

STATE BANK OF INDIA

PREMISES DEPARTMENT

CORPORATE CENTRE, NINTH FLOOR, STATE BANK BHAVAN,
MADAME CAMA ROAD, NARIMAN POINT, MUMBAI-21

PART – A: TECHNICAL BID

(TENDER ID – PREM/21-22/08)

OPEN TENDER (ONLINE) FOR DESIGN, SUPPLY, INSTALLATION, TESTING & COMMISSIONING (SITC) OF GRID CONNECTED ROOFTOP SOLAR PV POWER PLANT UNDER NET METERING POLICY INCLUDING 5 YEARS COMPREHENSIVE MAINTENANCE(FROM 2ND YEAR) AT 6 NOS OF RESIDENTIAL BUILDINGS COMES UNDER CORPORATE CENTRE, MUMBAI TOTALLING TO 150 KWp

TENDER SUBMITTED BY:

NAME : _____

ADDRESS : _____

GSTIN NO. : _____

DATE : _____

NOTICE INVITING TENDERS**TENDER ID - PREM/21-22/10**

TENDER FOR DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF GRID CONNECTED ROOFTOP SOLAR POWER SYSTEM UNDER NET METERING POLICY INCLUDING 5 YEARS COMPREHENSIVE MAINTENANCE(FROM 2ND YEAR) AT 6 NOS OF RESIDENTIAL BUILDINGS COMES UNDER CORPORATE CENTRE, MUMBAI TOTALLING TO 150KWP.

SBI invites "online item rate E-tender" for the captioned work from MNRE/MEDA approved channel partners / solar power plant OEMs / OEMs authorized dealers and distributors with authorization letter having office in Maharashtra who qualify as per the eligibility criteria given elsewhere in the tender for Design, Supply, Installation, Testing and Commissioning Of 150KWp Grid Connected Roof top Solar Power System Under Net Metering Policy Including 5 Years Comprehensive Maintenance (from 2nd Year) at 6 Nos of residential buildings comes under Corporate Centre as mentioned below:

Sr No	Name of Building	Address	No of floors	Capacity (KWp)
1	Kinellan + Udyan	100/100A Nepean Sea Road, Mumbai - 400006	Stilt + 13 & Stilt + 06	(10+10)=20
2	Madhuban Building	Gen JB Marg, Nariman Point, Mumbai - 400021	Stilt + 16	15
3	Harbour Height-C Wing	B7-C Building, Sawant Marg, Colaba, Mumbai- 400005	Stilt + 12	15
4	Kalpataru Building	Plot 382/3C, Bhagoji Keer Marg, Mahim, Mumbai -400016	Stilt + 06	(15+15) =30
5	Samriddhi Building	Plot 101/102, A2, Road No 29, Sion East, Mumbai - 400022	Stilt + 07	(20+20) =40
6	Mala Tower Building	Lokhandwala Complex, Andheri (W), Mumbai- 400053	Stilt + 16	(15+15) =30
TOTAL CAPACITY				150 KWp

Details of the tenders are as under:

SN	Particulars	Details
1	Name of work	Tender For Design, Supply, Installation, Testing and Commissioning Of 150kwp Grid Connected Roof top Solar Power System Under Net Metering Policy Including 5 Years Comprehensive Annual Maintenance(from 2nd Year) at 6 Nos of

		residential buildings comes under Corporate Centre.
2	Nature of Work	Grid Connected Solar Rooftop PV Power Plant
3	Time allowed for completion	60 Days (2 months)
4	Cost of Tender document cum Tender Processing Fee (Non-refundable)	Nil
5	Earnest Money Deposit	(Bidders has to sign "Bid Security Declaration at page no 09" accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents
6	Estimated Cost	Rs 75 lakh
7	Initial Security Deposit (ISD)	NIL
8	Bid Document Availability including changes/amendments, if any to be issued	RFP may be downloaded from Bank's website https://www.sbi.co.in procurement news & E Tendering site www.tenderwizard.in/SBIETENDER
9	Date of availability of tender documents on Service Provider's website	
	(a) Online Technical Bid	26.10.2021 to 16.11.2021 Available at M/s Antares System Limited, our Service Provider's portal www.tenderwizard.in/SBIETENDER
	(b) Online Price Bid	From 26.10.2021 to 16.11.2021 Available at M/s Antares System Limited, our Service Provider's portal www.tenderwizard.in/SBIETENDER
10	Date of Pre-bid meeting and address of Pre-bid meeting	09.11.2021 at 3.30 P.M. at 9th Floor, Premises Dept., SBB, Madame Cama Road, Nariman Point, Mumbai – 400 021.
11	Last date & time for submission of EMD (online)	N/A
12	Last date & time for submission of Online Technical bid	16.11.2021 upto 03:00 PM at Service Provider's portal www.tenderwizard.in/SBIETENDER Intended vendors who have received NIT from SBI, has to upload their online technical bid as under: i. Scan copy of Page no. 1 to 13 and scan copies of page no 20 to 33 of Technical Bid duly filled with the detailed information's required after putting the signature and seal. Use additional page if required for furnishing the information

		<p>required as mentioned in the annexures and forms.</p> <p>Online Tenders received without any one or more of the above-mentioned documents shall be summarily rejected.</p>
13	Date and Time of opening of Online Technical Bid	16.11.2021 at 03:30 PM
14	Date and time for submission of Online Price Bid	From 26.10.2021 to 16.11.2021 till 03:00 PM at Service Provider's portal www.tenderwizard.in/SBIETENDER
15	Date and Time of opening of Online Price Bid	24.11.2021 at 03:30 PM (Date of opening of price bid may be extended as depends on the scrutiny of technical bid, will be advised to the qualified bidders) * The price bid will be opened only of technically qualified bidders
16	Defects Liability period	5-year from the date of virtual completion.
17	Liquidated Damages	0.50% per week subject to max. 5% of contract amount for delay in completion of work.
18	Validity of offer	90 days from the date of opening of Price-bid
19	Payment	<p>i) No advance payment shall be paid.</p> <p>ii) 60% of total project cost against all materials delivery at site and production of test certificates and with necessary documents showing requisite quality as mentioned in tender document.</p> <p>iii) 37% after installation, commissioning, testing, successful trail run including grid synchronization along with supply and installation of net metering, generation meter and approvals from local electricity Board/Adani/Tata/ MSEDCL as required.</p> <p>iv) 3% will be held with us as SD for 5 yrs and could be release against submission of Performance Bank Guarantee from any scheduled/ commercial Bank, other than SBI</p>
20	Warranty	<p><u>1)Product warranty:</u></p> <p>A) The SPV panel shall carry a warranty of minimum 25 years from the date of Final Acceptance. This warranty shall be backed up in the form of manufacturer's warranty, 12 months from the date of virtual completion.</p> <p>B) The PCU/Solar Grid tie Inverter/MPPT shall carry a warranty of minimum 5 years.</p> <p>The mechanical structures, electrical works including distribution boards/digital meters/ switchgear etc. and overall workmanship of the SPV rooftop systems must be warranted against</p>

		any manufacturing/ design/ installation defects for a minimum period of 5 years from the date of Final Acceptance. MS Mounting structure for 25 Years.
		<p><u>2)PERFORMANCE WARRANTY:</u></p> <p>A) The SPV panel must have linear performance warranty for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.</p> <p>B) A linear performance warranty for a period of 5 years should be given for Inverter/PCU/MPPT and other components.</p> <p>3)The warranty will be against breakages, malfunctions, non-fulfillment of guaranteed performance and breakdowns due to manufacturing defects or defects that may arise due to improper operation of electrical /electronic components of the system but do not include physical damages by the end users.</p> <ul style="list-style-type: none"> - The above warranty shall take effect from the date on which the system is taken over by the Bank after commissioning. -The successful bidder shall be liable to make good the loss by replacing the defective product during the warranty period for the entire system free of cost. - The warranty will cover all the materials and goods involved in the installation and COMMISSIONING OF 150Kwp SPV rooftop systems by the successful Bidder. - The data sheets showing all parameters for each component should provide (i.e. Solar PV Module, Inverter, MPPT, Cables, etc.).
21	Comprehensive AMC Period	5 years
21	Submission of Technical Bid (Hard Copy)	<ol style="list-style-type: none"> 1. Contractors shall Download the entire Technical Bid to get acquainted with the terms and conditions and <u>shall upload compulsorily the pages numbered from 01 to 13 & 20 to 33 of the technical bid</u> without fail in the e-tendering portal after putting the signature and seal. Failing to upload as stated above, the tender will be rejected. 2. However, L1 Tenderer should submit the whole technical bid spirally bound securely and in serial order containing all pages from 1 to 118 duly signed with company seal and date to this Office within 7 days of receipt of confirmation. Failure to submit the hardcopy of

		Technical Bid may render the bidder disqualifies.
22	<u>E-Tender Agency:</u> M/s. ANTARES SYSTEM LIMITED # 24 Sudha Complex, 3 rd Stage, 4 th Block, Basaveshwarnagar, Bengaluru - 560079 Mr. MANOJ KUMAR DUBEY Phone: +91 7666563870 Landline - 080-4598 2100 Email: manojkumar.d@antaressystems.com , ramu.gk@antaressystems.com pavithra913@antaressystems.com	

23. No conditions other than mentioned in the tender will be considered, and if given they will have to be withdrawn before opening of the price-bid.

24. The SBI reserve their rights to accept or reject any or all the tenders, either in whole or in part without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.

25. In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

26. For any clarifications regarding E-Tendering procedure, System requirements etc. please contact M/s Antares System Limited, whose address is mentioned in the NIT and for any clarification about tender please contact at dgmnce.cc@sbi.co.in / bhanu_pratap.jadon@sbi.co.in .

Yours faithfully,

Deputy General Manager (Premises)

LETTER OF UNDERTAKING

The Deputy General Manager (Premises),
 State Bank of India,
 Corporate Centre, Ninth Floor,
 State Bank Bhavan, Madam Cama Road,
 Nariman Point, Mumbai 400 021.

Dear Sir,

Having examined the drawings, specification, design and schedule of quantities relating to the works specified in the memorandum hereinafter set out and having visited and examined the site of the works specified in the said memorandum and having acquired the requisite information relating thereto as affecting the tender, I/We hereby offer to execute the works specified in the said memorandum at the rates mentioned in the attached Schedule of Quantities and in accordance in all respects with the specifications, design, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Schedule of Quantities and Conditions of Contract and with such materials as are provided for by, and in all other respects in accordance with such conditions so far as they may be applicable.

MEMORANDUM

(a)	Description of work	Tender For Design, Supply, Installation, Testing and Commissioning Of Total 150kwp Grid Connected Roof top Solar Power System Under Net Metering Policy Including 5 Years Comprehensive Annual Maintenance(from 2nd Year) at 6 Nos of residential buildings comes under Corporate Centre.
(b)	Earnest Money	NIL (Bidders has to sign "Bid Security Declaration at page no 09" accepting that if they withdraw or modify their bids during period of validity etc., they will be suspended for the time specified in the tender documents)
(c)	Time allowed for completion of the Works from fourteen day after the date of written Order or date of handing over of the site (Whichever is later) to commence the work	60 Days i.e. (2) months

- 1) Should this tender be accepted, I/we hereby agree to abide by and fulfill the terms and provisions of the said conditions of contract annexed hereto so far as may be applicable or in default thereof to forfeit and pay to SBI, the amount mentioned in the said contract.

Further, under any circumstances, whatsoever, if I/We fail to comply the same including compliance of any such other conditions of tender within the stipulated time. I /We hereby, authorized SBI to cancel my/Our tender, to forfeit my EMD/ISD/ASD and to take further necessary action as deemed fit including debarring our firm from participating in SBI future tenders/de-paneling etc.

- 2) I/ We understand that as per terms of this tender, the SBI may consider accepting our tender in part or whole or may entrust the various work proposed in phases. We,

therefore, undertake that we shall not raise any claim/ compensation in the eventuality of Bank deciding to drop any of the work from the scope of work of this tender at any stage during the contract period. Further, we also undertake to execute the work entrusted to us in phases on our approved rates and within stipulated time limit without any extra claim for price escalation as also provided for in the clause 11.1.6 "Instructions to Tenderers" of this tender.

3) I/ We, hereby, also undertake that, we will not raise any claim for any escalation in the prices of any of the material during the currency of contract/execution/completion period including authorized extended contract period, if any.

4) Our Bankers are:

i)

ii)

The names of partners of our firm are:

i)

ii)

Name of the partner of the firm

Authorised to sign

Or

(Name of person having Power of Attorney to sign the Contract.

(Certified true copy of the Power of Attorney should be attached)

Yours faithfully,

Signature of Contractors.

Signature and addresses of Witnesses

i)

ii)

BID SECURITY DECLARATION FORM

Date: _____ Tender No. _____

To

The Deputy General Manager (Premises),
State Bank of India,
Corporate Centre, Ninth Floor,
State Bank Bhavan, Madam Cama Road,
Nariman Point, Mumbai 400 021.

I/We. The undersigned, declare that:

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of **one year** from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or

b) having been notified of the acceptance of our Bid by the Bank during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown) in the capacity of (insert legal capacity of person signing the Bid Securing Declaration)

Name: (insert complete name of person signing the Bid Securing Declaration) Duly authorized to sign the bid for an on behalf of (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)

Corporate Seal (where appropriate)

INSTRUCTIONS TO THE TENDERERS

SBI invites “online item rate E-tender” for the captioned work from MNRE/MEDA approved channel partners / solar power plant OEMs / OEMs authorized dealers and distributors with authorization letter having office in Maharashtra who qualify as per the eligibility criteria given elsewhere in the tender for Design, Supply, Installation, Testing and Commissioning Of 150KWp Grid Connected Roof top Solar Power System Under Net Metering Policy Including 5 Years Comprehensive Maintenance (from 2nd Year) at 6 Nos of residential buildings comes under Corporate Centre as mentioned below:

Sr No	Name of Building	Address	Capacity(KWp)
1	Kinellan + Udyan	100/100A Nepean Sea Road, Mumbai - 400006	(10 +10) = 20
2	Madhuban Building	Gen JB Marg, Nariman Point, Mumbai - 400021	15
3	Harbour Height-C Wing	B7-C Building, Sawant Marg, Colaba, Mumbai- 400005	15
4	Kalpataru Building	Plot 382/3C, Bhagoji Keer Marg, Mahim, Mumbai -400016	(15+15) = 30
5	Samriddhi Building	Plot 101/102, A2, Road No 29, Sion East, Mumbai - 400022	(20+20) = 40
6	Mala Tower Building	Lokhandwala Complex, Andheri (W), Mumbai- 400053	(15+15) = 30
TOTAL CAPACITY			150 KWp

1.0 Scope of work

The scope of work is to carry out for the Proposed Grid connected Solar PV Power Plant of Total capacity 150Kwp in all 6 buildings.

1.1 Site and its location

The proposed work is to be carried out at 6 Nos of residential buildings as mentioned above.

2.0 Tender documents

2.1 The work has to be carried out strictly according to the conditions stipulated in the tender consisting of the following documents and the most workmen like manner.

Instructions to tenderers

Eligibility Criteria

General conditions of Contract

Special conditions of Contract

Additional specifications

Technical Specifications

Drawings

Priced bid A

2.2 The above documents shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies, shall take precedence in the order given below;

- a) Price Bid
- b) Technical specifications
- c) Drawings
- d) Special conditions of contract
- f) General conditions of contract
- g) Instructions to Tenderers
- h) Eligibility Criteria

2.3 The tender documents are not transferable.

3.0 Site Visit

3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data that may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The tenderer is requested satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the materials, labour, the law and order situation, climatic conditions local authorities' requirement, traffic regulations etc at all the 6 sites as mentioned above.

The tenderer will be fully responsible for considering the financial effect of any or all the factors while submitting his tender.

4.0 **Earnest Money** : Exempted (Bid security declaration form to be submitted as above)

5.0 **Initial/ Security Deposit : Exempted**

6.0 **Security Deposit**

6.1 Total security deposit shall be 3% of contract value and shall be deducted from the running account bill of the work at the rate of 10% of the respective running account bill i.e., deduction from each running bill account will be @10% till Total Security Deposit (TSD) including 3% of contract value and would be paid to the contractors after the defects liability period as specified in the contract.

6.2 **Additional Security Deposit** : Exempted

6.3 No interest shall be paid to the amount retained by the Bank as Security Deposit.

7.0 **Signing of contract Documents**

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract attached herewith within 07 days from the receipt of intimation of acceptance of the tender by the Bank. However, the written acceptance of the tenders by the Bank will constitute a binding agreement between the Bank and successful tenderer whether such formal agreement is subsequently entered into or not.

8.0 **Completion Period**

Time is essence of the contract. The work should be completed in all respect accordance with the terms of contract within a period of 60 **days (2 months)** from the date of award of work.

9.0 **Validity of tender**

Tenders shall remain valid and open for acceptance for a period of 90 days from the date of opening price bid. If the tenderer withdraws his/her offer during the value period or makes modifications in his/her original offer which are not acceptable to Bank without prejudice to any other right or remedy the Bank shall be at liberty forfeit the EMD.

10.0 **Liquidated Damages**

The liquidated damages shall be 0.50% per week subject to a maximum of 5% of contract value.

11.0 **Rate and prices:**

11.1 **In case of item rate tender**

11.1.1 The tenderers shall quote their rates for individual items both in words and figure. In case of discrepancy between the rate quoted in words and figures, the unit rate quantity in words will prevail. If no rate is quoted for one or more items such tender shall be treated as "Incomplete Tender" and shall be summarily rejected.

The amount of each item shall be calculated and the requisite total is given. In case of discrepancy between the unit rate and the total amount calculated from multiplication of unit rate and the quantity the unit rate quoted will govern and the amount will be corrected.

11.1.2 The tenderers need not quote their rates for which no quantities have been given. In case the tenderers quote their rates for such items those rates will be ignored and will not be considered during execution.

11.1.3 The tenderers should not change the units as specified in the tender. If any unit is changed the tenders would be evaluated as per the original unit and the contractor would be paid accordingly.

The tenderer should not change or modify or delete the description of the item. If any discrepancy is observed he should immediately bring to the knowledge of the Architect/ SBI

- 11.1.4 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him.
- 11.1.5 Each page shall be totaled and the grand total shall be given.
- 11.1.6 The rate quoted shall be firm and shall include all costs, allowances etc. except GST, which shall be payable / reimbursed at actuals.
- 11.1.7 The SBI reserve their rights to accept any tenders, either in whole or in part or may entrust the work in phases or may drop the part scope of work at any stage of the project within its sole discretion without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.
- 11.1.8 In case it is decided by the SBI to drop one or more items from the scope of work at any stage of the project, the contractor shall not be entitled to raise any claim / compensation for such deleted scope of work.

ELIGIBILITY CRITERIA

The intending Vendor/OEM/System Integrator should comply the following minimum eligibility criteria for pre-qualification for the proposed project: -

- A. EXPERIENCE:** The applicant should be a well-established and reputed establishment (for a minimum period of 7 years) engaged in the SITC of Grid connected (Net Metering) Rooftop Solar PV Power Plant system for Banks, Financial Institutions, MNCs, Government Organizations / PSUs/ Airports etc.

1	Three “similar” completed works of Rs. 30.00 Lakhs each during last seven (7) years ending as on 30.09.2021
2	Or Two “similar” completed works of Rs. 37.50 Lakhs each during the last seven (7) years ending 30.09.2021
3	Or One “similar” completed work of Rs. 60.00 Lakhs during the last seven (7) years ending 30.09.2021

SIMILAR WORK MEAN: All qualitative successful completion of Design & SITC of Grid Connected (Net Metering) Rooftop Solar PV Power Plant system of capacity minimum one work of 120KWp or two work of 75KWp or three works of 60KWp executed by the applicant as composite or an independent project of specified magnitude for Banks, Financial Institutions, MNCs, Government Organizations / PSUs/ Airports etc.

- B. AVERAGE ANNUAL TURNOVERS:** Should not be less than **Rs. 22.50 Lakhs** for the last three financial years as per the audited balance sheet. (supporting documents to be submitted)
- C. PROFIT/LOSS:** Bidder should be a Profit-making firm and should not have incurred loss during the last two consecutive financial years out of last five financial years. (supporting documents to be submitted)
- D. SOLVENCY CERTIFICATE:** The contractor should have a solvency of **Rs. 30.00 Lakhs** issued by any scheduled Bank in India (as per **Form – “G”**) issued not before 30th December, 2020.
- E. O&M Certificate** for at least one year for any type of solar project from any central / state Govt./ Public sector undertaking / MNC / Banks / Airports etc.
- F. The Applicant** should have full-fledged registered service setup at any town/city of Maharashtra State or nearest city for rendering after sales service of the plant. Tender will be rejected if no details found for local office for service center of plant.
- G. Copy of the letter** issued by MNRE/MEDA regarding registration with them to confirm about the category of their registration.

Interested parties meeting the abovementioned pre-qualification criteria should submit their applications in the prescribed format along with supporting documents in respect of following by the stipulated date:

- (i) Experience profile,

- (ii) Proof of meeting the prescribed PQ criteria,
- (iii) Self-attested copies of completion Certificate, work order etc. from the clients,
- (iv) Audited / certified balanced sheet for the last 5 (five) years,
- (v) EPF / ESI / GST Registration Certificate,
- (vi) Registration as Contractor with various Banks, PSUs, State PWDs, CPWD, etc
- (vii) Details of Technical and Administrative employees,
- (viii) List of Plant & Machineries/Equipment and
- (ix) Details/Address of the branch office/site office in Mumbai region.

1. Application not accompanied by any of the above documents may be disqualified.
2. No Joint Venture or consortium of firms shall be allowed.
3. SBI reserves the right to verify the authenticity of the documents submitted by the applicant.
4. SBI also reserve the right to reject any or all applications or cancel the entire EOI process without assigning reasons therefor and no correspondence shall be entertained in this regard.

