Rooftop South Side View of CCCR Building at IITM-PUNE

Brief of Indian National Centre for Ocean Information Services, Hyderabad, Telangana

13.Brief Summary of Assessment

S. No.	Particulars	Description
1	Name of the Office/ Institution	Indian National Centre for Ocean Information Services
2	Office/ Institution Address	"Ocean Valley", Survey No. 342/3, Beside ALEAP, Opp. JNTU - Kukatpally, ALEAP Industrial Area, Gajularamaram, Hyderabad, Telangana - 500090
3	Current Contract Demand (kVA)	1,000
4	Average Yearly Electricity Consumption (kWh)	43,75,760
5	Current Average Electricity Rate (INR/ kWh)	7.30 (Based on Electricity Bill Analysis)
6	Usable Roof Area available for Grid Connected Solar PV System (sq. m)	**5,737**
7	Estimated Rooftop Solar PV Potential based on usable roof area available (kWp)	**561**

14.Brief about the Office/ Institution

Indian National Centre for Ocean Information Services (INCOIS) was established as an autonomous body in 1999 under the Ministry of Earth Sciences (MoES). INCOIS is mandated to provide the best possible ocean information and advisory services to society, industry, government agencies and the scientific community through sustained ocean observations and constant improvements through systematic and focussed research. INCOIS Campus located in Hyderabad is spread across 60 acres and is comprised of various buildings such as Admin building, Amenity Building, Guest House, Director's House, Staff Quarters, Multipurpose Hall etc.

15.Existing Power Scenario

Grid Connection Details:

m) Name of the DISCOM **: TSSPDCL**
n) Contract Demand **: 1,000 kVA**
o) Transformer Capacity **: 500 kVA/ HT Connection**
p) Voltage **: 11 kV/ 433 V**

16.Photographs of Buildings

Admin Building	Admin Building
	
Amenity Building	**Amenity Building**
	
Substation Building	**Substation Building**
	
Old Car Parking Building	**Old Car Parking Building**
	
New Car Parking Building	**New Car Parking Building**

	
Guest House	**Guest House**
	
Multipurpose Hall	**Multipurpose Hall**
	
Type III Quarters	**Type III Quarters**
	
Type IV Quarters	**Type IV Quarters**
	

Director's House	Director's House
	
Land (near Staff Quarters)	**Land (near Director's house)**
	

Brief of National Centre for Medium Range Weather Forecasting, Noida, Uttar Pradesh

17.Brief Summary of Assessment

S. No.	Particulars	Description
1	Name of the Office/ Institution	National Centre for Medium Range Weather Forecasting (NCMRWF)
2	Office/ Institution Address	A-50, Sector-62, Noida, Uttar Pradesh - 201309
3	Current Contract Demand (kVA)	2,023 kVA (Office Complex), 54 kW (Residential Complex)
4	Average Yearly Electricity Consumption (kWh)	1,45,85,360 (Office Complex), 1,04,688 (Residential Complex)
5	Current Average Electricity Rate (INR/ kWh)	6.90 (Office Complex), 4.95 (Residential Complex)
6	Usable Roof Area available for Grid Connected Solar PV System (sq. m)	**2,890 (Office – 2,200, Residence – 690)**
7	Estimated Rooftop Solar PV Potential based on usable roof area available (kWp)	**254 (Office – 200, Residence – 54)**

18.Brief about the Office/ Institution

The National Centre for Medium Range Weather Forecasting (NCMRWF) is a Centre of Excellence in Weather and Climate Modelling under the Ministry of Earth Sciences. NCMRWF's mission is to continuously develop advanced numerical weather prediction systems, with increased reliability and accuracy over India and neighbouring regions through research, development and demonstration of new and novel applications, maintaining highest level of knowledge, skills and technical bases.

19.Existing Power Scenario

Grid Connection Details:

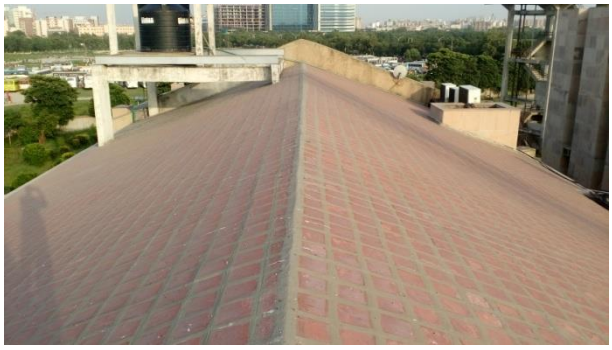
q) Name of the DISCOM **: PVVNL**

r) Contract Demand **: 2,023 kVA (Office Complex)**
: 54 kW (Residential Complex)

s) Transformer Capacity **: 1250 kVA, 2,000 kVA (Office Complex)**
: 315 kVA (Residential Complex)

t) Yearly Power Consumption **: 1,45,85,360 (Office Complex)**
: 1,04,688 (Residential Complex)

20.Photographs of Buildings

Office Complex	Office Complex
	
	
	
	
Residential Complex	**Residential Complex**