EVALUATION CRITERIA:

For the purpose of participating in Price Bid, applications will be evaluated in the following manner:

1. The eligibility criteria prescribed above (in respect of experience of similar class of works completed) shall first be scrutinized and the applicant's eligibility for the work shall be determined.
2. Only the applicants who meet the initial eligibility criteria specified as above will be further evaluated on the basis of details furnished by them.
3. If necessary, the authorized representatives of SBI will visit any projects / sites which are recently maintained / being maintained by the applicants, in order to evaluate the performance and quality of work of the applicants. In such case, the applicant will be required to obtain/give them the necessary permission/facilities and arrangements for site visit as required.
4. On the basis of the Eligibility criteria mentioned above and after the evaluation of the applicants based on the site visit report, credentials submitted by the applicants, confidential reports obtained from various clientele (wherever necessary), applications will be shortlisted.
5. Merely fulfilling the prescribed minimum prequalification criteria does not entitle the applicant for shortlisting, which is subject to the verification of documents/information furnished by the applicants, inspection of work, quality and timely execution of project, seeking confidential performance reports from the client etc.
6. The duly filled-in Tender Document shall be received online up to **15.00 Hrs. on 16.11.2021.**
7. Bank reserves the right to restrict the list of qualified contractors to any number deemed suitably by it. This qualification is neither an assurance nor binding to SBI to award any job/project to the prequalified contractors.

8. SBI reserve the right to accept or reject any or all applications without assigning any reason thereof and no correspondence will be entertained in this regard.

INSTRUCTIONS TO APPLICANTS

GENERAL INSTRUCTIONS:

1. Please read these instructions carefully before filling up the application form.
2. The application must be submitted in the proforma to be downloaded from our website without editing the text whatsoever. Any violation of this condition shall render the application invalid.
3. The Application form have to be submitted in the prescribed format with Letter of Transmittal along with all the annexures and necessary documents / details as sought in a separate sealed cover supported by prescribed annexures containing other details etc. as mentioned. The sealed cover must be super scribed with the legend.
4. The applicant should stamp and sign all the pages of the application and its annexures / documents failing which their applications may be summarily disqualified.
5. While filling application form please ensure following: -
 - All information called for in the enclosed forms should be furnished against the relevant columns in the forms.
 - If for any reason, information is furnished on separate sheet, this fact should be mentioned against the relevant column.
 - Even if no information is to be provided in a column, a "Nil" or "no such case" or "Not Available" entry should be made in that column.
 - If any particulars/queries are not applicable in case of the applicant, it should be stated as "Not Applicable".
 - The applicants may please note that giving incomplete/unclear information called for in application forms, or making any changes in the prescribed forms, or deliberately suppressing any information, may result in the prescribed formats may result in disqualification of the applicant summarily.
6. Incomplete applications received thus will not be entertained. Application received after the time and date mentioned will not be considered.
7. Overwriting and using of correcting fluid should be avoided. Corrections, if any, should be made by neatly crossing out and shall be rewritten with initials and date. Pages of the document have to be numbered. Additional sheets, if any added by the contractor, should also be numbered by him. They should be submitted as a package with signed letter of transmittal.
8. The applicant may furnish any additional information, which he/they thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous information. No information shall be entertained after submission of tender document unless it is called for by the Employer.
9. References, information and certificates from the respective clients certifying suitability, technical know-how or capability of the applicant should be signed by an officer not below the rank of Superintending Engineer/Chief Project Manager or equivalent.

10. Documents submitted in connection with the tender document will be treated as confidential and will not be returned.

11. **LETTER OF TRANSMITTAL**

The applicant should submit the letter of transmittal on the letter head of the applicant attached/appended with Application form along with annexures of tender document as mentioned / necessitated.

12. **ORGANISATIONAL INFORMATION - BIODATA**

Applicant is required to submit the information in respect of his organization (in Application form) and Biodata of the Directors / Partners / Key associates.

13. **FINANCIAL INFORMATION**

Applicant should furnish the following financial information as per the format as mentioned in Form 'B'.

14. Banker's Details, Chartered Accountant, Annual financial statement for the last five years (**in Form 'B'**) should be supported by audited balance sheets and profit and loss accounts duly certified by a Chartered Accountant, as submitted by the applicant to the Income Tax Department.

15. Name and address of the banker's identification of individuals familiar with the applicant's financial standing and a banker's statement on availability of credit.

16. **EXPERIENCE IN SIMILAR WORKS HIGHLIGHTING MAJOR PROJECTS**

Applicant should furnish the following:

- i. List of all Similar works successfully completed during the last Seven years (**in Form "C"**). This list is to be substantiated with the documentary evidence such as copies of work orders, certified final bill copy, satisfactory completion certificate obtained from client etc. without which, the projects mentioned in the format may not be considered for scrutiny. List of works completed before Seven years may be mentioned in separate sheet if the applicant intends to do so. **Form C-1** may be submitted project wise as supplementary information for the major projects only executed during the last seven years ending 30.09.2021. Particulars of 'Similar' Major completed works (mentioned in **Form "C"**) indicating the performance of the applicant duly authenticated/certified by an officer not below the rank of Superintending Engineer/Chief Project Manager or equivalent should be furnished separately for each major work completed.

- ii. List of the 'similar' projects under execution or awarded (**in Form "D"**).

17. **ORGANISATIONAL INFORMATION - OTHERS**

Number of Technical and Administrative Employees in the organization and how they would be involved in this work (**in Form "F"**)

18. **TENDER SUBMISSION**

Tender should be submitted only in online form at M/s Antares System Limited, our Service Provider's portal www.tenderwizard.in/SBIETENDER website.

The employer reserves the right to:-

- a. Amend the scope and value of contract to the applicant.
- b. Reject any or all of the applications without assigning any reason.

19. The SBI reserves the right to verify the particulars furnished by the applicant independently. If any information furnished by the applicant is found incorrect at a later date, he/they shall be liable to be debarred from tendering/taking up of work in SBI and the tender/work will be cancelled, whenever it is so noticed. The department will not pay any damages to the Company or firm or the concerned person. The Company or Firm or the person will be also debarred for further participation in any tender in the SBI. Further, any breach of this condition by the applicant would also render him liable to be removed from the approved list of contractors of SBI
20. Even though an applicant may satisfy the above requirements, he would be liable to disqualification if he has
 - (i) Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the tender document.
 - (ii) Record of poor performance such as, abandoning work, not properly completing the contract, or financial failures/ weaknesses.
21. The applicants who have down-loaded the tender document from the website, should read the following important instructions carefully before submitting the tender documents: -
 - a) The applicants should see carefully & ensure that the complete document contains all the pages.
 - b) The printout of document should be taken on 'A-4' size paper only & the printer settings, such that document is printed as appearing in the web & there is no change in formatting, number of pages etc.
 - c) The applicant should ensure that no page in the down-loaded document is missing else their tender shall be treated as incomplete and will be summarily disqualified.
 - d) The applicant should ensure that all pages in the down-loaded document are legible & clear & are printed on a good quality paper.
 - e) The applicant should ensure that every page of the down-loaded document is signed by applicant with stamp (seal) of the applicant company and all the blanks are filled by the Applicant, suitably.
 - f) The applicant should ensure that the down-loaded document is properly filled and also **signed and stamped before uploading** the same at www.tenderwizard.in/SBIETENDER Any correction / addition / alteration / omission made in the original document by the applicant will render their application as non – responsive and same shall be summarily rejected.

Additional sheet may be used for furnishing the details if required and should be signed and stamped before uploading.

- g) The applicant shall furnish a declaration as per Form A to this effect that no addition / deletion / corrections have been made in the document submitted and it is identical to the document appearing on Website.
 - h) The applicant who has downloaded the document from website should read carefully & sign the declaration given on the Form A before uploading the document at www.tenderwizard.in/SBIETENDER
 - i) In case of any doubt in the down-loaded document, the same should be got clarified from this office before submitting the document.
22. The applicant (principal contractor) shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him or who are near relative to any executive employee/ Gazette officer in the SBI.
23. Prospective bidders may contact at dgmnce.cc@sbi.co.in between 10.00AM to 05:00PM for any clarification.

APPLICATION FORM

1	Name of the contractor Firm/ company:	
2	Type of Organisation (whether Sole Proprietorship, Partnership, private Limited or Co-op. body etc.)	
3	Year of establishment of the Firm/company	
4	Whether registered with the registrar of companies / registrar of firms (if so, mention number & date of registration, and submit supporting documents)	
5	Year since the firm/ company is in the line of business/ activity of Design and SITC of Grid Connected (Net Metering) Rooftop Solar PV Power Plant	
6	Official/ registered address of the firm/ company	
7	Correspondence address of the firm/company	
8	Email-ID of the firm/company	
9	Landline number (with STD code) of the office/ firm	
10	Mobile number of the office/ firm/ company	
11	Name, mobile number & email ID of contact person	
12	Name/s of partners / proprietor/ directors/ key person of the firm (Details of address, contact number, qualification etc to be submitted) BIO-DATA OF DIRECTORS	
13	Address of offices available in Mumbai/Maharashtra.	
14	Whether Firm is having ISO Certification? Mention details	

15	Whether member of any professional body/association. Please give details & enclose certificate viz. IGBC	
16	GST Registration number (Photocopy to be attached)	
17	PAN No.	
18	Registration for EPF/ RPFC	
19	Registration for ESIC	
20	Registration under the Contract Labour Act	
21	Registration number under Labour Welfare Act	
22	Professional Tax registration no.	
23	Educational qualification of the proprietor/ partner/ director/key person	
24	Financial Information as per form given at Form B (Enclose copies of audited balance sheet and profit & loss statements and CA Certificate)	As per Form 'B'
25	Average annual turnover of the Company as per Audited Balance Sheets as on 31st March 2019, 2020, 2021. (details of turnover during previous F.Y. to be submitted as per form B)	2018-19: 2019-20: 2020-21: ----- Average:
26	Total number of similar projects completed.	
27	Details of Similar works of Design and SITC of Grid Connected (Net Metering) Rooftop Solar PV Power Plant system completed during the last 7 years, as per format given in annexure (Copies of work orders & completion certificates must be enclosed)	As per Form 'C' & 'C1'
28	Value and capacity of Single Largest Project for Design and SITC of Grid Connected (Net Metering) Rooftop Solar PV Power Plant system completed during the last 7 years.	
29	Details for Solar Plants work completed if executed separately	
30	Details of Similar work under execution	As per Form 'D'
31	Details of Technical and Administrative staff employed in the organisation	As per Form 'F'
32	Number of years of experience for SITC of Rooftop Solar Power Plants	
33	Name and address of Bankers and position of financial soundness (Enclose solvency certificate or other relevant papers/documents, refer Form H)	As per Form 'H'
34	Mention if blacklisted and / or blacklisting proceedings pending with any client. Details of the same, with reasons, to be furnished.	

35	Details of disputes /litigations, if any, during the period of last 05 years	As per Form 'E'
36	Whether any penalty imposed by law enforcing agencies such as labour department, sale tax, GST, etc.	
37	Details of penalty / liquidated damage imposed by any client for defective /delayed/non-completion of work or violation of terms of the contract, during the last 7 years, ended on. 31.01.2021 If yes, please provide details thereof, with reasons.	
38	Whether firm had been barred from participating in the bidding process or kept in cooling period/under suspension by any client, during the last 7 years, ended on 31.03.2021. If yes, please provide details thereof, with reasons.	
39	Please indicate details of any bankruptcy/winding up of proceedings at any point of time in past	

BIO-DATA OF THE DIRECTORS/PARTNERS/ KEY ASSOCIATES

1. Name :

2. Date of Birth :

3. Associates with the organization since :

4. Professional Qualification :

5. Professional Experience :

6. Professional Affiliation :

7. Membership in :

8. Details of Published papers
: in Magazine /
Journals (if any)

9. Details of cost-effective
methods/
in the projects :

10. Exposure to new materials/ :

Signature of Applicant

DECLARATION

**(TO BE SUBMITTED BY THE APPLICANT ON THEIR FIRM/COMPANY'S LETTER
HEAD ALONGWITH THEIR APPLICATION)**

Deputy General Manager (Premises)
STATE BANK OF INDIA
PREMISES DEPARTMENT,
9TH FLOOR, SBI BHAVAN,
MADAME CAMA ROAD,
NARIMAN POINT, MUMBAI – 400021.

I/We hereby certify that:

1. I / We have submitted tender document strictly on the format prescribed by the SBI and are available on the Bank's website & there is no change in formatting, number of pages etc.
2. I / We have checked that no page is missing and all pages as per the index and checklist are available & that all pages of document submitted by us are clear & legible.
3. I / We have signed (with stamp) all the pages of the tender document before submitting the same.
4. I / We have sealed the documents properly before submitting the same.
5. I / We have read carefully & understood the instructions to the applicants.
6. I / We hereby understood and accordingly confirm that all Tender documents and supporting (EOI)/annexures etc. are required to be submitted by us strictly in the prescribed format only. In case, the Bid/documents submitted by us along with this tender is found in any other formats and not complying this condition, we hereby authorize the SBI to summarily reject our tender for which we shall not make any protest.
7. I / We have not made any modification / corrections / additions /deletions etc in the EXPRESSION OF INTEREST (EOI) documents downloaded from web by me / us. In case at any stage later, it is found there is difference in our downloaded EXPRESSION OF INTEREST (EOI) documents from the original and / or any documentation, SBI shall have the absolute right to disqualify / reject our Tender and also debar me / us in participating in any future tenders of SBI without any prior intimation to me / us.
8. I/We hereby undertake and confirm that all the information furnished in this tender is correct and true to the best of our knowledge and belief and we own full responsibility for its correctness and authenticity.

Signature of Applicant with Stamp

FORM 'B'

FINANCIAL INFORMATION

I. Banker Details

Name of the Bank :
 Branch with Address :
 City :
 Contact person in the Bank :
 Contact Details :

II. Details of Chartered Accountant

Name :
 Address :
 Registration details of accountant :
 Contact Number :
 E-mail address :

III. Financial Analysis – Details to be furnished duly supported by figures in Balance Sheet/Profit and Loss Account for the last Five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income-Tax Department (Copies to be attached).

YEARS	2016-17	2017-18	2018-19	2019-20	2020-21
Gross Annual turn-over in SITC of Solar PV Power Plant					
(ii) Profit/Loss					
(iii) Financial position:					
(a)Cash					
(b)Current Assets					
(c)Current Liabilities					
(d)Working capital (b-c)					
(e)Current Ratio: Current Assets/Current Liabilities (b/c))					
(f) Acid Test Ratio: (Quick Assets/Current Liabilities (a/c))					

IV. Income Tax Clearance Certificate

V. Solvency certificate from Bankers (Schedule Bank) of Applicant.

VI. Financial arrangements for carrying out the proposed work.

Signature of Chartered Accountant
with seal

Signature of Applicant(s)
with Seal

DETAILS OF ALL 'SIMILAR' WORKS COMPLETED DURING THE LAST SEVEN YEARS ENDING BY 30th SEPT 2021.

1	2	3	4	5	6	7	8	9	10	11
S. No.	Name of work/ project & location	Owner or sponsoring organizations	Date of Agreement with the owner	Scope of work executed	Cost of project work in Crores	Date of commencement as per contract & actual date of commencement	Stipulated Date of completion & Actual date of completion	Litigation/ Arbitration pending/ In progress with details (if any)	Name and address with contact No. of Officer of client to whom reference shall be made	Remarks

Signature of Applicant

Note:

Actual date of completion of the project should be within 7 years ending 30.09.2021 for taking into eligibility consideration. The projects mentioned in the above format shall be sorted in the order of cost of the project (Descending order)

- * Only relevant certificates to be uploaded

**PERFORMANCE REPORT FOR 'SIMILAR' MAJOR COMPLETED
WORKS (REFERRED TO IN FORM 'C')**

1. Name of the work/
Project & Location.
2. Scope of work.
3. Agreement No & Date.
4. Estimated Cost / Tendered Cost
5. Actual Value of work done
6. Date of commencement
 - a. Stipulated date of commencement.
 - b. Actual date of commencement.
7. Date of completion
 - a. Stipulated date of completion.
 - b. Actual date of completion.
8. Amount of compensation levied for delayed completion if any.
9. Performance report based on

Quality of Work,	: Very Good / Good / Fair / Poor
Time Management,	: Very Good / Good / Fair / Poor
Resourcefulness	: Very Good / Good / Fair / Poor
Financial Soundness	: Very Good / Good / Fair / Poor
Technical Proficiency	: Very Good / Good / Fair / Poor

NOTE: The performance report is to be submitted separately for all major works mentioned in Form C. The performance report preferably be submitted in the above Performa. In case, different Performa is used, the applicant shall ensure that the report / certificate shall contain all the above information / details.

Superintending Engineer /
Chief Project Manager or Equivalent
& (Name of Organization), Date

FORM 'D'

'SIMILAR' PROJECTS ON HAND - UNDER EXECUTION OR AWARDED

1	2	3	4	5	7	8	9	10	11	12	13
Sr no	Name of work/ project & location	Client / Owner or sponsoring organizations	Type of Client / Owner (Mention Govt/ / Semi Govt / PSU / Autonomous / Private)	Date of Agreement with the owner	Cost of project work in Crores	Date of commencement as per contract & actual date of commencement	Stipulated Date of completion	Up to date percentage of progress of work completed	Delay in progress (if any) and reasons thereof	Name & address with contact No. of Officer of client to whom reference shall be made	Remarks (Indicate whether any show cause notice issued or Arbitration initiated during the progress work)

Signature of Applicant

Note:

The projects mentioned in the above format shall be sorted in the order of cost of the project (Descending order)

DETAILS OF LITIGATION / ARBITRATION CASES ARISING FROM THE CONTRACTS EXECUTED IN THE LAST SEVEN YEARS OR CURRENTLY UNDER EXECUTION

Year	Award for or against Applicant	Name of Client	Cause of Litigation and Matter of Dispute	Disputed Amount	Actual Awarded Amount

(Add separate sheet if required)

Notes:

1. Information has to be filled up specifically in this format.
2. Indicate other points, if any, to show your technical competence to indicate any important point in your favour.

Name of Authorized Signatory

Sign & seal of the applicant

FORM 'F'

**DETAILS OF KEY TECHNICAL AND ADMINISTRATIVE PERSONNEL EMPLOYED
IN THE ORGANIZATION**

Sr. No.	Designation	Total Number	Names	Educational Qualification	Professional Experience	Length of continuous service with employer in years
1	2	3	4	5	6	7

Signature of Applicant

Note:

1. Details of Technical personnel shall be provided qualification-wise
2. Organization chart of the company, additional information about Technical and administrative personnel, if any, may be submitted on separate sheet
3. Professional experience in terms of Comprehensive Annual Operation and Maintenance Contract for Solar Plant “shall be mentioned separately.

**DETAILS OF PLANT & MACHINERY, MANUFACTURING UNITS, TOOLS AND
EQUIPMENTS LIKELY TO BE USED IN CARRYING OUT THE WORK.**

Sr. No	Name of the Tools / Machinery / Equipment	Unit	Make / Model / Capacity or Type	Age in years	Condition of the unit	Ownership Status (mention the quantity)			Current location	Remarks
						Presently owned	To be purchased	Leased		
1	2	3	4	5	6	7	8	9	10	11

Signature of Applicant

Note:

Details shall be submitted separately if required.

FORM 'H'

SOLVENCY CERTIFICATE WITH BANK'S DETAIL

This is to certify that M/s _____ address _____ is a customer of our bank and banking with us for the last years. Presently, the firm has availed undernoted banking facility/ies:

Sl. no.	Facility	Type of a/c	Present balance	Average balance during last 6 months

2. The conduct of firm's & key person's account have found to be satisfactory. As per the basis of credit facilities provided to the firm/ turnover in the accounts/ details available with us, the firm can be treated as good for any engagement up to a limit of Rs. _____ (Rupees _____).

3. This certificate is issued on the basis of bank's record/ transactions with the bank, without any guarantee or responsibility on the bank or any of the officers, with confirmation that facts mentioned herein as per our record.

(Signature of Branch Manager with Seal)

Note:

1. Banker's certificate should be on the letter head of the scheduled commercial bank.
2. In case of partnership firm, certificate to include names of all partners as recorded with the bank.

Signature of Applicant

CHECK LIST: Details of Enclosures.

Sl. No.	Information	Confirmation of Submission	Page no.
1	Expression of Interest (EOI) Document including Letter of Transmittal, Application Form and Forms A to H.	Yes/No	
2	Proof of constitution:	Yes/No	
	(a) In case of sole proprietorship/HUF: an affidavit executed before a 1 st Class Magistrate that the applicant is the sole proprietor of the firm/Karta of HUF		
	(b) In case of partnership firm: (Submit attested copies)		
	In case of private/Public Ltd. Co. Article of Association duly attested by Notary Public		
	Power of attorney, if any, attested by Notary Public		
3	Certificate of Registration as contractor	Yes/No	
4	Certificate of Registration with taxation authorities	Yes/No	
5	Certificate of Tax Clearance (ITCC,GST& Other Tax etc.)	Yes/No	
6	Details of requisite licenses if any	Yes/No	
7	Registration with EPF	Yes/No	
8	Proof of eligibility of essential criteria	Yes/No	
9	Declaration form A	Yes/No	
10	Financial Information	Yes/No	
	A) Balance sheets of last 5 years (Form B)	Yes/No	
	B) Calculation sheets of net worth (Form B)	Yes/No	
	C) Solvency Certificate in original (Form H)	Yes/No	
11	Details of completed work as given in Form C& C1	Yes/No	
12	Attested copies of Award Letters/Work Orders/LOI for completed work	Yes/No	
13	Original or attested copies of certificate for works done, from concerned clients	Yes/No	
14	Details of work on hand as given in Form D	Yes/No	
15	Details of litigation / arbitration cases arising from the contract's "E" if any	Yes/No	
16	Attested copies of award letters/work orders/LOI for ongoing projects / Works on Hand	Yes/No	
17	Details of key personnel as given in Form F	Yes/No	
18	Details of plant and machinery etc. as given in Form G	Yes/No	
19	Solvency Certificate with Bank details H	Yes/No	

Signature of Applicant

GENERAL CONDITIONS OF CONTRACT

1.0 Definitions: -

“Contract means the documents forming the tender and the acceptance thereof and the formal agreement executed between SBI (client) and the contractor, together with the documents referred there in including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Architects/ Bank and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

- 1.1 In the contract the following expressions shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.
- 1.1.2 ‘Site Engineer’ shall mean an Engineer appointed by the SBI at site as their representative for day-to-day supervision of work and to give instructions to the contractors.
- 1.1.3 ‘The Contractor’ shall mean the individual or firm or company whether incorporate not, undertaking the works and shall include legal personal representative of individual or the composing the firm or company and the permitted assignees of individual or firms of company.

The expression ‘works’ or ‘work’ shall mean the permanent or temporary work description in the “Scope of work” and / or to be executed in accordance with the contract includes materials, apparatus, equipment, temporary supports, fittings and things of kinds to be provided, the obligations of the contractor hereunder and work to be done by the contractor under the contract.

- 1.1.4 ‘Engineer’ shall mean the representative of the Architect/consultant.
- 1.1.5 ‘Drawings’ shall mean the drawings prepared by the Architects and issued by the Engineer and referred to in the specifications and any modifications of such drawings as may be issued by the Engineer from time to time ‘Contract value shall mean value of the entire work as stipulated in the letter of acceptance of tender subject such additions there to or deductions there from as may be made under the provide herein after contained.
- 1.1.6 Specifications’ shall mean the specifications referred to in the tender and modifications thereof as may time to time be furnished or approved by the Architect/ Consultant.
- 1.1.7 “Month” means Gregorian calendar month.
- 1.1.8 “Week” means seven consecutive days.
- 1.1.9 “Day” means a calendar day beginning and ending at 00Hrs. and 24Hrs. respectively.

CLAUSE

1.0 **Total Security Deposit**

Total Security deposit comprise of:
Earnest Money Deposit
Initial security deposit
Retention Money

a) **Earnest Money Deposit (EMD):**

Exempted

b) **Initial Security Deposit (ISD):**

Exempted

ADDITIONAL SECURITY DEPOSIT / PERFORMANCE GUARANTEE

Exempted

c) **Retention Money:**

Besides the SD as deposited by the contractor in the above said manner, the Retention money shall be deducted from the running account bill at the rate of 10% of the gross value of work done by the contractor and claimed in each bill provided the total security deposit i.e. ISD plus EMD plus Retention Money shall both together not exceed 3% of the contract value. The 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion certificate by the Architect/consultant. The balance 50% of the total security deposit shall be refunded to the contractors without interest within fifteen days after the end of defects liability period provided the contractor has satisfactorily attended to all defects, if any, in accordance with the conditions of contract including site clearance.

2.0 **Language**

The language in which the contract documents shall be drawn shall be in English.

3.0 **Errors, omissions and discrepancies**

In case of errors, omissions and/ or disagreement between written and scaled dimensions on the drawings or between the drawings and specifications etc., the following order shall apply.

- i) Between scaled and written dimension (or description) on a drawing, the latter shall be adopted.
- ii) Between the written or shown description or dimensions in the drawings and the corresponding one in the specification the former shall be taken as correct.
- iii) Between written description of the item in the specifications and descriptions in bills of quantities of the same item, the former shall be adopted:
 - a) In case of difference between rates written in figures and words, the rate in words shall prevail.

Signature of Contractor with Seal

- b) Between the duplicate / subsequent copies of the tender, the original tender shall be taken as correct.

4.0 Scope of Work:

The contractor shall carryout complete and maintain the said work in every respect strictly accordance with this contract and with the directions of and to the satisfaction Bank to be communicated through the Architect/consultant/ Bank's Engineer. The Architect/consultant at the directions of the SBI from time to time issue further drawings and / or write instructions, details directions and explanations which are here after collectively references to as Architect's /consultant's instructions in regard to the variation or modification of the design, quality or quantity of any work or the addition or omission or substitution work. Any discrepancy in the drawings or between BOQ and / or drawings and / or specifications. The removal from the site of any material brought thereon by the Contractor and any substitution of any other materials therefore the removal and / or re-executed of any work executed by him. The dismissal from the work of any person engaged thereupon.

5.0 i) Letter of Acceptance:

Within the validity period of the tender the SBI shall issue a letter of acceptance directly or through the Architect by registered post or otherwise depositing at the of the contractor as given in the tender to enter into a Contract for the execution of the work as per the terms of the tender. The letter of acceptance shall constitute a binding contract between the SBI and the contractor.

ii) Contract Agreement:

On receipt of intimation of the acceptance of tender from the SBI/ Architect, the successful tenderer shall be bound to implement the contract and within fifteen days there of shall sign an agreement in a non-judicial stamp paper of appropriate value.

6.0 Ownership of drawings:

All drawings, specifications and copies thereof furnished by the SBI through its Architect / consultants are the properties of the SBI They are not to be used on other work.

7.0 Detailed drawings and instructions:

The SBI through its Architects / consultants shall furnish with reasonable proper additional instructions by means of drawings or otherwise necessary for the execution of the work. All such drawings and instructions shall be consistent with contract documents, true developments thereof and reasonably inferable there.

The work shall be executed in conformity therewith and the contractor prepare a detailed programme schedule indicating therein the date of start and completion of various activities on receipt of the work order and submit the same to the SBI directly/through the Architect/consultant

7.0 Copies of agreement

Two copies of agreement duly signed by both the parties with the drawings shall be handed over to the contractors.

8.0 Liquidated damages:

If the contractor fails to maintain the required progress in terms of clause 6. 0 of GOC or to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion, without justification in support of the cause of delay, he may be called upon without prejudice to any other right of remedy available under

the law to the SBI on account of such breach to pay a liquidated damage at the rate of 0.50% of the contract value which subject to a maximum of 5% of the contract value.

9.0 Materials, Appliances and Employees

Unless or otherwise specified the contractor shall provide and pay for all materials, labour, water, power, tools, equipment transportation and any other facilities that are required for the satisfactory execution and completion of the work. Unless or otherwise specified all materials shall be new and both workmanship and materials shall be best quality. The contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. Workman whose work or behavior is found to be unsatisfactory by the SBI /ARCHITECT/ consultant he shall be removed from the site immediately.

10.0 Permits, Laws and Regulations:

Permits and licenses required for the execution of the work, shall be obtained by the contractor at his own expenses. The contractor shall give notices and comply with the regulations, laws, and ordinances rules, applicable to the contract. If the contractor observes any discrepancy between the drawings and specifications, he shall promptly notify the SBI in writing under intimation of the Architect/ Consultant. If the contractor performs any act, which is against the law, rules and regulations he shall meet all the costs arising there from and shall indemnify the SBI for any legal actions arising there from.

11.0 Setting out Work:

The contractor shall set out the work and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions, and alignment of all parts thereof and get it approved by the Architect / consultant before proceeding with the work. If at any time any error in this respect shall appear during the progress of the works, irrespective of the fact that the layout had been approved by, the Architect / consultant the contractor shall be responsible for the same and shall his own expenses rectify such error, if so, required to satisfaction of the SBI.

12.0 Protection of works and property:

The contractor shall continuously maintain adequate protection. of all his work from damage and shall protect the SBI's properties from injury or loss arising in connection with contract. He shall make good any such damage, injury, loss, except due to causes beyond his control and due to his fault or negligence.

He shall take adequate care and steps for protection of the adjacent properties. The contractor shall take all precautions for safety and protections of his employees on the works and shall comply with all applicable provisions of Govt. and local bodies' safety laws and building codes to prevent accidents, or injuries to persons or property on about or adjacent to his place of work. The contractor shall take insurance covers as per clause 24.0 at his own cost. The policy may be taken in joint names of the contractor and the SBI and the original policy may be lodged with the SBI

13.0 Inspection of work:

The SBI / Architect / Consultant or their representatives shall at all reasonable times have free access to the work site and / or to the workshop, factories, or other places where materials are lying or from where they are obtained and the contractor shall give every facility to the SBI/Architect/consultant and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBI/ Architect /Consultant except the representative of Public authorities shall be allowed on the work at any time. The proposed work either during its construction stage or its completion

can also be inspected by the Chief Technical Examiner's Organization a wing of Central Vigilance commission.

14.0 Assignment and subletting

The whole of work included in the contract shall be executed the contractor and he shall not directly entrust and engage or indirectly transfer, assign or underlet the contract or any part or share there of or interest therein without the written consent of the SBI through the Architect and no undertaking shall relieve the contractor from the responsibility of the contractor from active & superintendence of the work during its progress.

15.0 Quality of materials, workmanship & Test

All materials and workmanship shall be best of the respective kinds described in the contract and in accordance with Architect/consultant instructions and shall be subject from time to time to such tests as the Architect/consultant may direct at the place of manufacture or fabrication or on the site or an approved testing laboratory. The contractor shall provide such assistance, instruments, machinery, labor, and materials as are normally required for examining measuring sampling and testing any material or part of work before incorporation in the work for testing as may be selected and required by the Architect/consultant.

ii) Samples

All samples of adequate numbers, size, shades & pattern as per specifications shall be supplied by the contractor without any extra charges. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site detailed literature / test certificate of the same shall be provided to the satisfaction of the Bank/Architect/consultant. Before submitting the sample / literature the contractor shall satisfy himself that the material / equipment for which he is submitting the sample / literature meet with the requirement of tender specification. Only when the samples are approved in writing by the Bank/Architect / consultant the contractor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be the signed by the Bank/Architect / Consultant for identification and shall be kept on record at site office until the completion of the work for inspection / comparison at any time. The Bank/Architect/Consultant shall take reasonable time to approve the sample. Any delay that might occur in approving the samples for reasons of its not meeting the specifications or other discrepancies inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials / equipment etc. shall be to the account of the contractor.

iii) Cost of tests

The cost of making any test shall be borne by the contractor if such test is intended by or provided for in the specification or BOQ.

iv) Costs of tests not provided for

If any test is ordered by the Bank/Architect/ Consultant which is either

If so intended by or provided for or (in the cases above mentioned) is not so particularized, or though so intended or provided for but ordered by the Architect / Consultant to be carried out by an independent person at any place other than the site or the place of manufacture or fabrication of the materials tested or any Government / approved laboratory, then the cost of such test shall be borne by the contractor.

16.0 Obtaining information related to execution of work

No claim by the contractor for additional payment shall be entertained which is consequent upon failure on his part to obtain correct information as to any matter affecting the execution

Signature of Contractor with Seal

of the work nor any misunderstanding or the obtaining incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfillment of contract.

17.0 Contractor's superintendence

The contractor shall give necessary personal superintendence during the execution the works and as long, thereafter, as the Bank/Architect / Consultant may consider necessary until the expiry of the defects liability period, stated here to.

18.0 Quantities

The bill of quantities (BOQ) unless or otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard Method of Measurements and quantities. The rate quoted shall remain valid for variation of quantity against individual item to any extent. The entire amount paid under Clause 19, 20 hereof as well as amounts of prime cost and provision sums, if any, shall be excluded.

19.0 Works to be measured

The Bank/Architect/Consultant may from time to time intimate to the contractor that he requires the work to be measured and the contractor shall forthwith attend or send a representative to assist the Bank/Architect in taking such measurements and calculation and to furnish all particulars or to give all assistance required by any of them. Such measurements shall be taken in accordance with the Mode of measurements detail in the specifications. The representative of the Bank/Architect / Consultant shall take measurements with the contractor's representative and the measurements shall be entered in the measurement book. The contractor or his authorized representative shall sign all the pages of the measurement book in which the measurements have been recorded in token of his acceptance. All the corrections shall be duly attested by both representatives. No over writings shall be made in the Measurement Book (M.B.) Should the contractor not attend or neglect or omit to depute his representative to take measurements, the measurements recorded by the representative of the Bank/Architect / consultant shall be final. All authorized extra work, omissions and all variations made shall be included such measurement.

20.0 Variations

No alteration, omission or variation ordered in writing by the Bank/Architect / consultant vitiates the contract. In case the SBI / Architect / Consultant thinks proper at any during the progress of works to make any alteration in, or additions to or omission from the works or any. alteration in the kind or quality of the materials to be used therein, the Bank/Architect / Consultant shall give notice thereof in writing to the contractor shall confirm in writing within seven days of giving such oral instructions the contract shall alter to, add to, or omit from as the case may be in accordance with such but the contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the contract, stipulations, specifications or contract drawings without previous consent in writing of the Bank/Architect/ Consultant and the value of such extras, alterations, additions or omissions shall in all cases be determined by the Architect / Consultant and the same shall be added to or deducted from the contract value, as the case may be.

21.0 Valuation of Variations

No claim for an extra shall be allowed unless it shall have been executed under the authority of the Bank/Architect / Consultant with the concurrence of the SBI as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

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- a) (i) The net rates or prices in the contract shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.

(ii) Rates for all items, wherever possible should be derived out of the rates given in the priced BOQ.
- b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions do not vary the conditions under which any remaining items of Works are carried out, otherwise the prices for the same shall be valued under sub-Clause 'c' hereunder.
- c) Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the contractor shall within 7 days of the receipt of the letter of acceptance inform the Architect/ consultant of the rate which he intends to charge for such items of work, duly supported by analysis of the rate or rates claimed and the Architect/ consultant shall fix such rate or prices as in the circumstances in his opinion are reasonable and proper, based on the market rate.
- d) Where extra work cannot be properly measured or valued the contractor shall be allowed day work prices at the net rates stated in the tender, of the BOQ or, if not, so stated then in accordance with the local day work rates and wages for the district; provided that in either case, vouchers specifying the daily time (and if required by the Architect/Consultant) the workman's name and materials employed be delivered for verifications to the Architect /consultant at or before the end of the week following that in which the work has been executed.
- e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the Contractor shall submit rates duly supported by rate analysis worked on the 'market rate basis for material, labour hire / running charges of equipment and wastages etc. plus 15% towards establishment charges, contractor's overheads and profit. Such items shall, not be eligible for escalation.

22.0 Final measurement

The measurement and valuation in respect of the contract shall be completed within two months of the virtual completion of the work.

23.0 Virtual Completion Certificate (VCC)

On successful completion of entire works covered by the contract to the full satisfaction of the SBI, the contractor shall ensure that the following works have been completed the satisfaction of the SBI:

- a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractor's labour equipment and machinery.
- b) Demolish, dismantle and remove the contractor's site office, temporary works, structure including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI not incorporated in the permanent works.
- c) Remove all rubbish, debris etc. from the site and the land allotted to the contractor the SBI and shall clear, level and dress, compact the site as required by the SBI.

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- d) Shall put the SBI in undisputed custody and possession of the site and all land allot by the SBI.
- e) Shall hand over the work in a peaceful manner to the SBI
- f) All defects / imperfections have been attended and rectified as pointed out by the Architects to the full satisfaction of SBI.

Upon the satisfactory fulfillment by the contractor as stated above, the contractor is entitled to apply to the Architect / consultant is satisfied of the completion of work. Relative to which the completion certificate has been sought, the Architect/ consultant shall within fourteen (14) days of the receipt of the application for completion certificate, issue a VCC in respect of the work for which the VCC has applied.

This issuance of a VCC shall not be without prejudice to the SBI's rights and contractor liabilities under the contract including the contractor's liability for defects liability nor shall the issuance of VCC in respect of the works or work at any site be construction as a waiver of any right or claim of the SBI against the contractor in respect of or work at the site and in respect of which the VCC has been issued.

24.0 Work by other agencies

The SBI / Architect / consultant reserves the rights to use premises and any portion the site for execution of any work not included in the scope of this contract which it may desire to have carried out by other persons simultaneously and the contractor shall not only allow but also extend reasonable facilities for the execution of such work. The contractor however shall not be required to provide any plant or material for the execution of such work except by special arrangement with the SBI. Such work shall be carried out in such manner as not to impede the progress of the works included in the contract.

25.0 Insurance of works

- 25.1 Without limiting his obligations and responsibilities under the contract the contractor shall insure in the joint names of the SBI and the contractor against all loss of damages from whatever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the SBI and contractor are covered for the period stipulated vide clause of GCC and are also covered during the period of maintenance for loss or damage arising from a cause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the contractor in the course of any operations carried out by him for the purpose of complying with his obligations under clause.
 - a) The Works for the time being executed to the estimated current Contract value thereof, or such additional sum as may be specified together with the materials for incorporation in the works at their replacement value.
 - b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.
 - c) Such insurance shall be affected with an insurer and in terms approved by the SBI which approval shall not be unreasonably withheld and the contractor shall whenever require produce to the Architect / consultant the policy if insurance and the receipts for payment of the current premiums.

25.2 Damage to persons and property

The contractor shall, except if and so far as the contract provides otherwise indemnify the SBI against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to:

- a) The permanent use or occupation of land by or any part thereof.
- b) The right of SBI to execute the works or any part thereof on, over, under, in or through any lands.
- c) Injuries or damages to persons or properties which are unavoidable result of the execution or maintenance of the works in accordance with the contract
- d) Injuries or damage to persons or property resulting from any act or neglect of the SBI their agents, employees or other contractors not being employed by the contractor or for or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the contractor, his servants or agents such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the SBI, their employees, or agents or other employees, or agents or other contractors for the damage or injury.

25.3 Contractor to indemnify SBI

The contractor shall indemnify the SBI against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the provision sub-clause 25.2 of this clause.

25.4 Contractor's superintendence

The contractor shall fully indemnify and keep indemnified the SBI against any action, claim, or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claim made under or action brought against SBI in respect of such matters as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expenses to settle any dispute or to conduct any litigation that may arise there from, provided that the contractor shall not be liable to indemnify the SBI if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Architect / consultant in this behalf.

25.5 Third Party Insurance

25.5.1 Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clause 24.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of SBI, or to any person, including any employee of the SBI, by or arising out of the execution of the works or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to clause 24.0 thereof.

25.5.2 Minimum amount of Third-Party Insurance

Such insurance shall be affected with an insurer and in terms approved by the SBI which approval shall not be reasonably withheld and for at least the amount stated below. The contractor shall, whenever required, produce to the Architect / consultant the policy or policies of insurance cover and receipts for payment of the current premiums.

25.6 The minimum insurance cover for physical property, injury, and death is ₹5 Lakh per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

25.7 Accident or Injury to workman:

25.7.1 The SBI shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or any sub-contractor, save and except an accident or injury resulting from any act or default of the SBI or their agents, or employees. The contractor shall indemnify and keep indemnified SBI against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

25.7.2 Insurance against accidents etc. to workmen

The contractor shall insure against such liability with an insurer approved by the SBI during the whole of the time that any persons are employed by him on the works and shall, when required, produce to the Architect / consultant such policy of insurance and receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-contractor the contractor's obligation to insure as aforesaid under this sub-clause shall be satisfied if the sub-contractor shall have insured against the liability in respect of such persons in such manner that SBI is indemnified under the policy but the contractor shall require such sub-contractor to produce to the Architect /consultant when such policy of insurance and the receipt for the payment of the current premium.

25.7.3 Remedy on contractor's failure to insure

If the contractor fails to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the SBI may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the SBI as aforesaid from any amount due or which may become due to the contractor, or recover the same as debt from the contractor.

25.7.4 Without prejudice to the others rights of the SBI against contractors. In respect of such default, the employer shall be entitled to deduct from any sums payable to the contractor the amount of any damages costs, charges, and other expenses paid by the SBI and which are payable by the contractors under this clause. The contractor shall upon settlement by the Insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the contractor and the Contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

26.0 Commencement of Works:

The date of commencement of the work will be reckoned as the date, seven days from the date of award of letter by the SBI.

27.0 Time for completion

Time is essence of the contract and shall be strictly observed by the contractor. The entire work shall be completed within a period of 60 days (2 months) from the date of commencement. If required in the contract or as directed by the Bank/Architect / consultant. The contractor shall complete certain portions of work before completion of the entire work. However, the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

28.0 Extension of time

If, in the opinion of the Bank/Architect/consultant, the work be delayed for reasons beyond the control of the contractor, the Architect/consultant may submit a recommendation to the SBI to grant a fair and reasonable extension of time for completion of work as per the terms of contract. If the contractor needs an extension of time for the completion of work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the SBI directly/ through the Architect' Consultant in writing at least 30 Days before the expiry of the scheduled time and while applying for extension of time he shall furnish the reason in detail and his justification if any, for the delays. The Architect/consultant shall submit their recommendations to the SBI in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period extended time which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the provision of liquidated damages as stated under clause 10.0 shall become applicable. Further the contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not.

29.0 Rate of progress

Whole of the materials, plant and labour to be provided by the contractor and the mode, manner and speed of execution and maintenance of the works are to be of a kind and conducted in a manner to the satisfaction of the Bank/Architect / consultant should the rate of progress of the work or any part thereof be at any time be in the opinion the Bank/ Architect / consultant too Slow to ensure the completion of the whole of the work the prescribed time or extended time for completion the Bank/ Architect / consultant shall thereupon take such steps as considered necessary by the Bank/Architect / consultant to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the Bank/Architect / consultant neither shall relieve the contractor from fulfilling obligations under the contract nor he will be entitled to raise any claims arising out of such directions.

30.0 Work during nights and holidays

Subject to any provision to the contrary contained in the contract no permanent work shall save as herein provided be carried on during the night or on holidays without the permission in writing of the Bank/Architect / consultant, save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the work in which case the contractor shall immediately advise the Bank/ Architect / consultant. However, the provisions of the clause shall not be applicable in the case of any work which becomes essential to carry by rotary or double shifts in order to achieve the progress and quality of the part of the works being technically required / continued with the prior approval of the Architect / consultant at no extra cost to the SBI

All work at night after obtaining approval from competent authorities shall be carried out without unreasonable noise and disturbance.

31.0 No compensation or restrictions of work

If at any time after acceptance of the tender SBI shall decide to abandon or reduce the scope of work for any reason whatsoever and hence not required the whole or any part of the work to be carried out. The Architect / consultant shall give notice in writing that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise what so ever on account of any profit or advantage which he might have derived from the execution of the Work fully but which he did not derive in consequence of the foreclosure of the whole or part of the work.

Provided that the contractor shall be paid the charges on the cartage only of materials actually and bona-fide brought to the site of the work by the contractor and rendered surplus as a result of the abandonment, curtailment of the work or any portion thereof and then taken back by the contractor, provided however that the Architect / Consultant shall have in such cases the option of taking over all or any such materials at their purchase price or a local current rate whichever is less.

“In case of such stores having been issued from SBI stores and returned by the contractor to stores, credit shall be given to him at the rates not exceeding those at which were originally issued to the contractor after taking into consideration and deduction for claims on account of any deterioration or damage while in the custody of the contractor and in this respect the decision of Architect / consultant shall be final.

32.0 Suspension of work

The contractor shall, on receipt of the order in writing of the Bank/Architect / consultant (whose decision shall be final and binding on the contractor) suspend the progress of works or any part thereof for such time and in such manner as Bank/Architect /consultant may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of following reasons:

- a) On account any default on the part of the contractor, or
- b) For proper execution of the works or part thereof for reasons other than the default the contractor, or
- c) For safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works the extent necessary and carry out the instructions given in that behalf by the Bank/Architect / consultant.

- d) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above:
The contractor shall be entitled to an extension of time equal to the period of every such suspension. No compensation whatsoever shall be paid on this account.

33 Action when the whole security deposit is forfeited

In any case in which under any clause or clauses of this contract, the Contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit the Architect / consultant shall have the power to adopt any of the following course as they may deem best suited to the interest of the SBI:

- a) To rescind the contract (of which rescission notice in writing to the contractor by - Architect / consultant shall be conclusive evidence) and in which case the security, deposit of the contractor shall be forfeited and be absolutely at the disposal of SBI
- b) To employ labour paid by the SBI and to supply materials to carry out the work, or part of the work, debiting the contractor with the cost of the labour and materials cost of such labour and materials as worked out by the Architect/consultant shall final and conclusive against the contractor) and crediting him with the value of the work done, in all respects in the same manner and at the same manner and at the same rates as if it had been carried out by the contractor under the terms of this contract certificate of Architect /consultant as to the value of work done shall be final conclusive against the contractor.
- c) To measure up the work of the contractor, and to take such part thereof as shall unexecuted, out of his hands, and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (The amount of which excess the certificates in writing of the Architects / consultant shall final and conclusive) shall be borne by original contractor and may be deducted f any money due to him by SBI under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.

In the event of any of above courses being adopted by the SBI the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall be rescind under the provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until the Architect / consultant will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

34.0 Owner's right to terminate the contract

If the contractor being an individual or a firm commit any 'Act of insolvency' or shall be adjusted an insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt. and of the Official Assignee of the liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him to do so, to show to the reasonable satisfaction of the Architect / Consultant that he is able to carry out and fulfill the contract, and to dye security therefore if so required by the Architect / Consultant or if the contractor (whether an individual firm or incorporated Company) shall suffer execution to be issued or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the SBI through the Architect/Consultant or shall charge or encumber this contract or any payment due to which may become due to the contractor there under:

- a) has abandoned the contract; or
- b) has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days after receiving from the SBI through the Architect / consultant written notice to proceed, or
- c) has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or

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has failed to remove the materials from the site or to pull down and replace work within seven days after written notice from the SBI through the Architect / Consultant that the said materials were condemned and rejected by the Architect/consultant under these conditions; or has neglected or failed persistently to observe and perform all or any of the acts matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor to observe or perform the same or has to the detriment of good workmanship or in defiance of the SBI or Architect's / consultant's instructions to the contrary subject any part of the contract. Then and in any of said cases the SBI and or the Architect / consultant, may not withstanding any previous waiver, after giving seven days' notice in writing to the contractor, determine the contract, but without thereby affecting the powers of the SBI or the Architect / consultant or the obligation and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been determined and as if the works subsequently had been executed by or on behalf of the contractor. And, further the SBI through the Architect / consultant their agents or employees may enter upon and take possession of the work and all plants, tools scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other contractors or persons to the work and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other persons employed for complement and finishing or using the materials and plant for the works.

When the works shall be completed or as soon thereafter as convenient the SBI or Architect / consultant shall give a notice in writing to the contractor to remove his surplus materials and plants and should the contractor fail to do so within 14 days after receive thereof by him the SBI sell the same by public auction, and after due publication, and shall, adjust the amount realized by such auction. The contractor shall have no right to question any of the act of the SBI incidental to the sale of the materials etc.

35.0 Certificate of payment

The contractor shall be entitled under the certificates to be issued by the Architect / consultant to the contractor within 10 working days from the date of certificate to payment from SBI from time to time. The SBI shall recover the statutory recovering other dues including the retention amount from the certificate of payment.

Provided always that the issue of any certificate by the Architect / consultant during progress of works or completion shall not have effect as certificate of satisfaction relieve the contractor from his liability under clause.

The Architect / consultant shall have power to withhold the certificate if the work or in part thereof is not carried out to their satisfaction.

The Architect / consultant may by any certificate make any corrections required previous certificate.

The SBI shall modify the certificate of payment as issued by the Architect / consultant from time to time while making the payment

The contractor shall submit interim bills only after taking actual measurements and properly recorded in the Measurement Book (M. B.)

The payment shall be made as per clause mentioned in NIT

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The final bill may be submitted by contractor within a period of one month from the date of virtual completion and Architect / consultant shall issue the certificate of payment within a period of two months. The SBI shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities.

The contractor shall submit the interim bills in the prescribed format with all details.

36.0 A. Settlement of Disputes and Arbitration

Except where otherwise provided in the contract all questions and disputes to the meaning of the specifications, design, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings specifications, estimates, instructions orders or these conditions or otherwise concerning the work or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to The Deputy General Manager(Premises), SBI Corporate Centre,9th floor, State Bank Bhavan, Madam Cama road, Mumbai-21 And endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the SBI be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to The Deputy General Manager(Premises), SBI Corporate Centre in the manner and within the time as aforesaid. The Contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to The Deputy General Manager(Premises), SBI Corporate Centre in writing in the manner and within the time aforesaid.

B. Settlement of Disputes and Arbitration

The Deputy General Manager(Premises), SBI Corporate Centre shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of The Deputy General Manager(Premises), SBI Corporate Centre submit his claims to the conciliating authority namely the General Manager(OL & CS), SBI Corporate Centre for conciliation along with all details and copies of correspondence exchanged between him and the Deputy General manager(Premises),SBI corporate centre.

- i) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the Deputy Managing Director & CDO for appointment of an arbitrator to adjudicate the notified claims falling which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- ii) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Deputy Managing Director &CDO. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as

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Bank Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Deputy Managing Director & CDO of the SBI. Such person shall be entitled to proceed with the reference from the stage at which it was let by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such Deputy Managing Director & CDO as aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any or any accordance modification or reenactment thereof and the rules made there under.

It is also a term of the contract that if any fees are payable to the Arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a Bank Officer.

It is also a term of the contract that the Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any of the arbitrators shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The Cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

37.0 Water Supply

The contractor shall make his own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following condition.

- i) That the water used by the contractor shall be fit for construction purposes to the satisfaction of the Architect / consultant's.
- ii) The contractor shall make alternative arrangements for the supply of water if the arrangement made by the contractor for procurement of water in the opinion of the Architect / consultant is unsatisfactory.

37.1 The contractor shall construct temporary well / tube well in SBI and for taking water for construction purposes only after obtaining permission in writing from the SBI. The contractor has to make his own arrangements for drawing and distributing the water at his own cost. He has to make necessary arrangements. To avoid any accidents or damages caused due to construction and subsequent maintenance of the wells. He has to obtain necessary approvals from local authorities, if required, at his own cost. He shall restore the ground to its original condition after wells are dismantled on completion of work or hand over the well to the SBI without any compensation as directed by the Architect / consultant.

37.2 If the contractor makes use of Bank's water connection or power connection (after obtaining due permission, an amount of 0.25% of the tendered amount/amount of final bill , whichever is higher will be deducted.

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38.0 Power Supply

The contractor shall make his own arrangements for power and supply / distribution system for driving plant or machinery for the work and for lighting purpose.

39.0 Treasure Trove etc.

Any treasure trove, coin or object antique which may be found on the site shall be the property of SBI and shall be handed over to the bank immediately.

40.0 Method of Measurement

Unless otherwise mentioned in the schedule of quantities or in mode of measurement, the measurement will be on the net quantities or work produced in accordance with up to date rules laid down by the Bureau of Indian Standards. In the event any dispute / disagreement the decision of the Bank/Architect / consultant shall be final and binding on the contractor.

41.0 Maintenance of Registers

The contractor shall maintain the following registers as per the enclosed perform at site of work and should produce the same for inspection of SBI/Architect / consultant whenever desired by them. The contractor shall also maintain the records / registers as required by the local authorities / Govt. from time to time.

- i) Register for secured advance
- ii) Register for hindrance to work
- iii) Register for running account bill
- iv) Register for labour

42.0 Force Majeure

42.1 Neither contractor nor SBI shall be considered in default in performance of the obligations if such performance is prevented or delayed by events such as but not war, hostilities revolution, riots, civil commotion, strikes, lockout, conflagrations, epidemics, accidents, fire, storms, floods, droughts, earthquakes or ordinances or any act of or for any other cause beyond the reasonable control of the party affected or prevents or delayed. However, a notice is required to be given within 30 days from the happening of the event with complete details, to the other party to the contract, if it is not possible to serve a notice, within the shortest possible period without delay.

42.2 As soon as the cause of force majeure has been removed the party whose ability perform its obligations has been affected, shall notify the other of such cessation and the actual delay incurred in such affected activity adducing necessary evidence in support thereof.

42.3 From the date of occurrence of a case of force majeure obligations of the party affected shall be suspended during the continuance of any inability so caused. With the caused itself and inability resulting there from having been removed, the agreed time completion of the respective obligations under this agreement shall stand extended a period equal to the period of delay occasioned by such events.

42.4 Should one or both parties be prevented from fulfilling the contractual obligations by state of force majeure lasting to a period of 6 months or wore the two parties, shall each other to decide regarding the future execution of this agreement.

43.0 Local laws, Acts Regulations:

The contractor shall strictly adhere to all prevailing labour laws inclusive at contract labour (regulation and abolition act of 1970) and other safety regulations. The contractors should

comply with the provision of all labour legislation including the latest requirements of the Acts, laws, any other regulations that are applicable to the execution of the project.

- i) Minimum wages Act 1948 (Amended)
- ii) Payment of wages Act 1936 (Amended)
- iii) Workmen's compensation Act 1923 (Amended)
- iv) Contract labour regulation and abolition act 1970 and central rules 1971 (Amended)
- v) Apprentice act 1961 (amended)
- vi) Industrial employment (standing order) Act 1946 (Amended)
- vii) Personal injuries (Compensation insurance) act 1 963 and any other modifications
- viii) Employees' provident fund and miscellaneous provisions Act 1952 and amendment thereof
- ix) Shop and establishment act
- x) Any other act or enactment relating thereto and rules framed there under from time to time.
- xi) Prevailing Indian Electricity rules & act.

44.0 **Accidents**

The contractor shall immediately on occurrence of any accident at or about the site or in connection with the execution of the work report such accident to the Architect / consultant. The contractor shall also such report immediately to the competent authority whenever such report is required to be lodged by the law and take appropriate actions thereof.

SPECIAL CONDITION OF CONTRACT

Scope of work

1.0 The scope of work is to carry out for the Design and SITC of Grid connected (Net Metering) Rooftop Solar PV Power Plant at 6 Nos of residential buildings as mentioned above.

2.0 Address of site

The site is located at 6 Nos of residential buildings of Corporate Centre as mentioned above..

3.0 Dimensions and levels

All dimensions and levels shown on the drawings shall be verified by the contractor and the site and he will be held responsible for the accuracy and maintenance of. All the dimensions and the levels. Figured dimensions are in all cases to be accepted and dimension shall be scaled. Large scale details shall take precedence over small scale drawings. In case of discrepancy the contractor shall ask for clarification from the Architect / consultant before proceeding with the work.

4.0 Notice of operation

The contractor shall not carry out any important operation without the Consent in with from the Architect / consultant:

5.0 Construction records

The contractor shall keep and provide to the Architect / consultant full and accurate records of the dimensions and positions of all new work and any other information necessary to prepare complete drawings recording details of the work as construction.

6.0 Safety of adjacent structures and trees

The contractor shall provide and erect to the approval of the Architect / consultant supports as may be required to protect effectively all structures and protective give to trees, which may be endangered by the execution of the works or otherwise such permanent measures as may be required by the Architect to protect the tree structures.

7.0 Temporary works.

Before any temporary works are commenced the contractor shall submit at least in advance to the Architect / consultant for approval complete drawings of all temporary works he may require for the execution of the works. The contractor shall carry out the modifications relating to strength, if required by the Architect / consultant may require in accordance with the conditions of contract at his own cost the contractor shall be solely responsible for the stability and safety of all temporary works and unfinished works and for the quality of the permanent works resulting from the arrangement eventually adopted for their execution.

8.0 Water, Power and other facilities

a) The rate quoted by the contractor shall include all expenses that are required for providing all the water required for the work and the contractor shall make his own

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arrangements for the supply of good quality water suitable for the construction and good quality drinking water for their workers. If necessary the contractor has to sink a tube well / open well and bring water by means of tankers at his own cost for the purpose. The SBI will not be liable to pay any charges in connection with the above.

b) The rate quoted in the tender shall include the expenses for obtaining and maintaining power connections and shall pay for the consumption charges as instructed.

c) The contractors for other trades directly appointed by the SBI shall be entitled to take power and water connections from the temporary water and power supply obtained by the contractor. However, the concerned contractor shall make their own arrangements to draw the supply and pay directly the actual consumption charges at mutually agreed rates between them. All municipal charges for drainage and water connection for Construction purposes shall be borne by the contractor and charges payable for permanent connections, if any, shall be initially paid by the contractor and the SBI will reimburse the amount on production of receipts.

d) The SBI as well as the Architect / consultant shall give all possible assistance to the Contractor's to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same in time shall be of the contractor.

e) If the contractor makes use of Bank's water connection or power connection (after obtaining due permission, an amount of 0.25% of the tendered amount/amount of final bill, whichever is higher will be deducted.

9.0 Facilities for contractor's employees

The contractor shall make his own arrangement for the housing and welfare of his staff and workmen including adequate drinking water facilities. The contractor shall also make the arrangements at his own cost for transport where necessary for his staff and workmen to and from site of work at his own cost.

10.0 Lighting of works

The contractor shall at all times provide adequate and approved lighting as required for the proper execution and supervision and inspection of work.

11.0 Firefighting arrangements

i) The contractor shall provide suitable arrangement for firefighting at his own cost. This purpose he shall provide requisite number of fire extinguishers and adequate number of buckets, some of which are to be always kept filled with sand and some with water. This equipment shall be provided at suitable prominent and easily accessible place and shall be properly maintained.

ii) Any deficiency in the fire safety or unsafe conditions shall be corrected by the contractor at his own cost and, to the approval of the relevant authorities. The contractor makes the following arrangements at his own cost but not limited to the following:

- a) Proper handling, storage and disposal of combustible materials and waste.
- b) Work operations which can create fire hazards.
- c) Access for fire-fighting equipment.

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- d) Type, number and location of containers for the removal of surplus materials and rubbish.
- e) Type, size, number and location of fire extinguishers or other fire fighting equipment.
- f) General house keeping

12.0 Site order book

A site order book shall be maintained at site for the purpose of quick communication between the Architect / Consultant. Any communication relating to the work may be conveyed through records in the site order book. Such a communication from one party to the other shall be deemed to have been adequately served in terms of contract. Each site order book shall have machine numbered pages in triplicate and shall be carefully maintained and preserved by the contractor and shall be made available to the Architect / consultant as and when demanded. Any instruction which the Architect / consultant may like to issue to the contractor or the contractor may like to bring to the Architect / consultant two copies of such instructions shall be taken from the site order book and one copy will be handed over to the party against proper acknowledgment and the second copy will be retained for their record.

13.0 Temporary fencing/ barricading

The contractor shall provide and maintain a suitable temporary fencing / barricading and gates at his cost to adequately enclose all boundaries of the site for the protection of the public and for the proper execution and security of the work and in accordance with the requirement of the Architect / consultant and regulations of local authorities. These shall be altered, relocated and adopted from time to time as necessary and removed on completion of the work.

14.0 Site meetings

Site meetings will be held to review the progress and quality evaluation. The contractor shall depute a senior representative along with the site representative and other staff of approved sub-contractors and suppliers as required to the site meetings and ensure all follow up actions. Any additional review meetings shall be held if required by the Architect/ consultant.

15.0 Disposal of refuse

The contractor shall cart away all debris, refuse etc. arising from the work from the site and deposit the same as directed by the Architect / consultant at his own cost. It is the responsibility of the contractor to obtain from the local authorities concerned to the effect that all rubbish arising out of contractor's activities at the construction site or any other off-site activities borrow pits has been properly disposed of.

16.0 Contractor to verify site measurement

The contractor shall check and verify all site measurements whenever requested other specialist contractors or other sub-contractors to enable them to prepare the own shop drawing and pass on the information with sufficient promptness as will in any way delay the works.

17.0 Displaying the name of the work

The contractor shall put up a name board of suitable size as directed by the Architect/ consultant indicating therein the name of the project and other details as given by the Architect/consultant at his own cost and remove the same on completion of work.

18.0 As built drawings

i) For the drawings issued to the contractor by the Architect / Consultant. The Architect Consultant will issue two sets of drawings to the Contractor for the items for some changes have been made. From the approved drawings as instructed by the SBI / Architect /

Consultant. The contractor will make the changes made on these copies and return these copies to the Architect / Consultant for their approval. In cases revision is required or the corrections are not properly marked the Architect / Consultant will point out the discrepancies to the contractor. The contractor will have to incorporated these corrections and / or attend to discrepancies either on copies as directed by the Architect / consultant and resubmit to him for approval. The Architect / consultant will return one copy duly approved by him.

ii) For the drawings prepared by the contractor

The contractor will modify the drawing prepared by him wherever the changes made by the SBI / Architect / Consultant and submit two copies of such modified drawings to the Architect / Consultant for approval. The Architect / consultant will return one copy of the approved drawing to the contractor.

19.0 Approved make

The contractor shall provide all materials from the list of approved makes at his own cost and also appoint the specialized agency for the waterproofing item as specified in the tender. The Architect / Consultant may approve any make / agency within the approved list as given in the tender after inspection of the sample/mock up.

20.0 Procurement of materials

The contractor shall make his own arrangements to procure all the required materials for the work. All wastages and losses in weight shall be to the contractors account

21.0 Excise Duty, Taxes, Leveis etc.;

The contractor shall pay and be responsible for payment of all taxes, duties, levies, royalties, fees, cess or charges in respect of the works including but not limited to sales tax, tax on works contract excise duty, and octroi, payable in respect of materials, equipment plant and other things required for the contact. All of the aforesaid taxes, duties, levies, fees and charges shall be to the contractor's account and the SBI shall not be required to pay any additional or extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra claim on this account will in any case be entertained. If a new tax or duty or levy or cess or royalty or octroi is imposed under as statutory law during the currency of contract the same shall be borne by the contractor.

22.0 Acceptance of tender

The SBI shall have the right to reject any or all tenders without assigning any reason. They are not to bind to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the SBI . However adequate transparency would be maintained by the SBI

23.0 Photographs:

- The Contractor shall at his own expense supply to the Bank/Architects with duplicate hard copies of large photographs not less than 25 cm. x 20 cm. (10" x 8") of the works, taken from two approved portions of each building, at intervals of not more than one months during the progress of the work or at every important stage of construction.
- In addition to above, the contractor shall be bound to submit adequate no. of site photographs along with each Running Bill for the project clearing showing major progress of work measured and claimed therein failing which the Architect/ SBI may consider returning the Bill to the contractor and no claim for delay on this account will be entertained.

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SAFETY CODE

1. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be kept in a readily accessible place.
2. An injured person shall be taken to a public hospital without loss of time, in cases when the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground.
4. No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent running shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding ladder.
5. The excavated material shall not be placed within 1.5 meters of the edge of the trench half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.
6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
7. No floor, roof or other part of the structure shall be so overloaded with debris or material as to render it unsafe.
8. Workers employed on mixing and handling material such as asphalt, cement, mortar, concrete and lime shall be provided with protective footwear and rubber hand gloves.
9. Those engaged in welding works shall be provided with welders' protective eye shield and gloves.
10. (i) No paint containing lead or lead products shall be used except in the form of paste readymade paint.
(ii) Suitable facemasks should be supplied for use by the workers when the paint applied in the form of spray or surface having lead paint dry rubbed and scrapped.
11. Overalls shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during cessation of work.
12. Hoisting machines and tackle used in the works including their attachments anchor and supports shall be in perfect condition.
13. The ropes used in hoisting or lowering material or as a means of suspension shall be durable quality and adequate strength and free from defects.

ARTICLES OF AGREEMENT

(On non-judicial Stamp Paper of ₹ 500/- or as per latest Govt. Rules)

ARTICLES OF AGREEMENT made the _____ date of _____ between State Bank of India, having its office at Mumbai hereinafter called "the Employer" of the One Part and

WHEREAS the SBI. is desirous of

_____ and has caused specifications describing the work to be done to be prepared by SBI.

AND WHEREAS the said Drawings numbered _____ to _____ inclusive, the Specifications and the Schedule of Quantities have been signed by or on behalf of the parties hereto.

AND WHEREAS the Contractor has agreed to execute upon and subject to the Conditions set forth herein and to the Conditions set forth herein in the Special Conditions and in the Schedule of Quantities and Conditions of Contract (all of which are collectively hereinafter referred to as "the said conditions") the works shown upon the said Drawings and / or described in the said Specifications and included in the Schedule of Quantities at the respective rates therein set forth amounting to the sum as therein arrived at our such other sum as shall become payable there under (hereinafter referred to as "the said Contract Amount.)

NOW IT IS HEREBY AGREED AS FOLLOWS:

- 1) In consideration of the said Contract Amount to be paid at the times and in the manner set forth in the said Conditions, the Contractor shall upon and subject to the said Conditions execute and complete the work shown upon the said Drawings and described in the said Specifications and the priced Schedule of Quantities.
- 2) The Employer shall pay to the Contractor the said Contract Amount, or such other sum as shall become payable, at the times and in the manner specified in the said Conditions.
- 3) The term "The Architects" in the said Conditions shall mean the SBI, or in the event of their ceasing to be the Architects for the purpose of this Contract for whatever reason, such other person or persons as shall be nominated for that purpose by the Employer, not being a person to whom the Contractor shall object for reasons considered to be sufficient by the Employer, PROVIDED ALWAYS that no person or persons subsequently appointed to be Architects under this Contract shall be entitled to disregard or overrule any previous decisions or approval or direction given or expressed in writing by the outgoing Architects for the time being.

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- 4) The said Conditions and Appendix thereto shall be read and construed as forming part of this Agreement, and the parties hereto shall respectively abide by submit themselves to the said Conditions and perform the Agreements on their part respectively in the said Conditions contained.
- 5) The Plans, Agreements and Documents mentioned herein shall form the basis of this Contract.
- 6) This Contract is neither a fixed lump-sum contract nor a piece work contract but a contract to carry out the work in respect of the entire building complex to be paid for according to actual measured quantities at the rates contained in the Schedule of Quantities and Rates or as provided in the said Conditions.
- 7) The Contractor shall afford every reasonable facility for the carrying out of all works relating to civil works, installation of lifts, Telephone, electrical installations, fittings air-conditioning and other ancillary works in the manner laid down in the said Conditions, and shall make good any damages done to walls, floors, etc. after the completion of his work.
- 8) The SBI reserves to itself the right of altering the drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this Contract.
- 9) Time shall be considered as the essence of this Contract and the Contractor hereby agrees to commence the work soon after the Site is handed over to him or from 14th day after the date of issue of formal work order as provided for in the said Conditions whichever is later and to complete the entire work within 60 **days** subject to nevertheless the provisions for extension of time.
- 10) All payments by the SBI under this Contract will be made only at Mumbai.
- 11) All disputes arising out of or in any way connected with this Agreement shall be deemed to have arisen at Mumbai and only the Courts in Mumbai shall have jurisdiction to determine the same.
- 12) That the several parts of this Contract have been read by the Contractor and fully understood by the Contractor.

IN WITNESS WHEREOF THE SBI and the Contractor have set their respective hands to these presents and two duplicates hereof the day and year first hereinabove written.

Signature of Contractor with Seal

SIGNATURE CLAUSE

SIGNED AND DELIVERED by the

_____ By the
(Employer)

hand of Shri _____

(Name and Designation)

(Signature of Employer)

In the presence of:

1) Shri / Smt. _____

(Signature of Witness)

Address _____

(Witness)

SIGNED AND DELIVERED by the

_____ by the
(Contractor)

(Signature of Contractors)

In the presence of:

Shri / Smt. _____

(Signature of Witness)

Address _____

(Witness)

(A) SAMPLE BUSINESS RULE DOCUMENT

**ONLINE E-TENDERING FOR PROPOSED HVAC WORK AT STATE BANK BHAVAN,
NARIMAN POINT MUMBAI.**

(a) Business rules for E-tendering:

1. Only prequalified vendors shall only be eligible to participate in the price bid.
2. SBI will engage the services of an e-tendering service provider who will provide necessary training and assistance before commencement of online bidding on Internet.
3. In case of e-tendering, SBI will inform the vendor in writing, the details of service provider to enable them to contact and get trained.
4. Business rules like event date, closing and opening time etc. also will be communicated through service provider for compliance.
5. Contractors have to send by email, the compliance form in the prescribed format (provided by service provider), before start of E-tendering. Without this the vendor will not be eligible to participate in the event.
6. The Contractors will be required to submit the various documents in sealed Envelope to the office of SBI .at the address mentioned hereinbefore by the stipulated date i.e. (1) Hard Copy of Technical Bid duly signed and stamped on each page by the L1 vendor (2) Deposit of specified amount of EMD in account number, if applicable. Contractors not submitting any one or more documents shall not be eligible to participate in the on-line price bidding.
7. E-tendering will be conducted on schedule date & time.
8. **The e-tendering will be treated as closed only when the bidding process gets closed in all respects for the item listed in the tender.**

(b) Terms & conditions of E-tendering:

SBI shall finalize the Tender through e-tendering mode for which M/s. Antares System Limited has been engaged by SBI an authorized service provider. Please go through the guidelines given below and submit your acceptance to the same along with your Commercial Bid.

1. E-tendering shall be conducted by SBI through M/s. Antares System Limited, on pre-specified date. While the Contractors shall be quoting from their own offices/ place of their choice, Internet connectivity and other paraphernalia requirements shall have to be ensured by Contractors themselves. In the event of failure of their Internet connectivity, (due to any reason whatsoever it may be) it is the bidders' responsibility. In order to ward-off such contingent situation bidders are requested to make all the necessary arrangements/ alternatives such as back-up power supply whatever required so that they are able to circumvent such situation and still be able to participate in the E-tendering successfully. Failure of power at the premises of Contractors during the E-tendering cannot be the cause for not participating in the E-tendering. On account of this the time for the E-tendering cannot be extended and SBI is not responsible for such eventualities.

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2. M/s. Antares System Limited, shall arrange to train your nominated person(s), without any cost to you. They shall also explain you all the Rules related to the E-tendering. You are required to give your compliance on it before start of bid process.
3. BIDDING CURRENCY AND UNIT OF MEASUREMENT: Bidding will be conducted in Indian currency & Unit of Measurement will be displayed in Online E-tendering.
4. BID PRICE: The Bidder has to quote the rate as per the Tender Document provided by SBI their appointed Architects.
5. VALIDITY OF BIDS: The Bid price shall be firm for a period specified in the tender document and shall not be subjected to any change whatsoever.
6. Procedure of E-tendering:
 - i. **Online E-tendering:**
 - (a) The NIT & Technical bid available on the e-tender's service provider website during the period specified in the NIT.
 - (b) Online e-tendering is open to the empaneled bidders who receive NIT from the Architect and qualified for participating in the price bidding as provisions mentioned hereinabove through SBI approved Service Provider.
 - (c) The Price-Bid shall be made available online by the Service Provider wherein the contractors will be required to fill-in their Item-wise rates for each item.
 - (d) The Contractors are advised not to wait till the last minute to submit their online item-wise quote in the price bid to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.
 - (e) It is mandatory to all the bidders participating in the price bid to quote their rates for each and every item.
 - (f) In case, contractor fails to quote their rates for any one or more tender items, their tender shall be treated as "***Incomplete Tender***" and shall be liable for rejection.
7. LOG IN NAME & PASSWORD: Each Bidder is assigned a Unique User Name & Password by M/s. Antares System Limited. The Bidders are requested to change the Password after the receipt of initial Password from M/s. Antares System Limited. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.
8. BIDS PLACED BY BIDDER: Bids will be taken as an offer to execute the work as specified. Bids once made, cannot be cancelled / withdrawn and the Bidder shall be bound to execute the work at the quoted bid price. In case the L-1 Bidder backs out or fail to complete the work as per the rates quoted, SBI shall at liberty to take action as deemed necessary including de-paneling such contractors and forfeiting their EMD.
9. At the end of the E-tendering, SBI will decide upon the winner. SBI decision on award of Contract shall be final and binding on all the Bidders.
10. SBI shall be at liberty to cancel the E-tendering process / tender at any time, before ordering, without assigning any reason.
11. SBI shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
12. Other terms and conditions shall be as per your techno-commercial offers and other correspondences till date.

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13. OTHER TERMS & CONDITIONS:

- The Bidder shall not involve himself or any of his representatives in Price manipulation of any kind directly or indirectly by communicating with other suppliers / bidder.
 - The Bidder shall not divulge either his Bids or any other exclusive details of SBI to any other party.
 - SBI decision on award of Contract shall be final and binding on all the Bidder.
 - SBI reserve their rights to extend, reschedule or cancel any E-tendering within its sole discretion.
 - SBI or its authorized service provider M/s. Antares System Limited shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
 - SBI or its authorized service provider M/s. Antares System Limited is not responsible for any damages, including damages that result from, but are not limited to negligence.
 - SBI or its authorized service M/s. Antares System Limited will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.
- N.B.
- All the Bidders are required to submit the Process Compliance Statement (Annexure II) duly signed to M/s. Antares System Limited.
 - **All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.**

SIGNATURE OF THE CONTRACTOR WITH SEAL

Signature of Contractor with Seal

(B) Process Compliance Statement (Annexure II)

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,
M/s. Antares System Limited
24 Sudha Complex,
3rd Stage, 4th Block,
Basaveshwarnagar,
Bengaluru - 560079

TENDER FOR DESIGN AND SITC OF GRID CONNECTED ROOFTOP SOLAR PV POWER PLANT AT 6 NOS OF RESIDENTIAL BUILDINGS.

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the Tender document

This letter is to confirm that:

- 1) The undersigned is authorized representative of the company.
- 2) We have studied the Commercial Terms and the Business rules governing the e-Tendering as mentioned in RFP of SBI as well as this document and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We confirm that SBI and Antares system Ltd shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the e-auction platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the tendering event.
- 5) **We also confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.**
- 6) We also confirm that we will mail the price confirmation / break up of our quoted price as per Annexure III & Annexure IV within 24 hours of the completion of the bid/ reverse auction and the format as requested by SBI/tender wizard.
- 7) We, hereby confirm that we will honor the Bids placed by us during the E-tendering/ auction process.

With regards,

Date:

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Scan it and send to this Document on manojkumar.d@antaressystems.com

Signature of Contractor with Seal

APPENDIX HEREINBEFORE REFERRED TO

- Name of the organization Offering Contract : The Deputy General Manager(Premises), State Bank of India, Corporate Centre, 9th floor, State Bank Bhavan, Nariman Point, Mumbai-400 021
- Consultants : NA.
- Site Address : State Bank of India, Corporate Centre
- Name of the Contractor: -----

- Address of the Contractor : -----

- Period of Completion : 60 days (2 months) from the date of Commencement
- Earnest Money Deposit: Exempted
- 9)Retention Money : As per clause no. 11(a) of general Conditions
- 10)Defects Liability Period : 12 Months from the date of Virtual Completion
- 11)Insurance to be undertaken by the Contractor at his cost : 125% of Contract Value (Contractor's all risk policy)
- 12) Liquidated damages : 0.5% of the Contract amount shown in the tender per week subject to max. 5% of the contract value or actual final bill value.
- 13) Value of Interim Bill (Min.) : **As per Payment clause**
- 14) Date of Commencement : 7 days from the date of acceptance letter is issued to the Contractor/ or the day on which the Contractor is instructed to take possession of the site whichever is earlier.
- 15) Period of Final Measurement : 2 Months from the date of Virtual Completion.
- 16) Initial Security Deposit (Clause No. 22) : Exempted.
- 17) Total Security Deposit : As per clause No. 11 a

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18) Refund of initial Security Deposit Comprising of EMD and ISD. :50% of the Security Deposit shall be refunded to the Contractor on completion of the work and balance refunded only after the Defect Liability Period is over.

19) Period for Honoring Certificate : 1. One Month for R.A. Bills
2. The final bill will be submitted by the Contractor within one month of the date fixed for completion work and the Bill shall be Certified within 3 months from the date of receipt of final bill provided the bills are submitted with all pre-requisite documents/test reports etc. prescribed in the tender.

Signature of Tenderer.

Date:

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PROFORMAS OF VARIOUS TESTS

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PROFORMA FOR REGISTER OF MATERIAL AT SITE ACCOUNT

Name of Work : Name of Article :
 Name of Contractor : Estimated Requirement :
 Agreement No. : Issue Rate :

Date of Receipt	Received from/Issued to (with Ret. to So/Indent)	Receipt	Issue	Balance	Initials of Contractor	Initial of Bank's/Architect's representative	Remark
1	2	3	4	5	6	7	8

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PROFORMA FOR REGISTER OF MATERIAL AT SITE ACCOUNT

Name of Work :

Name of Contractor :

Agreement No. :

Descripti on of Material	Qty. outstanding from previous Bill	Deduct Qty. utilised in works measured since previous bill	Qty. outstanding & Qty. brought to site since previous bill	Signature of Site Engineer	Signature of Contractor	Initial of Bank's/ Architect's representative	Remark
1	2	3	4	5	6	7	8

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PROFORMA FOR RUNNING A/C BILL

- i. Name of Contractor / Agency :
 ii. Name of Work :
 iii. Sl.No. of this Bill :
 iv. No. & Date of previous Bill :
 v. Reference to Agreement No. :
 vi. Date of Written order to commence :
 vii. Date of Completion as per Agreement :

S.No.	Item Description	Unit	Rate (₹)	As per Tender	
				Quantity	Amount (₹)
1	2	3	4	5	

Upto Previous R.A. Bill		Up Date (Gross		Present Bill		Remarks
Quantity	Amount (₹)	Quantity	Amount (₹)	Quantity	Amount (₹)	
6		7		8		9

- Note: 1. If part rate is allowed for any items, it should be indicated with reasons for allowing such a rate.
 2. If ad-hoc payment is made, it should be mentioned specifically.

 Net Value since previous bill

CERTIFICATE

The measurements on the basis of which the above entries for the Running Bill No. ----- were made have been taken jointly on ----- and are recorded at pages ----- to ----- of measurement book No. -----.

Signature and
date of Contractor

Signature and
date of Architects
Representative (Seal)

Signature and
date of Site Engineer

The work recorded in the above-mentioned measurements has been done at the site satisfactorily as per tender drawings, conditions and specifications.

Architect

Signature and
date of Site Engineer

**ACCOUNT OF SECURED ADVANCE, IF ADMISSIBLE ON
MATERIALS HELD AT SITE BY THE CONTRACTOR**

S.No.	Item	Quantity	Unit	Amount	Remarks
1	2	3	4	5	6

Total value of materials at Site.

Secured Advance @ ----- of above value - B

CERTIFIED:

That the materials mentioned above have actually been brought by the Contractor to the site of the work and on advance on any quantity of any of this item is outstanding on their security.

That the materials (are of imperishable nature) and are all required by the Contractor for use in the work in connection with the items for which rates of finished work have been agreed upon.

Dated Signature of
Site Engineer
Preparing the bill
Rank -----

Date signature of
Banks Architects-----
(Name of the Architects)

Dated Signature of
the Contractor

Signature of Contractor with Seal

MEMORANDUM FOR PAYMENT

R/A BILL NO.

1.	Total value of work done since previous bill (A)	₹ -----
2.	Total amount of secured advance due since Previous Bill (B)	₹ -----
3.	Total amount due since Previous Bill (C) (A+B)	₹ -----
4.	PVA on account of declaration in price of Steel, Cement and other materials and labour as detailed in separate statements enclosed.	₹ -----
5.	Total amount due to the Contractor	₹ -----

OBJECTIONS:

i)	Secured Advance paid in the previous R/A	₹ -----
ii)	Retention money on value of works as per accepted tenders upto date amount ₹	₹ -----
	Less already recovered	₹ -----
	Balance to be recovered	₹ -----
iii)	Mobilization Advance, if any	
(a)	Outstanding amount (principal + interest) as on date	₹ -----
(b)	To be recovered in this bill	₹ -----
iii.	Any other Departmental materials cost to be recovered as per contract, if any	₹ -----
iv.	Any other Departmental service charges to be recovered if any, as per contract (water, power etc.) enclose statement.	₹ -----
	Total Deduction as per contract (F)	₹ -----
	Adjustments, if any ----- Amount less received by Contractor in ----- R/A Bill (as per statement of Contractor)	₹ -----

Signature of Contractor with Seal

P.V.A. ₹ -----

Total amount payable as per contract (E+F+G) ₹ -----

(Rupees ----- in words)

The bill amount to ₹ ----- (both figures and words) has been scrutinized by us after due checking of the measurements of work as required and is recommended for payment.

Date: -----
Signature of Architect
with Seal

The bill amount to ₹ ----- certified by Consultants has been scrutinized by me after due test checking of measurements of works as required and is recommended for payment for an amount of ₹.....

Date : -----
Signature of Owners
Engineer

STATUTORY DEDUCTION:

- i) Total Amount due (E) ₹ -----
- ii) Less I.T. Payable ₹ -----
- iii) Less S.T. Payable ₹ -----
- Net Payable ₹ -----

These figures given in the Memorandum for payable has been verified and bill passed for payment -----
----- (in words and figures)

Date: -----
Deputy General Manager(Premises)

TECHNICAL SPECIFICATIONS

These specifications are for work to be done, item to be supplied and materials to be used in the works as shown and denoted on the drawings and described herein, to the satisfaction of the Bank.

1.1 The workmanship is to be the best possible and of a high standard. The contractor shall take all steps immediately to make up deficiency if any noticed by the Bank. Use must be made of special tradesmen in all aspects of the work and allowance must be made in the rates for the same.

1.2 The materials to be provided by the contractor shall be in accordance with the BOQ and in conformity with specification and approved list of manufacturers and brand. The contractor shall produce all invoices, vouchers or receipts for any material if called upon to do so by the Bank / Architects.

1.3 The contractor shall be responsible for providing and maintaining temporary coverages required for the protection of finished work. He is also to clean out all wood shavings, cut ends and other waste from all parts of the works before covering or infilling are constructed.

1.4 Contractor shall maintain uniformed quality and consistency in workmanship throughout the execution of the work.

SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

Tenderer are advised to inspect all the six numbers of site in consultation with the Bank's Electrical Engineers before submission of the tender in order to acquaint with the proposed work and Site conditions.

A- SCOPE OF WORK:

The responsibility of successful bidder & scope of work consists of following activities:

1. The Scope of Work includes all Check Survey, detailed design & Engineering, Procurement & Supply of Equipment and Material, Testing at manufacturer's works, Inspection, Packing and Transporting, Supply, Receipt, Unloading and Storage at site, associated Civil Works, Services, Permits from ADANI/TATA/BEST/MSEDCL, and other relevant permits for net meter application, Licenses, Statutory Approvals, Installation and incidentals, Insurance at all stages, Erection, Testing and commissioning of 150Kwp grid Interactive Roof Mounted Solar PV Power Plants under Net-Metering including warranty and performance demonstration with associated Power evacuation system up to the designated Substations/Locations along with its route survey and 5(Five) years comprehensive operation and maintenance with material & man power in accordance with Technical Specifications.
2. Study the existing power system at of all the above mentioned 6 nos of sites and space available on roof top for installation of solar PV system. Total erection works and material item supplies should be carried out as per applicable latest CE, IS, IEC & IEEE standards / codes with solar grade with appropriate Ingress protections and get it approved by the Bank before installation.
3. Contract for 5 years including breakdown maintenance.

4. **Net Metering and Grid synchronization related approvals, Liasoning and Bi- directional meters and CT's to be provided as per ADANI/TATA/BEST/MSEDCL norms are in the scope of L-1 Bidder. Also clearance/NOC from other statutory authority like Electrical inspector and other related applicable Government authority. No extra payment shall be made by the SBI for liasoning works to the vendor. However, statutory fees paid by the vendor to the Government Departments/Electricity Boards for approval of extension of load/NOC etc. shall be reimbursed to the vendor on submission of original payment receipt to the Bank.**

Also clearance from with MNRE or Central/State Government for obtaining capital subsidy, if applicable.

5. Electrical Inspector certificate of existing wiring are necessary.
6. Valid certificate of the licensed Agency regarding the compliance of the fire prevention and life safety measures shall be submitted.
7. The bidder must acknowledge that all the work of the project must be in the observance of licensed electrical contractor. The responsibility of electrical works, safety precautions and safety parameters of the project will be of licensed electrical contractor and awarded bidder, which must as per standards specified.
8. **Clubbing of existing Meters as per site requirement and Load enhancement as per site conditions at all the six mentioned sites and liasoning with the respective DISCOMs for this work is in the scope of the vendor**

9. **Detailed Scope of works:**

Electrical:-

- a) Power cables, communication cables & control cables of armoured and Solar grade
- b) Synchronizing / Paralleling equipment's to achieve flaw less synchronizing with electricity board grid as desired / required by Bank i.e.100% utilization solar power.
- c) Lighting arresters, earthing, cable trays, cable trenches, terminations and etc.
- d) Armored copper cables for power should be laid up to AC junction box.
- e) From AC junction box to main junction box armoured aluminum power cable should be considered.
- f) Checking the feasibility of existing Control Panel/Switch Gear. Modification of existing outgoing feeder protection, which may include extension of bus bars in the Bus and outgoing section, metering and control circuits and energy meter to suite for receiving solar power for both grid connections (i.e. DG & EB).
- g) The Bidder shall provide the display board of size 3ft x 3ft that gives detailed information of system along with the contact details of manufacturer. This will help the beneficiary during 5 years CMC period.
- h) Suitable earthing with GI strips for following items provided at each plants
 - Civil supporting structure
 - Modules
 - Inverters
 - DC junction, Distribution & combiner boxes
 - AC junction & combiner boxes
 - CT/PT Unit

- Additional earthing for existing main panel of Branch/Office or transformer if required.
- i) Solar PV Power Plants with associated system (Typical) shall include but not be limited to the Supply, Erection, and Testing & COMMISSIONING OF 150Kwp Solar PV modules, PV array, fixed PV array support structure, String/Array combiner boxes, DC cabling, DC distribution box, Inverter, AC cabling, AC distribution box, plant AC energy meter, Surge Arrestors, Lighting arrestor, CT/PT net meter load energy meter and data acquisition system etc

Civil:-

Civil Works shall be performed with respect to the following but not limited to:

- Trimming of tress, and removing the unwanted materials in rooftop •
- In case of ground mounted system site leveling activities like removal of trees and bushes, undertaking blasting related works, disposal of cutting materiality shall be the responsibility of contractor. The area shall be suitably cut and filled to suit the layout requirement. The site levelling and grading scheme incorporating the above aspects shall be submitted to SBI for approval. •
- Design and construction of foundation for module mounting Structures having modules, all electrical equipments, Transformer platforms and allied equipment foundations. •
- Internal road and pathways and drains for Ground mount system and cable trenches
- Civil foundation work of for AC Distribution Board, DC distribution Board switchgears, Solar Road lights etc. Erection Work shall be performed with respect.
- Construction of Shed for housing CT/PT Unit, invertor, AC distribution boxes etc.
- GI structural supports to mount PV panel as per Bank approved design and drawings given along with tender document.
- If Drilling holes deep in Roof Concrete Slab grouting the same with injectable grout before and after inserting the M20 & 6inch long anchor bolts and to be casted with RCC block of 300x300x300mm as per the approved Drawings.
- Providing concrete pedestal as per drawing and laying M20, 6inch length anchor bolts at the time of casting.
- Providing and laying cement plaster and doing water proof treatment around the pedestals to prevent leakage of water.
- All GI structural steel section should be 'CE' quality certified.

- Damaged existing water proofing sheet should be re-laid with new one and also around the civil pedestals, to ensure no rain water will leak inside the building after completion of the total erection works.
- The structural design should be for 150KM / hours wind speed.
- Providing concrete pedestal as per drawing and laying M20 6inch length anchor bolts at the time of casting for the sites where the Solar Panels are intended to be mounted on RCC flat roof.
- Providing, fabricating and laying galvanized structural steel section, plates, nuts washer and bolts, and cable tray as per drawing with thickness of galvanizing of minimum 90 microns

Drawings and documents:

A) The design documents to be submitted by the successful bidder will include butnot limited to:

- i. String Sizing & Array design
- ii. String Layout
- iii. Array Layout
- iv. AC Protection
- v. Inverter sizing
- vi. DC Protection
- vii. DC Cable size calculation
- viii. DC cable specification
- ix. DC cable schedule, voltage drop and power loss calculation
- x. String monitoring unit specification
- xi. DC & AC earthing and pit calculation
- xii. Lightning protection details/specification
- xiii. All technical specification of AC components
- xiv. Cable schedules
- xv. PV System Simulation Report with proposed modules and inverters
- xvi. Bill of quantity of entire project

B) Prepare & furnish the following all the as-built drawings in soft copy (autocad) and hardcopy to obtain approvals and All operating manuals, user manuals, system manuals, etc., as required.

- i. Shadow analysis of the roof.
- ii. General arrangement and dimensioned layout
- iii. Schematic drawing showing the SPV panels, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- iv. Layout of solar PV Array and Single line diagram with specification of allcomponents

- v. Design document for mounting structure including certificate showing windspeed withstanding capacity of the structure (STAAD Pro / Equivalent).
- vi. Mounting structure drawing
- vii. Structural drawing along with foundation details for the structure.
- viii. Civil drawings of control room building if any.
- ix. Cable layout (indicating details of cable route for power & communication cables)
- x. Itemized bill of material for complete SPV plant covering all the components and associated accessories.
- xi. Sizes and specification of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be furnished.

10. Fabrication works are to be done at factory only and submit structural stability certificate from the structural engineer/reputed engineering college in the area that designed MS structure can sustain the wind pressure of 150 Kmph with the load of solar panels. Only grouting and assembly with nuts and bolts are to be done at the site.

11. Contractor shall provide the supervisory license of electrical supervisor as well as the certificates /PWD license of Electrician /Wireman.

12. The supporting MS section/ girders should be located at a height such as to completely avoid the parapet wall shadows from falling onto the PV modules.

13. Replacement of existing conventional energy meter with bidirectional energy meter for net metering and grid connection etc. This will also include the replacement of CT/PT, metering box etc. in the scope of the vendor.

14. Bidder shall provide permanent arrangement for the module cleaning in the plant (both rooftop and ground mounted system). This shall include pumps, motor, and requisite laying network of GI pipes throughout the periphery. Opening from the GI pipe with manual isolating valves should be provided at regular intervals. Water used for module cleaning shall be provided through the nearest available water line within the plant. Water supply shall be provided free of cost to the O&M contractor.

15. Minimum Generation Guarantee:

The tenderer has to guarantee a minimum energy generation of 4 KWH per KWp per day valid with respect to total plant capacity (considering the weather conditions) during the first five years of operation at Bank's power grid synchronization point. Failing which, a penalty @ Rs.12/- per kWh shortfall per annum will be deducted from the Security Deposit (SD) up to the defects liability period.

16. Data Acquisition, Performance monitoring & Reporting

Remote Monitoring system shall be provided to monitor the Solar Power Generation such that all (i.e. AC & DC) electrical parameters (cumulative & instant) in graphical presentation from string level, next inverter and so on as desired by Bank/ owner.

- GSM Modem/Wi Fi modern in case GSM connectivity is used or Wireless Router+modem in case Ethernet connection is being used for remote access must be provided.
- All major parameters should be available on the digital bus and logging facility for energy auditing through the internal microprocessor and can be read o the digital front panel at any time the current values, previous values for up to a month and the average values. The following parameters should be accessible via the operating interface display and also on the dedicated laptop in the concerned office

AC Voltage

AC Output current

Output Power

DC Input Voltage

DC Input Current

Time Active Time

disabled Time Idle

Temperatures (C)

Inverter Status

Irradiation

Module temperature

Protective function limits – (Viz- AC overload voltage, AC under voltage, over frequency.Under frequency, ground fault. PV starting voltage, PV stopping voltage,

Over voltage delay, under voltage delay, over frequency, Ground fault delay, PVStarting delay, PV stopping delay).

17. Scope of Operation & Maintenance Work of Solar Photovoltaic Power Plant for the5 years:

Total Operation & Maintenance of Solar Photovoltaic Power Plant for the 5 years' period including deployment of Engineering Personnel, Technicians, and helpers for cleaning modules and their upkeep, as and when required. The contractor shall be responsible for all the required activities for the successful running, optimum energy generation & maintenance of the Solar Photovoltaic Power Plant covering:

O&M activities – Daily basis

- i. Contractor shall clean the modules twice in a month or weekly once based on the soiling loss and maintain this schedule in its records for the cleaning cycle.
- ii. In order to meet the maintenance requirements stock of consumables are to be maintained as well as various spare as recommended by the manufacturer at least for 5 years to be kept for usage.
- iii. Logging of DC, AC, and grid parameters (current, voltage, power, energy etc) at string inverters/ ACDB/ metering panels, equipment tripping/ breakdown, grid outage etc.

O&M activities – monthly basis

Signature of Contractor with Seal

- i. Inspection of fire extinguishers (weight, pressure indication, physical status etc.) followed by refilling actions, if necessary, based on indications. Report to be submitted to concerned officer.
- ii. Earthing resistance measurements for solar array structures, various equipment and lightning arrestors: measured values shall be recorded in registers and reported to concerned officer.
- iii. Energy generation / meter reading report to be prepared and submitted to the concerned department.

O&M activities – quarterly basis

- i. Cleaning of string inverters, ACDB, LT panels etc. to remove accumulated dust.
- ii. Monitoring and status review, followed by rectification/ calibration/ replenishment/replacement actions as necessary and applicable for following:
 - (a) Spare items of all electrical equipment
 - (b) First aid box items - medicines and accessories
 - (c) Safety gadgets
 - (d) Tool kits and measuring instruments
 - (e) Pumps, starters

O&M activities – yearly basis

- i. Painting of earthing chambers if required based on conditions of rusting.
- ii. Checking tightness of hardware in MMS structures and tightening wherever required.
- iii. Checking tightness of power cable terminations in SPV modules (MC4), string inverters, ACDB

O&M activities – as and when required basis

- i. Monitoring and operation of plant electrical equipment as and when required:
 - a) ACB and MCCB on/off operations on LT side.
 - b) String inverter operations: review/selection of settings, monitoring the DC/AC/ event/ faultstatus parameters
 - c) Water pumping operations
- ii. Removal of garbage from solar array field, sand buckets; logging in registers with signatures of operating persons and in-charge.
- iii. Coordinating and liasoning, on behalf of SBI, and obtaining renewal of statutory licenses, clearances and approvals from state departments such as electricity boards, CEA/CEIG etc.
- iv. Repair and replacement of supplied items, with urgent action plans and implementation, when the items are found non-working / damaged. The same shall be reported to SBI within 12 hours from time of observation.
- v. Reporting, on an immediate basis (within max 2 hours) of functional problems / damages in items to facilitate repair / replacement. Further, vendor shall correspond / coordinate with respective equipment vendors / service centers, on behalf of SBI, for getting the service engineers to the site. Later, coordinating with the service engineers during their visit to site, and assisting them in the trouble shooting process until the problem is resolved.
- vi. Coordinating with sub-station upon grid failures, line problems etc and implementing the needful steps to restore the plant to normal operation.

B - ITEM SPECIFICATIONS(TENTATIVELY)**The proposed projects shall be commissioned as per the technical specifications given below**

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, Junction boxes, Distribution boxes and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features. 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.

SPECIFICATIONS OF MAJOR COMPONENTS OF THE SYSTEM**1. PV MODULES:**

- a) The PV modules Poly / Mono crystalline modules approved by MNRE (Manufactured in India or abroad) to be employed shall be of minimum 72 full cell configuration with rated power Min 380Wp at STC as certified for solar PV module power performance test as prescribed by latest edition of IEC 61215 / IS14286 and as tested by IEC / MNRE recognized test laboratory. The Solar Modules should be **IEC** Certified and **BIS** Approved
In addition, the modules must conform to IEC 61730 Part 1-requirements for construction & Part 2 - requirements for testing, for safety qualification.

The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his project proposal submitted to SBI.

Technical Requirements: Tentative

Make	:WARIEE/GOLDI/VIKARAM/MUNDRA/ADANI/TATA etc as approved by MNRE
Type	: Multi / Mono-Crystalline Silicon Solar Module
Rated power at STC	: Minimum 380 Wp, Max. Tolerance +3% No negative tolerance is allowed.
Cell size	: +/-~157mm x 157mm
Cell Qty.	: 72 full cell pcs per Module
Module size	: +/- 1956mm x 990mm x 50 mm
Junction Box	: Four Terminals with IP67 Protection
Diode	: 15A bypass
Nominal Rating: 330W or above under STC	
Vmax	: > 37.67V
Imax	: > 8.79A
Voc	: > 46.24V
Isc	: > 9.31A
FF	: > 71.00%
Efficiency (Module)	: > 17.00%
Power Tolerance	: 0-5W
RFID Tag	: Inside the Lamination
PV Module standard: IEC 61215 and IEC 61730-1 & IEC 61730-2	
Weight	: 22.0 kg. (approximate)

b) **IDENTIFICATION AND TRACEABILITY**

Each PV module used in the solar power project must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module Lamination, but must be able to withstand harsh environmental conditions.

- i) Name of the manufacturer of PV Module
- ii) Name of the Manufacturer of Solar cells of PV Module
- iii) Month and year of the manufacture (separately for solar cells and module).
- iv) Country of origin (separately for solar cells and module)
- v) I-V curve for the module
- vi) Peak Wattage, Im, Vm and field factor (FF) for the module
- vii) Unique Serial No. and Model No. of the module
- viii) Date and year of obtaining IEC PV module qualification certificate
- ix) Name of the test lab issuing IEC certificate
- x) Other relevant information on traceability of solar cells and module as per ISO 9000series.

It may be noted that from 1st April 2013 onwards; RFID shall be mandatory placed inside the module laminate.

- c) Each module shall have low iron tempered glass front for strength & superior light transmission. It shall also have tough multi-layered polymer back sheet for environmental protection against moisture & provide high voltage electrical insulation.
 - d) Solar module shall be laminated using lamination technology using established polymer (EVA) and Tedlar /Polyester laminate.
 - e) The module frame shall be made of aluminium or corrosion resistant material, which shall be electrically compatible with the structural material used for mounting the modules.
 - f) 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 more than 3 (three) per cent from the respective arithmetic mean for all modules and/or for all module strings, as the case may be.
 - g) The module frame shall be made of anodized Aluminium, which shall be electrically & chemically compatible with the structural material used for mounting the modules. It is required to have provision for earthing to connect it to the earthing grid. The anodisation thickness shall not be less than 15 micron.
 - h) Minimum three number of bypass diodes (Schottky type) and two number of MC4 connectors with appropriate length of TUV 2 Pfg 1169/08.2007 certified 4 sq.mm, Cu. armoured cable should be used only.
 - i) Photon conversion efficiency of SPV Module should be greater than 17%. Module shall be made of high transmittance glass front surface giving high encapsulation gain.
- j) Technical Requirements:**
- i. The modules should be 100% PID (Potential Induced Degradation) tolerant and should comply with IEC 62804.
 - ii. Modules shall perform satisfactorily in relative humidity up to 85% and temperature between 10° C and 85°C (module temperature).
 - iii. Modules should have rugged design to withstand tough environmental conditions and high wind speeds (minimum up to 270 km/h). Fill Factor should be 0.72 minimum.
 - iv. SPV module shall have module safety class-II and should be highly reliable, light weight and must have a service life of more than 25 years.
 - v. Modules only with the same rating and of same manufacturer and model shall be supplied.
- k) Component Specifications:**
- i. The glass used to make the PV modules shall be toughened low iron glass with minimum thickness of 4.0 mm for 72 cell module. The glass used shall have transmittance of above 90%. Glass must have bending of less than 0.3%.
 - ii. The back sheet used in the PV modules shall be of three layered or mono layered structure. The back sheet used in the crystalline silicon based modules shall be 3 layered structures. Outer layer of fluoro polymer, middle layer of Polyester (PET) based and Inner layer of fluoropolymer or UV resistant polymer. Back sheet with additional layer of Aluminium also will be considered.

- iii. The back sheet should be durable for humid – hot conditions with properties of moisture barrier, elongation retention and UV resistance.

l) Authorized Testing Laboratories / Centers:

- i. The PV modules must be tested and approved by one of the IEC authorized test centers. Test certificates can be issued by any of the NABL / BIS Accredited Testing / Calibration Laboratories.
- ii. Test certificates for the system/ components/ items from any of the NABL / BIS Accredited Testing Calibration Laboratories / MNRE approved test centers to be submitted to the Bank.
- iii. The Contractor shall provide the Bill of Materials (BOM) of the module that is submitted for approval along with the datasheets of each component. The component datasheet shall contain all the information to substantiate the compliance for component specifications mentioned above. The Contractor shall also provide complete test reports and certifications for the module proposed as per above. The BOM proposed shall be the subset of Constructional Data Form (CDF)'s of all the test reports.

m) 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 twenty five (25) years from the date of sale to the original 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 replace the solar module(s), at the Owners sole option.

b).Performance Warranty:

- i. The manufacturer should warrant the output of Solar Module(s) for at least 90% of its rated power after initial 10 years & 80% of its rated power after 25 years from the completion of trial run at site/date of final commissioning.
- ii. Modules with lower degradation rate less than 0.7% per year will be considered.
- iii. The contractor shall collect the Warranty Certificate for performance of the modules from the manufacturer and submit the same to SBI prior to delivery of the products to the respective sites.
- iv. If, Module(s) fail(s) to exhibit such power output in prescribed time span, the Contractor will bound to either deliver additional PV Module(s) to replace the missing power output with no change in area of site used or replace the PV Module(s) with no extra cost claimed at Owner's sole option.

2. Solar PV Mounting Structure

- a. The mounting structure shall have to be designed by the Contractor after spot verification.
- b. The module mounting structures should be made suitable for Sheet Roof & Flat RCC roof.
- c. Structures shall be supplied complete with all members to be compatible for allowing easy installation at the rooftop site.
- d. The structures shall be designed to allow easy replacement of any module.
- e. Each structure will have a provision to adjust its angle of inclination to the horizontal as per the site condition and will be capable of withstanding a wind load of **150 Km/hr** after grouting and installation. The vendor has to submit the installation drawings approved by the registered structural engineer that designed structure and grouting method is capable of withstanding a wind pressure of 150 Km/hr.
- f. Few locations/site are of Flat RCC roof, where the suitable Elevated GI Structure to be fabricated to utilize the space beneath the Structure.
- g. The Modules on the elevated structures with GI Sheet roofs & existing GI Sheet roof will be mounted with Anodized Aluminium Channels/structures. The Anodized Aluminium Rails/channels should be fixed with suitable Adhesives to the GI Sheet roof withstanding wind speed of 150Km/hr
- h. Mounting Structure must be designed to withstand all weights of modules and to withstand wind speed of 150km/hr. Anti-theft Nut & Bolts must be used for modules.
- i. For Elevated Structure Hot dip galvanized MS angles & poles to be used adhering to IS standards. The thickness of galvanization should be minimum of 90 microns. All the nuts, bolts are made of good quality Stainless Steel (SS 304). Space must be provided in between rows for proper maintenance and cleaning.

The minimum clearance of the lowest part of the module structure and the developed ground level shall not be less than 600 mm. The structure shall be fixed tilt type to give maximum output from the plant

- j. Material Specification for MS Items for Elevated Structure:

Column	MB200
Rafter	Rectangular Tube 100 x 50 x 4mm
Purlin	Rectangular Tube 80x50x4mm
Base Plate	HR Plate 300x300x10mm

- k. Bidders have to submit detailed designs and Drawings to SBI for acceptance and approval before execution of work.
- l. Vendor shall carry out all the tasks such as cleaning/ scratching/ roughening/ smoothening etc required to prepare the floor for effective bonding with the concrete pedestal of the module mounting structures (MMS). Foundation that is Concrete pedestal for the MMS structures shall be of 300X300X300mm @ ratio 1:2:4 concrete mix as per IS: 456. Two-part epoxy compound (NITO Bond Epoxy Resin Bonding agent) shall be applied between the floor and pedestal surfaces to facilitate effecting bonding.
- m. Contractor to confirm that no damage to existing water proofing of the roof shall be made during the course of installation of the structure on roof top. Any damage to the waterproofing found during the above should be rectified to the existing roof condition at Contractor's cost. All pedestals shall be finished to the existing roof condition to prevent any water seepage later. Contractor shall commence the work only after clearance of drawings by SBI authority
- n. Racks will be laid out in parallel matrices allowing individuals to access the area between the racks for cleaning and other maintenance needs. In between the row of solar panels sufficient gap need to be provided to avoid falling of shadow of one row on the next row. Seismic factors for the site will be considered while making the design of the foundation. Array support structure shall be fabricated using corrosion resistant GI sections electrically compatible with the structural material. Adequate spacing shall be provided between any two modules secured on PV panel for improved wind resistance
- o. Provision for installing the Array Junction Box shall be available on the same frame material and specification as defined for Module mounting structure.
- p. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m². The array structure shall be grounded properly using maintenance free earthing kit suitable for mounting over building terrace.
- q. **Bidder has to design MMS as per the actual site conditions and loads of roof top. Elevated systems to be installed on any roof, if the obstacles found within the terrace area. Structural integrity and safety is afforded the topmost priority during the design process. The expected life of a solar power plant is 25 years and ensure that structures are designed in a manner to ensure achieving of said milestone**
- r) **Cable Trays:**
Cable trays should be overhead .It should be avoided at ground installation
The perforated cable trays with Tray cover shall be manufactured from good commercial, high grade strength sheet steel having minimum thickness of 1.6mm for Tray and 1mm for Tray Cover. The perforated cable trays shall be hot dip galvanized according to IS-2629, BS729-1971

OR

Equivalent standard suitable for indoor/outdoor use having moderate humidity and air pollution. The zinc coating thickness shall work out by applying a 610 gm of zinc per square meter surface with an approximate thickness of 80 microns

Sr No	Size of Tray Size	Size of Tray Cover	Approx. Quantity
1	250mm X 100mm X 1.6mm	250mm X 15mm X 1mm	As required
2	100mm X 50mm X 1.6mm	100mm X 15mm X 1mm	As required
3	50mm X 25mm X 1.6mm	50mm X 15mm X 1mm	As required

3. Junction Box:

A DC Junction/Combiner Box shall be used to combine the DC cables of the solar module arrays with DC fuse protection for the outgoing DC cable(s) to the DC Distribution Box.

- i. The junction boxes are to be provided in the PV array for termination of connecting cables. The Junction Boxes (JBs) shall be made of GRP/FRP/with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- ii. Suitable markings shall be provided on the busbar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.
- iii. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP 65 standard and IEC62208 Hinged door with EPDM rubber gasket to prevent water entry, Single/ double compression cable glands, Provision of earthings. It should be placed at a height suitable for ease of accessibility.
- iv. Each combiner box/ junction box will have suitable Reverse Blocking Diodes of maximum DC blocking voltage of 1000 V with suitable arrangement for its connecting.
- v. Junction boxes should be equipped with fuses on both positive & negative input to protect the PV module from short circuits.
- vi. The combiner box/ Array junction Box will also have suitable surge protection device to protect the PV modules as well as the other electrical / electronic systems from transients over voltages created due to lightning and to reduce insulation break downs due to lightning. The SPD's should be tested and approved according to IEC 61643-11 and EN 50539-1:2013-03.

4. Solar Array Fuse

- i. The cables from the array strings to the solar grid inverters shall be provided with DC fuse protection. Fuses shall have a voltage rating and current rating as required. The fuse shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers.

Selection of fuses: It is important to coordinate the power dissipation of fuse-links with the acceptable power dissipation of fuse holders. Rated voltage of fuse-link and fuse

holder should be at least 20% higher than open circuit voltage of photovoltaic installation. Typical rated voltage of fuse-links and fuse holders is 1000 V DC. Rated current of fuse-links ≥ 1.4 ISC. (ISC = short circuit current of photovoltaic modules), Utilization category PV (protection against overload and short-circuit), Minimum interrupt rating $1.35I_n$, Nonfusing current $1.13I_n$.

5. **DC Distribution Board:**

A DC distribution box shall be mounted close to the solar grid inverter. The DC distribution box shall be of the thermo-plastic IP65 DIN-rail mounting type and shall comprise the following components and cable terminations:

Incoming positive and negative DC cables from the DC Combiner Box- DC circuitbreaker, 2 pole & DC surge protection device (SPD), class 2 as per IEC 60364-5-53; Outgoing positive and negative DC cables to the solar grid inverter.

6. **Power Conditioning Units:**

a) **General:**

- i. DCDB output will be fed to Inverter/ Power Conditioning Unit (PCU), grid interactive in nature, which mainly consists of Maximum Power Point Tracker (MPPT), Charge Controller, Inverter, Voltage Stabilizer, Frequency and voltage and distribution panel along with necessary Displays, Indicators and Alarms. It shall provide necessary protections for Grid Synchronization and Data Logging/Monitoring. The Inverters should convert DC power produced by SPV modules in to AC power and must synchronize automatically its AC output to the exact AC Voltage and frequency OF 90 KWP CAPACITY GRID. The bidder have to choose the inverter as string as per the design. PCU should conform IEC 61683, IEC 60068 as per specifications.
- ii. The string inverter shall be installed near to the solar array and hence it shall be suitable for weather proof and shall have IP65 class of protection. Also, a separate hood type arrangement using GI metal sheet to cover top of the string inverter enclosure shall also be provided with necessary mounting arrangements.
- iii. The inverters shall have protection against any sustained fault, lightning discharge in feeder line and earth leakage faults.
- iv. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.
- v. The combined wattage of all inverters should not be less than rated capacity of power plant.
- vi. The PCU shall be mounted on a suitable reinforced concrete pad inside control room not susceptible to inundation by water. All cable entry to and from the PCU shall be fully sheathed to prevent access of rodents, termites or other insects into the PCU from bottom/top of the PCU in form of a detachable gland plate.
- vii. In case OF 90 KWP CAPACITY GRID failure, the PCU shall be re-synchronized with grid after revival of power supply. Vendor to furnish the time taken by PCU to be re- synchronized after restorations OF 90 KWP CAPACITY GRID supply same to be indicated in data sheet to be submitted during detail engineering stage.

- viii. Typical technical features of String inverter of following ratings is required as mentioned below: Bidder should ensure compatibility of inverter system with SPV modules with 325Wp and above.

Sr.	Technical parameter	Specification
1	Type	Grid Connected String Inverter
2	Make	Waree/SMA / ABB / SCHNEIDER / Delta/Poly Cab / Refusol/
3.0	Standards:	
3.1	Efficiency Measurement	IEC 61683/ Equivalent BIS Std.
3.2	Environmental testing	IEC 60068-2 (1,2,14,30) / Equivalent BIS Std.
3.3	Interfacing with utility grid EMC	IEC 61727, IEC 61000-6-2
3.4	Islanding Prevention Measurement	IEC 62116
3.5	MPPT	IEC 62093
3.6	Type Test certificate issuing authority (for Sl. No. 3.1 , 3.2,3.3,3.4 and 3.5)	NABL/ IEC Accredited Testing Laboratories or MNRE approved test centers.
4.0	Input DC	
4.1	Voltage range	Min 250-1000
4.2	MPP voltage range	Min 420-850
4.3	Power Control	MPPT
5.0	Output AC	
5.1	Output voltage and phase	Sine wave 3 Phase 415 V \pm 10% 50Hz AC, minimum 4 wire output RYBN or RYBN+PE
5.2	Reactive power	0.8 lagging to 0.8 leading
5.3	Total Harmonic Distortion (THD)	< 1.8 % at rated power
5.4	Power factor at rated current	0.98-1.00
5.5	Phase Load Imbalance at least 30 %	at least 30 %
5.6	Grid frequency synchronization range	+/- 3 Hz
5.7	Grid frequency tolerance range	+/-2 or more
5.8	Grid voltage tolerance range	+/- 20%
5.9	Standby power consumption	Standby power consumption of Inverter shall not exceed 20 Watts
6.0	Efficiency	Min 94% at 100% load as per IEC 61683
7.0	Protection	
7.1	DC Side	<ul style="list-style-type: none"> • Disconnection device • Reverse polarity protection • Reverse current to PV array protection overvoltage, under

		<p>voltage and over current protection</p> <ul style="list-style-type: none"> • Short circuit protection: PV fuse • Surge protection: SPD type II
7.2	AC Side	<ul style="list-style-type: none"> • Short circuit protection • Over voltage, under voltage over current protection over and under Grid frequency protection. • Anti-Islanding protection <ul style="list-style-type: none"> • AC surge protection
7.3	Ground fault / Grid Monitoring	Yes
7.4	Over Temperature protection	Yes
8.0	Display:	
8.1	Display type	LCD/LED
8.2	Display parameter	Voltage, current, power, line status, grid voltage grid frequency, export power and export energy.
9.0	Communication:	
9.1	Communication port	Ethernet , RS485, port for web based remote monitoring system and should match with data
0.0	General:	
0.1	Operating Temperature	- 20 Deg. C to + 60 De. C
	Humidity	95% non-condensing
0.2	Dimensions	Shall be provided by the Bidder.
0.3	Weight	Shall be provided by the Bidder.
0.4	Cooling	Cooling arrangement (if any) details shall be furnished by the Bidder.
0.5	Ingress protection (IP)	IP 65 or better (Out Door Installation)
0.6	Maximum altitude	Bidder to mention up to what altitude above sea level inverters will work without de-rating.
0.7	Noise level	<45Dba
11	Switching devices	IGBT/MOSFET
12	Control	Microprocessor /DSP

- ix.** DC side of each inverter shall be earthed to distinct earth pit through adequate size conductor as per IS 3043 -1987. The size of conductor/ procedure for earthing for inverters shall be as per the maximum fault current of DC system.

- x. To allow maintenance of the PV Inverter, means of isolating the PV Inverter from the DC side must be provided by a DC isolator mandated in each photovoltaic power system according to IEC 60364-7-712.
- xi. **Operating Modes:** Operating modes of PCU shall include, but not limited to, the following modes.
 - I). Low Power Mode:** The control system shall continuously monitor the output of the solar arrays connected to the inverter until preset value is exceeded & begins to export power provided there is sufficient solar energy and grid voltage and frequency are in specified range.
 - II). Active Maximum Power point tracking (MPPT) mode:** When solar radiations increases further, the PCU shall enter Maximum Power Point Tracking (MPPT) mode and adjust the voltage of SPV arrays to maximize solar energy fed into the grid. When the solar power from arrays falls below threshold level, the PCU shall enter into low power mode.
 - III) Sleep mode:** Automatic 'sleep' mode shall be provided so that unnecessary losses are minimized at night.
- xii. The PCU/ inverter generated harmonics, flicker, DC injection limits, Voltage Range, Frequency Range and Anti-Islanding measures at the point of connection to the utility services should follow the latest CEA (Technical Standards for Connectivity Distribution Generation Resources) Guidelines.
- xiii. **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 90 KWP CAPACITY 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 Powerconnection need to be provided.
- xiv. **Grid Islanding:**
Anti-islanding (Protection against Islanding OF 90 KWP CAPACITY GRID): The PCU shall have anti islanding protection in conformity to IEEE 1547/UL 1741/ IEC 62116 or equivalent BIS standard.

- i). The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
- ii). A manual disconnect 4-pole isolation switch beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.
- iii) Inverter shall be tested for islanding protection performance. When the mains power is off, the PCU should also get automatically off so that back-feeding to the grid is not possible.

xv. Maximum Power Point Tracker (MPPT):

Maximum power point tracker shall be integrated into the PCU to maximize energy drawn from the Solar PV array. The MPPT should be microprocessor / micro-controller based to minimize power losses. The details of working mechanism of MPPT shall be mentioned.

The efficiency of the Charge controller (MPPT based with data logger) shall not be less than 94% and shall be suitably designed to meet array capacity.

MPPT must conform IEC 62093, IEC 60068 as per specifications.

xvi. Data Acquisition System / Plant Monitoring:

- i Data logger system (Hardware) and the software for study of effect of various environmental & grid parameters on energy generated by the solar system and various analyses would be required to be provided. The communication interface shall be suitable to be connected to local computer and also remotely via the Web using either a standard modem or a GSM / WIFI modem.
- ii **Remote Monitoring system shall be provided to monitor the Solar Power Generation such that all (i.e. AC & DC) electrical parameters (cumulative & instant) in graphical presentation from string level, next inverter and so on as desired by Bank/ owner**
- iii Monitoring complete systems including hardware and Modem/Router shall facilitate monitoring of the performance of the Inverter /inverters, energy yield, temperature, irradiance level etc through LAN based or GSM based network. PC based inverter

monitoring is also required for local monitoring of each system. Some of the salient features of the monitoring system shall be:

a) The data acquisition system shall have a real-time clock and data storage capacity for recording data round the clock for min. one year.

b) The monitoring of the Solar system and logging / viewing of system data shall be through a PC with latest software/hardware configuration and service connectivity to be supplied, operation & maintenance/control to be ensured by the bidder.

c) The software package shall be preferably windows based MS Excel compatible. The data shall be represented in both tabular and graphical form.

d) System shall have provision for remotely viewing the System status on local LAN /INTRANET of bank.

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

- AC Voltage.
- AC Output current.
- Output Power
- Power factor.
- DC Input Voltage.
- DC Input Current.
- Time Active.
- Time disabled.
- Time Idle.
- Power produced
- Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage)

f) 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.

g) Metering and Instrumentation for display of systems parameters and status indication to be provided.

PV array energy production:

- a) 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 shall be provided.
- b) All major parameters available on the digital bus and logging facility for energy auditing shall be available on the display.
- c) The following parameters should be accessible via the operating interfacedisplay.
 - AC Voltage.
 - AC Output current.
 - Output Power
 - DC Input Voltage.
 - DC Input Current.
 - Time Active
 - Time disabled.
 - Time Idle
 - Temperatures
 - Inverter Status

POWER CONSUMPTION:

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

7) AC Distribution Board (ACDB):

- i. 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. ACDB shall be installed on roof-top.
- ii. All switches and the circuit breakers, connectors should conform to IEC 60947, part I,II and III/ IS60947 part I, II and III.
- iii. The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- iv. All the Panels 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 and designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.

- v. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- vi. Should conform to Indian Electricity Act and rules (till last amendment).
- vii. ACDB shall be 3-phase, 50Hz, 415VAC, 1.1kV system voltage, outdoor, with canopy, IP55, neoprene gasket for doors/ frame joints, CRCA sheets 2mm (frame)/ 1.6mm (door)/ 3mm (removable gland plate bottom side), painting seven tank process, colour RAL 7032, base frame with section 75mm min/ black painted, panel lifting hooks, Al bus bars as per SLD, RYB colour coded heat-shrinkable sleeves for bus bars, SMC/DMC insulator supports, Al earth bus, accessible live parts shrouded with FRP/polycarbonate sheets, MCBs for i/c feeders, 25mm min phase to phase clearance, LED indicators for RYB at o/g, colour coded Cu-cable AC/DC wiring (1.5/2.5 mm² as applicable) etc. For the incoming and outgoing power cables, nickel plated brass double compression glands, Al cable lugs, SS304 plain/ spring washers shall be provided.
 - viii. **Modifications/ addition if any, in existing L T panel and D G set panel of SBI shall be done at site and covered in scope of Bidder. Also required size cable and other equipment between existing panel to solar AC distribution panel is covered in scope of Bidder.**
- ix. An AC distribution box shall be mounted close to the solar grid inverter.
- x. The AC distribution box shall be of the thermo plastic IP65 DIN rail mounting type and shall comprise the following components and cable terminations:
 - Incoming 3-core / 5-core (single-phase/three-phase) cable from the solar grid inverter
 - AC circuit breaker, 2-pole / 4-pole
 - AC surge protection device (SPD), class 2 as per IEC 60364-5-53
 - Outgoing cable to the grid interconnection point
- xi. Extra feeders (including two spare feeders) shall be provided to meet the various auxiliary supply requirements at the roof-top such as module washing pumps, data loggers etc.
- xii. MCCB, MCB shall be L&T/C&S/Siemens/ABB/ Schneider or reputed equivalent subject SBI approval.

- xiii. Vendor shall submit the detailed GA, SLD, BOM, MQP etc of ACDBs for SBI approval during detailed engineering.

2) Cables & Wirings:

The Specification of wiring material of PV Power plant shall include but not limited to the following:

Sl.	Item	Description
1.0	DC Cable	From PV module to inverter
1.1	Type	1.1kV grade heavy duty PVC insulated, Double sheathed, UV Protected XLPO stranded copper cables as per IS: 7098 (Part I & II) – 1976 or IS 1554 or IS9537/IEC60227/IS694. The voltage drop shall not exceed more than 2% of peak power voltage
1.2	Size	The minimum DC cable size shall be 6.0 mm² copper.
1.3	Laying	The cable must be laid through PVC conduit /GI pipe/ cable tray on roof and indoor. In case of using metallic pipe as conduit proper grounding of the conduit must be done.
2.0	AC Cable	From inverter to ACDB and ACDB to distribution panel/LT panel
2.1	Type	1.1 kV grade heavy duty PVC insulated Aluminum armored XLPE stranded cables as per IS: 7098 (Part I & II) – 1976 or IS 1554 or IS9537/IEC60227/IS694. The voltage drop shall not exceed more than 2% of peak power voltage <ul style="list-style-type: none"> Outdoor AC cables shall have a UV-stabilised outer sheath.
2.2	Laying	The cable must be laid through PVC conduit /GI pipe/ cable tray on roof and indoor. In case of using metallic pipe as conduit proper grounding of the conduit must be done.

a) Procedure of cable laying:

- i. Cable terminations shall be made with suitable cable lugs & sockets etc, crimped properly and cables shall be provided with dry type compression glands wherever they enter junction boxes/ panels/ enclosures at the entry & exit point of the cubicles. The panels bottoms should be properly sealed to prevent entry of snakes/lizard etc. inside the panel. All cables shall be adequately supported. Outside of the terminals /

- panels / enclosures, shall be protected by conduits. Cables and wire connections shall be soldered, crimp-on type or thimble or bottle type.
- ii. Only terminal cable joints shall be accepted. Cable joint to join two cable ends shall not be accepted.
 - iii. All cable/wires/control cable shall be marked with good quality letter and number ferrules of proper sizes so that the cables can be identified easily.
 - iv. All fasteners will be made of Stainless steel or Aluminum or UV Protected PVC.
 - v. All power, control, communication cables running from buildings shall be routed from one building to another building through underground cable trench (direct burying) as per IS: 1255.
 - vi. The DC cables from the SPV module array shall run through a UV stabilised PVC conduit pipe of adequate diameter with a minimum wall thickness of 1.5mm. The conduits shall not run across the path way of the terrace. Flexible corrugated PVC conduits shall not be used.
 - vii. Cables and wires used for the interconnection of solar PV modules shall be provided with solar PV connectors (MC4) and couplers.
 - viii. All cables and conduit pipes shall be clamped to the rooftop, walls and ceilings with thermo-plastic clamps at intervals not exceeding 50 cm. The minimum DC cable size shall be 6.0 mm² copper. The minimum AC cable size shall be 4.0 mm² copper. In three phase systems, the size of the neutral wire size shall be equal to the size of the phase wires. The following colour coding shall be used for cable wires:
 - DC positive: red (the outer PVC sheath can be black with a red line marking)
 - DC negative: black
 - AC single phase: Phase: red; neutral: black
 - AC three phase: Phases: red, yellow, blue; neutral: black
 - Earth wires: green
 - ix. Cables and conduits that have to pass through walls or ceilings shall be taken through a PVC pipe sleeve.
 - x. Cable conductors shall be terminated with tinned copper end-ferrules to prevent fraying and breaking of individual wire strands. The termination of the DC and AC cables at the Solar Grid Inverter shall be done as per instructions of the manufacturer, which in most cases will include the use of special connectors.
 - xi. The total voltage drop on the DC cable segments from the solar PV modules to the solar grid inverter shall not exceed 2.0%. Conductor size of less than 6 sq. mm shall not be accepted.
 - xii. Cable/wire connections shall be soldered, crimp-on type or split bolt type. Wire nut connections shall not be used.
 - xiii. The wiring must be carried out in pvc precession make conduit only.
 - xiv. Cable Routing/ Marking: All cable/wires are to be routed in a GI/PVC cable tray and suitably tagged and marked with proper manner by good quality ferrule or by other means so that the cable easily identified use
 - xv. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25 years.

- xvi. 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 %.

3) **LTPDB combiner boxes:**

AC outputs from ACDB installed at the Roof top of building are terminated at a LT power distribution board (LTPDB) which is located in the ground floor of the same building where LT evacuation point is provided. Supply and installation LTPDB is in vendor scope.

- i. LTPDB comprises of 320A, 4 Pole MCCB suitable for termination of cable coming from AC Distribution Board. PVC insulated AL armoured cable coming from solar ACDB at incoming end shall be provided in main control room with Out going of 320A, 4 Pole MCCB The panel shall be 3-phase, 50Hz, 415VAC, 1.1kV system voltage, outdoor, with canopy, cubicle design, compartmentalized (Breaker/ control box/ CTPT chamber etc), floor mounted, free standing IP55, neoprene gasket for doors/ frame joints, CRCA sheets 2mm (main frame)/ 1.6mm (door)/ 3mm (removable gland plate bottom side), painting seven tank process, panel illumination lamp, space heater, thermostat etc. CU bus bars as per SLD, RYBcolour coded heat-shrinkable sleeves for bus bars, SMC/DMC insulator supports for the incoming and outgoing power cables, nickel plated brass double compression glands, Al cable lugs, SS304 plain/ spring washers shall be provided.
- ii. Vendor shall provide bus bar extension at LT panel if Spare breakers are not available for LT evacuation.
- iii. Digital MFM shall be EM6300 of Schneider along with Indicator lamps shall be L&T/ C&S or reputed equivalent subject to SBI approval
- iv. MCCB: L&T/ C&S/ ABB/ Siemens/ Schneider or reputed equivalent subject to SBI approval
- v. Vendor shall install the LTPDB panels near to Customer LT evacuation point
- vi. **Laying and termination of cables from ACDB box to LTPDB box:**
 - Cables are 1.1kV, Al, XLPE, armoured as per IS: 7098 part-1 shall be in vendor scope of supply and installation for laying between ACDB to LTPDB.
 - These cables shall be routed using the same type of GI cable trays/ accessories/ hardware used for 1Cx4 cables up to the ground level outside the buildings.
 - All power, control, communication cables running from buildings shall be routed from one building to another building through underground cable trench (direct burying) as per IS:1255.

4) **NET METERING:**

Net Metering: Bi Directional Meter (As per TATA/ADANI/ MSEDCL/BEST Standard) shall have the provision for measurement for Current, Voltage, frequency, Energy, Power/Load, power factor, maximum demand with RS232 with class 0.5 accuracy.

Net metering shall be provided by the contractor for the captioned sites of SBI. The scope of work for net metering is detailed as below:

- Preparation of necessary documentation and submission of application (online/offline) to MSEDCL/BEST/ADANI for net metering.
- Obtaining site feasibility report from MSEDCL/BEST/ADANI L.
- Obtaining net metering approval from MSEDCL/BEST/ADANI.
- Contractor shall work with MSEDCL/BEST/ADANI L to enable SBI's signing of Power Purchase Agreement (PPA).
- Supply & Testing of net meter (Main & Check meter) and related accessories (Cubicle, CTs, PTs, earthing etc.) as per requirements of MSEDCL.
- Replacement of existing meter and related accessories (Cubicle, CTs, PTs, earthing etc.) with new metering systems as per requirements of MSEDCL.
- CEIG/CEA/MSEDCL/BEST/ADANI inspectorate approval for supply, testing and replacement of new net metering system including preparation and submission of necessary documentation.
- CEIG/CEA/MSEDCL/BEST inspectorate approval of Solar Power Plant including preparation and submission of necessary documentation.
- Synchronization / Commissioning approval from CEIG/CEA/MSEDCL/BEST/ADANI.
- Synchronization/Commissioning certificate for the Plant from CEIG/CEA/MSEDCL/ADANI/BEST.

Note:

The contractor shall take up net metering for SBI turnkey basis including any statutory fees, fee towards testing of net meter, CTs, PTs, Cubicle etc. to be paid. Any other item / supply / activity / approvals/NOCs/fees not specifically defined in the above clause but required for successful completion of net metering with MSEDCL/BEST/ADANI as per the latest Net Metering Policy for SBI shall be to the scope of the Contractor. In other case of non- applicability of Net metering, Contractor has to take care of approval of alternative mechanism as per state electricity regulatory norms & latest revisions of state grid code, all the required fees/NOC/other activity adhering to alternative mechanism shall be responsibility of contractor only

5) **PROTECTIONS**

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

i. LIGHTNING PROTECTION:

The SPV power plants shall be provided with lightning & overvoltage protection. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 /IS 2309 standard. The protection against induced high-voltages shall be provided by

the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth. ESE Lightning and surge protection for the SPV plant shall be provided using adequate number of earthing kits but not less than two independent earthing stations. It shall be ensured that all the earth are bonded together to bring them to the same potential. *Earth resistance shall not be more than 5 ohms with earthing Strip of 25x6mm GI.*

- a) Lightning Arrester is composed of one main striking point, emission device, fixing element, and a connection to the down conductor.
- b) The area protected by LA is determined using the early streamer emission test method as per NFC 17 102 Standard and it is preferred to have LA installed on the highest part of the structure.
- c) Lightning arrester is advanced ESE type and provides protection radius of 107m in Level IV.
- d) Our ESE lightning arrester is testable from external tester for internal configuration as well as magnetic field test. Carries 30 years warranty.
Tested as per NFC 17-102 standard for:
 - Short circuit test of 115KA
 - Advance triggering time of 63 microseconds.
 - Temperature withstand test of -50 to +120 degree Centigrade
 - Salt mist and humid sulphur test
 - CE marking
 - Internal test report available for each unique serial numbered rod provided with each lightning rod.

ii. SURGE PROTECTION:

Surge protection shall be provided on both the DC and the AC side of the solar system. The DC surge protection devices (SPDs) shall be installed in the DC distribution box adjacent to the solar grid inverter.

The AC SPDs shall be installed in the AC distribution box adjacent to the solar grid inverter. The SPDs earthing terminal shall be connected to earth through the above mentioned dedicated earthing system. The SPDs shall be of type 2 as per IEC 60364-5-53.

iii. EARTHING PROTECTION:

Body and lightning protection system earthing shall be provided with maintenance free earthing (MFE) system comprising of 17mm (3M length) dia copper bonded stainless/ nickel steel alloy rods suitably joined together with thread less/compression couplers made of copper alloy including supply of copper rods and all other accessories required for the total erection of the earthing system. The rod shall be driven in earth with augured hole dia of 75-100 mm in ground filled with conductivity/earth enhancement compound.

Earth pit chamber with RCC cover as per standards shall be constructed for each

maintenance free earth rod. Earthing conductor of size not less than 25x3mm GI strip on roof/wall mounting for body Earthing system shall be provided with proper clamping arrangement using GI spacer and saddles over a suitable concrete blocks on roof and with necessary fixing materials with a spacing of not less than 600mm. Earth resistance shall not be more than 5 ohms. All metal casing/shielding of the plant shall be thoroughly grounded to ensure safety of the solar power plant

EARTHING SPECIFICATIONS:

- Electrode : Material - Cu. Bonded
- Diameter - Ø17 mm.
- Length - 2 m. long
- Earthing Chemical / Enhancement compound: 15- 25 kg.

Minimum four (04) numbers of interconnected earth pit needs to be provided in each location. Minimum required gap shall be provided in between earth pits as per relevant standard. Body earthing shall be provided in inverter, each panel, module mounting structure, kiosk and in any other item as required. Separate dedicated earthing for LA & SPD.

1) **TOOLS, TACKLES AND SPARES**

The Installer shall keep ready stock of tools, tackles and essential spares that will be needed for the day-to-day maintenance of the solar PV system. This shall include but not be limited to, the following:

- I. Screw driver suitable for the junction boxes and combiner boxes.
- II. Screw driver and / or Allen key suitable for the connectors, power distribution blocks, Circuit breaker terminals and surge arrestor terminals.
- III. Spanners / box spanners suitable for the removal of solar PV modules from the solar PV module support structure.
- IV. Solar panel mounting clamps.
- V. Cleaning tools for the cleaning of the solar PV modules.
- VI. Spare fuses

2) **CAUTION SIGNS**

In addition to the standard caution and danger boards or labels as per Indian Electricity Rules, the cable junction box near the solar grid-tie inverter, the building PCC board to which the AC output of the solar PV system is connected shall be provided with a non- corrosive caution label. The size of the caution label shall be minimum 105mm (width) x 20mm (height) with white letters on a red background.

3) **FIRE EXTINGUISHERS:**

The firefighting system for the proposed power plant(s) for fire protection shall be consisting of: Portable fire extinguishers in the control room for fire caused by electrical short circuits. The installation of Fire Extinguishers should conform to TAC regulations and BIS standards. The suitable fire extinguishers shall be provided in the control room

housing as well as near the Roof or site where the PV arrays have been installed. Separate payment will not be made for the provision of fire prevention measures.

4) DOCUMENTATION TO ACCOMPANY FOR HANDING OVER THE PROJECT (Part-A,B,C)

Part A: DOCUMENTATION

- The complete documentation should be as per IEC 62446 and submitted to Bank.
- One set of operation manuals complete with drawing, parts list (with part codes) circuit diagrams with list ratings of components and list of do's and don'ts for the main equipment as well as the sub-systems should be submitted to Bank.
- One set of maintenance manuals with full information on drawings, circuit diagrams, list and suppliers addresses for bought out parts, troubleshooting charts, programs of built in controllers etc. for the main equipments as well as for the sub-system.
- These manuals should be in the form of hard (printed) copy in English Language as well as in electronic storage form (disc pen drive etc.)
- A certificate for the adequacy of the manuals should be obtained and provided with the manuals. Such certificate must be signed by the QA engineer of the manufacturer.
- The Installer shall supply the following documentation also:
 - a) System description with working principles.
 - b) System single line diagram.
 - c) Solar PV array lay-out.
 - d) Routing diagram of cables and wires.
 - e) Data sheets and user manuals of the solar PV panels and the solar grid-tie inverter.
 - f) A system operation and maintenance manual.
 - g) Name, address, mobile number and email address of the service centre to be contacted in case of failure or complaint.
 - h) Guarantee & Warranty cards of the components supplied with seal and signature of the manufacturer.
 - i) Maintenance Register

Part B: TEST CERTIFICATES AND REPORTS TO BE FURNISHED

- a. Test Certificates / Reports from IECQ / NABL accredited laboratory or MNRE approved test centers for relevant IEC / equivalent BIS standard for quoted components shall be furnished.
- b. Type Test Certificates shall be provided for the solar modules and the solar grid inverters to provide evidence of compliance with standards as specified in relevant articles of this Technical Specification.
- c. Bank reserves the right to ask for additional test certificates or (random) tests to establish compliance with the specified standards.

PartC: INSTRUCTION AND O& M MANUALS

Four copies of Instruction and Operation and Maintenance Manual should be furnished. The manual shall be furnished at the time of dispatch of the equipment and shall include the following aspects about:

- a. Precautions during unpacking
- b. Instructions for handling at site.
- c. Erection drawings with written assembly instructions.
- d. Detailed instructions and procedures for the installation, operation and maintenance.
- e. Pre-commissioning tests.
- f. Solar PV system—its components and expected performance.
- g. Clear instructions about mounting of PV module (s)
- h. DO's and DONT's.
- i. Specimen log book.
- j. Principle of Operation of various equipment
- k. Safety and reliability aspects
- l. Metering scheme
- m. string inverter software and controls
- n. Clear instructions on regular maintenance and troubleshooting of solar powerplant.
- o. Name and address of the person or service centre to be contacted in case offailure or complaint.
- p. Outline dimension drawings showing relevant cross sectional views, earthingdetails and constructional features.
- q. Rated voltages, current and all other technical information which may benecessary for correct operation of the SV plant.
- r. Catalogue numbers of all the components which are liable to be replaced duringlife of the SV plant and all the component parts.
- s. Trouble shooting and diagnostic procedure

Approved Make of Materials

S.No.	Components /Make	Specifications/Standards	Warranty
1	<u>Solar Module</u> (GoldieGreen / Waree / Tata / Adani / Mundra / Bharat Electronics / Vikram or eqv as approved by MNRE)	Poly/Mono/crystalline/CIGS, 380Wp - 400 Wp <hr/> IEC 61215 /IS 14286, IEC 61730 (part 1 & 2) IEC 62716, IEC 61853-1 IEC 61701, IEC 62782 IEC 62804, IEC 62892	25 years
2	<u>Solar Grid Tied Inverter</u> (Schnider/ABB/ Sungrow / Delta / Solis/ Pwerone) SMA/ /Solar age /Polycab/ solare Grow watt /Fronius/SMA Solar/Delta/ Waree	IP 65; Transformer less with MPPT, minimum efficiency of 98%. <hr/> IEC 61683, IEC 62109-2 and IEC 62093 or equivalent BIS standards	5 years
3	<u>Mounting Structure and GI tray</u>	Hot-dip galvanized, 80 microns thk, Design wind speed 150 kmph	25 years
4	Cables DC (Polycab/ V-Guard/Gloster /Havells/finolex/RR)	Single core DC cable, UV stabilised, multi-strand XLPE PVC insulated)	-
	Cable AC (Polycab/ V-Guard/ Gloster /Havells/RR)	4 core solid CU conductor, XLPE insulated, FLEXIBLE , PVC inner sheathed, 650/1100V, cable as per IS <hr/> IEC 60227 / IS 694 IEC 60502/IS 1552 (Pt. I &II) TUV 2PFG 1169	

5	Array Junction Box (if required)	Polycarbonate IP 65 (Protection DC fuses, DC Isolator and DC SPD)	
6	AC/DC Distribution Board	MDS/Hager/L&T	
7	String Combiner Box	Robotina/Trinity Touch/Hensel/Cape Electric,AKG	
8	LV Switchgear	ABB/L&T/Schneider/ MDS or Equivalent IEC 60947 part I, II, III IEC 60947 part I, II, III EN 50521 IEC 62852	
9	Energy Meter	Secure/L&T or Equivalent	
11	Connectors	MC4/or Equivalent	
12	Surge protection (spd)	MDS, L&T, Hager	
13	ACDB (if required)	Polycarbonate IP 65 (Protection AC Isolator along with phase indicators) MDS/Hager/L&T	
14	Earthing (Chemical Earthing Kit)	chemical type 3 mtr ISI Mark along with Earthing Chambers as per IS 3043 Ashlok, /Equivalent	
15	Earthing Strip	25mmx3mm GI Type	
16	Lighting Arrestor	Standard (Copper Type) IEC 62305	

17	Cable Trays	Sharada Cable Trays , Bravo Cables Trays, CSR Industries, BG Shirke	
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COMPONENTS	MAKE
Solar Photovoltaic Modules	(Waree /GoldieGreen / Panasonic /TATA Solar/ Vikram/ Adani / Mundra / Bharat Electronics etc as approved by MNRE)
Solar Inverter	(Schnider/ABB/ Sungrow / Delta / Solis/ Pwerone) SMA/ /Solar age /Polycab/ solare Grow watt / Fronius / SMA Solar /Delta / Waree
Cable	RR/Polycab / Siechem / KEI
Cable Tray	Sharada Cable Trays , Bravo Cables Trays, CSR Industries, BG Shirke
Chemical Earthing Kit	Ashlok, /Equivalent
Energy Meters	Secure/ L&T/ LNG
Surge Protection	Conzerve / Secure
Panel Meters	Conzerve / Secure
Lightening Arrestor	OBO / Indelec
SS Fasteners	Unbrako / APL / Viraj / Raj
Components of LT panel	Schneider / ABB/ Siemens/L&T

Note: -

- 1) The contractor should obtain prior approval from SBI/ Consultants before placing order for any specific materials SBI may / delete any of the makes or brands out of the above list.
- 2) All materials should conform to relevant standards and codes of BIS. Materials with I.S.I. mark shall be used duly approved by the SBI Engineer/Architect.
- 3) Any material is found to be not up to the mark, the contractor will have to produce original bills/certificate from the manufacturer or his authorized Distributor for authenticity and genuineness of the material for consideration and as per make approved by the SBI. The same will not be considered for payment.
- 4) Any additional item as per BOQ specifications or as per the instructions of the bank / Consultants. Any of the above items / other items if any will be as approved by the Consultants & Engineer-in-charge.

A.SCHEDULE OF TECHNICAL DATA TO BE FUNISHED BY THE CONTRACTOR

a	SPV MODULE	
i.	Manufacture's Name & Address	
ii.	Type of Modules with cat. Reference	
iii.	Design of module at standard test condition	
	a) Peak power watt	
	b) Peak power voltage	
	c) Peak power current	
	d) Open circuit voltage	
iv.	No. of SPV Modules proposed branch wise to achieve minimum KWp DC power (i),ii,iii,iv,v,vi	
v.	Short circuit current of PV module (Amp.)	
vi.	Open circuit voltage of PV Module (V)	
vii.	Max. power rating of one PV Module (KWp) (not less than 320Wp)	
viii.	Photo electrical conversion efficiency of SPV module (notless than 14%)	
ix.	Fill factor of the SPV module (> 0.70)	
x	Designated life of the SPV modules	
xi.	Overall dimensions (in mm)	
xii.	Weight	
xiii	Frame materials	
xiv.	Reference of Standards / approval, if any	
xv.	Life of SPV Module (Years of Operation)	
b	PV ARRAY CAPACITY	
	Number of Module in series in each array	
	Peak power rating of one array	
	Number of array considered to achieve the specified output	

c	MODULE MOUNTING STRUCTURE	
i)	Type of structure and its materials used in frame and accessories	
ii)	Type of mounting structures (Fixed or any other type)	
iii)	Overall dimensions	
iv)	Type of mounting	
v)	Surface azimuth angle of PV Modules	
vi)	Tilt angle (Slope) of PV module	
vii.	Confirm structure & module frame shall be designed at windspeed 150 km/hr.	
d	POWER CONDITIONING UNITS (PCUs)	
i.	Manufacturer's name & address	
ii.	Type of PCU (Centralized or string type)	
iii.	Number of units proposed	
iv.	Rated capacity of each PCU	
v.	Input DC Voltage range	
vi.	Output voltage	
vii.	Frequency	
viii.	Minimum efficiency at full load	
ix.	Location (outdoor/indoor)	
x.	Output wave shape	
xi.	Dimensions in mm	
xii.	IP protection level	
xiii.	Type of cooling required	
xiv	Type of mounting	
xv.	Suitability for specified Ambient Temp. range & Humidity at	
xvi.	Type of Protection provided	
xvii	Over Load Condition	Yes/No
xviii	Short Circuit Protection	Yes/No

xix	Low/High Voltage Protection	Yes/No
xx	Power Electronic Component Protection Yes/No	Yes/No
e.	METERING	
i.	Nos. of meters proposed to be provided	
ii.	Location of meters	
iii.	Manufacturer's name & address	
iv	Confirm compliance with laid down specification	

f	Item	Quantities	To be filled by the contractor
1	SPV Modules	Total Quantities (nos)	
		No. of Arrays	
		Nos. of SPV modules in each array	
2	Power Conditioning Units (PCUs) (Centralized / string type)	Type	
		quantity	
3	DC Junction Boxes		
4	AC Junction Boxes		
5	Other related items viz. control & power cables, cable trays, surge diverters, earthing etc. for the complete work as required & specified	LOT	

Signature of the contractor with company seal

B-WARRANTY CERTIFICATE

Name & Address of the Manufacturer/Supplier		
Name & Address of the Purchasing Agency		
Date of Erection of system		
PV Module a) Make b) Model c) Serial No (List Enclosed) d) Wattage under STC e) Warrantee valid up to		
Electronics & Inverter a) Make b) Model c) Serial No Warrantee valid up to		
Other BOS a) Make b) Model c) Serial No d) Warrantee valid up to		
Designation & Address of the person to be contacted for claiming Warrantee obligations		
Date: Place:	(Signature) Name Designation Name & Address of the Manufacturer /Supplier (SEAL)	

FORMAT FOR BANK GUARANTEE TOWARDS SECURITY DEPOSIT AND PERFORMANCE GUARANTEE

(To be submitted on Rs. 200/- non judicial stamp paper)Bank

Guarantee No. _____ dated _____

M/s State Bank of India,

.....,

Dear Sirs,

In consideration of M/s 'SBI' which expression unless repugnant to the context and meaning thereof shall include its successors and assigns], having agreed to exempt, M/s. _____ having its registered/principal office at

_____ [hereinafter referred to as 'Supplier / Contractor' which expression unless repugnant to the context and meaning thereof shall include its successors and assigns], from depositing with SBI a sum of Rs. _____ towards security / performance guarantee in lieu of the said Supplier / Contractor having agreed to furnish an irrevocable bank guarantee for the said sum of Rs. _____ as required under the terms and conditions of Contract / Work Order / Purchase Order no _____ dated _____ [hereinafter referred as the 'Order'] placed by SBI on the said supplier / contractor, we, _____ [hereinafter referred to as 'the Bank' which expression shall include its successors and assigns] do hereby undertake to pay SBI an amount not exceeding Rs. _____ [Rupees _____] on demand made by SBI on us due to a breach committed by the said Supplier / Contractor of the terms and conditions of the Order.

We _____ the Bank hereby undertake to pay the amount under the guarantee without any demur merely on a demand received in writing from SBI stating that the Supplier / Contractor has committed breach of the term(s) and/or condition(s) contained in the Order and/or failed to comply with the terms and conditions as stipulated in the Order or amendment(s) thereto. The demand made on the Bank by SBI shall be conclusive as to the breach of the term(s) and/or condition(s) of the Order and the amount due and payable by the Bank under this guarantee, notwithstanding any dispute or disputes raised by the said Supplier / Contractor regarding the validity of such breach and we agree to pay the amount so demanded by SBI forthwith and without any demur. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.

_____ [Rupees _____].

We, _____ the Bank further agree that this irrevocable guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said

Order and that it shall continue to be enforceable till all the dues of SBI under or by virtue of the said Order have been fully paid and its claim satisfied or discharged or till SBI certifies that the terms and conditions of the Order have been fully and properly carried out by the Supplier / Contractor and accordingly discharge the guarantee.

We _____ the Bank, undertake to pay to SBI any money so demanded notwithstanding any dispute or disputes raised by the said Supplier / Contractor in any suit or proceedings pending before any court or tribunal relating thereto as our liability under this present being absolute and unequivocal. The payment so made by us under this Guarantee shall be valid discharge of our liability for payment there under and the said Supplier / Contractor shall have no claim against us for making such payment.

We _____ the Bank further agree that SBI shall have full liberty, without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the Order or to extend time of performance by the said Supplier / Contractor from time to time or to postpone, for any time or from time to time, any of the powers exercisable by the SBI against the said Supplier / Contractor and to forbear or enforce any of the terms and conditions relating to the Order and shall not be relieved from our liability by reason of any such variation or extension being granted to the said Supplier / Contractor or for any forbearance, act or omission on the part of SBI or any indulgence by SBI to the Supplier / Contractor or by any such matter or thing whatsoever which under the law relating to sureties would but for this provisions have effect of so relieving us.

In order to give full effect to this guarantee, SBI will be entitled to act as if the BANK were the principal debtor and the BANK hereby waives all rights of surety ship.

5) Our liability under this bank guarantee is restricted to Rs. _____ [Rupees _____] and shall remain in force up to _____ and thereafter till the expiry of the extended period, if any, (hereinafter Validity period). Unless a demand is made under this guarantee on us in writing at any time from the date of issue of the guarantee till the expiry of the Validity period, we shall be discharged from all liabilities under this guarantee thereafter.

6) The claim, if any, under this guarantee, shall be lodged at (address of BANK & Branch)

This guarantee will not be discharged due to change in the constitution in the Bank or the said Supplier / Contractor or the provision of the contract between Supplier / Contractor and SBI

The BANK hereby agrees that the Courts in Mumbai shall have exclusive jurisdiction in any matter of dispute between SBI and the Bank and the Bank hereby agrees to address all the future correspondence in regard to this bank guarantee to The Dyt General Manager (P&E), Premises Department, State Bank Bhavan, State Bank of India, Nariman Point Mumbai.

We have the power to issue this Guarantee in your favour under the Charter of our Bank and the undersigned has full power to execute this Guarantee under the Power of Attorney granted to him by the Bank.

We, _____ the Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the SBI in writing.

SIGNED AND DELIVERED ON THIS _____ DAY OF _____

Yours faithfully,

For and on behalf of _____ . (Bank) Signature of Authorised Official of bank

FORMAT FOR SOLVENCY CERTIFICATE)

(On Bank's Letter Head)

REF

NO:..... DATE:

To Whomsoever Concerned

This is to certify that to the best of our knowledge and information, M/s _____(Bidders name with complete address), a customer of our Bank, is respectable, and is capable of executing orders to the extent of Rs _____

(Rupees _____). M/s _____ have been our customer since _____

to date and has been granted the following limits, at present, against various facilities granted by the Bank:
.....
.....

This certificate is issued without any guarantee, risk or responsibility on behalf of the Bank or any of its officials.

This certificate is issued at the specific request of the customer. Yours

faithfully,

(Bank Official's signature & stamp)

ENERGY GENERATION FOR 5 YEARS BRANCH WISE AFTER DEFECT LIABILITY PERIOD OF ONE YEAR.

(On Company letter head)

Note: Efficiency of solar PV System shall be guaranteed to minimum 90% at the end of 5 years after expiry of defect liability period of one year.

Year	Total (KWh) of guaranteed generation
Year 2	
Year 3	
Year 4	
Year 5	
Year 6	

Signature of the authorized person with company seal and date

(BILL OF QUANTITIES)

Description of Work:

Tender For Design, Supply, Installation, Testing and Commissioning Of Total 150kwp Grid Connected Roof top Solar Power System Under Net Metering Policy Including 5 Years Comprehensive Maintenance(from 2nd Year) at 6 Nos of residential buildings of Corporate Centre.

The rate shall include for all the material required including required quantities of SPV modules formed into arrays, their mounting arrangement with 30% Elevated structure where the site doesn't permit to achieve targeted solar power, power conditioning units, required DC & AC distribution panels with surge protection units, copper plate earthing stations with copper strip/cabling, data loggers for system performance monitoring through licensed software, metering safety arrangements, civil works, training etc. as defined in Part I of the tender to provide a composite operational system. The rate shall also include for 5 (five) years Warranty/Guarantee and Operation & Maintenance Including standard set of tools and spares (to be supplied free of cost).

NOTE:

1. Total project works should strictly be carried out complete as described in detailed technical specification. Prices quoted must be for Turnkey project and should be firm for the period of contract. No escalation shall be admissible in respect of any item of the contract.
2. The cumulative system of all the 6 buildings shall have guaranteed annualized ac energy output of 2,19,000 kilo watt hour (kwh) per year during the first five years of operation.
3. Prices Quoted should be Inclusive all Taxes, Transportation, Insurance, Loading & unloading, Installation & commissioning, CMC for 5 Years (from 2nd year), Net Metering PPA and Grid synchronization related approvals and Bi-directional meters and CT's to be provided as MSEDCL norms & modifications in existing LT Panels including supply of LT modules. Also the Liaisoning with ADANI/BEST/MSEDCL will be in the scope of bidder only

Sr	Site	Capacity Kwp	Qty	Unit	Rate	Amount
1	Kinellan & Udyan	10KWp	2	Job		
2	Madhuban Building	15KWp	1			
3	Harbour Height- C Wing	15KWp	1			
4	Kalpataru Building	15KWp	2			
5	Samriddhi Building	20KWp	2			
6	Mala Tower Building	15KWp	2			
TOTAL Kwp		150				
CAMC Charges for 5 Years						

(Signature of the authorized person with stamp of the
firm/company)Name of the authorized person:

Date: