



CHENNAI METRO RAIL LIMITED

TENDER NO. CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023

DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)

Chennai Metro Rail Limited (CMRL)
METROS, Anna Salai,
Nandanam,
Chennai – 600 035

Table of Contents

S. No	Chapter	Page No
1	Notice Inviting Tender	5 to 7
2	Section I – Definitions	9 to 11
3	Section I - Introduction, Bid details and Instructions to the bidders	12 to 34
4	Section-II - Evaluation Criteria	35 to 43
5	Section–III - Technical Specifications	44 to 56
6	Format-A - General Information about the Bidder	57 to 59
7	Section–IV Price Bid	60
	SECTION –V - Formats For Submitting RFS	
8	Format-1 - Covering Letter	61 to 63
9	Format – 2 – Initial Filter Criteria and Undertaking for initial filter criteria	64 to 65
10	Format – 3 - Mandatory Information for Eligibility of the Bid	66 to 68
11	Format – 4 - Banker's Guarantee Format for EMD	69
12	Format – 5 - Format for Performance Bank Guarantee Bond	70 to 72
13	Format – 6 - Power of Attorney for Signing of Bid	73 to 74
14	Format – 7 - Turnover & Profit & Loss of the bidder	75 to 77
15	Format - 8 - Format for certificate of relationship of Parent Company or Affiliate with the Bidding Company.	78
16	Format - 9 - Undertaking from the Financially Evaluated Entity or its Parent Company/ Ultimate Parent Company	79 to 80
17	Format - 10 - Similar work experience	81
18	Format -11	83
19	Format - 12– Financial Data	84 to 85
20	Format - 13 - Consortium Agreement	86 to 87
21	Format - 14 - Undertaking for Corrupt & Fraudulent Practice	88
22	Format - 15 - Undertaking	89

S. No	Chapter	Page No
23	Format-16 - Undertaking for not being penalised in a Contract	90
24	Format-17 - Undertaking for Financial Stability	91
24	Format - 18 - Bidding capacity with reasons of variation	92
25	Annexure - A - Documents Required for Project Sanction	93
26	Annexure- B - Quality Certification, Standards and Testing for Grid-connected Rooftop Solar PV Systems/Power Plants	94 to 97
27	Section- VI - Draft Power Purchase Agreement (PPA)	98 to 128
28	Section – VIII - Layout of Proposed Solar Plants	129 to 142
29	Section IX - Technical Specification for Elevated Structures	143 to 151

DISCLAIMER

1. CHENNAI METRO RAIL LIMITED, (hereinafter mentioned as CMRL) does not make any representation or warranty as to the accuracy, reliability or completeness of the information in this Bid Document. Therefore, each Bidder should conduct their own investigations and analysis and check the accuracy, reliability and completeness of the information in this Bid Document and obtain independent advice from appropriate sources. The Bidder shall bear all its costs associated with the preparation and submission of its Bid including expenses associated with any clarifications, which may be required by CMRL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and CMRL shall not be liable in any manner.
2. CMRL will have no liability to any Bidder or any other person under the law of contract, tort, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this Bid Document, any matter deemed to form part of this Bid Document, the award of the License, the information and any other information supplied by or on behalf of CMRL or otherwise arising in any way from the selection process of the License.
3. The issue of this Document does not imply that CMRL is bound to select the Bidder or to appoint the Selected Bidder. CMRL reserves the right to reject any or all of the Bids submitted in response to this Bid Document at any stage without assigning any reasons whatsoever. CMRL also reserves the right to withhold or withdraw the process at any stage with intimation to all Bidders who have submitted the Bid.
4. CMRL reserves the right to change / modify / amend any or all of the provisions of this Bid Document at any stage. Such changes shall not be notified to all bidders who have bought the tender document.
5. Bidders are advised to remain vigilant and monitor the website <https://eprocure.gov.in/eprocure/app> for all updates on the Tender Document such as Addendum(s), Reply to Query, Postponement of any schedule etc. No claims or compensation will be entertained on account of the Bidder having not read/noticed the updates

NOTICE INVITING TENDER

**CHENNAI METRO RAIL LIMITED
NOTICE INVITING E- TENDER**

NIT No: CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023

National Competitive Bidding

CMRL invites digitally signed open e-tender through e-procurement portal from reputed, experienced, financially sound, eligible applicants, who fulfil the qualification criteria as mentioned in the tender through National Competitive Bidding (NCB) under Single Stage two Envelope with initial filter (Technical & Financial) system for the works as detailed below

1.	Name of work	Tender No:- CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023 DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)
2.	Bid validity	180 days from the date of submission of tender.
3.	Approximate value of work (excluding GST)	INR 20 Cr. (including structure cost)
4.	Bid Security Amount(EMD) & Validity	EMD Amount: The total bid security/EMD amount shall be equal to INR 20,00,000/- (Indian Rupees Twenty Lakhs Only) in the form of NEFT / RTGS / e- Bank Guarantee (e-BG should be valid till 208 days after bid opening date) Validity: 208 Days
5.	Completion period of the Work	18 (Eighteen) Months from the date of signing of PPA .
6.	Bid Submission Fee(Non-refundable)	There will be a non-refundable Bid Submission Fee of INR 32,000/- (Rupees Thirty Two Thousand only) including GST to be paid by NEFT/RTGS/DemandDraft.
7.	CMRL BANK A/c Details	a)Beneficiary name : M/s Chennai Metro Rail Limited b)Beneficiary bank : Canara Bank, Teynampet Branch, Chennai-600 018 c)Current Account No 0416214000030 d)IFSC Code : CNRB0000416
8.	Details of NIT / Bid Documents	The Tender documents can be downloaded from the CPP PORTAL https://eprocure.gov.in/eprocure/app from: 26/09/2023
9.	Pre-bid Meeting	06/10/2023 at 11.00 hours in CMRL METROS, Nandanam, Anna Salai, Chennai - 35
10.	Last date of Seeking Clarifications By mail	18/10/2023 up to 18:00 hours Queries/clarifications from bidders after due date and time shall not be acknowledged.
11.	Date for issuing addendum and pre- bid replies	31/10/2023 up to 18:00 hrs
12.	Date and Time of Bid Submission	06/11/2023 up to 15:00 hrs
13.	Date and Time of opening of Bid (Technical Bid)	07/11/2023 at 15:00 hrs

14	<i>Tender Inviting Authority</i>	Chief General Manager (Electrical – O&M), Chennai Metro Rail Limited, Flat No. 301, “A” Block, CMRL Officers Quarters, METROS, Nandanam, Anna Salai, Chennai – 600 035
15	<i>Place for submission of Tender Document, seeking clarifications</i>	Additional General Manager – E&M (O&M), Chennai Metro Rail Limited, Flat No. 301, “A” Block, CMRL Officers Quarters, METROS, Nandanam, Anna Salai, Chennai – 600 035.
16	<i>Bidders barred from bidding this work</i>	Please refer Clause no. 3.18.3, 3.18.4, 3.18.5, 3.18.6 and Format 2 (Initial FilterCriteria) of bid document.
17	<i>Website from which any additional information can be obtained</i>	https://eprocure.gov.in/eprocure/app

Note: If the date of opening of Bids happens to be a public holiday, Bids will be opened on the next workingday at the same time.

Chief General Manager (Electrical – O&M)

SECTION – I

1.0. DEFINITIONS & ABBREVIATIONS

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

1.1. “ Affiliate” shall mean a company that either directly or indirectly

- a. controls or
- b. is controlled by or
- c. is under common control with

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

1.2. “B.I.S” shall mean specifications of Bureau of Indian Standards (BIS).

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

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

1.5. “Bid Deadline” shall mean the last date and time for submission of Bid in response to this RFS as specified in NIT.

1.6. “Bid Capacity” shall mean capacity offered by the bidder in his Bid under invitation.

1.7. “CEA” shall mean Central Electricity Authority.

1.8. “Chartered Accountant” shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949.

1.9. “Competent Authority” shall mean Chief General Manager – Electrical (O&M) of Chennai Metro Rail Limited, himself and/or a person or group of persons nominated by MD for the mentioned purpose herein.

1.10. “Commissioning” means Successful operation of the Project / Works by the Contractor, for the purpose of carrying out Performance Test(s) as defined in RFS.

1.11. “Company” shall mean a body incorporated in India under the Companies Act, 1956 or Companies Act, 2013 including any amendment thereto.

1.12. “Capacity Utilization Factor” (CUF) means the ratio of the actual output from a solar plant over the year (kWh) to the maximum possible output from it for a year (kWh) under ideal conditions. $CUF = \text{Actual Plant Output in kWh over the year} / (\text{Installed Plant Capacity in kW} \times 365 \times 24)$.

Monthly CUF: Monthly Plant output in kWh / (installed plant capacity in kW x number of days in a month x 24).

1.13. “City Limits” means Municipal Corporation limits / Master Plan / Industrial area includes SEZ and IT park etc.

1.14. “Eligibility Criteria” shall mean the Eligibility Criteria as set forth in Clause 3.8 of this RFP.

1.15. “Financially Evaluated Entity” shall mean the company which has been evaluated for the

satisfaction of the Financial Eligibility Criteria set forth in Clause 3.8.3 hereof.

- 1.16. **"IEC"** shall mean specifications of International Electro-technical Commission.
- 1.17. **"kWp"** shall mean Kilo-Watt Peak.
- 1.18. **"kWh"** shall mean Kilo-Watt-hour.
- 1.19. **"Maximum Bid Capacity"** shall mean the maximum capacity for which the Bidder can submit its Bid.
- 1.20. **"Model(s)"** shall mean RESCO.
- 1.21. **"O&M"** shall mean Operation & Comprehensive Maintenance of Solar PV system.
- 1.22. **Owner of the project** shall mean anyone who has invested 100% of project cost in the Project or the Project Developer who has taken the roof on mutually agreed terms and conditions from the roof top owner(s) and enters into a PPA for supply of Solar Power for at least 25 years from the date of Commissioning of project.
- 1.23. **"Project Cost / Project Price"** shall mean the price offered by the Bidder for the Scope of work as per RFS documents.
- 1.24. **"Project capacity"** means Capacity in kWp specified by CMRL for Parking shed area and ground mounted. The project capacity specified is on –DCII output Side only.
- 1.25. **"Performance Ratio" (PR) means** —Performance Ratio (PR) means the ratio of plant output versus installed plant capacity at any instance with respect to the radiation measured.
- $$PR = \frac{\text{Measured output in kW/}}{\text{Installed Plant capacity in kW}} \times \frac{1000 \text{ W/m}^2 /}{\text{Measured radiation intensity in W/m}^2}$$
- 1.26. **"Parent Company"** shall mean a company that holds at least twenty six percent (26%) of the paid-up equity capital directly or indirectly in the Bidding Company as the case may be.
- 1.27. **"Project Company"** shall mean Company incorporated by the bidder as per Indian Laws in accordance with Clause no 3.9.
- 1.28. **"Project Sanction Documents"** shall mean the documents as specified in Annexure – A.
- 1.29. **"Price Bid"** shall mean Envelope III of the Bid, containing the Bidder's quoted Price as per the Section- IV of this RFS.
- 1.30. **"Qualified Bidder"** shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid stand qualified for opening and evaluation of their Price Bid.
- 1.31. **"RFS"** shall mean Request for Selection (RFS)/Bid document / Tender document.
- 1.32. **"RESCO"** shall mean **Renewable Energy Service Companies.**
- 1.33. **"RESCO model"** shall mean where the bidders intend to take a rooftop / sites owned by CMRL on mutually agreed terms and conditions from CMRL and enters into the PPA with CMRL for supply of Solar power for 25 years from the date of Commissioning of project.
- 1.34. **"Statutory Auditor"** shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or under the provisions of any other applicable governing law.
- 1.35. **"Successful Bidder(s) / Contractor/Project Developers(s)"** shall mean the Bidder(s) selected by CMRL pursuant to this RFS, for Implementation of Grid Connected Solar PV System as per the terms of the RFS Documents, and to whom an Allocation Letter has been issued.

1.36. “SNA” shall mean State Nodal Agency.

1.37. “Tendered Capacity” shall mean the Total aggregate capacity in KW as indicated in table of Clause 2.3, proposed to be allocated by CMRL to the Successful Bidder through this bidding process as per terms and conditions specified therein.

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

1.39. “Wp” shall mean Watt Peak.

1.40. MNRE: Ministry of New and Renewable Energy.

1.41. Minimum Bid Capacity: Shall mean the minimum capacity for which the bidder can submit its Bid.

INTERPRETATIONS

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

SECTION – I

A. INTRODUCTION, BID DETAILS AND INSTRUCTIONS TO THE BIDDERS

1. INTRODUCTION

CMRL invites eligible applicants to participate in the bidding process for —**DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and**

PHASE 1 EXTENSION)". The generated solar power will be utilized for captive application of CMRL and the surplus power will be fed to the CMRL grid. The scheme aims to reduce the fossil fuel based electricity load on main grid and make building self-sustainable from the point of electricity, to the extent possible.

- 1.1. The Bidder is advised to read carefully all instructions and conditions appearing in this document and understand them fully. All information and documents required as per the bid document must be furnished. Failure to provide the information and / or documents as required may render the bid technically unacceptable.
- 1.2. The bidder shall be deemed to have examined the bid document, to have obtained his own information in all matters whatsoever that might affect the carrying out the works in line with the scope of work specified elsewhere in the document at the offered rates and to have satisfied himself to the sufficiency of his bid. The bidder shall be deemed to know the scope, nature and magnitude of the works and requirement of materials, equipment, tools and labor involved, wage structures and as to what all works he has to complete in accordance with the bid documents irrespective of any defects, omissions or errors that may be found in the bid documents.

2. BID DETAILS

2.1. The bidding process is for Solar PV system to be installed on RESCO model.

2.2. **(RESCO Model)**:-Bids are invited from the prospective bidders for the Tendered Capacity **(3.0 MWp)** as indicated in drawing (Attached in Volume-VII). Bidders will be required to furnish levelized tariff for 25 years starting from the date of commissioning of the Project. The tariff quoted by the bidder shall be fixed for 25 years. The successful bidder will be selected based on the highest savings realized as compared to TANGEDCO tariff, subject to Clause **6.3 and 6.4** of RFS.

2.3. Selected Sites of CMRL

Sl. No	Station Name	Ground Mounted (kWp)	Parking (kWp)
	<u>Blue Line</u>		
1	Wimco Nagar		150
2	Washermanpet		500
3	Mannadi		850
4	High Court		50

5	Government Estate		60
6	Saidapet	120	
7	Nanganallur Road		300
	<u>Green Line</u>		
8	Egmore		300
9	Shenoy Nagar		30
10	Anna Nagar East		50
11	Thirumangalam		75
12	Koyambedu		350
Total Capacity (MWp)		120	2715

Above capacities are only indicative. Bidders have to maximize the capacities on available sites space by selecting efficient module & methods.

2.3.1. The preliminary survey details are attached as Section –VII, **however bidder shall ensure by carrying out the thorough site visits, survey and shadow analysis / simulations studies with the help of proven software for arriving possible installation capacities on indicated sites.** CMRL shall have no responsibility for the correctness of the above data/tentative capacities attached as Section — VII.

2.3.2. After the letter of Allocation, the Bidder has to carry out the detailed survey of the sites and submit the calculation, and complete detailed engineering document for the approval of CMRL. The list of indicative documents is mentioned below. The Documents required to be submitted are as follows —

- Detailed survey, engineering report for Capacity Possible site wise including detailed shadow analysis, PV system Report (site wise), Generation details, calculations etc.
- Layout Sketch including wiring arrangement site wise.
- Tentative installation time schedules with activities break up including statutory approvals.
- Technical data sheets/Details of the equipment planned i.e. PV modules (panels), inverters, Data loggers, earthing systems, cables, AC panels and balance of the plant system.
- Method statements for various major activities, simulations data etc. and any other detailed desired by CMRL/Engineer or it's representative.

2.4. SIZE OF THE PROJECTS

2.4.1. Successful bidders to whom a letter of allocation has been issued will be allowed to submit proposal for approval and issue of sanction letter by CMRL. Sanction letter will be issued for the total aggregate capacity submitted by the bidder for approval as per above.

2.5. BIDDING CAPACITY

2.5.1. A variation of $\pm 25\%$ on total contemplated capacity (3.0 MWp) will be allowed to be installed by the bidder, indicating it at the bidding stage itself. That includes enhancement of capacity at some specified location or reduction in capacity at some specified location or even dropping of entire scheme at some specified location.

2.5.2. For all such variations, against each specific location, a detailed write-up has to be submitted with reasons of variation as per Format -18.

3. INSTRUCTIONS TO THE BIDDERS

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR “E-TENDERING”

- 3.1.** The intending bidders must read terms and conditions carefully. He should submit his tender only if he considers himself eligible and has all the documents required.
- 3.2.** Information and instructions for bidders posted on the website shall form part of tender documents.
- 3.3.** The complete Tender Document can be obtained online after registration of bidder on the website <https://eprocurement.gov.in/eprocure/app>
- 3.4.** Tender can be submitted only after uploading the mandatory scanned copy of documents such as Demand Draft or Pay Order or Banker's cheque towards cost of Bid Documents (as prescribed in RFP) and Bid Security / EMD.
- 3.5.** Bidder must ensure to quote rates only in specified format of RFP provided in bid document.
- 3.6.** Bidder must meet the eligibility criteria independently as Bidding Company. Bidding consortium is allowed to participate in this bidding with one of the members acting as the leading member of the bid consortium. Bidder will be declared as a Qualified Bidder on meeting the eligibility criteria and as demonstrated based on documentary evidence submitted by the Bidder in the Bid.

3.6.1. Tenderer shall be from India only either a single entity or any combination of entities in the form of a joint venture or association (JVA) under an existing agreement. In the case of a JVA: all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; and the JVA shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the partners of the JVA during the tendering process and, in the event the JVA is awarded the Contract, during contract execution.

3.6.2. A Tenderer and all partners constituting the Tenderer shall not have a conflict of interest. All Tenderers found to have a conflict of interest shall be disqualified. A Tenderer may be considered to have a conflict of interest with one or more parties in this tendering process, if:

- a. Tenderer and all partners constituting the Tenderer has been engaged by the Employer to provide consulting services for the preparation related to procurement or for implementation of the project;
- b. Tenderer and all partners constituting the Tenderer is any associates/affiliates (inclusive of parent firms) mentioned in subparagraph (a) above; or
- c. A Tenderer and all partners constituting the Tenderer lends, or temporarily seconds its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project, if the personnel would be involved in any capacity on the same project.

3.6.3. A Tenderer and all partners constituting the Tenderer shall submit only one tender in the same tendering process, either individually as a Tenderer or as a partner of a JVA. A Tenderer who submits or participates in, more than one tender will cause all of the proposals in which the Tenderer has participated to be disqualified. No Tenderer can be a subcontractor while submitting a tender individually or as a partner of a JVA in the same tendering process. A Tenderer, if acting in the capacity of subcontractor in any tender, may participate in more than one tender, but only in that capacity.

3.6.4. IN CASE OF JV/JVA

Lead partner must have a minimum of 40% participation in the JV/Consortium (Maximum 3 partners).

Partners having less than 25% participation will be termed as non- substantial partners and will not be considered for evaluation which means that their financial soundness and work experience shall not be considered for evaluation of JV/Consortium.

In the case of JV/Consortium, change in constitution or percentage participation shall not be permitted at any stage after their submission of application otherwise the applicant shall be treated as non-responsive.

3.7. Bidder can however use the technical and financial strength of its Parent Company / Affiliate Company to fulfill the Technical and/or Financial Eligibility criteria mentioned below. In such case, Bidders shall submit an Undertaking and guarantee from the Parent Company / Affiliate Company and also furnish a certificate of relationship of Parent Company or Affiliate with the Bidding Company as per Format-8, Company Secretary certificate towards shareholding pattern of the Parent Company and the Bidding Company along with a Board resolution from the Parent Company.

3.8. ELIGIBILITY CRITERIA

3.8.1. GENERAL

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

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

- i. A Bidder shall be from India only, either a single entity or any combination of entities. In the case of a JVA/Consortium: all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; and the JVA/Consortium shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the partners of the JVA/Consortium during the tendering process and, in the event the JVA is awarded the Contract, during Contract execution and its entire O&M period
- ii. A Bidder and all partners constituting as the Bidder shall submit only one tender in the same tendering process, either individually as a Bidder or as a partner of a JVA. A Bidder who submits or participates in, more than one tender will cause all of the proposals in which the Bidder has participated to be disqualified. No Bidder can be a subcontractor while submitting a tender individually or as a partner of a JVA in the same tendering process
- iii. CMRL may ask bidders to provide evidence of their continued eligibility and to bidders shall provide satisfactory evidences
- iv. A firm, who has purchased the tender document in their name, can submit the tender either as individual firm or in a JV/JVA (MSME registered contractors, who are registered as Services category, are exempted from tender document fee)
- v. CMRL / Any Central / State government department or public-sector undertaking/ other government entity or local body must not have banned business with the Bidder (including individual members in case of

Consortium) as on the date of Bid submission. Also, no work of the Bidder must have been rescinded/ terminated by CMRL/ any central or State Govt. Department/ Public Sector Undertaking/ Other Govt. entity or local body after award of contract during last 3 years (from the last day of the previous month of tender submission) due to non- performance of the Bid. The Bidder should submit undertaking to this effect in Format-15

- vi. Bidder (any member in case of JV/consortium) must not have paid liquidated damages of 10% (or more) of the contract value in a contract due to delay or penalty of 10% (or more) of the contract value due to any other reason during last five years (from the last day of the previous month of tender submission). The Bidder should submit undertaking to this effect in Format-16. CMRL shall have the right to cross check the credentials/certificates submitted by the Bidders through their previous Employers/Purchasers.
- vii. Bidder (any member in case of JV/consortium) must not have suffered bankruptcy/ insolvency during the last 5 years. The Bidder should submit undertaking to this effect in Format-17.

viii. IN CASE OF JV/ CONSORTIUM

- a. Lead partner must have a minimum of 40% participation in the JV/Consortium
- b. Partners having less than 25% participation will be termed as non-substantial partner and will not be considered for evaluation which means that their financial soundness and work experience shall not be considered for evaluation of JV/Consortium
- c. In case of JV/Consortium, change in constitution or percentage participation shall not be permitted at any stage after their submission of application otherwise the applicant shall be treated as non-responsive.

ix. JV/Consortium: Consequences for deviation from JV/MOU

The Bidder, in case of JV/Consortium, shall clearly and unambiguously define the role and responsibilities for each substantial/non-substantial partner in the JV/ MOU submitted vide foot note (d) of Format A , providing clearly that any abrogation/subsequent re-assignment of any responsibility by any substantive/non-substantive partner of JV/Consortium in favour of other JV/Consortium partner (without written approval of Employer) or any change in constitution of partners of JV/Consortium from the one given in JV/MOU at tender stage, will be treated, as "breach of contract condition" and/or —misrepresentation of facts"(as the case may be).

CMRL in such cases, may in its sole discretion rescind the contract and/or take appropriate action against any member(s) for failure in tender obligation to declare a contractor ineligible for award of any tender in CMRL or take action to terminate the contract in part or whole as the situation may demand and recover the cost/damages as provided in contract besides forfeiting the performance and other guaranties.

- b. The bidder should have valid GST registration certificate. Registration document(s)**

to be provided by the bidder where it is presently Operational / Company is registered. **(Copy to be furnished in support).**

3.8.2. TECHNICAL ELIGIBILITY CRITERIA

The Bidder should have installed & commissioned **Solar PV Project on Elevated structures in Open / Parking Spaces** of minimum **2.4 MWp** (Total capacity can be **cumulative** of various stations/sites) in the last 10 (ten) years ending 31.03.2023. For cumulative calculation of installed capacity by the bidder, **only plant size of 100kWp and above only will be considered.**

In addition, the Bidder should have installed & commissioned **a single plant of Solar PV Project on Elevated structures in Open / Parking Spaces** of minimum **500kWp** in the last 10 (ten) years ending 31.03.2023.

The list of projects commissioned indicating whether the project is grid connected, along with a copy of the Commissioning certificate, Work order /Contract / Agreement/ and latest Energy bill / Generation Report dated not lesser than Mar 2023 from the Client/Owner shall be submitted along with Performance Certificates duly certified by the Purchaser/Owner/Employer. The format is attached as in **Format-10.**

3.8.3. FINANCIAL ELIGIBILITY CRITERIA

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

The minimum **average annual financial turnover** of the bidder during the last **five financial years**, ending on 31st March of the previous financial year, should be at least **Rs. 6,00,00,000/- (Rupees Six Crore)** and should be having **positive Net Worth at least three years out of last five financial years as certified by Chartered Accountant.** The bidder shall have net working capital of Rs. 8 Cr, if not bidders shall submit Line of Credit Certificate/ Liquidity Certificate from banks.

In Case of JV/JVA—

The Bidder must fulfil the following conditions:

- a. Lead partner must have a minimum of 40% participation in the JV/Consortium.
- b. Partners having less than 25% participation will be termed as non- substantial partners and will not be considered for evaluation which means that their financial soundness and work experience shall not be considered for evaluation of JV/Consortium.
- c. In the case of JV/Consortium, change in constitution or percentage participation shall not be permitted at any stage after their submission of application otherwise the applicant shall be treated as non-responsive.

Example: Let Member-1 has percentage participation = M and Member — 2 has =N. Let the average annual turnover of Member-1 is –A1 and that of Member-2 is –B1, then the average annual turnover of JV will be

$$\frac{AM + BN}{100}$$

AND

Net Worth: Net Worth of Bidder during last 3 audited financial year out of last 5

years should be **positive**.

In Case of JV/JVA, the algebraic sum total of net worth of all the members as per the latest audited balance sheets shall be considered the Net Worth of the Bidder.

Example: Let Member-1 has percentage participation = M and Member – 2 has =N. Let the Net worth of Member-1 is –AII and that of Member-2 is –BII, then the Net worth of JV will be

$$\frac{AM + BN}{100}$$

Where a work is undertaken by a group, only that portion of the contract which is undertaken by the concerned applicant/member should be indicated and the remaining done by the other members of the group be excluded. This is to be substantiated with documentary evidence.

Financial data for the last five audited financial years must be submitted by the Bidder in Format-7 and Format-12 along with audited balance sheets. The financial data in the prescribed format shall be certified by the Chartered Accountant with his stamp and signature in the original. In case audited balance sheet of the last financial year is not made available by the bidder, he must submit an affidavit certifying that —the balance sheet has actually not been audited so far". In such a case the financial data of previous —4" audited financial years will be taken into consideration for evaluation. If an audited balance sheet of any year other than the last year is not submitted, the tender will be considered as non-responsive. But if the company is operative for less than 5 years, it still can be considered provided its financial standing meets the tender requirement based on available audited balance sheets.

3.9. INCORPORATION OF A PROJECT COMPANY

- 3.9.1. In case the Bidder wishes to incorporate a Project Company, in such a case Bidder if selected as a Successful Bidder shall incorporate a Project Company. Bidder shall be responsible to get all clearance required/obtained in the name of the Bidding Company transferred in the name of the Project Company.
- 3.9.2. The aggregate equity share holding of the Successful Bidder in the issued and paid up equity share capital of the Project Company shall not be less than fifty one percent (51%) up to a period of Twenty Five (25) years from the date of commissioning of the entire Sanctioned Capacity of the Project Developer. The Successful Bidder may invest in the equity share capital of the Project Company through its Affiliate(s) or Parent Company or Ultimate Parent Company. If the Successful Bidder so invests, the Successful Bidder shall be liable to ensure that minimum equity holding/Lock in limits specified above are still maintained.
- 3.9.3. The shareholding of the success bidder in the project company shall not be modified not to be reduced during the execution of the projection. The details of the project company, date of incorporation, approval of ministry, Shareholding details, PAN, GST details need to be submitted to CMRL within 45 days from the commencement date

3.10. BID SUBMISSION BY THE BIDDER

- 3.10.1. The information and/or documents shall be submitted by the Bidder as per the formats specified in Section-IV & Section -V of this document.
- 3.10.2. Strict adherence to the formats wherever specified, is required. Wherever, information has been sought in specified formats, the Bidder shall refrain from referring to brochures /pamphlets. Non-adherence to formats and / or submission of incomplete information may be a ground for declaring the Bid as non-responsive. Each format has to be duly signed and stamped by the authorized signatory of the Bidder.
- 3.10.3. The Bidder shall furnish documentary evidence in support of meeting Eligibility

Criteria as indicated in Clause no. 3.8.1, 3.8.2 and 3.8.3 to the satisfaction of CMRL.

3.11. BID SUBMITTED BY A BIDDING COMPANY

- 3.11.1. The Bidder shall submit a duly notarized written Power of Attorney (POA) authorizing the signatory (ies) of the Tender to commit the Bidder of each member of the partnership, consortium or joint venture along with copy of Board Resolution/authorization in favour of signatory to POA.
- 3.11.2. Each Bidder (each member in the case of joint venture or consortium) is required to confirm and declare with his Tender that no agent, middleman or any intermediary has been, or will be, engaged to provide any services, or any other item or work related to the award and performance of this Contract and declare that no agency commission or any payment which may be construed as an agency commission has been, or will be, paid and that the tender price will not include any such amount. To fulfil this requirement, the Bidder (each member in case of JV/Consortium) has to sign the declaration given as Format 14 Section.
- 3.11.3. Canvassing or offer for an advantage or any other inducement by any person with a view to influence acceptance of a Tender will be an offence under laws of India. Such action will result in the rejection of the Tender, in addition to other punitive measures.

3.12. CLARIFICATIONS AND PRE-BID MEETING

- 3.12.1. Any clarification to be sought by the prospective bidders must be raised before the clarification End date in writing by e-Mail (Karthikeyan.s@cmrl.in, susanta.das@cmrl.in). In this regard the representatives shall bring their authorization letter from the participating firm or Mail that along with query. Clarification for the queries raised will be published/ Displayed at CMRL's website/CPP portal within the stipulated date. No separate communication in this regard will be further entertained.
- 3.12.2. The Bidder(s) or their authorized representative(s) is /are invited to attend pre-bid meeting(s), which will take place on date(s) as specified in NIT, or as notified by CMRL.
- 3.12.3. The purpose of the pre-bid meeting will be to clarify any issues regarding the RFS including in particular, issues raised in writing and submitted by the Bidders.
- 3.12.4. CMRL is not under any obligation to entertain/ respond to suggestions made or to incorporate modifications sought for.

3.13. AMENDMENTS TO RFS BY CMRL

- 3.13.1. Any amendments to this tender document will be published in the CPP portal. Prospective bidders are requested to regularly check the same in their own interest.

3.14. CPP portal: The procurements of goods and services of CMRL will be done through e-procurement. This is implemented to ensure free & fair vendor participation, and to ensure greater transparency in procurement.

3.14.1. Eligibility to Participate in Tender:

- i) Tenders are open to all eligible bidders. In order to submit the bid, the bidders have to get themselves registered on-line on the e-procurement portal (<http://eprocure.gov.in/eprocure/app>) with valid class II/III Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt of India.
- ii) The on-line registration of the bidders on the portal will be free of cost and one-time activity only. If the bidder is an individual person then he should register himself under "Individual" category and if the bidder is a proprietorship firm/Joint

Venture/Company/Consortium, then registration should be under “**Corporate**” category.

- iii) The registration must be in the name of bidder, whereas DSC holder may be either bidder himself or authorized person.

3.14.2. Enrolment:

To participate in e-procurement all vendors must enroll themselves with the CPP portal. The procedure mentioned below is to be followed:

- i. Go to –<http://eprocure.gov.in/eprocure/app> web site.
 - ii. Click on –**Click here to enroll**. It will take you to ‘**on line enrolment**’ screen.
 - iii. Against User type, select either ‘individual’ or ‘corporate’.
 - iv. Specify your log in ID, indicated in the application while applying for DSC.
 - v. Create your own password. Before creating, refer to ‘Password Policy’ that appears on the right side of the screen. Password should be in accordance with that policy.
 - vi. Confirm the password once again.
 - vii. Click on –Next.
 - viii. You will see a screen which will have several fields. Please fill as many fields as possible, but keep in mind to fill all mandatory fields which are marked with an asterisk (*).
 - ix. After entering the fields, click on –Submit.
 - x. You will get a message that Log in ID registered successfully, that completes your entry.
- 3.14.3. The bidder shall submit the bids on line in the system available at the e-procurement portal (<http://eprocure.gov.in/eprocure/app>). The bidder has to agree to the on-line user portal agreement. Then only the system will permit the bidder to proceed further in the system.
- 3.14.4. The bidder shall fill all mandatory fields indicated by an asterisk (*). All documents indicated to be submitted in ‘cover details’ are to be enclosed without fail. These documents are to be up- loaded only in .doc or .pdf or .jpg or .rar formats.

3.15. Price Bid:

- i. The Price bid containing the Price schedule will be in excel format and the bidder shall quote the rates, taxes & duties etc. for his offered services on this excel file only. Where, any row or column is not applicable, the bidder has to indicate ‘0’ against this and no cells shall be left blank.
- ii. The bidder may modify and resubmit the bid on-line, if he wishes so, before the bid submission date and time.
- iii. The system will accept only the last submitted bid. Bidder can find out their status of tender on line, any time after opening the bids.
- iv. The bidder shall not rename the Price Schedule file (BOQ) or modify the format while up-loading in the system. The file name should be the same as the file given in the tender.
- v. All bids are to be submitted on-line on the website (<http://eprocure.gov.in/eprocure/app>).

3.16. Withdrawal of bid: The bidder may withdraw already submitted bid before the bid submission date and time.

3.17. Compliance with Technical Specification:

- 3.17.1. The services offered should be in accordance with the stipulated technical specifications in "GCC, SCC and all forms & Annexures".
- 3.17.2. The bidders must comply with the stipulated technical specifications and special conditions as mentioned in the tender documents.

3.18. Additional mandatory requirements

In addition to the foregoing, Bidders should satisfy the following conditions:

- 3.18.1. **Subcontractors' experience and resources shall not be taken into account in determining the Tenderer's compliance with the Qualifying Criteria**
- 3.18.2. Even though the Tenderers meet the Qualification Criteria in accordance to Clause 3.4, they are subject to be disqualified, if they have;
 - a. made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
 - b. record of poor performance such as abandoning the works, not properly completing the Contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- 3.18.3. The Bidder either single or JV should not have been suspended barred, blacklisted by GOI, GOTN, PSU's, Metro Rail Corporations, or whose contracts were terminated as on date of submissions of bid are ineligible to apply for this tenderwork.
- 3.18.4. The Bidder, and its Affiliates should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder or its Affiliates, as the case may be, nor have been expelled from any contract by any Government Authority nor have had any contract with a Government Authority terminated for breach by such Bidder. A declaration to this effect shall be submitted with the Bid Document
- 3.18.5. The Bidders shall not have defaulted on any bank/ institutions' loans in the past. They should not be defaulters in payment of statutory dues or liabilities. They should not have been under blacklisting by any Government Authority now
- 3.18.6. Bidders with history of nonperformance of contract due to contractor's default, pending litigation in total representing more than fifty percent (50%) of bidder's Net worth with consistent history of court/arbitral award decisions against bidder as on date of the submission of the bid are ineligible to apply for this tender work.
- 3.18.7. The Bidder should have been a profit making entity for any three financial years among last five financial years in which the annual turnover is calculated (Copy of statement of Profit and Loss Account certified by Chartered Accountant for each of the five preceding [FY 2018-19, 2019-20, 2020-21, 2021-22, 2022-23] financial years to be enclosed.) Format -7 & Format - 12.

3.19. Conflict of Interest:

The Bidder shall not have a conflict of interest ("Conflict of Interest") that affects the bidding process. Any Bidder found to have a Conflict of Interest shall be disqualified. A Bidder shall be deemed to have a Conflict of Interest affecting the bidding process, if:

- 3.19.1. A *constituent* of such Bidder is also a constituent of another Bidder; or Such Bidder,

or any Affiliate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any Affiliate thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any Affiliate thereof; or

- 3.19.2. Such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
- 3.19.3. Such Bidder, or any Affiliate thereof has a relationship with another Bidder, or any Affiliate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's' information about, or to influence the Bid of either or each other; or
- 3.19.4. Such Bidder, or any Affiliate thereof has participated as a contractor to the CMRL in the preparation of this document, design or technical specifications;
- 3.19.5. A Bidder shall be liable for disqualification if any legal, financial or technical officer/staff/adviser of CMRL is engaged by the Bidder, its Member or any Affiliate hereof, as the case may be, in any manner for matters related to or incidental.

3.20. Bid security (EMD - Earnest Money Deposit):

3.20.1. Bid Security (EMD) – INR 20,00,000/- (Indian Rupees Twenty Lakhs Only).

3.20.2. The EMD shall be made payable without any condition to the CMRL.

3.20.3. MSME firms, who are registered as Services category, are exempted from Tender document cost (UDHAYAM certificate shall be produced)

3.20.4. Bidders can submit the EMD with Payment online through RTGS / internet banking / e Bank Guarantee in Beneficiary name Chennai Metro Rail Limited

- **Account No - 0416214000030**
- **IFSC Code - CNRB0000416**
- **Bank Name - Canara Bank**
- **Branch address - Teynampet Branch**

3.20.5. In case of e-Bank Guarantee, Bidder shall upload scanned copy along with online bid submission. e-Bank Guarantees are only acceptable. BG format is given as Format-4 of Tender document, It should be valid for 208 days after bid opening date.

3.20.6. In case of Payment Online through RTGS / Internet Banking, Bidder to indicate bid number and name of bidding entity in the transaction details field at the time of on-line transfer. Bidder must upload scanned copy / proof of the Online Payment Transfer along with bid.

3.20.7. The UTR no is required to be filled in Checklist of details/documents to be uploaded and same need to be signed and submitted along with techno-commercial bid.

3.20.8. A copy of GST Registration details of the Indian Bidder to be provided along with the Bid submission fees / EMD.

3.20.9. All bidders shall submit proof of payment for EMD along with the bid documents. Any bid document submitted without the EMD in the approved form shall be summarily rejected.

3.20.10. No interest is payable for the EMD amount.

3.20.11. EMD and Tender Fee submission should be prior to bid submission date and time.

- 3.20.12. Bid securities of the unsuccessful bidders will be returned through e-transfer of funds as promptly as possible as but not later than 30 days after the expiration of the period of bid validity prescribed.
- 3.20.13. EMD of successful bidders will be returned within 30 days from the date of acceptance of delivered items and / or furnishing the performance security.
- 3.20.14. In case of MSME bidder, Bid security declaration need to be submitted by MSME on their company letter duly notarized. —Bid Security Declaration shall indicate that at any instance, if the bidder withdraws his bid after the bid opening date and fails to furnish performance securities then bidder shall be blacklisted for maximum 2 year of period as decided by Competent Authority
- 3.20.15. The EMD may be forfeited: -
- If the bidder withdraw / modify his tender during the period of tender validity
 - In case of Successful bidder: -
 - i. Revokes or cancel their tender after submission or vary any terms thereof without the consent of CMRL.
 - ii. Changes/varies any terms and conditions mentioned in P.O. thereof without the consent of CMRL.

3.21. Tender Document Cost:

- 3.21.1. The Tender documents can be downloaded from the CPP portal <https://eprocure.gov.in/eprocure/app>
- 3.21.2. There will be a non-refundable Tender submission fee of **INR 32,000 /-** (Rupees Thirty-Two Thousand only) including GST to be paid online to CMRL Bank Account (Canara Bank, Teynampet Branch, A/c No: 0416214000030, IFSC Code: CNRB0000416)
- 3.21.3. MSME firms, who are registered as Services category, are exempted from Tenderdocument cost (UDHAYAM certificate shall be produced)

3.22. BID FORMATS

The Bid shall comprise of the following:

3.22.1. COVERING LETTER, BID PROCESSING FEE AND BID SECURITY(EMD)

- i. Covering Letter as per prescribed in Format-1.
- ii. Cost of tender document Rs. 32,000/- Non-Refundable.
- iii. Bid Security (EMD) is required for this RFP and is mandatory to be submitted by the bidder as mentioned in NIT. **Total EMD amount for this RFP is Rs 20.00 Lakhs**
- iv. Checklist for Bank Guarantee submission requirements as prescribed in Format-4

3.22.2. TECHNO-COMMERCIAL DOCUMENTS

- i. Power of attorney issued by the Bidding Company in favour of the authorized person signing the Bid, in the form attached hereto as Format-6 or standard power of attorney in favour of authorized person signing the Bid.

(Power of Attorney must be supplemented by Board Resolution to above effect for the company incorporated under Company Act 1956 or Company Act-2013).

However, CMRL may accept general Power of Attorney executed in favour of

Authorized signatory of the Bidder, if it is conclusively established that the signatory has been authorized by the Board of Directors to execute all documents on behalf of the Bidding Company.

- ii. In case of Indian firm, the power of Attorney shall be on non- Judicial stamp paper of suitable value, duly notarized. In case of foreign applicant, the power of Attorney shall be notarized in their country and attested by the Embassy/High Commission of their country in India.
- iii. General particulars of bidders as per Format-3.
- iv. Bidder's composition and ownership structure as per prescribed Format-A.
- v. Document in support of meeting General & Technical Eligibility Criteria as per RFP Document (Eligibility Criteria)
- vi. Details for meeting Financial Eligibility Criteria as per Clause no. 3.8.3 along with documentary evidence.
- vii. Undertakings from the Financially Evaluated Entity or its Parent Company/Ultimate Parent Company as per Format-9.
- viii. Board Resolution of the Parent Company /Ultimate Parent Company of the Bidding Company duly certified by the Company Secretary or Authorized signatory to provide the Performance Bank Guarantee (PBG) in the event of failure of the Bidding Company to do so.
- ix. Signed and stamped Copy of RFP Documents including amendments & clarifications by Authorized signatory on each page.

3.22.3. PRICE BID(S) AS PER SECTION-IV

The Bidder shall inter-alia consider the following while preparing and submitting the Price Bid duly signed by an authorized signatory. These are to be uploaded separately as a financial package.

3.23. The Bidder shall submit Price Bid(s) in **Format as indicated in RFP.**

3.24. Tender Due Date

The Bidder shall, on or before the date and time given in the NIT to Tender submit his Tender online on CPP Portal, <https://eprocure.gov.in/eprocure/app>

3.25. Validity of Tender

- 3.25.1. The Tender shall be valid for a period of 180 days from the last Date of Submission of Tenders, with bidder having no right to withdraw, revoke or cancel his offer or unilaterally vary the offer submitted or any terms thereof. In case of the bidder revoking or cancelling his offer or varying any term & conditions in regard thereof or not accepting letter of allocation, CMRL shall reject the bid furnished by him. Confirmation regarding the Bid offer's validity shall be clearly mentioned in the covering letter.
- 3.25.2. In exceptional circumstances when a letter of allocation is not issued, the CMRL may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The Bid Security Undertaking provided under Clause 3.20 shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid. A Security Bidder granting the request will neither be required nor permitted to modify its Bid in any manner.

3.26. Number of bids and costs thereof:

No Bidder shall submit more than one Bid. The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bid Process. The CMRL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

3.27. Language:

The Bid and all related correspondence and documents in relation to the bidding process shall be in English language. Supporting documents and printed literature furnished by the Bidder with the Bid may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Bid, the English language translation shall prevail.

3.28. All *offers* shall be in typed format only. No handwritten bids will be accepted.

3.29. This is a single stage two packets open tender with initial filter. Tenderers must submit their offer in a single stage in CPP portal. Both technical and commercial bids shall be submitted at the same time.

3.30. Bidders shall ensure the submission of documents as mentioned in Clause 3.22

3.31. Any individuals signing the tender or other documents connected therein should specify whether he is signing: •

3.31.1. as sole proprietor of the concern or as attorney of the sole proprietor.

3.31.2. as a Director, Manager or Secretary in the case of a limited company duly authorized by a resolution passed by the board of directors or in pursuance of the authority conferred by Memorandum of Association.

3.31.3. The original power of attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification.

3.32. Acceptance of Tender:

3.32.1. CMRL may accept or reject any offer without assigning any

reason. 3.32.2. Successful bidder will be communicated by CMRL.

3.33. Effect and Validity of Offer:

3.33.1. The submission of any offer connected with these specifications and documents shall constitute an agreement that the tenderer shall have no cause of action and claim, against the CMRL for rejection of offer. The CMRL shall always be at liberty to reject or accept any offer or offers at his sole discretion and any such action will not be called into question and the tenderer shall have no claim in that regard against the Purchaser.

3.33.2. The tender shall remain valid and open for acceptance for a period of 180 days from the date of Bid opening. In exceptional circumstances, prior to the expiry of the tender validity period, CMRL may request the bidders for a specified extension in the period of tender validity. The request and the response thereto shall be made in writing or by telefax. Bidders may refuse the request without forfeiting their EMD. Bidders agreeing to the request for extension of tender validity period shall not be permitted to modify their tender but will be required to extend the validity of the period of the EMD correspondingly

3.34. General:

3.34.1. The tenderers must ensure that the conditions laid down for submission of offers detailed in the preceding paras, are completely and correctly fulfilled. Offers, which are not complete in all respects as stipulated above, may be summarily rejected. For tender's guidance in submitting complete offers, a check List has been enclosed with the tender documents Form-5 which must be filled in the furnished with the tender.

3.35. Last Date of Receipt of Tenders:

The offers complete in all respects should be uploaded in CPP Portal not later than the time and date as specified in the "NIT".

3.36. PERFORMANCE SECURITY/PERFORMANCE BANK GUARANTEE (e-PBG)

3.36.1. Within 30 days from the date of issue of Allocation letter, Successful Bidder shall furnish the Unconditional Performance Security, payable at Chennai, for the allocated capacity only. Performance security in the form of (e-BG) shall only be accepted.

3.36.2. The formula applicable to calculate the Performance Security amount will be:
Performance Security amount = (10% of the Project cost i.e., 3.0 MWp x benchmark cost 6.67 Cr (Including Structure Cost) x 10% = Rs 2.0 Cr.)

3.36.3. The Performance security can be submitted in any of the following forms: -

- a) Bank Draft in favor of CMRL Fund payable at Chennai from a Scheduled Nationalized bank based in India, or
- b) In case the bidder is not able to submit the e-PBG within the specified date then an interest of 1% per month shall be charged as penalty and the amount calculated shall be deducted from bidder's running bill.
- c) Irrevocable e-Bank Guarantee in the prescribed format issued by a Scheduled Nationalized bank based in India or from a branch in India of a scheduled foreign bank. The bank guarantee must be issued on the Structured Financial Messaging System (SFMS) platform payable at Chennai only. A separate invoice of the BG will invariably be sent by the issuing bank to the CMRL's bank through SFMS. The details of CMRL's bank is as under

➤ **Account No - 0416214000030**

➤ **IFSC Code - CNRB0000416**

➤ **Bank Name - Canara Bank**

➤ **Branch address - Teynampet Branch**

The bank guarantee issued on the SFMS platform shall only be acceptable by CMRL.

3.36.4. In the case of a joint venture / consortium, the performance security is to be submitted in the name of the JV/consortium or in the name of lead member and not in the name of individual member. However, splitting of the performance security (while ensuring the security is in the name of JV / consortium) and its submission by different members of the JV / consortium for an amount proportionate to their scope of work or otherwise is also acceptable.

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

- a. Demand Draft (or)

- b. Be confirmed for payment by the branch of the bank giving the e-bank guarantee at Chennai.
- 3.36.6. The e-PBG shall be forfeited as follows without prejudice to the Bidder being liable for any further consequential loss or damage incurred to CMRL.
- a. If the Successful Bidder is not able to submit Project Sanction Documents to the satisfaction of CMRL PBG amount, pro-rata to the capacity for which the Successful Bidder is not able to identify the Projects and submit Project Sanction Documents.
 - b. If the Successful Bidder is not able to commission the projects to the satisfaction of CMRL, PBG amount, pro-rata to the capacity not commissioned by the Successful Bidder. However, Hundred percent (100%) PBG amount furnished for the Sanctioned Capacity, if the Successful Bidder fails to Commission the Projects(s) to the satisfaction of CMRL, for the already identified locations, which are notified by CMRL in the RFS or otherwise and for which Allocation letter/Sanction letter has been issued.
 - c. If the successful bidder is not able to pay penalty on account of not meeting CUF of minimum 17% subject to acceptable degradation in modules as per clause 14.1.3b or relevant code whichever is less.
 - d. In all the above cases corresponding allocated capacity shall stand cancelled.
 - e. Termination of Power Purchase agreement due to successful bidder's default as defined in the RFP document.
- 3.36.7. The Performance Security initially shall be valid for initially shall be valid for a minimum period of 24 months from the date of issue of Allocation letter(s). Thereafter PBG shall be extended every year for next one-year up to tenure of PPA (25 Years).
- 3.36.8. Power Purchase Agreement format is provided in Tender document. Successful bidder shall submit the performance Bank Guarantee and shall sign the PPA with CMRL within 30 days of date of sign of allocation letter

3.37. RIGHT TO WITHDRAW THE RFS AND TO REJECT ANY BID

- 3.37.1. This RFS may be withdrawn or cancelled by the CMRL at any time without assigning any reasons thereof. The CMRL further reserves the right, at its complete discretion, to reject any or all of the Bids without assigning any reasons whatsoever and without incurring any liability on any account.
- 3.37.2. The CMRL reserve the right to interpret the Bid submitted by the Bidder in accordance with the provisions of the RFS and make its own judgment regarding the interpretation of the same. In this regard the CMRL shall have no liability towards any Bidder and no Bidder shall have any recourse to the CMRL with respect to the selection process. CMRL shall evaluate the Bids using the evaluation process specified in Section -I, at its sole discretion. CMRL decision in this regard shall be final and binding on the Bidders.
- 3.37.3. CMRL reserves its right to vary, modify, revise, amend or change any of the terms and conditions of the Bid before submission. The decision regarding acceptance or rejection of bid by CMRL will be full and final.

3.38. ZERO DEVIATION

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

3.39. EXAMINATION OF BID DOCUMENT

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

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

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

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

SECTION - I

B. GENERAL CONDITIONS OF CONTRACT (GCC)

3.44. SCOPE OF WORK

The scope of work for the bidder include detailed survey of sites identification in this tender:- **DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)**

3.45. PROJECT COST

3.45.1. The Project cost shall include all the costs related to above Scope of Work. Bidder shall quote for the entire facilities on a —single responsibilityll basis such that the total Bid Price covers all the obligations mentioned in the Bidding Documents in respect of —CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023: **DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)ll**, goods and services including spares required if any during O&M period. The Bidder has to take all permits, approvals including net metering and licenses, Insurance, including registration of the contract etc., provide training and such other items and services required to complete the scope of work mentioned above.

3.45.2. The project cost shall remain firm and fixed and shall be binding on the Successful Bidder till completion of work. No escalation will be granted on any reason whatsoever. The bidder shall not be entitled to claim any additional charges, though if considered necessary due to reasons beyond control of the Parties, CMRL may extend the completion period.

3.45.3. The cost shall be inclusive of all duties and taxes, insurance etc. The prices quoted by the firm shall be complete in all respect and no price variation / adjustment shall be payable.

3.45.4. The operation & maintenance of Solar Photovoltaic Power Plant (Roof top, Parking Area, Ground Mounted) would include wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning URFP (PCU), spares, consumables & other parts for a period of 25 years. Bidder shall maintain the Solar Plant to achieve the Guaranteed Generation.

3.45.5. The Bidder shall complete the Price Bid furnished in the RFP Documents.

3.46. INSURANCE

3.46.1. The Bidder shall be responsible to take out an Insurance Policy for transit-cum-storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site basis, storage of materials at site, erection, testing and commissioning. The bidder shall also take appropriate insurance during O&M period.

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

3.46.3. Insurance shall be in the name of both CMRL and successful bidders

3.46.4. **WARRANTEES AND GUARANTEES**

- a. The Bidder shall warrant that the goods supplied under this contract are new, unused, of the most recent or latest technology and incorporate all recent improvements in design and materials.
- b. The bidder shall ensure warrantee covering the rectification of all defects in the design of equipment, materials and workmanship including spare parts for minimum 2 years and to the entire period of the as applicable, from the date of commissioning or more as considered suitable.
- c. The successful bidder must transfer all the Guarantees /Warrantees of the different components to the Owner of the project. The responsibility of operation of Warrantee and Guarantee clauses and Claims/ Settlement of issues arising out of said clauses shall be the responsibility of the Successful bidder and CMRL will not be responsible in any way for any claims whatsoever on account of the above

3.47. **TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP**

3.47.1. The design, engineering, supply, installation, testing and performance of the equipment shall be in accordance with the latest applicable Standards as detailed in Section- III (Technical specifications) of the bid document. Where appropriate Indian Standards and Codes are not available, other suitable standards and codes as approved by the MNRE shall be used. In case of difference between the two, the one most stringent or specified by MNRE shall prevail. The decision of CMRL / Its representative shall be final in this regard.

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

3.47.3. Any supplies which have not been specifically mentioned in this Contract, but which are necessary for the design, engineering, supply & performance or completion of the project shall be provided by the Bidder without any extra cost without effecting the time schedule for efficient and smooth operation and maintenance of the SPV plant as per instruction by CMRL / it's representative.

3.48. **OPERATION & MAINTENANCE (O&M)**

3.48.1. The bidder shall be responsible for operation and maintenance of the 3.0 MWp Solar PV system (Parking Area, Ground Mounted) for a period of 25 years during which CMRL will monitor the project for effective performance in line with conditions specified in the bid document. During this period, the bidder shall be responsible for supply of all spare parts as required from time to time for scheduled and preventive maintenance, major overhauling of the plant, replacement of defective modules, inverters, PCU's etc. and maintaining log sheets for operation detail, deployment of staff for continuous

operations and qualified engineer for supervision of O&M work, complaint logging & its attending.

3.48.2. In case waterproofing is damaged/disturbed/pierced by the successful bidder, then he shall be responsible for the repair of waterproofed surface of the roof during installation or O&M period on the leakproof roof handed over by CMRL To ensure the water proofing, a third-party inspection jointly with successful bidder and CMRL will be conducted annually. The successful bidder should immediately take the necessary action to repair in case any portion of the roof is damaged / disturbed by the bidder. CMRL shall impose suitable penalty for the delay caused to resolve the issues and shall get the work done themselves on risk and cost of successful bidder without prejudice and shall charge twice the amount so spent in case the roof was damaged/disturbed by successful bidder.

3.49. METERING AND GRID CONNECTIVITY

Metering and grid connectivity of the roof top solar PV system under this scheme would be the responsibility of the Bidder in accordance with the prevailing guidelines of the CMRL and / or CEA (if available by the time of implementation). CMRL could facilitate connectivity; however the entire responsibility lies with bidder only.

3.50. PLANT PERFORMANCE EVALUATION

The successful bidder shall be required to meet minimum guaranteed generation with Performance Ratio (PR) at the time of commissioning and related Capacity Utilization Factor (CUF) as per the GHI levels (17%) of the location during the O&M period. PR should be shown at a minimum of 75% at the time of inspection for initial commissioning acceptance. Minimum CUF of 17% should be maintained for a period of 2 years and later up to 25 years as per standard degradation. The bidder should send the periodic plant output details to CMRL for ensuring the CUF. The PR will be measured at Inverter output level during peak radiation conditions.

3.51. PENALTY ON LOWER PERFORMANCE

The successful bidder shall be responsible for the energy generation of the Solar PV power plant for the whole O&M period of 25 years. If in any year of the term of agreement the energy generation is found to be less than the value committed by successful bidder through PPA (calculated based on minimum CUF of min 17% with acceptable degradation values as in tender), a penalty amount as per formula below will be imposed to successful bidder. If the successful bidder is unable to pay the penalty in the stipulated time (i.e. 30 Days), the same will be deducted from the subsequent bills and the balance amount will be paid to the bidder. If the subsequent bill amount is less than the accumulated penalty, the successful bidder has to deposit the penalty amount to CMRL. In case of this default continue for more than three months, CMRL reserve the rights to proceed with the termination of contract as per relevant clause of PPA.

Penalty = $1.5 \times (\text{Guaranteed generation} - \text{Actual generation during the same period}) \times (\text{Average cost of electricity from grid per unit at the end of that year applicable to power purchaser} - \text{applicable solar power tariff payable to power producer for that year})$.

Example:

Suppose the bidder has committed for a generation of 1,31,400 kWh by a plant of 100 kWp for a particular year. The Average unit cost of electricity for 12 months from grid is Rs. 11.00/kWh (inclusive FAC, Wheeling Charges, duty, taxes, etc), solar tariff of that year quoted by the bidder is Rs. 5.00/kWh (inclusive duty taxes) as per price bid and the actual energy generated by that plant for that year is 1,31,000. So, the energy difference

happened to be 400 kWh. Corresponding penalty imposed would be $1.5 \times (131400 - 131000) \times (11 - 5) = \text{Rs. } 3600$.

Therefore, the Penalty that should be paid by successful bidder to CMRL for that year by the bidder would be Rs. 3600

- a) In case any new construction development comes near the plant which cause shadow and loss of generation after the plant has been commissioned, the corresponding penalty amount will be waived off. However, the bidder shall prove the performance ratio of the plant as per tender conditions, at the commissioning handing over of the plant.

3.52. PROGRESS REPORT

The bidder shall submit the progress report fortnightly in the Prescribed Proforma. CMRL will have the right to depute his/their representatives to ascertain the progress of contract at the premises of works. The Proforma shall be revised from time to time based on requirement and shall be approved by CMRL.

3.53. PROJECT INSPECTION

The project progress will be monitored by CMRL, and the projects will be inspected for quality at any time during commissioning or after the completion of the project either by officer(s) from CMRL or any authorized agency/ experts.

CMRL would depute a technical person(s) for inspection, third party verification, monitoring of system installed to oversee, the implementation as per required standards and to visit the manufacturer's facilities to check the quality of products as well as to visit the system integrators to assess their technical capabilities as and when required.

Any visit to the facility by CMRL or its representatives shall not be construed as an endorsement by CMRL of the operation, maintenance, modification, and repair procedures employed by bidder at the facility unless the same is projected in the report and approved by CMRL.

3.54. APPLICABLE LAW

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

3.55. SETTLEMENT OF DISPUTE: -

Please refer to Clause 17.3 of Power Purchase Agreement.

3.56. FORCE MAJEURE

- 3.56.1. Notwithstanding the provisions of clauses contained in this RFP document; the CMRL shall not forfeit (a) Security deposit for delay and (b) termination of contract; if Contractor is unable to fulfil his obligation under this contract due to force majeure conditions.

- 3.56.2. For the purpose of this clause, "Force Majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable, either in its sovereign or contractual capacity. Such events may include but are not restricted to Acts of God, wars or revolutions, fires, floods, epidemics, terrorist attacks, quarantine restrictions and fright embargoes etc.

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

- 3.56.4. If the contractor is not able to fulfil his obligations under this contract on account of force majeure, he will be relieved of his obligations during the force majeure period.

If such force majeure extends beyond six months, CMRL has the right to terminate the contract in which case, the security deposit shall be refunded to him.

3.56.5. If a force majeure situation arises, the contractor shall notify CMRL in writing promptly, not later than 14 days from the date such situation arises. The contractor shall notify CMRL not later than 3 days of cessation of force majeure conditions.

After examining the cases, the CMRL shall decide and grant suitable additional time for the completion of the work, if required.

As per the relevant law, in the event of a disagreement between parties on existence of force majeure event arbitration shall decide.

3.57. LANGUAGE

All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other data shall be in English Language however operating manuals and warning signage etc. shall be in both i.e. English and Tamil languages. The contract agreement and all correspondence between the CMRL and the bidder shall be in English language.

3.58. OTHER CONDITIONS

3.58.1. The Successful bidder shall not transfer, assign or sublet the work under this contract or any substantial part thereof to any other party.

3.58.2. The Successful bidder or its subcontractors shall not display the photographs of the work and not take advantage of the publicity of the work without written permission of CMRL.

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

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

3.59. SUCCESSORS AND ASSIGNS

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

3.60. SEVERABILITY

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

3.61. COUNTERPARTS

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

3.62. RIGHTS & REMEDIES UNDER THE CONTRACT ONLY FOR THE PARTIES

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

3.63. PRICE PREFERENCE FOR M.S.M.E/ STATE OR CENTRAL PSUs

There is no relaxation in terms of any conditions of the RFP or price preference or processing fee or Bid Security or e-PBG for M.S.M.E/ State or Central PSUs.

3.64. CORRESPONDENCE

Applicant requiring any Techno-Commercial clarification of the bid documents may contact in writing or by email to Chief General Manager – Electrical (O&M), CMRL

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

SECTION-II
EVALUATION CRITERIA

4. EVALUATION CRITERIA

4.1. BID EVALUATION

4.1.1. BID EVALUATION

The evaluation process comprises of the following four steps:

Step I	Responsiveness check of Technical Bid
Step II	Evaluation of Bidder's fulfilment of Eligibility Criteria as per Clause 3.8 of Section-I
Step III	Evaluation of Price Bid
Step IV	Successful Bidders(s) selection

4.1.2. RESPONSIVENESS CHECK OF TECHNICAL BID

The Technical Bid submitted by Bidders shall be scrutinized to establish its responsiveness to the requirements laid down in the RFP subject to Clause 3.8.1, Clause 3.8.2, and Clause 3.8.3. Any of the following finding may cause the bid to be considered —Non-responsiveness, at the sole discretion of CMRL.

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

Each Bid shall be checked for compliance with the submission requirements set forth in this RFP before the evaluation of Bidder's fulfilment of Eligibility Criteria is taken up. Clause 3.8 shall be used to check whether each Bidder meets the stipulated requirement. In case of any non-conformity, the tender shall be disqualified and rejected.

5. PRELIMINARY EXAMINATION

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

5.2. Tenders determined to be technically acceptable after technical evaluation will be checked by the CMRL for any arithmetical errors in computation and summation during financial evaluation. Errors will be corrected by the CMRL as follows:

5.2.1. Where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and

5.2.2. Where there is a discrepancy between the unit price and the total amount derived from the multiplication of the unit price and the quantity, the unit price as quoted will normally govern unless in the opinion of the CMRL there is an obviously gross misplacement of the decimal point in the unit price, in such event, the total amount as quoted will govern.

5.3. If a Bidder does not accept the correction of errors as outlined above, his tender will be rejected, and the tender security shall be forfeited.

6. EVALUATION OF BIDDER'S FULFILMENT OF ELIGIBILITY CRITERIA

6.1. EVALUATION OF ELIGIBILITY:

6.1.1. Evaluation of Bidder's Eligibility will be carried out based on the information furnished by the Bidder as per the prescribed Formats and related documentary evidence in support of meeting the Eligibility Criteria as specified in Clause 3.8. Non-availability of information and related documentary evidence for the satisfaction of Eligibility Criteria may cause the Bid to be non-responsive.

6.1.2. Tenders not considered responsive and not which does not fulfil the requirements of the tender document evaluated as per clause 4 and clause 5 above, shall be rejected by CMRL.

6.1.3. If any tender is rejected, pursuant to paragraph (b) above, the Financial Package of such bidder shall not be opened.

6.1.4. The decision of the CMRL for the tenders which are not responsive shall be final and binding to the bidder.

6.2. EVALUATION OF PRICE BID

6.2.1. After evaluation of technical-bids, only successful bidders who have participated in the tender will be informed regarding the acceptance of their tender. Thereafter, a system generated e-mail confirmation will be sent to the successful bidders communicating the date and time of opening of price-bid.

6.2.2. The price-bid of the successful bidders (qualified in technical-bid) will be decrypted and opened on-line, on or after the scheduled date and time by the bid openers with their Digital Signature Certificates (DSC).

6.2.3. The evaluation of financial proposals by the CMRL will take into account, in addition to the tender amounts, the following factors:

a. Arithmetical errors corrected by the Employer but not authenticated.

- b. Such other factors of administrative nature as the Employer may consider having potentially significant impact on contract execution, price and payments, including the effect of items or unit rates that are unbalanced or unrealistically priced.
- 6.2.4. Offers, deviations and other factors, which are in excess of the requirements of the tender documents or otherwise which may result in the accrual of unsolicited benefits to the Employer, shall not be taken into account for tender evaluation.
- 6.2.5. Price adjustment provisions applicable during the period of execution of the contract shall not be taken into account in tender evaluation.
- 6.2.6. Evaluation of financial offer will be based on rates quoted by bidder in the format/BOQ. Any alteration in Format/BOQ will not be given any cognizance.

6.3. RESCO MODEL

- a. The Price bids shall be evaluated separately.
- b. **Bidders shall quote the Tariff in three decimal places. (Ex. Rs. X.XXX) and guaranteed generation in kWh per year. (Tariff shall include all taxes , duties and subsidy benefits)**

6.4. SUCCESSFUL BIDDER SELECTION

- a. Bids qualifying in Clause 3.8 shall only be evaluated in this stage.
- b. **The Savings quoted in Price Bid of Qualified Bidders shall be used for evaluation.**
 - i. Based on the price bid quoted by the bidders, CMRL shall arrange the bids in the descending order i.e. H1, H2, H3, _ _ _ (H1 being the highest evaluated price , The order will be issued to the highest techno-commercially qualified bidder subject to fulfilling other requirements specified in this tender document).

Evaluated price = Savings quoted by the bidder as quoted in Financial BID.
 - ii. The bidder shall quote.
 - Proposed Capacity in KW per site
 - Guaranteed Energy Generation in Units per year
 - Fixed tariff (Rs. /kWh) in Financial BID for 25 years
 - $A = \text{Guaranteed Generation in units per year} \times \text{Fixed Solar Tariff as quoted by the bidder.}$
 - $B = \text{Guaranteed Generation in units per year} \times \text{TNEB Tariff of Rs. 7.15 per unit.}$
 - Savings in Rupees = $B - A$
 - iii. The evaluation will be done considering the highest cost savings quoted by the bidder.
 - iv. The Letter(s) of Allocation (LOA) shall be issued to such Successful Bidders(s) selected as per the provisions of this Clause 6.4.
 - v. Successful Bidder shall unconditionally accept the LOA, and record on one (1) copy of the LOA, —Accepted Unconditionallyll, under the signature of the authorized signatory of the Successful Bidder and return such copy to the CMRL within Seven (7) days of issue of LOA.
 - vi. If the Successful Bidder, to whom the Letter of Allocation has been issued, does not fulfil any of the conditions specified in Bid document, the CMRL reserves the right to annul/cancel the award of the Letter of Allocation of such Successful Bidder and forfeit the Bid Security/ Performance security.

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

6.5. INCREASE/DECREASE OF BIDDER ALLOCATED CAPACITY

- 6.5.1. CMRL reserves the right to increase/decrease the Bidder Allocated Capacity by up to twenty five percent (25%) for each station/site or any other site or in the total tentative capacity at the sole discretion of CMRL.
- 6.5.2. In case capacity is enhanced by CMRL as per Clause 6.5.1 above, Successful bidder shall submit the equivalent amount of PBG to CMRL within 30 days from the date of issue of allocation letter /sanction letter.

6.6. NOTIFICATION TO SUCCESSFUL BIDDERS

- 6.6.1. Prior to the expiry of the period of tender validity prescribed by CMRL, CMRL will notify the successful Bidder by letter/email, to be confirmed in writing by registered letter, that his tender has been accepted. This letter (hereinafter and in the Conditions of Contract called —the Letter of Acceptance”) shall name the sum which CMRL will pay to the Contractor in consideration of the execution, completion, maintenance and guarantee of the works by the Contractor as prescribed by the Contract (hereinafter and in the conditions of Contract called —the Contract Price”). The —Letter of Acceptance cell will be issued under signature of Chief General Manager – Electrical (O&M), CMRL. The —Letter of acceptance cell will be sent in duplicate to the successful Bidder, who will return one copy to CMRL duly acknowledged and signed by the authorized signatory, within one week of receipt of the same by him. No correspondence will be entertained by CMRL from the unsuccessful Bidders.
- 6.6.2. A single letter of Acceptance for the complete tender capacity of 3.0 MWp will be issued to the successful bidder. However, site wise capacity allocation will be done by Engineer-in-charge.
- 6.6.3. Allocation letter for capacity of 3.0 MWp will be issued by Engineer-in-charge and on submission of performance e-BG (e-PBG) corresponding to 3.0 MWp, Power Purchase Agreement (PPA) will be signed for this capacity.
- 6.6.4. The Letter of Acceptance will constitute a part of the contract.
- 6.6.5. Upon —Letter of acceptance cell being signed and returned by the successful Bidder as per Clause 6.6.1, the CMRL will promptly notify the unsuccessful Bidders and discharge / return their tender securities.

6.7. Signing of Contract

- 6.7.1. Promptly after notification, CMRL and the successful bidder shall execute a Contract Agreement with such modifications as may be necessary to record the Contract. The Cost of Stamp Duties and similar charges imposed by law shall be borne by the successful bidder.
- 6.7.2. The Bidder should note that in the event of acceptance of Tender, the bidder will be required to execute the Contract Agreement with such modifications as may be considered necessary at the time of finalization of the Contract within a period of 28 days from the date of issue of the Letter of Acceptance. The successful bidder shall have to register the Contract Agreement with the Registrar, Govt. of TamilNadu at his cost. The Cost of Stamp duties and similar charges imposed by law shall be borne by the successful bidder.

6.8. PROJECT ALLOCATION AND SANCTION

- 6.8.1. The Bidders, in their own interest are advised to make a preliminary survey of the sites

specified in this tender as well as issue of Grid connectivity, as the non- availability of roof tops, parking areas, ground mounted and non-completion of other formalities after allocation of project will result in forfeiture of Bid Security (EMD)/PBG amount submitted by them.

6.8.2. The Successful Bidders selected as described above shall be issued Letter of Allocation (LOA) indicating the allocated capacity & Project Cost etc.

6.8.3. The time for submission of project sanction documents and design documents by the bidder to CMRL will be 60 days from the date of issue of allocation letter which can be extended depending upon the merit of the case. Failure of non- compliance of same shall lead to forfeiture of PBG.

- a. Further, Successful Bidders can start submitting their Project sanction documents as soon as they receive LOA from CMRL. Project sanction documents shall be submitted to CMRL. If within 60 days, the successful bidder does not submit Project sanction documents and design documents, in such case PBG shall be forfeited and the allocated capacity gets cancelled and bidder including its affiliates/GROUP COMPANIES/ Parent / Ultimate parent company may be debarred to participate in CMRL future tenders for a period as decided by the competent authority of CMRL
- b. CMRL will issue the Letter of Acceptance(s) for the Project (s). Afterwards the Successful Bidder/ Project Developer and accepted by CMRL, shall submit the Project and Design Documents.
- c. If the Bidder fails to commission the sanctioned project within specified time, Liquidated damages (LD) on per day basis calculated for the Performance Security as per Clause 8 of RFP.

7. OTHER CONDITIONS

7.1. Bidder has to obtain all the necessary approvals/Consents/Clearances required for Erection, Testing, Commissioning and O&M of the project including Grid connectivity and shall bear all related expenses. CMRL shall assist in documentation whenever required by the successful bidder in this regard.

7.2. TAX EXEMPTIONS

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

7.3. Eligibility of standalone system & Grid compatibility

Standalone system is not allowed under this scheme. The system should be grid interactive.

7.4. Requirement of approvals on makes of the Components:

7.4.1. The modules should be manufactured in India only. The components to be procured from a reputed manufacturer which has proven performance records. These items should meet the Technical specification and standards mentioned in RFP. CMRL reserves the rights to verify/ask for type test certificates or can ask to carry out third party test.

7.5. OPERATION OF THE SYSTEM DURING GRID FAILURE AND CALCULATION OF CUF

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

8. LIQUIDATED DAMAGES (LD) FOR DELAY IN PROJECT IMPLEMENTATION

8.1. CMRL will issue the Letter of Acceptance (LOA) for the Project(s) which will be disbursed in line with the provisions of the RFS document. The Bidder shall complete the design, engineering, supply, storage, civil work, erection of suitable raised structure, testing & commissioning of each project within 18 months from the date of signing of PPA.

8.2. If the bidder fails to commission the sanctioned project within the specified time, Liquidated Damages (LD) on per day basis calculated for the Performance Security on a 6-month period would be levied. After 6 months the project will get cancelled and the total e-PBG amount will be forfeited.

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

Liquidated Damages (LD) = [(Performance Security)/180days*delayed days].

Liquidated Damages (LD) = (Performance Security /180)*36

8.3. Failure or delay by the CMRL or the Engineer, to hand over to the Contractor the Site necessary for execution of Works, or any part of the Works, is the responsibility of the Employer, shall in no way affect or vitiate the Contract or alter the character thereof; or entitle the Contractor to damages or compensation thereof but in any such case, the Engineer shall extend the time period for the completion of the Contract, as in his opinion is / are reasonable.

The Contractor may apply for an extension of the Time for Completion if the Work is or will be delayed either before or after the Time for Completion by any of the following causes:

- a. —Force Majeurell
- b. The Contractor's work held up for not being given possession of or access to the Site for a considerable period.
- c. Instruction of the Engineer to suspend the Works and the Contractor not being in default as to reasons of suspension.
- d. Acts or omissions of other Designated Contractors in executing work not forming part of this Contract and on whose performance, the performance of the Contractor necessarily depends.
- e. Any other event or occurrence which, according to the Employer, is not due to the Contractor's failure or fault and is beyond his control without Employer being responsible for the same.

8.4. However, the Contractor shall not be entitled to any Extension of Time where the instructions or acts of CMRL or the Engineer are necessitated by or intended to cure any default of or breach of Contract by the Contractor or where any delay is due to

- a. The failure of sub-contractor, to commence or to carry out work in due time,
- b. Non-availability, or shortage of Contractor's equipment, labour, utility services, Plant and Materials,
- c. inclement weather conditions, and
- d. the Contractor not fulfilling his obligations

8.5. If the Contractor considers himself to be entitled to an extension of time for Completion, he shall give notice to the Engineer, of such intention as soon as possible, he shall notice the event giving rise to the delay and full and final supporting details of his application, together with any notice required by the Contract and relevant to such Clause.

The Engineer shall proceed in accordance with clause 8, to agree or determine either prospectively or retrospectively such extension of the Time for Completion as may be due. The Engineer shall notify the Contractor accordingly.

The Contractor shall not be entitled to an extension of time by reason of any delay to any activity in the carrying out of the Works unless in the opinion of the Engineer such delay results in or may be expected to result in a delay to completion of the Works, or achievement of completion of sanctioned capacity.

If the delay in the completion of the whole Works or a portion of the Works, for which an earlier completion period is stipulated, is due to the Contractor's failure or fault, and the Engineer is of the view that the remaining Works or the portions of Works can be completed by the Contractor in a reasonable and acceptable short time, then, the Engineer may allow the Contractor extension or further extension of time at its discretion with or without liquidated damages, for completion, as he may decide.

9. TIME OF COMPLETION OF SANCTIONED CAPACITY

9.1. CMRL will issue the LOA(s) for the Project(s). The Bidder shall complete the design, engineering, supply, storage, civil work, erection of suitable raised structure, testing & commissioning of sanctioned project(s) within 18 months from the date of NTP or allocation of site access whichever is later. In case of delay beyond the scheduled commissioning period, the bidder shall be liable for Liquidated Damages (LD) as per Clause 8.

9.1.1. The period of construction given in the Time Schedule includes the time required for mobilization as well as testing, rectifications if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-Charge.

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

9.1.3.Monthly/Weekly implementation program will be drawn up by the Engineer-in-Charge jointly with the Successful bidder, based on availability of Work fronts as per Clause 9.1.2 above. A successful bidder shall scrupulously adhere to these targets/programs by deploying adequate personnel, tools and tackles and he shall also supply himself all materials of his scope of supply in good time to achieve the targets/programs. In all matters concerning the extent of targets set out in the weekly and monthly programs and the degree of achievement, the decision of the Engineer-in-Charge will be final and binding.

10. THE PROJECT PROGRESS ON BI-WEEKLY BASIS

Successful bidder authorized representative in whose name PoA has been executed and submitted along with the bid shall submit to CMRL the project progress report on biweekly basis (Every 15 days), non-submission of the progress report shall be considered as no progress and shall attract punitive actions as per the relevant provision of the Contract. However, the decision of Engineer-in-charge shall be final in this regard.

11. INSPECTION AND AUDIT BY THE CMRL

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

12. COMMISSIONING /COMPLETION CERTIFICATE

12.1. Application for completion/commissioning certificate:

When the Successful bidder fulfils his obligation under the Contract, he shall be eligible to apply for the Completion Certificate. The Engineer-in-Charge shall normally issue to the Successful bidder the Completion Certificate within one month after receiving any application from the Successful bidder after verifying from the completion documents and satisfying himself that the Work has been completed in accordance with and as set out in Contract documents. The Successful bidder, after obtaining the Completion Certificate, is eligible to avail the subsidy if available as per Clause 6.8.

12.1.1. DOCUMENT SUBMISSION FOR ISSUE OF COMMISSIONING /COMPLETION CERTIFICATE

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

- a. Checklist for inspection of Solar PV power plants as per CMRL format.
- b. Project completion report from successful bidder as per CMRL format.

12.1.2.FINAL DECISION AND FINAL CERTIFICATE

- a. Upon completion of 2 years of O&M and subject to the Engineer-in-Charge being satisfied, the Engineer-in-Charge shall (without prejudice to the rights of the CMRL to retain the provisions of relevant Clause hereof) otherwise give a certificate herein referred to as the Final Certificate to that effect and the Successful bidder shall not be considered to have fulfilled the whole of his obligations under Contract until Final Certificate shall have been given by the Engineer-in-Charge notwithstanding any previous entry upon the Work and taking possession, working or using of the same or any part thereof by the CMRL.

12.2. DEDUCTIONS

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

12.3. CORRUPT OR FRAUDULENT PRACTICES

CMRL requires that Successful Bidders/ Contractors should follow the highest standard of ethics during the execution of contract. In pursuance of this policy, the CMRL Defines, for the purposes of this provision, the terms set forth as follows:

- a. **“Corrupt Practice”** means the offering, giving, receiving or soliciting of anything

of value to influence the action of a public official in the bid process or in contract execution and

- b. —**Fraudulent Practice**” means a misrepresentation of facts in order to influence a bid process or the execution of a contract to the detriment of the CMRL/Govt. scheme and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non- competitive levels and to deprive the CMRL of the benefits of free and open competition.

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

13. DEBARRED FROM PARTICIPATING IN CMRL's SOLAR TENDER

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

SECTION-III
TECHNICAL SPECIFICATIONS

The proposed project shall be commissioned as per the technical specifications given below.

14. DEFINITION

A Grid Tied Solar Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning URFP (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid tied SPV system is without battery and should be designed with necessary features to supplement the grid power during daytime. 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, as specified herein or otherwise wherever such specifications are available and applicable. Rooftop Solar PV system shall consist of following equipment/components.

- Solar PV modules consisting of required number of crystalline PV modules
- Grid interactive Power Conditioning URFP with Remote Monitoring System
- Mounting structures
- Junction Boxes.
- Earthing and lightning protections
- IR/UV protected FRLS/FRLSOH (for underground) Cables, pipes and accessories
- Metering & associated equipment.

14.1. SOLAR PHOTOVOLTAIC MODULES

14.1.1. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS 14286. In addition, the modules must conform to IEC 61730 Part-1-requirements for construction & Part 2 — requirements for testing, for safety qualification or equivalent IS.

- a. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701
- b. The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 540Wp and above wattage. Module capacity of less than 540Wp shall not be accepted/allowed.
- c. Protective devices against surges at the PV module or at inverter level shall be provided. Low voltage drop bypass diodes shall be provided.
- d. PV modules must be tested and approved by one of the IEC authorized test centres.
- e. The module frame shall be made of corrosion resistant materials, preferably having anodized aluminium.
- f. The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. CMRL shall allow only minor changes at the time of execution.
- g. Other general requirement for the PV modules and subsystems shall be the

Following:

- The rated output power of any supplied module shall have tolerance of $\pm 3\%$.
- The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
- The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
- I-V (Current — Voltage) curves at STC (standard test conditions) should be provided by bidder.

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

- Name of the manufacturer of the PV module
- Name of the manufacturer of Solar Cells.
- Month & year of the manufacture (separate for solar cells and modules)
- Country of origin (separately for solar cells and module)
- I-V curve for the module Wattage, I_{max} , V_{max} and FF (Fill Factor) for the module
- Unique Serial No and Model No of the module
- Date and year of obtaining IEC PV module qualification certificate.
- Name of the test lab issuing IEC certificate.
- Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

14.1.3. **Warranties**

a) Material Warranty

- i. Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer ("Customer")
- ii. Defects and/or failures due to manufacturing,
- iii. Defects and/or failures due to quality of materials,
- iv. Non-conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option,

b) Performance Warranty

The predicted electrical degradation of power generated not exceeding 20% of the

minimum rated power over the 25-year period and not more than 10% after first ten years period of the full rated original output.

15. ARRAY STRUCTURE

- 15.1.** Hot dip galvanized MS (or) Aluminium mounting structures (with adequate mass coating considering Mumbai weather) may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum irradiation. However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- 15.2.** The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (like Chennai-wind speed of 200 km/ hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to CMRL in compliance to standards governing, as on date like IS-875, NBC etc. Suitable fastening arrangement such as grouting, and clamping should be provided to secure the installation against the specific wind speed.
- 15.3.** The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- 15.4.** Structural material shall be corrosion resistant and electrolytic alloy compatible with the materials used in the module frame, its fasteners, and nuts and bolts. **Aluminium structures also can be used which can withstand the wind speed** of respective wind zone. Necessary protection towards rusting need to be provided either by coating or ionization.
- 15.5.** Aluminum frames should be avoided for installations in coastal areas.
- 15.6.** The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Installation of solar structure should not damage the roof in any way. If any concrete or foundation is required, it should be pre-cast type. Drilling on roof sheet is not permitted. Bidder to use suitable clamping arrangement for module installation.
- 15.7.** Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- 15.8.** h)The total load of the structure (when installed with PV modules) should be less than 25 kg/m². It shall be necessary to install support structures up to the height of 6m from ground or from support in case of Vacant Lands.

16. JUNCTION BOXES (JBs)

- 16.1.** 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/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- 16.2.** Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to min IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry with single compression cable glands, provision of earthing. It should be placed at 5 feet height or above for ease of accessibility.

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

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

16.5. All fuses shall have DIN rail mountable fuse holders and shall be housed in thermoplastic IP 65 enclosures with transparent covers

17. DC DISTRIBUTION BOARD:

17.1. DC Distribution panel to receive the DC output from the array field.

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

18. AC DISTRIBUTION PANEL BOARD (ACDB)

18.1. AC Distribution Panel Board (ACDB) 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.

18.2. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

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

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

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

18.6. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.

18.7. Cable alloy design needs to be compatible to allow easy access depending upon the number of AC Cables into the panel. Minimum width of cable alley shall be 300 mm. Location of bus bars should be such so as to avoid any overlapping/looping of cables in the panels.

18.8. Connections of cable with the bus bars should be properly tightened& check nuts must be provided to avoid any possibility of loosening of connections.

18.9. Bare/exposed portion of terminal/cables should be covered with appropriate sleeves instead of wrapping insulating tape.

18.10. Should conform to Indian Electricity Act and rules (till last amendment).

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

Variation in supply voltage	+/- 10%
Variation in supply frequency	+/- 3 Hz

19. PCU/ARRAY SIZE RATIO:

- 19.1.** The combined wattage of all inverters should not be less than rated capacity of power plant under STC (Standard test conditions).
- 19.2.** Maximum power point tracker can be integrated in the PCU/inverter to maximize energy drawn from the array.

20. PCU/ INVERTER:

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

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

Switching devices: IGBT/MOSFET

Control: Microprocessor / DSP (Digital Signal Processor)

Nominal AC output voltage and frequency: 415V, 3 Phase, 50 Hz Output frequency: 50

HzOverloading on inverter: _30% _

Grid Frequency Synchronization range: + 3 Hz or more

Ambient temperature considered: -20 deg C to 50 deg

CHumidity: 95 % Non-condensing

Protection of Enclosure: IP-20 (Minimum) for indoor.

IP-65 (Minimum) for outdoor.

Grid Frequency Tolerance range: + 3 Hz or more

Grid Voltage tolerance: - 20% & + 15 %

No-load losses: Less than 1% of rated power

Inverter efficiency(minimum):>93% (In case of 5kW or

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

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

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

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

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

- 20.6.** Successful Bidders shall be responsible for galvanic isolation of solar roof top power plant (>100kW) with electrical grid or LT panel.
- 20.7.** In PCU/Inverter, there shall be a direct current isolation provided at the output by means of a suitable isolating transformer. If Isolation Transformer is not incorporated with PCU/Inverter, there shall be a separate Isolation Transformer of suitable rating provided at the output side of PCU/PCU units for capacity more than 100 kW.
- 20.8.** 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.
- 20.9.** The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2 (1,2,14,30)/ Equivalent BIS Std.
- 20.10.** The MPPT units environmental testing should qualify IEC 60068-2 (1, 2, 14, 30)/ Equivalent BIS std. The junction boxes/ enclosures should be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
- 20.11.** The PCU/ inverters should be tested from the MNRE approved test centres/ NABL/ BIS/ IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

21. INTEGRATION OF PV POWER WITH GRID:

The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization and availing net metering connection from DISCOM. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

22. DATA ACQUISITION SYSTEM / PLANT MONITORING

22.1. DATA ACQUISITION SYSTEM

- 22.1.1. Data Acquisition System shall be provided for each of the solar PV plant.
- 22.1.2. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and Instrumentation for display of systems parameters and status indication to be provided.
- 22.1.3. Solar Irradiance: An integrating Pyranometer (Class II or better, along with calibration certificate) provided, with the sensor mounted in the plane of the array readout integrated with data logging system.
- 22.1.4. Temperature: Temperature probes for recording the Solar panel temperature and ambient temperature to be provided complete with readouts integrated with the data logging system
- 22.1.5. Wind: Wind sensors for recording wind speed to be provided at the sites.
- 22.1.6. All the above sensors shall be installed at minimum Two locations and up to four as specified by CMRL.

- 22.1.7. The following parameters are accessible via the operating interface display in real time separately for solar power plant:
- a. AC Voltage.
 - b. AC Output current.
 - c. Output Power
 - d. Power factor.
 - e. DC Input Voltage.
 - f. DC Input Current.
 - g. Time Active.
 - h. Time disabled.
 - i. Time Idle.
 - j. Power produced.
 - k. Protective function limits (viz. AC Over voltage, AC Under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over current, short circuit etc.
 - l. 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.
 - m. PV array energy production: Digital Energy Meters to log the actual value of AC/DC voltage, Current & Energy generated by the PV system provided. Energy meter should be of 0.5s accuracy class or better with CT/PT should be of 0.2s accuracy class. Energy meter to be provided at inverter.
 - n. Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.
 - o. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
 - p. The time interval between two sets of data shall not be more than 15 minutes. (A min. of 4 samples of data shall be recorded per hour)
 - q. Data Acquisition System shall have real time clock, internal reliable battery backup (2 hours) and data storage capacity to record data round the clock for a period of min. 1 year.
 - r. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
 - s. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
 - t. All instantaneous data shall be shown on the computer screen.

- u. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- v. Provision for Internet monitoring and download of data shall be also incorporated.
- w. Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and environment monitoring system in the central location.

22.2. Solar Radiation and Environment Monitoring System

- a. Computerized solar radiation and environment monitoring system shall be installed on one of the buildings along with the solar PV power plant.
- b. The system shall consist of various sensors, signal conditioning, data acquisition, LCD display and remote monitoring.
- c. Global and diffuse beam solar radiation in the plane of array (POA) shall be monitored on continuous basis. Global Horizontal Irradiation at the collector panel is required to be measured.
- d. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- e. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.
- f. Solar radiation and environment monitoring system shall have real time clock, internal reliable battery backup and data storage capacity to record data round the clock for a period of min. 1 year.
- g. The data shall be recorded in a common work sheet chronologically date wise. The data file should be MS Excel compatible. The data shall be represented in both tabular and graphical form.
- h. All instantaneous data shall be shown on the computer screen.
- i. Historical data shall be available for USB download and analysis.
- j. Provision for Internet monitoring and download of data shall be incorporated.
- k. Remote Monitoring and data acquisition through Remote Monitoring System software at the CMRL location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier.

23. METERING

- a. Metering panel shall be installed as near as possible, to the point of evacuation of power to grid.
- b. The bidirectional electronic energy meter (0.5S class or better) shall be installed for the measurement of import/Export of energy.
- c. An additional bidirectional electronic multifunctional meter (0.5S class or better), displaying parameter details like energy, power, voltage, current and power factor etc shall be installed in solar ACDB having a spare RS485 port for CMRL use.

- d. Multifunctional meter model shall be prescribed by CMRL as per site requirement.
- e. The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant and submit the same to CMRL before commissioning of SPV plant.
- f. Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement

24. POWER CONSUMPTION

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

25. PROTECTIONS

The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows: Bidder can use the earthing system provided by CMRL. Conventional type Lightning Protection System is provided at roof of stations and depot. However incase bidder wish to install further protection of their modules and solar system then bidder will be allowed to install their own LPS system after technical approval of CMRL.

25.1. LIGHTNING PROTECTION

Roofs are provided with conventional type of lightning protection systems. However, in case the bidder wishes to install their own advanced NFC type LPS systems then they will be allowed at their own cost. The SPV power plants shall be protected with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The protection against induced high voltages shall be provided by the use of metal oxide arrestors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

25.2. SURGE PROTECTION

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

25.3. EARTHING PROTECTION

- a. Each array structure of the PV yard should be grounded/ earthed properly as per IS: 3043-1987. In addition, the lightning arrester/masts should also be earthed inside the array field. Bidder can use the existing earthing provisions of stations and depot. Earth Resistance shall be tested in presence of the representative of CMRL as and when required after earthing by calibrated earth tester. PCU and ACDB should also be earthed properly.
- b. Earth resistance shall not be more than 1.0 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

25.4. GRID ISLANDING:

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

islanding protection) disconnection due to under and over voltage conditions shall also be provided.

- c. A manual disconnects 4 pole isolation switches beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

26. CABLES

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

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- ii. Temp. Range: -10 deg C to +80 deg C.
- iii. Voltage rating: 660 V / 1100V.
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- v. Flexible and Armoured.
- vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum.
- vii. The cables (as per IS) should be insulated with a special grade PVC FRLS compound formulated for outdoor use. FRLSZH cables shall be used in all underground areas.
- viii. Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- ix. The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. 25years.
- x. The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant were provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation.
- xi. Multi Strand, Annealed high conductivity copper conductor with XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below. Cables for AC power from inverters to combiner Box/ACDB of CMRL shall be of Copper conductor only however, cables from combiner box/ACDB to LT Panel of CMRL can be of Aluminium conductor.

PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- xii. The size of each type of DC cable selected shall be based on minimum voltage drop; however, the maximum drop shall be limited to 2%.
- xiii. The size of each type of AC cable selected shall be based on minimum voltage drop; however, the maximum drop shall be limited to 2%.

27. CONNECTIVITY

The maximum capacity for interconnection with the grid at a specific voltage level shall be as
Page 53 of 151 **Seal and sign of Authorized Rep of Bidder**

specified in the Distribution Code/Supply Code and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers.

Plant Capacity	Connecting voltage
Up to 10 kW	240 V-single phase or 415 V-three phases at the option of the consumer.
Above 10 kW & up to 100 kW	415 V – three phases
Above 100 kW	415 V- three phases

- a. CMRL has voltage levels of 415 V for LT and 33 kV for MV.
- b. For large PV system (Above 100 kW) for commercial installation having large load, the solar power can be generated at low voltage levels and may be connected to selected 415 V LT panel of CMRL. Panel are located in ASS room generally at concourse level of the stations i.e. next level below the roof and at some station ASS room is on platform level. Connection on LT panel of CMRL is in scope of Developer.
- c. Similarly, for Solar PV systems the power has to be transmitted by the SPV bidders to the nearest LT Panel available with sufficient rating for complete evacuation or new panel of required rating to be provided as above.
- d. For carrying current more than 800 A Bus duct shall be used, and it shall be Sandwich Type (IEC 61439 or the latest). Air insulated bus duct will not be accepted.
- e. In case the capacity of Solar Plant is more than 1 MWp and existing power distribution at 415 V is not adequate to evacuate the energy generated, solar Developer will step up the system to 33 kV voltage and connect at the 33kV system. For this purpose, transformer, switchgear cable and all other associated equipment duly coordinated with the existing/planned system of CMRL, shall be provided by Solar Developer as part of this project itself.
- f. The bidder must take sanction/approval/NOC from the CMRL and DISCOMS for the connectivity of the plants to grid on net metering basis on the name of CMRL/Developer as applicable.

28. TOOLS & TACKLES AND SPARES

After completion of installation & commissioning of the power plant, necessary tools & tackles shall be maintained by the bidder for maintenance purpose.

A list of requisite spares in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc. along with spare set of PV modules be indicated, which shall be maintained. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished.

29. DANGER BOARDS AND SIGNAGES

Danger boards should be provided as and where necessary as per IE Act / IE Rules as amended up to date. Minimum three signage's shall be provided one each at DB/Inverter/battery –cum- control room, solar array area and main entry into the area. Text of the signages may be finalized in consultation with CMRL.

30. FIRE EXTINGUISHERS:

- a) The firefighting system for the proposed power plant for fire protection shall beconsisting of
 - i. Portable fire extinguishers in the control room for fire caused by electrical short circuits.
 - ii. Sand buckets in the control room
- b) The installation of Fire Extinguishers should confirm to Local fire norms/TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs as well as on the Roof or site where the PV arrays have been installed.

31. DRAWINGS & MANUALS

- a) Three sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.
- b) Approved ISI and reputed makes for equipment be used.
- c) For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to CMRL before progressing with the installation work.

32. PLANNING AND DESIGNING

- a) The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The bidder should submit the array layout drawings along with Shadow Analysis Report to CMRL/Owner for approval.
- b) CMRL reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.
- c) The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder shall submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.
- d) The bidders shall submit the methodology for installation, testing and commissioning for Solar PV plants which shall be approved by CMRL or its representative prior to start of respective work.

33. DRAWINGSTOBEFURNISHEDBYBIDDERAFTERAWARDOF CONTRACT

The Contractor shall furnish the following drawings after Award/Intent and obtain approval: -

- a) General arrangement and dimensioned layout.
- b) Schematic drawing showing the requirement of SPV panel, Power conditioning. URFP(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
- c) Structural drawing along with foundation details for the structure.
- d) Itemized bill of material for complete SPV plant covering all the components and associated accessories.
- e) Layout of solar Power Array.

- f) Shadow analysis of the area.
- g) Guaranteed Technical Particular (GTP) of Solar PV modules, inverters, Remote monitoring system, DC cables, AC cables, Junction Box.

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

The Solar PV system on the rooftop of the selected buildings will be installed for meeting the maximum energy requirements depending upon the area of rooftop available, the remaining energy requirement of the office/residential buildings will be met by drawing power from grid.

35. SAFETY MEASURES

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

36. DISPLAY BOARD

The bidder has to display a board at the project site (above 25 Kwp) mentioning the following:

- a) Plant Name, Capacity, Location, Type of Renewable Energy plant (Like solar wind etc.), Date of commissioning, details of tie-up with transmission and distribution companies, Power generation and Export FY wise.
- b) The size and type of board and display shall be approved by Engineer-in-charge before site inspection.

Please refer Annexure-C for IEC standards to be mandatorily adhered

GENERAL INFORMATION ABOUT THE BIDDER

Name of the Equity holder	Type and Number Of shares owned	Equity % of	Extent of Voting Control

GENERAL INFORMATION ABOUT THE BIDDER

A. BIDDER INFORMATION SHEET		
Bidders Legal Name		
Legal status of the Bidder	Sole Proprietorship Firm / Partnership Firm / Private Limited Company / Public Limited Company / Joint Venture / Consortium (Please tick one)	
In case of JV/Consortium, Legal name of each partner with percentage participation (also provide information of each member in separate sheet (page 2 of 2))	Legal Name of JV/Consortium member	% participation
	1.	
	2.	
	3.	
Lead member of JV / Consortium		
Bidder's legal address in India, telephone numbers, fax numbers, email address for communication		
Bidder's authorized signatory (name, designation, contact no.)		
Bidder's authorized representative (name, designation, address, contact no.)		

FOLLOWING NEEDS TO BE SUBMITTED BY THE BIDDER: (by each member in case of JV/consortium):

- a) Affidavit in case of Proprietary firm.
- b) Partnership Deed in case of partnership firm.
- c) Memorandum & Article of Association in case of a Public/Private limited company.
- d) In case of JV/Consortium, MoU/Agreement (duly notarized) entered into by the joint venture / consortium members, containing intended percentage participation, nomination of Lead Member and division of responsibility to clearly define the work of each member etc.
- e) Authorization/POA in favour of authorized signatory of bidder to sign the tender, and also in favour of authorized representative of each member in case of JV/Consortium.

Note: Bidder's authorized representative shall be deemed to have authority of the Bidder to receive and deliver any correspondence and attend meetings with CMRL related to the tender.

B. JV/CONSORTIUM MEMBER INFORMATION	
MEMBER 1	
JV/Consortium Member's LegalName	
Legal status of the Member	Sole Proprietorship Firm / Partnership Firm /Private Limited Company / Public Limited Company (Tick anyone)
Member's country ofconstitution	
Member's legal address,telephone numbers, fax numbers, email address)	
Member's authorized representative (name,designation, address)	
MEMBER 2	
JV/Consortium Member's LegalName	
Legal status of the Member	Sole Proprietorship Firm / Partnership Firm /Private Limited Company / Public Limited Company (Tick anyone)
Member's country ofconstitution	
Member's legal address,telephone numbers, fax numbers, email address)	
Member's authorized representative (name,designation, address)	

**SIGNATURE OF AUTHORIZED SIGNATORYON
BEHALF OF BIDDER**

SECTION-IV PRICE BID

To be quoted in the excel sheet provided online in the CPP portal only.

SECTION -V
FORMATS FOR SUBMITTING RFS

Format-1

Covering Letter

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

Tender No. CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023

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

Tel.: -.....

Fax :-.....

E-mail address:-

To,

Chief General Manager (Electrical –
O&M), Chennai Metro Rail Limited,
METROS,
Anna Salai,
Nandanam,
Chennai – 600
035

Sub:- Bid for “DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)”

Dear Sir,

We, the undersigned. . . . [insert name of the Bidder] having read, examined and understood in detail the RFS Document for Tender No. CMRL/SOLAR PLANTS/Phase 1 and Phase 1 Extension Stations and Depot/SPV/01/2023, **“DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)”** in India hereby submit our Bid comprising of Price Bid and Techno Commercial Bid. We confirm that neither we nor any of our Parent Company / Affiliate/Ultimate Parent Company has submitted Bid other than this Bid directly or indirectly in response to the aforesaid RFS.

We give our unconditional acceptance to the tender dated.....and RFS Documents

attached thereto, issued by CMRL as amended. As a token of our acceptance to the RFS

Documents, the same have been initialed by us and enclosed to the Bid. We shall ensure that we execute such RFS Documents as per the provisions of the RFS and provisions of such RFS Documents shall be binding on us.

(RESCO Model)		Approximate capacity in KWp
1		
TOTAL		

1. Bid Capacity

We have bid for the following capacities in various sites as specified in this tender document and have accordingly submitted our Price Bids for the same:

2. Bid Security

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

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

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

5. Acceptance

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

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

6. Familiarity with Relevant Indian Laws & Regulations

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

7. Contact Person

Details of the contact person are furnished as under:

Name	
Designation	
Company	

Address	
Phone Nos.	
Fax Nos.	
E-mail address	

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

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

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

Thanking you,

We remain,

Yours faithfully,

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

INITIAL FILTER CRITERIA
(On Company's letter head)

S.NO	Criteria	Yes	No
1	Has the Bidder abandoned any work in the last five years?		
2	Has the Bidder's contract with any organisation ever been terminated due to poor performance?		
3	Has the Bidder's Security Deposit for any contract has ever been forfeited in any Government / Semi-government/ PSUs/ Metro Railways?		
4	Has the Bidder been involved in frequent litigations in last five years?		
5	Has the Bidder suffered insolvency/bankruptcy in the last five years?		
6	Has the Bidder been blacklisted by any organisation?		
7	Has any misleading information is given in the tender?		
8	Is the Bidder is financially not sound to perform the work?		
9	Is the Bidder's net worth negative during last five financial years (FY 2018-19 to FY 2022-23)?		
10	Has the Bidder failed to certify that no middlemen has been or will be engaged or that any commission has been or will be paid?		
11	Do the documents submitted reveal that any commission has been or will be paid?		
12	Those who are Single or JV under suspension, debarred, blacklisted by GOI, GOTN, PSU's, Metro Rail Corporation, CMRL or whose contracts were terminated earlier		

Note: 'Yes' answer to any of the above 1 to 11 points shall disqualify the Bidder. The Bidder should also enclose the following undertaking on Rs.100/- Non-Judicial stamp Paper duly notarized as per the format given below along with the Technical Bid.

[ON NON-JUDICIAL STAMP PAPER OF RS.100/- DULY NOTARIZED]

UNDERTAKING FOR INITIAL FILTER CRITERIA

(Each member in case of Consortium)

Sub: - CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023 - DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION).

1 I, Mr./Ms. _____ (Authorized Signatory) on behalf of _____ (Company's Name) having its registered office at _____, hereby confirm, declare and undertake that the information given in the Initial filter Criteria is true and nothing has been concealed or misrepresented.

2 CMRL is free to verify the information given by the undersigned in the Initial Filter Criteria. If any submission by us is found false or misleading at a later stage, even after completion of the tender process, then CMRL may annul the award and forfeit our EMD (if any held with CMRL) and Performance Security (if any available with CMRL). Further, in such a case, we may be banned for future tenders of CMRL.

Signature of Authorized Signatory _____

Name of Authorized Signatory _____

Seal of the Authorized Signatory

Mandatory Information for Eligibility of the Bid

1. The form below should be filled by Bidder along with all supporting documents as stipulated in the relevant rows. Failure to adhere to the format will lead to rejection of Bid.

S.No	Techno-Commercial Criteria	Details (to be filled by the bidder)	Page No's.
1	Name of the Bidder		
2	Contact person of the Bidder designated for the bid along with Telephone, Fax No. and email ID.		
2.a	Name of designated staff		
2.b	Designation of the Staff		
2.c	Mobile No		
2.d	Email ID		
3	Full address of the Bidder with Telephone No. and Fax No.		
4	Details of Tender Document Fee for Amount Rs. _____ (Rupees _____) provide: UTR number: _____		
5	Details of EMD for Amount Rs. _____ (Rupees _____ only) provide: UTR number: _____		
6	Bank Details		
6.a	Bank Name		
6.b	Beneficiary Name		
6.c	Bank Address		
6.d	Bank Account No		
6.e	IFSC Code		
7	Specify the Legal Status of Bidder : Company / Partnership Firm / Individual		
8	In case of Company, please enclose Memorandum and Articles of Association along with Certificates of Incorporation and date of commencement of business		

S.No	Techno-Commercial Criteria	Details (to be filled by the bidder)	Page No's.
9	In case of Firm, registered under the Partnership Act 1932, please enclose details of Partners along with Certificate of Registration, details of their business and partnership deed, etc. duly attested by Notary		
10	PAN of the Bidder (Please enclose the attested photocopy of PAN card issued by Income Tax Department)		
11	GST Number of the Bidder (Please enclose the attested photocopy of Service Tax / GST Registration Certificate issued by relevant authorities)		
12	Turnover of the Bidder for the preceding five years, viz 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 (Please enclose a statement duly certified by Chartered Accountant):		
13	Profit and Loss statement for the last five years, viz. 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 (Please enclose a statement duly certified by Chartered Accountant)		

Note:

1. The Details as required in must be submitted with supporting documents for each of criteria mentioned at each rows. Failure to submit details is a **Disqualification**
2. Bids with alterations shall be attested by the Bidder.

I/We _____ do hereby declare that the entries made are true to the best of my/our knowledge and also that we shall be bound by the acts of my/our duly constituted Attorney.

I/We further understand that in case of any information submitted by me / us being found to be incorrect either before or even after the award of contract, CMRL will have the right to summarily reject the bid, cancel the contract or revoke the same at any time without assigning any reason whatsoever.

SEAL

(Signature of the Bidder)

Date:

Name:

Address:

FOLLOWING NEEDS TO BE SUBMITTED BY THE TENDERER

- Affidavit in case of Proprietary firm.
- Partnership Deed in case of partnership firm.
- Memorandum & Article of Association in case of a Public/Private limited company.
- Authorization/POA in favour of authorized signatory of tenderer to sign the tender, and also in favour of authorized representative of each member in case of JV/Consortium.
- PAN of the bidder
- GST of the bidder
- Licence under Contract Labour Act

BANKER'S GUARANTEE FORMAT FOR EMD

In consideration of the Chennai Metro Rail Limited (hereinafter referred to as CMRL) having agreed to accept from [here in after called "the said Tenderer(s)"] earnest money in the form of Guarantee Bond, under the terms and conditions of Tender No: DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)

in connection with by the said Tenderer of the stipulation to keep the offer open for acceptance for a period of days from the date of opening of tenders, to execute an agreement within the time specified, to start work within the period specified after notification of the acceptance of his/their tender and the deposit of Earnest Money in cash or furnish fresh Bank Guarantee for the said amount as part of security for the due and faithful fulfilment of the contract on acceptance of the tender on production of a Bank Guarantee for Rs. (Rupees only), payable at a designated Bank Branch located in Chennai. We, Bank Ltd., do hereby undertake to pay on demand to the CMRL, the sum of Rs. (Rupees Only) in the event of the said tender having incurred of the forfeiture of Earnest Money/Security Deposit as aforesaid for the breach of any of the terms or conditions of the stipulations aforesaid and contained in the said tender under an order of the authority competent to invite tender. We

..... Bank Ltd. further agree that the guarantee herein contained shall remain in full force and effect till the authority competent to invite the tender discharges the guarantee, subject however that CMRL shall have no right under this Bond after the expiry of 208 days from the date of its execution and our liability under the bond shall be discharged if the demand for payment is not made within this period, we, Bank Ltd; lastly undertake not to revoke this guarantee during its currency except with the previous consent of CMRL in writing.

Dated.....day of

For.....Bank Ltd.

FORMAT FOR PERFORMANCE BANK GUARANTEE BOND

Ref _____

Bank Guarantee No _____

Date _____

1. This deed of Guarantee made this day of _____ between Bank of _____ (hereinafter called the —Bank) of the one part, and Chennai Metro Rail Limited (hereinafter called the —the Employer) of the other part.

2. Whereas Chennai Metro Rail Limited, has awarded the contract for _____ (Name of work) (hereinafter called the contract) _____ (hereinafter called the Contractor). (Name of the Contractor)

3. AND WHEREAS the Contractor is bound by the said Contract to submit to the Employer a Performance Security for a total amount of Rs. _____ (Amount in figures and words).

4. Now we the Undersigned _____ (Name of the Bank) being fully authorized to sign and to incur obligations for and on behalf of and in the name of _____ (Full Name of Bank), hereby declare that the said Bank will guarantee the Employer the full amount of Rs. _____ (Amount in figures and Words) as stated above.

5. After the Contractor has signed the aforementioned Contract with the Employer, the Bank is engaged to pay the Employer, any amount up to and inclusive of the aforementioned full amount upon written order from the Employer to indemnify the Employer for any liability of damage resulting from any defects or shortcomings of the Contractor or the debts he may have incurred to any parties involved in the Works under the Contract mentioned above, whether these defects or shortcomings or debts are actual or estimated or expected.

The Bank will deliver the money required by the Employer immediately on demand without delay and demur any without reference to the Contractor and without the necessity of a previous notice or of judicial or administrative procedures and without it being necessary to prove to the Bank the liability or damages resulting from any defects or shortcomings or debts of the Contractor. The bank shall pay to the Employer any money so demanded notwithstanding any dispute/disputes raised by the Contractor in any suit or proceedings pending before any Court, Tribunal or Arbitrator/s relating thereto and the liability under this guarantee shall be absolute and unequivocal.

6. This Guarantee is valid till _____ (The initial period for which this Guarantee will be valid for 6 months beyond the date of completion of all contractual obligations of the supplier including warranty obligations as stated in Tender Document)

7. At any time during the period in which this Guarantee is still valid, if the Employer agrees to grant a time extension to the Contractor or if the Contractor fails to complete the Works within the time of completion as stated in the Contract, or fails to discharge himself of the liability or damages or debts as stated under Para 5 above, it is understood that the Bank will extend this Guarantee under the same conditions for the required time on demand by the Employer and at the cost of the Contractor.

8. The Guarantee hereinbefore contained shall not be affected by any change in the Constitution of the Bank or of the Contractor.

9. The neglect or forbearance of the Employer in enforcement of payment of any moneys, the payment whereof is intended to be hereby secured or the giving of time by the Employer for the payment hereof shall in no way relieve the bank of their liability under this deed.

10. The expressions —the Employerll, —the Bankll and —the Contractorll hereinbefore used shall include their respective successors and assigns.

11. Notwithstanding anything contained herein:

a) Our liability under this Bank Guarantee shall not exceed Rs _____
(Rupees _____)

b) This Bank Guarantee shall be valid up to _____.

c) We are liable to pay the guarantee amount or part thereof under this Bank Guarantee only & only if you serve upon us a written claim or demand on or before _____.

This bank guarantee is payable on demand at a designated bank branch locating at Chennai.

In witness whereof I/We of the Bank have signed and sealed this guarantee on the
.....day of (Month)(Year) being herewith duly
authorized.

For and on behalf of

The _____ Bank.

Signature of Authorized Bank official:

Name: _____

Designation: _____

Stamp/Seal of the Bank: _____

Signed, sealed and delivered
For and on behalf of the
Bank by the above

Named _____ in the presence of:

Witness 1.Witness 2.

Signature
Name.....
Address.....

Signature.....
Name.....
Address.....

POWER OF ATTORNEY FOR SIGNING OF BID

Know all men by these presents, we _____ (name of the firm and address of the Registered Office) do hereby irrevocably constitute, nominate, appoint and authorize Mr. / Ms. (name), _____ son / daughter / wife of _____ and presently residing at _____, who is presently employed with us / the Lead Member of our Consortium and holding the position of _____, as our true and lawful Attorney (hereinafter referred to as the –Attorney) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our bid for the award of the license for —**DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVATED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)** for which proposals are invited by Chennai Metro Rail Limited, (CMRL) including but not limited to signing and submission of all Bids and other documents and writings, participate in bidders and other conferences and providing information / responses to Chennai Metro Rail Limited (CMRL), representing us in all matters before Chennai Metro Rail Limited, (CMRL) signing and execution of all contracts including the License Agreement and undertakings consequent to acceptance of our Bid and generally dealing with CMRL in all matters in connection with or relating to or arising out of our Bid for the award of License to us and / or till the entering into of the License Agreement with CMRL.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the Powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, _____ THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS _____ DAY OF _____ 20 _____

For _____ (Signature, name, designation and address)

Witnesses:
(Notarized)

- 1.
- 2.

Accepted
_____ (Signature)

(Name, Title and Address of the Attorney)

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it

is so required; the same should be under common seal affixed in accordance with the required procedure.

The Bidder should submit for verification the extract of the charter documents and documents such as a Board or shareholdersll resolution / power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder along with bid document at the time of executing the agreement.

Turnover & Profit & Loss of the bidder

	2018 - 2019	2019 - 2020	2020-2021	2021-2022	2022-2023	Average
Turnover						
Profit & Loss						

1. The form below should be filled by bidder along-with all supporting documents as stipulated in the relevant rows.

(Chartered Accountant's Signature & Date) Bidder's signature and Name

Name of the CA: Name of the Authorized Signatory

Chartered Accountant's Seal Bidder's Seal

CA Registration Number:

CA's Address:

CA's Telephone / Fax Number

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

To,

Chennai Metro Rail Limited
METROS,
Anna Salai,
Nandanam,
Chennai – 600
035

Dear Sir,

Sub:- Bid for “DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)” in response to the RFS No: CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023

We submit our Bid/Bids for the total capacity of **3.0 MW** for Bids for which we submit details of our Financial Eligibility Criteria Requirements.

We certify that the Financially Evaluated Entity (ies) had an Annual Turnover as follows:

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

➤ Attached separately Annexure at Format-12.

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

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

Yours faithfully

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

Name:-.....

Date:-.....

Place:-.....

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

Name:

Date:

Place:

Notes:

Audited consolidated annual accounts of the Bidder may also be used for the purpose of financial criteria provided the Bidder has at least 51% equity in each company whose accounts are merged in the audited consolidated accounts and provided further that the financial capability of such companies (of which accounts are being merged in the consolidated accounts) shall not be considered again for the purpose of evaluation of the Bid.

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

To,

.....

..... Dear
 Sir,

Sub:- Bid for “DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)”

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

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

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

*Strike out whichever is not applicable.

(Insert Name and Signature of Statutory Auditor or Representative of Bidder)

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

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

Name:

Full Address:

Telephone No.:

E-mail address:

Fax/No.:

To,

.....

Dear Sir,

We refer to the RFS No.....dated.....for **“DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1and PHASE 1 EXTENSION)”**.

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

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

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

In view of the above, we hereby undertake to you and confirm that in the event of failure of(Insert name of the Bidding Company) to submit the Performance Guarantee in full or in part at any stage, as specified in the RFS, we shall submit the Performance Guarantee notsubmitted by..... (Insert name of the Bidding Company)ll.

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

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

Signature of Chief Executive Officer/Managing Director

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

WITNESS

.....

(Signature)

Name.....

Designation.....

.....

(Signature)

Name.....

Designation.....

Similar work experience

Applicant's legal nameDate.....

Group Member's legal name.....Page of pages

For similar works as mentioned in this tender document

<i>Work Experience</i>		
Contract Number	Information	
Contract Identification		
Award date Completion date		
Employer's Name		
Employer's Address: Telephone / Fax number: E Mail		
Role in Contract (Individual/JV/JVA member)	Individual	JV Member
Completion Cost	Currencies (as stated in Clients Certificate)	In equivalent INR as on date of tender submission price level
If JV member, specify percentage participation in contract & amount (Please refer Note-1)	% participation	In equivalent INR
Quantum of similar work in support of clause no. 3.4.2		In case of JV/JVA, actual works executed by the Applicant (duly substantiated with Client Certificate)

NOTE:

- Only the value of contract as executed by the applicant/member in his own name should be indicated. Where a work is undertaken by a group, JV/JVA only that portion of the contract which is undertaken by the concerned applicant/member should be indicated and the remaining done by the other members of the group be excluded. This is to be substantiated with documentary evidence.
- Separate sheet for each work along with Clients Certificate and performance certificate six months in operation after the completion of work, to be submitted.

ANNEXURE - 1: Summary of Information provided in Format -10

Applicant's legal name
.....Date.....

Group Member's legal name.....Page of pages

Name of Applicant (each member in case of group, JV/JVA)	Total Number of works As per clause no. 3.4.2 at the price level of as on date of tender submission	No. of contracts delayed, i.e., completed beyond the original date of completion

NOTE:-

1. In case the work was done as JV/JVA, only the value of work done by the applicant as per his Percentage participation must be given.
2. Reasons of delay whether on contractors account or on account of Employer in each applicable case need to be enclosed separately.

Format -11

RFP No: Date:		
1	Name of the owner / beneficiary & Complete postal address: -	
2	Name of the Authorized contact person (Including mobile no & Email-id)	
3	Address of SPV power plant installed :	
4	Name of the Installer/Successful Bidder:	
Sr. No	Component	Details
1	Installed Rooftop Solar PV Project capacity in (kWp)	
2	Whether training was provided by installer for operation and maintenance of SPV plant. Note: Operation & Maintenance (O&M) of SPV Plant.	
3	Whether the following documents were provided or not	
	Installation manual (SPV system), certificates catalogue, As Built drawings for (DC SLD, AC SLD, Plant Layout, Civil & Structural drawings, SCADA drawings, Earthing drawing, Lightning drawings, Bill of Quantity (BOQ), Design sheet for Earthing calculations, other drawings, etc.,.	
	Copy of the Warranties and Guarantees of the different components of Solar PV system.	
	Insurance as per RFP	
	Recommended list of spares for 25 years.	
	Web link for Remote monitoring of SPV plant including username & password to be provided installer to MMDRA.	
	Performance Ratio (PR) should be minimum of 75% for initial commissioning acceptance.	
	Capacity utilization factor (CUF) should be certified by Owner of the plant /beneficiary for 2 years O&M period.	
4	Project cost allocated is Rs. /Wp to	
	Cost break up	Owner share: Rs/ Wp
		MNRE/Govt Share: Rs/ Wp

Declaration:

1. It is to certify that all the information given above is true and correct to best of my knowledge. We are satisfied with the installation of SPV system and working satisfactorily as per above details.

Signature of Authorized Signatory on each page: _

Name _____ Designation _____

Seal:

Financial DATA**Applicant's legal name.....****Date.....****Group Member's legal name.....****Pageof.....pages***Each Applicant or member of a JV must fill in this form*

Sr.No.	Description	Financial Data for Latest Last 5 Years (Indian Rupees) (audited data)				
		2018-19	2019-20	2020-21	2021-22	2022-23
1.	Total Assets					
2.	Current Assets					
3.	Total External Liabilities					
4.	Current Liabilities (inclusive of provisions, if any)					
5.	Annual Profits Before Taxes					
6.	Annual Profits After Taxes					
7.	Net Worth [= 1 - 3]					
8.	Working Capital [= 2 - 4]					
9.	Return on Equity					
10.	Annual turn over					

Attach copies of the audited balance sheets, including all related notes, income statements for the last five audited financial years, as indicated above, complying with the following conditions.

1. Separate Performa shall be used for each member in case of JV/JVA.
2. All such documents reflect the financial data of the Applicant or member in case of JV, and not sister or Parent Company.
3. Historic financial statements shall be audited by Statutory Auditor of the Company under their seal & stamp and shall be strictly based on Audited Annual Financial results of the relevant period(s). No statements for partial periods will be accepted.
4. Historic financial statements must be complete, including all notes to the financial statements.
5. Applicants whose financial year closure falls in months other than March, may submit all relevant data for the last 5 years i.e. 2018, 2019, 2020, 2021, 2022 and 2023.
6. Return on Equity = Net Income / Shareholders Equity

Return on Equity = Net Income is for the full fiscal year (before dividends paid to

common stockholders but after dividends to preferred stock).

Shareholders equity does not include preferred shares.

7. The above Annexure shall be duly certified by Chartered Accountant / company Auditor under his signature & stamp.

CONSORTIUM AGREEMENT

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

THIS Consortium Agreement (—AgreementII) executed on this _____ day of _____ 2023 between M/s [insert name of Lead Member] _____ a Firm / Company incorporated under the laws of _____ and having its Registered Office at _____ (hereinafter called the —Lead MemberII, which expression shall include its successors, executors and permitted assigns)

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

WHEREAS, each Member individually shall be referred to as the —MemberII and both the Members shall be collectively referred to as the —MembersII in this Agreement. WHEREAS the Chennai Metro Rail Limited (hereinafter called CMRL or Employer), has invited response to RFS No. CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023 - DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION)II.

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

NOW THEREFORE, THIS AGREEMENT WITNESSTH AS UNDER:

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

1. We, the Members of the Consortium and Members to the Agreement do hereby unequivocally agree that (M/s _____), shall act as the Lead Member as defined inthe RFS for self and agent for and on behalf of Technical Member
2. The Lead Member is hereby authorized by the Technical Member of the Consortium to bind the Consortium and receive instructions for and on their behalf.
3. The Lead Member shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging all of their respective obligations. Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.
4. Subject to the terms of this Agreement, the Technical member shall be responsible for providing technical knowledge for —DESIGN, ENGINEERING, MANUFACTURE, SUPPLY, STORAGE, CIVIL WORK, ERECTION OF SUITABLE STRUCTURE, TESTING & COMMISSIONING OF SOLAR PV PLANT OF CAPACITY OF 3.0 MWp ON ELEVAED STRUCTURES IN OPEN/PARKING SPACES INCLUDING OPERATION AND

COMPREHENSIVE MAINTENANCE (O&M) OF THE PROJECT IN RESCO MODEL FOR A PERIOD OF 25 YEARS AT STATION/SITE OF CHENNAI METRO RAIL LIMITED (PHASE 1 and PHASE 1 EXTENSION) to the lead member.

5. In case of any breach of any commitment by any of the Consortium Members, the Lead Member shall be liable for the consequences thereof.

6. This Agreement shall be construed and interpreted in accordance with the Laws of India and courts at Chennai alone shall have the exclusive jurisdiction in all matters relating thereto and arising there under.

7. It is hereby further agreed that in case of being shortlisted, the Members do hereby agree that they shall abide by the terms & conditions of the RFS document.

8. It is further expressly agreed that this Agreement shall be irrevocable and shall form an integral part of the RFS submitted to CMRL and shall remain valid till completion of the job assigned to the Contractor.

9. The Lead Member is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to RFS.

10. It is hereby expressly understood between the Members that no Member at any given point of time, may assign or delegate its rights, duties or obligations under this agreement without the explicit permission of CMRL.

11. This Agreement

(a) Has been duly executed and delivered on behalf of each Member hereto and constitutes the legal, valid, binding and enforceable obligation of each such Member;

(b) Sets forth the entire understanding of the Members hereto with respect to the subject matter hereof; and

(c) May not be amended or modified except in writing signed by each of the Members and with prior written consent of CMRL. IN WITNESS WHEREOF, the Members have, through their authorized representatives, executed these present on the Day, Month and Year first mentioned above.

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

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

Dated

Witnesses:

1) Signature.....

Name:

Address:

2) Signature.....

Name:

Address:

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

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

Dated [●])

Witness

UNDERTAKING FOR CORRUPT & FRAUDULENT PRACTICE

It is confirmed and declared that we, or any of our associate, have not been engaged in any fraudulent and corrupt practice and that no agent, middleman or any intermediary has been, or will be, engaged to provide any services, or any other items of work related to the award and performance of this contract and no agency commission or any payment which may be construed as an agency commission has been, or will be, paid and that the tender price will not any such amount.

STAMP & SIGNATURE OF AUTHORIZED SIGNATORY

NOTE:

1. In case of JV/Consortium, the undertaking shall be submitted by each member of the JV/Consortium.
2. The undertaking shall be signed by authorized signatory of the bidder or constituent member in case of JV/Consortium.

(Undertaking as per clause 3.8.1 vii of Section-I)

We do hereby undertake that CMRL/ any Central / State government department / public sector undertaking / other government entity or local body has not banned business with us as on the date of tender submission. Also, none of the work has been rescinded / terminated by CMRL / any Central or State Govt. Department / Public Sector Undertaking/Other Govt. entity or local body after award of contract to us during last 3 years (from the last day of the previous month of tender submission) due to our non- performance.

STAMP & SIGNATURE OF AUTHORIZED SIGNATORY

Note:

1. In case of JV/Consortium, the undertaking shall be submitted by each member of the JV/Consortium.
2. The undertaking shall be signed by authorized signatory of the bidder. In case of JV/Consortium by the authorized signatory of the constituent members counter signed by the authorized signatory of bidder.

(Undertaking as per clause 3.8.1 viii of Section-I)

(UNDERTAKING FOR NOT BEING PENALISED IN A CONTRACT)

We do hereby undertake that we have not paid liquidated damages of 10% (or more) of the contract value in a contract due to delay or penalty of 10% (or more) of the contract value due to any other reason during last five years.

STAMP & SIGNATURE OF AUTHORIZED SIGNATORY

—

Note:

1. In case of JV/Consortium, the undertaking shall be submitted by each member of the JV/Consortium.
2. The undertaking shall be signed by authorized signatory of the bidder. In case of JV/Consortium by the authorized signatory of the constituent members counter signed by the authorized signatory of bidder.

(Undertaking as per clause 3.8.1 ix of Section-I)

(UNDERTAKING FOR FINANCIAL STABILITY)

We do hereby undertake that we have not suffered bankruptcy/insolvency during the last 5 years.

STAMP & SIGNATURE OF AUTHORIZED SIGNATORY

Note:

-
1. In case of JV/Consortium, the undertaking shall be submitted by each member of the JV/Consortium.
 2. The undertaking shall be signed by authorized signatory of the bidder. In case of JV/Consortium by the authorized signatory of the constituent members counter signed by the authorized signatory of bidder.

BIDDING CAPACITY WITH REASONS OF VARIATION

Sl. No	Station Name	Ground Mounted (kWp)	Parking (kWp)	Proposed Solar Capacity by bidder	Variation in plant capacity in kWp	Reason of variations, if any
	<u>Blue Line</u>					
1	Wimco Nagar		150			
2	Washermanpet		500			
3	Mannadi		850			
4	High Court		50			
5	Government Estate		60			
6	Saidapet	120				
7	Nanganallur Road		300			
	<u>Green Line</u>					
8	Egmore		300			
9	Shenoy Nagar		30			
10	Anna Nagar East		50			
11	Thirumangalam		75			
12	Koyambedu		350			
Total Capacity (MWp)		120	2715			

Total Proposed Solar Plant Capacity by bidder (kWp) :

Variation: ± kWp

ANNEXURE-A- PROJECT SANCTION

DOCUMENTS REQUIRED FOR PROJECT SANCTION

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

1. Project Report

(Project report should contain the following)

- Context / background / Introduction
- Project objectives
- Target beneficiaries
- Project strategy / Approach of work & methodology
- Environmental Impact Assessment, if required.
- Site details including photographs with date & time stamping
- Solar resource assessment
- Technology selection (Module, Inverter and BOS)
- Design, Simulation, BOM and layout of SPV plant
- Grid connectivity and metering scheme
- Means of financing and project budget
- Financial, Economic & Risk Analysis
- Time frame / schedule of implementation
- Shadow Analysis
- Method statements for major activities
- O&M Plans and resources
- Structural Stability/Third-Party Proof checking reports if CMRL desires

2. Agreement between the bidder and the owner of the Project and Building / Roof top (Notarized original agreement on stamp paper of appropriate value should be enclosed).

All Agreement shall generally have reference to the CMRL RFS No. CMRL/Solar Plants on elevated structures in open and parking spaces/Phase 1 and Phase 1 Extension Stations and Depot/01/2023 and Letter of Allocation and provisions as per terms and conditions, technical specification and performance parameter in line with the CMRL RFS Document against which Letter of Allocation has been issued. In addition, it shall indicate the price / tariff payable by the roof top Owner to the developer, payment terms, completion period along with other conditions of contract like insurance, warranty, force majeure, arbitration, jurisdiction, governing law, site access for the developer, and, site access for CMRL officials for the entire plant life..

3. No Objection Certificate from the CMRL for grid connectivity.

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

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

Solar PV Modules/Panels	
IEC 61215/ IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853- Part 1/ IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating —: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH ₃) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
IEC 62804	Photovoltaic (PV) modules - Test methods for the detection of potential-induced degradation. IEC TS 62804-1: Part 1: Crystalline silicon (mandatory for applications where the system voltage is > 600 VDC and advisory for installations where the system voltage is < 600 VDC)
IEC 62759-1	Photovoltaic (PV) modules – Transportation testing, Part 1: Transportation and shipping of module package units
Solar PV Inverters	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems — Part 1: General requirements, and Safety of power converters

	<p>for use in photovoltaic power systems</p> <p>Part 2: Particular requirements for inverters. Safety compliance (Protection degree IP 65 for outdoor mounting, IP 54 for indoor mounting)</p>
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
BS EN 50530 (as applicable)	<p>Overall efficiency of grid-connected photovoltaic inverters:</p> <p>This European Standard provides a procedure for the measurement of the accuracy of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid of stable AC voltage and constant frequency. Both the static and dynamic MPPT efficiency is considered.</p>
IEC 62116/ UL 1741/ IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters - Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27:Product safety requirements
IEC 60068-2 (1, 2, 14, 27, 30 & 64)	<p>Environmental Testing of PV System – Power Conditioners and Inverters</p> <p>a) IEC 60068-2-1: Environmental testing - Part 2-1: Tests - Test A: Cold</p> <p>b) IEC 60068-2-2: Environmental testing - Part 2-2: Tests - Test B: Dry heat</p> <p>c) IEC 60068-2-14: Environmental testing - Part 2-14: Tests - Test N: Change of temperature</p> <p>d) IEC 60068-2-27: Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock</p> <p>e) IEC 60068-2-30: Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)</p> <p>f) IEC 60068-2-64: Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance</p>
IEC 61000 – 2,3,5 (as applicable)	Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) testing of PV Inverters

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

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

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

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

SECTION- VI

DRAFT POWER PURCHASE AGREEMENT (PPA)

DATED, 2023

POWER PURCHASE AGREEMENT

BETWEEN

AND

Table of Contents

Article 1 : DEFINITIONS

1:1 : Definitions

1.2 : Interpretation

2 Articles 2: TERMS

2.1 : Effective Date

2.2 : Term of Agreement

2.3 : Conditions Precedent of the Agreement

2.4 : Early Termination

2.5 : Survival

Article 3: SALE AND PURCHASE OF POWER

Article 4: DEEMED GENERATION

Article 5: ACCESS AND SPACE PROVISIONS

Article 6: CONSTRUCTION, DEVELOPMENT AND MAINTENANCE

Article 7: GENERAL OBLIGATIONS OF THE CUSTOMER

Article 8: INSURANCES

Article 9: METERING, BILLING AND PAYMENT

Article 10: OWNERSHIP OF THE PROJECT

Article 11: LOSS AND DAMAGE TO PV SYSTEM

Article 12: INTERRUPTION OF SERVICE

Article 13: PURCHASE OPTION

Article 14: FORCE MAJEURE

Article 15: DEFAULT AND TERMINATION

Article 16: LIABILITY AND INDEMNIFICATION

Article 17: DISPUTE RESOLUTION

Article 18: MISCELLANEOUS

SOLAR POWER SELLING AGREEMENT

THIS SOLAR POWER SELLING AGREEMENT is made at ----- on -----, 2023

Between

-----, a company incorporated under the Companies Act, 1956, having its registered office at ----- and its corporate office at -----, India herein after referred to as the —Service ProviderII (which expression shall unless repugnant to the context or meaning thereof, mean and be deemed to include its administrators, successors and assigns) of the FIRST PART;

And

Chennai Metro Rail Limited, a Joint Venture of Government of India and Government of Tamil Nadu, registered at METROS, Anna Salai, Nandanam, Chennai — 600 035, herein after referred to as the —CustomerII (which expression shall unless repugnant to the context or meaning thereof, mean and be deemed to include its administrators, successors and assigns) of the SECOND PART.

The Service Provider and the Customer are each individually referred to as a —PartyII and collectively as the —PartiesII.

WHEREAS;

- A. The Service Provider is engaged in the business of building and operating solar power plants, including grid connected rooftop solar power projects.
- B. The Customer noted above and requires energy for their site/offices.
- C. The Service Provider has agreed to install and operate a solar photovoltaic power plant of KWp capacity (the —ProjectII) at the Site (as defined hereinafter) as provided by the Customer to the Service Provider.
- D. The Service Provider has agreed to supply the entire Solar Power generated by the Project to the Customer and the Customer has agreed to purchase the entire Solar Power generated from the Project, on the terms and conditions contained in this Agreement.
- E. In this regard, the Parties are now desirous of entering into the Agreement to record the terms and conditions for development of the Project and sale and purchase of the Solar Power generated from the Project.

Now, Therefore, In Consideration of The Premises And Covenants Hereinafter Set Forth, The Sufficiency Of Which The Parties Hereby Acknowledge And With The Intent To Be Legally Bound Thereby, The Parties Here To Agree As Follows:

1. Article 1:

1.1 DEFINITIONS

In addition to the terms defined in the introduction to, recitals or the body of this Agreement whenever used in this Agreement, unless repugnant to the meaning or context thereof, the following words and terms shall bear the meanings assigned to them below:-

—AffiliateII In relation to any Person means any Person, who directly or indirectly (through one or more intermediaries) Controls, is Controlled by or is under common Control with that Person.

—Agreement Means this Solar Power Selling Agreement including its preamble, recitals, annexures and its amendments, supplements or other modifications from time to time in accordance with the provisions hereof.

—BES Means the Customer's building electrical systems that are owned or leased, operated, maintained and controlled by the Customer, and which may or may not be interconnected with the Utility.

—Bill Disagreement Notice Shall mean the notice issued by a Party raising a Dispute regarding a Monthly invoice issued by the other party.

—Business Day Means any day other than a Saturday or Sunday or a statutory holiday on which the scheduled banks remain open for business.

—Calendar Day Means any day of the week, month or year.

—Commercial Operation Date Is the date at which the entire setup, installation and testing of the Project has been completed and the Project starts selling Solar Power to the Customer.

—Confidential Information Shall have the meaning ascribed to the term in Article 18.11.1 of the Agreement.

—Customers Installation Shall have the meaning ascribed to the term in Article 6.1.5 of the Agreement.

—Cure Period Shall have the meaning ascribed to the term in Article 15.2 of the Agreement

—Deemed Generation Shall have the meaning ascribed to it in Article 4.1.

—Delivery Point Means the physical location at which the System is Electrically connected to the BES.

—Dispute Shall have the meaning ascribed to the term in Article 17.2.1 of the Agreement.

—Due Date Shall have the meaning ascribed to the term in Article 9.4.3 of the Agreement

—Effective Date Shall have the meaning ascribed to it in Article 2.1 of the Agreement.

—Emergency Means a condition or situation that is likely to endanger the security of individuals or which poses an immediate threat of damage to PV system or the Premises.

—Encumbrances Means by interest or equity of any Person (including, without limitation, any right to acquire, option or right of pre-emption or conversion) and any charge, mortgage, security interest, pledge, lien (including retention of title claims), assignment, power of sale or hypothecation or any other third party right or encumbrance of any nature whatsoever (whether or not perfected) and the term —encumber shall be construed accordingly.

—Even of Default Shall have the meaning ascribed to the term in Article 15.1 of the Agreement.

—Expiry Date Shall mean the date occurring 25 years from the Commercial Operation Date of the Project.

—Force Majeure Event Shall have the meaning ascribed to the term in Article 14.2 of the Agreement.

—Government Approvals Shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, no objection certificate clearances (including

environmental clearances), and concessions, required to be obtained from or provided by any Governmental Authority or under applicable Law for the purpose of installing, commissioning, testing, operating, maintaining or transferring the Project.

—Governmental Authority Means any government authority, statutory authority, government department, agency, commission, board, tribunal or court or other law, rule or regulation making entity having or purporting to have jurisdiction on behalf of the Republic of India or any state or other subdivision thereof or any municipality, district or other subdivision thereof.

—INR Means Indian Rupees, the lawful currency of the Republic of India.

—Joint Meter Reading Report Shall have the meaning ascribed to the term in Article 9.2 of the Agreement.

—KWh Means Kilowatt-Hours

—kWp Means Kilowatt-peak;

—Late Payment Surcharge Shall have the meaning ascribed to the term in Article 9.8 of the Agreement.

—Law Means any statute, law, rule, regulation, ordinance, judgment, injunction, order, decree, by-law, administrative requirement, guideline, directive, policy or any similar form of decision or determination, or any interpretation or adjudication having the force of law or other restriction of any Governmental Authority, as applicable and as enacted or promulgated and whether in effect in India as of the Effective Date or at any time thereafter.

—Losses Shall have the meaning ascribed to the term in Article 16.1 of the Agreement.

—Metered Generation Shall have the meaning ascribed to the term in Article 9.4.1 of the Agreement.

—Metering Date Means the first Business Day of each calendar month subsequent to the month in which the Solar Power is generated by the Service Provider.

—Metering System Means the instrument (s) and equipment installed at the Site by the Service Provider as part of the System used to measure, indicate and record the Output delivered to the Customer at the Delivery Point.

—Monthly Invoice Shall have the meaning ascribed to the term in Article 9.4.1. of the Agreement.

—Non-Delivery Period Shall have the meaning ascribed to the term in Article 15.1.1 of the Agreement.

—Output Means all of the Solar Power delivered from the PV System measured in Kilowatt hours (kWh) at the Delivery Point.

—Person Shall mean any natural person, firm, company, governmental authority, joint venture, partnership, association or other entity (whether or not having separate legal personality).

—Premises Any and all real property belonging to the Customer situated within the boundaries of which the Site shall be located.

—Scheduled Completion Date Shall have the meaning ascribed to the term in Article 6.1.4 of the Agreement.

—Service Provider The Service Provider is the Party of the Agreement who will set up, operate

and maintain, PV System, at its cost, on the Premises of the Customer.

—Site Means the areas on the Premises of the Customer on which the Service Provider will install the PV System. The detail of the Site along with its map is provided.

—System or —PV System Means all equipment, facilities and materials, including photovoltaic arrays, DC/ AC inverters, wiring, Meters, tools, and any other property now or hereafter installed, owned and operated by the Service Provider for the purpose of or incidental or useful to maintaining the use of the System fulfilling its obligations under the Agreement, and as it may be modified during the Term. The System excludes any part of the BES. The System may consist of multiple installations at various locations on the Site.

—Taxes Means any and all statutory taxes, duties, levies and cess, or levy of any nature (whether central, state or local) whatsoever and wherever and whenever charged, levied or imposed together with any interest and penalties in relation thereto.

—Term Shall have the meaning ascribed to it in Article 2.2.1

—Unit Price: The Price applicable for each unit (kWh) of Solar energy delivered by the System, measured and recorded through the installation Metering System.

—Utility Means the local provider of electric supply to the Customer.

1.2 INTERPRETATION

In this Agreement, unless the context otherwise requires or as otherwise expressly stated:

- (a) Headings are for convenience only and shall not affect interpretation except to the extent, the context otherwise requires;
- (b) Any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated.
- (c) Where a word or phrase is defined, other parts of speech and grammatical forms of that word or phrase shall have corresponding meanings.
- (d) Words importing the singular shall include the plural and vice versa;
- (e) Words denoting individual shall include corporations and vice versa;
- (f) Words denoting any gender shall include all genders.
- (g) Any reference to any period of time shall mean a reference to that according to Indian Standard Time;
- (h) Any reference to day shall mean a reference to a calendar day;
- (i) Any reference to month shall mean a reference to a calendar month;
- (j) Unless otherwise stated, any reference to any period commencing —from a specified day or date and —till or —until a specified day or date shall include both such days or dates; and

- (k) Any reference to an article, section, appendix, clause, sub-clause, paragraph, sub-paragraph, Schedule or Recital is a reference to an article, section, appendix, clause, sub-clause, paragraph, sub-paragraph, Schedule or Recital of the Agreement.
- (l) Any reference to –writingII includes printing, typing, lithography and other means of reproducing words in visible form including by electronic form.
- (m) Different parts of this Agreement are to be taken as mutually explanatory and supplementary to each other and if there is any inconsistency between or among the parts of this Agreement, they shall to the extent possible, be interpreted in a harmonious manner so as to give effect to each part.

2. ARTICLE 2-TERMS.

2.1 Effective Date

This Agreement shall come in to effect from the date of execution of this Agreement (—the Effective Datell).

2.2 Term of the Agreement

2.2.1 This Agreement, subject to Articles 2.3 and 2. 4, shall be valid for a period commencing from the Effective date until the Expiry Date (–TermII).

2.2.2 The term of this Agreement may be extended for a further period beyond the Expiry Date, if the Parties mutually agree on fresh terms and conditions in writing, at least ninety (90) days prior to the Expiry Date.

2.3 Conditions Precedent of the Agreement

In the event that any of the following events or circumstances occur prior to the Commercial Operation Date, the Service Provider may terminate the Agreement and shall be entitled to all the right and remedies available under the Law and Agreement including to recover any Losses that the Service Provider may have suffered or incurred as a result of or in connection with any of these events:

2.3.1. There has been an adverse change in the rights of the Customer to occupy the Premises and to provide the continuous, unencumbered, unhindered and unrestricted access to the Premises and the Site to the Service Provider.

2.3.2 The Service Provider has determined that there are easements, liens or other Encumbrances on the Premises that would impair or prevent the installation, commissioning, operation, maintenance or removal of the System.

2.4 Early Termination.

In addition to Article 2.3, this Agreement shall terminate before the Expiry Date, if either Party, terminates the Agreement, pursuant to Article 15 of this Agreement.

2.5 Survival

The expiry of termination of this Agreement shall not affect any accrued right, obligations and liabilities of the Parties under this Agreement, including the right to receive indemnity as per the

terms of this Agreement, nor shall it affect the survival of any continuing obligations for which this Agreement provides, either expressly or by necessary implication which are to survive after the Expiry Date or termination including those under this Article 2.5, Article 14 (Force Majeure), Article 15 (Default and Termination), Article 16 (Liability and Indemnification), Article 17 (Dispute Resolution) and other Articles and Schedules of this Agreement which expressly or by the nature survive the Term or termination of this Agreement, shall continue and survive any expiry or termination of this Agreement.

3 ARTICLE-3- SALE AND PURCHASE OF POWER.

3.1 On and with effect from the Commercial Operation Date, the Service Provider agrees to sell and supply Solar Power to the Customer at the Delivery Point, and the Customer agrees to purchase from the Service Provider the total Solar Power generated, metered and supplied from the Project at the Delivery Point by the Service Provider during the Term.

3.2 The customer hereby agrees and undertakes to make payment to the Service Provider for the generation and supply of metered Solar Power, at the Tariff set forth in Article 9.4 of this Agreement.

3.3 Notwithstanding any other provision of this Agreement, the Solar Power pumped to the Delivery Point by the Service Provider shall be deemed to be sold to the Customer.

4 ARTICLE-4 DEEMED GENERATION

4.1 Deemed generation would be resorted to only when the system is generating power, but the meter is not recording generation, (i) due to any fault (in accordance with Article 9.6); (ii) due to the reason that there is no adequate load to absorb the power generated and the excess power generated is not being able to be exported; (iii) there is no reference voltage due to the power cut/shutdown by the customer; (iv) If there is an equipment failure at the customer end, which may prevent the power being fed to the customer side or (v) the commercial Operation Date of the Project has not occurred on or prior to Scheduled Completion Date due to any reason attributable to the act or omission of the customer. In such events, deemed generation will be calculated in relevance with Article-4.2, after mutual agreement by both parties.

4.2 Deemed Generation for any period shall be calculated using the average. For the first year, the generation of a particular month (in which the deemed generation needs to be calculated) will be used for calculating the average. For the 2nd year onwards, the generation data of the previous year for corresponding month will be referred. (—Deemed GenerationII). Such Deemed Generation shall be deemed to be the Solar Power injected into the Delivery Point during the relevant period.

5 ARTICLE 5-ACCESS AND SPACE PROVISIONS

5.1 Adequate Space for Construction

The Customer shall provide the Service Provider, its employees, personnel, contractors and/or subcontractors adequate space on the Premises during the Construction Period for the purpose of construction, installation and commissioning of the system, including reasonable staging and laydown areas.

5.2 Adequate Access to the Premises for the Service Provider.

The customer do hereby agrees to grant to the service provider access over the premises and the site for the period of contract. The access to the first party would be subject to grant of necessary security clearance from the security agencies. The Service Provider shall be allowed to perform functions as may be necessary to full fill its obligations under this Agreement, including inspection, repair, replacement, construction, installation, removal, alteration, expansion, or testing the System or its parts. Access right applicable to the Service Provider shall include the Service Provider's agents, contractors (including second-tier contractors), employees, representatives and assigns.

5.3 Access by the Customer to System

The parties acknowledge that the Customer will have access to the Site for maintenance of the Premises along with safety and security purposes. The customer shall take reasonable precautions so that the operation of the system is not disrupted, and the system is not damaged as a result of actions or inactions of the customer or his employees, agents, contractors, designates or invitees.

5.4 Prevention of Unauthorized Access.

The customer agrees to, at its expense, to maintain and secure the site from unauthorized trespass.

5.5 Storage Space

The customer shall provide the Service Provider with a covered storage space with locking facility at or in reasonable proximity to the Site for control room of the project. The Space required should be a minimum of 6m x 6m space. The Service Provider alone shall exercise control and supervision over the said storage space from the Effective Date until the Term of Agreement.

The Customer acknowledges that Service Provider's performance under this Agreement is dependent on the validity of the access to the site for the term of the agreement. The access shall be valid for the Term and shall be co-terminus with the Agreement.

6 ARTICLE 6: CONSTRUCTION, DEVELOPMENT AND MAINTENANCE

6.1 Construction of System (s):

6.1.1 The Service Provider shall solely at its own cost cause the Project to be designed, installed, engineered, erected, tested, and commissioned, operated, maintained and constructed substantially in accordance with the technical specifications as per CMRL guidelines, in a good and workman like manner and in accordance with all applicable Laws and regulations. The service provider shall provide to the purchaser a bill of materials listing the major equipment constituting the system. The Service Provider shall provide and lay the dedicated electrical wires/cables for transmission of the solar power can be generated at low voltage levels. The Metering Systems shall be installed at the various 415 V Distributions Panels, should be as per IS Standards.

6.1.2 Unless otherwise agreed between the Parties, the Service Provider shall not directly or indirectly, (a) undertake chipping of the rooftop (b) disturb the waterproofing of the roof (c) carry out any other modification of the Premises, without the consent of the Customer. The Service Provider shall maintain general cleanliness of area around the Project during construction, operation and maintenance period of the Project. In case any damage is caused to the equipment/facilities owned by the Customer due

to any act or omission of the Service Provider, the same shall be made good/rectified by the Service Provider at its own cost.

- 6.1.3 If required by the customer, the service provider shall, within thirty (30) days of the Effective Date, submit to the Customer, drawings of the Project for approval. If the Customer has any objection/recommendation in the drawings, he shall communicate the same to the Service Provider within a period of Ten (10) Business Days of the date of submission of such drawings. The drawings will be deemed to have been accepted if no response is received from the Customer within Ten (10) Business Days from the receipt of drawings from the Service Provider. Any delay will extend the Commercial Operation Date of the Project. In any case, the approval of the drawings shall not be unreasonably withheld by the Customer.
- 6.1.4 Subject to any punch-list items which shall be mutually agreed by the Customer and the Service Provider as not being material to completion of the Project and compliance by the Customer of the provisions of this Agreement, the Service Provider agrees that it shall commission the Project within 2 month (s) from the Effective Date (the —Scheduled Completion Datell). The completion of punch list items however will not hamper the generation or injection of Solar Generated Electrical Power. The completion date can be increased or decreased based on mutual consent between both parties. The Customer shall ensure that sufficient load is available at the Delivery Point to ensure the synchronization and drawl of Solar Power from the System.
- 6.1.5 The Customer shall ensure that all arrangements and infrastructure including BES for receiving Solar Power beyond the Delivery Point (—Customer's Installationll) are ready on or prior to the Commercial Operation Date. Beyond the Delivery Point, the Customer shall maintain the equipment for the entire term of the agreement.
- 6.1.6 The Service Provider shall have the right to inspect the area of his operation, with prior intimation (except in emergencies), and seek information about Customer's Installation for the purpose of ensuring safety and compliance during supply of Solar Power. The Customer shall inform the Service Provider about any alterations and/or extensions in such customer's Installation before carrying out the same and keep the Service Provider informed of such alterations/modifications.

6.2 Location of System

The System will be located at various sites of the customer as specified below:

S. No.	Location	Capacity (kW)

6.3 Construction Contractors

The Service Provider may hire qualified contractors to design, build, install, construct, service and test the System. The Service Provider shall have the right to enter into contracts with suppliers, contractors, subcontractors, installers and equipment providers at its discretion to perform its obligations under this Agreement.

6.4 Testing Period Output.

Upon notice from the Service Provider to the Customer during the Construction Period, the Service Provider or its contractors may test the System and charge for all Output delivered to the Customer during the testing period.

6.5 Approvals and Permits

Each of the Parties shall assist and reasonably cooperate with the other Party, including signing all the documents prepared by the other Party, for obtaining all necessary Government Approvals, third party approvals and permits including but not limited to those listed in Annexure 3 hereto.

6.6 Maintenance and Cleaning:

The Service Provider shall at all times during the Term of this agreement maintain the System in the efficient condition which would include proper cleaning of PV modules. The customer agrees to, at his expense, to provide adequate raw/potable/government supply water at the Site itself, for cleaning of PV modules on a monthly or as required basis during the Term of this Agreement. The amount of water required shall be five (5) liters per module per cleaning, which is approximately 800 Liters a month, twice a month.

6.7 If, in the reasonable opinion of either Party, the condition or manner of operation of the PV System constitutes an Emergency, the Service Provider shall be entitled to de-energise and isolate. The Service Provider shall re-energise as quickly as practicable after the circumstances leading to any de-energisation have ceased to exist.

7 ARTICLE 7: GENERAL OBLIGATIONS OF THE CUSTOMER

During the term of the Agreement, the Customer shall:

- (a) At its own cost and expense undertake, comply with and perform all its obligations set out in the Agreement.
- (b) Provide all reasonable assistance necessary to the Service Provider during the entire Term of Agreement so that the Service Provider may perform its obligations without any hindrance;
- (c) Make timely payments to the Service Provider in the manner and in accordance with the terms and conditions set out in the Agreement.
- (d) The customer has to provide the sufficient Space for Solar panel Installation.
- (e) The Customer shall provide power and water at its own cost as required by the Service Provider during construction and installation of the Project.

8 ARTICLE 8: INSURANCES

8.1 Service Provider's Insurance

The Service Provider shall be reasonable and take an insurance policy for transit-cum-storage-cum-erection for all the materials to cover all risks and liabilities for supply of materials on site

basis, storage of materials at site, erection, testing and commissioning. The Service Provider shall also take appropriate insurance during O & M period, if required.

The Service provider shall also take insurance of third party liability covering loss of human life, engineers and workmen and also covering the risks of damage to the third party/material/equipment/properties during execution of the contract. Before commencement of work, the Service Provider will ensure that all its employees and representatives are covered by suitable insurance, against any damage loss injury or death arising out of the execution of the work or in carrying out the contract.

8.2 Customer's obligation towards security

The Customer shall be responsible for the security of the system. The customer shall regulate the entry to the site through a lock and key arrangement to the site of the project installation, the customer shall also maintain a log of the personnel accessing the site.

8.3 Contractor's obligation towards security.

The Contractor shall be responsible for submit Bank Guarantee and Performance guarantee to CMRL as per the CMRL Tender Document.

9 ARTICLE 9: METERING, BILLING AND PAYMENT

9.1 Installation of Metering System:

- 9.1.1 The Service Provider shall install the Metering System at the Delivery Point to measure the amount of Solar Power delivered by the System to the Customer. The Metering System shall comply fully with the requirements of the relevant standards and the applicable laws, and shall be tested and sealed by a mutually agreed third party testing agency, at the Service Provider's expense. The Service Provider shall provide a copy of the test report to the Customer.
- 9.1.2 The Metering System shall be retested and resealed after every 12 months from the date of last testing by the Service Provider, from the mutually agreed third party testing agency, at Service Provider's expense. The report shall be provided to the Customer.
- 9.1.3 The Customer may, at his own discretion, install a check meter, at his cost, to verify the measurements of the Metering System.

9.2 Meter Reading:

The Meter Reading System shall be read by the Service Provider's personnel on the Metering Date in the Presence of the authorized representative from the Customer, if such representative is present at the time of the reading. The Service Provider's personnel and the authorized representative from the Customer shall prepare and sign a joint meter reading report, certifying the Solar Power injected by the Service Provider and metered at the Delivery Point during any month (—Joint Meter Reading Reportll). However, in case the joint Meter Reading Report is not signed in the first seven (7) Business days of any month due to non-availability of the Customer's authorized representative, the report signed by the Service Provider's personnel shall be considered to be agreed by the Customer and shall be deemed to be the Joint Meter Reading Report The Parties agree that the Joint Meter Report shall be final and binding on the Parties.

The billable units shall be equal to the difference between the meter reading on the Metering Date and the meter reading on the previous months Metering Date.

9.3 Tariff:

9.3.1 The Tariff at which the Customer shall purchase the Output from the Service Provider will be as per CMRL approved rate yearly tariff as shown in Annexure -1 (Unit Price) (exclusive of all Taxes, duties and levies) This is equivalent to CMRL approved fixed Tariff of Rs per Kwh.) (Inclusive of all Taxes, duties and levies).

9.3.2. Any new benefits, incentive or relaxation declared or provided by any government, non-government or any other authority to the Service Provider, after the Effective Date, shall be to the credit of the Customer and the Service Provider shall not claim the same at any time. However, the Service Provider will have the right to avail/transfer the accelerated depreciation, income tax benefits, investment allowance benefits and all other benefits arising from or accruing on account of generation of Solar Power as may be available under applicable laws.

9.4 Billing and Terms of Payment

9.4.1 The customer will be charged on a monthly basis, an amount that is equal to the Unit Price, multiplied by (a) the monthly output from the System as per joint Meter Reading Report (—Metered Generation) and/or (b) Deemed Generation as per clause 4.2. The monthly invoice will be raised by the Service Provider on the Customer for the Metered Generation and/or Deemed Generation supplied by it in the immediately preceding calendar month, or part thereof, within a period of five (5) days from the end of each calendar month (**“Monthly Invoice”**).

9.4.2. Each monthly Invoice shall state the Tariff and Taxes payable by the Purchaser calculated with reference to the Metered Generation and/or Deemed Generation.

9.4.3. The Customer shall make payment of the Monthly Invoice within fifteen (15) Business days from the receipt of the Monthly Invoice from the Service Provider (—Due Date).

9.4.4 The Customer shall make payment of the Monthly Invoice to the bank account of the Service Provider as shall be specified in the Monthly Invoice through electronic funds transfer/RTGs only.

9.5 Faulty Meter

In case of a faulty meter, Deemed Generation shall be considered. Meanwhile, the Service Provider, shall repair or replace the faulty meter, as quickly as practically possible, or inform the Customer of expected days to repair/replace.

9. 6 Tampering or interface with Metering System

If the Service Provider finds that the (i) Metering System (or any component thereof) is tampered or interfered with except in case of emergency, or (ii) its working defeated or (iii) any Output is consumed by the Customer by by-passing the Metering System or (iv) there is a reasonable suspicion of theft of Output by the Customer or (v) the Service Provider is not allowed access to the Metering System by the Customer in terms of this Agreement, the same shall be considered as a breach of this Agreement. Tampering or interface with metering system any breach of agreement is reported, the same may be referred to Adjudication.

9.7 Emergency breaking of seals in Metering System

In case of any emergency, which warrants breaking of seals by the Service Provider, the same

shall be intimated to the Customer immediately.

9.8 Late Fees

If any part of a monthly payment is not made by the Customer within the Due Date, the Customer agrees to pay the Service Provider a late fee of 1.25% monthly which works out to be fifteen percent (15%) per annum compounded monthly, on the amount of such late payment (**“Late Payment Surcharge”**).

9.9 Taxes

In the event that any state or local Taxes, duties or levies are levied or assessed against the generation, sale or delivery of Output, the Customer shall bear and pay such amounts.

9.10. Contest Rights

9.10.1 In case the Customer does not dispute a Monthly Invoice raised by the Service Provider as provided in Article 9.4, such Monthly Invoice shall be taken as conclusive.

9.10.2. In case the Customer disputes the amount payable under a Monthly Invoice it shall pay the undisputed amount on or prior to the Due Date and shall within seven (7) business days of receiving the Monthly Invoice, issue a notice (the —Bill Dispute Noticell) to the Service Provider setting out:

- (a) The details of the disputed amount
- (b) Its estimate of what the correct amount should be; and
- (c) All written material in support of its claim.

9.10.3 If the Service Provider agrees to the claim raised in Bill Dispute Notice issued pursuant to Article 9.10.2, the Service Provider shall revise such Monthly Invoice.

9.10.4 If the Service Provider does not agree to the claim raised in the Bill Dispute Notice issued pursuant to Article 9.10.2, it shall, within fifteen (15) days of receiving the Bill Dispute Notice, furnish a notice (the —Bill Disagreement Noticell) to the Customer providing:

- (a) Reasons for its disagreement
- (b) Its estimate of what the correct amount should be; and
- (c) All written material in support of its counter claim.

9.10.5 If the customer agrees to the counter claim in Bill Disagreement Notice, it shall make the remaining payment with the interest at the same rate as Late Payment Surcharge, which shall be applied from the Due date of the disputed Monthly Invoice and up to and including the date on which such payment has been received by the Service Provider.

9.10.6 If the Customer does not agree to the counter claim by the Service Provider under the Bill Disagreement Notice, then the dispute shall be resolved as per —Dispute Resolutionll under Article 17.2 and if required, under Article 17.3.

9.10.7 Notwithstanding anything else in the Agreement, the Service Provider reserves its right to suspend its obligations under the Agreement and remove the system from the Premises of the Customers in case of non-payment of Monthly Invoices and continuation of dispute resolution for a period of more than three (6) Months.

9.11 Appropriation of payments.

Any payment received by the Service Provider from the customer shall be appropriated in the following order of priority:

- (a) First, towards late payment interest as set out in Article 9.8 above, if applicable, the

longest outstanding being settled first;

- (b) Secondly, towards outstanding Monthly Invoice amount, if any, the longest outstanding being settled first; and
- (c) Thirdly, towards the then current monthly invoice.

9.12. Change in Law:

9.12.1 The term —Change in Law shall mean the occurrence of any of the following events after the Effective Date, resulting into any change of liability on the Service Provider.

- (a) The enactment, coming in to effect, adoption, promulgation, amendment, modified or repeal (without re-enactment or consolidation) in India, or any Law, including rules and regulations framed pursuant to such Law; or
- (b) A change in the interpretation of any Law by any Government Authority having the legal power to interpret or apply such Law or any competent court; or
- (c) The imposition of a requirement for obtaining any Government Approvals which was not required earlier; or
- (d) A change in the terms and conditions prescribed for obtaining any Government Approvals or the inclusion of any new terms or conditions for obtaining such Government Approvals; or
- (e) Introduction of any Tax or any Tax being made applicable for generation or sale/supply of Solar Power by the Service Provider as per the terms of this Agreement.
- (f) Change in the rate of any existing Tax, duty or levies.
- (g) The customer shall bear exclusively the effect of such change in law. Any additional liability on the Service Provider on account of the Change in Law including change in Taxes shall be passed on to the Customer and the Customer shall be liable exclusively to make payment of any additional Taxes at actual.

9.13 Adjustment in Payment on account of Change in Law:

Subject to provisions mentioned above, the adjustment in payment of Tariff and the Monthly Bill shall be effective from the first Metering Date after the date from which the Change in Law becomes applicable.

10 ARTICLE 10: OWNERSHIP OF THE PROJECT.

Except as provided in Article 13, the Service Provider shall be the legal and beneficial owner of the Project throughout the Term and the System shall remain the property of the Service Provider and shall not attach to or be deemed a part of, or fixture to the Premises.

11 ARTICLE 11: LOSS AND DAMAGE TO THE PV SYSTEM

- 11.1 The Service provider shall bear the risk of any damage or loss to the PV System (except for damage or loss caused due to or arising out of any act or omission or misconduct/negligence of the Customer or any of his employees, agents, contractors,

designates or invitees and acts of God).

11.2 In case of any loss or damage to the PV System (except for damage or loss caused due to or arising out of any act or omission or misconduct/negligence of the Customer or any of his employees, agents, contractors, designates or invitees and acts of God) that does not result in total damage of the PV System, the Service Provider, at his own cost, shall repair or replace the PV System within a reasonable period of time. The Service Provider shall inform the Customer of time required to repair the PV system.

11.3 In case of any loss or damage to the PV System (Except for damage or loss caused due to or arising out of any act or omission or misconduct/negligence of the Customer or any of his employees, agents, contractors, designates or invitees) that, results in total damage of the PV System, the Service Provider shall, within twenty (20) days of such loss or damage, notify the Customer, whether the Service Provider is willing to repair or replace the PV System or not. In case the Service Provider is not willing to repair or replace the PV System, this Agreement will terminate automatically effective from the receipt of such notice of termination. The Service Provider shall be entitled to all Insurance proceeds with respect to the PV System, provided however, insurance proceeds paid on account of damage to the Premises shall be paid to the Customer, Service Provider shall be entitled to take away the PV System from the Site in the then existing condition, Without affecting or damaging customers properties.

11.4 In case of damage or loss to the PV System is attributable to any act or omission or misconduct/negligence of the Customer or any of his employees, agents, contractors, designates or invitees, the Service Provider, at the cost of the customer, shall repair or replace the PV System. The Service Provider shall provide the assessment of cost involved in repair or replacement to the Customer within three (3) Business days following the loss or damage to the PV System. The Customer shall pay the required amount within Fifteen (15) Business days of the receipt of cost estimate from the Service Provider. Upon receipt of amount from the Customer, the Service Provider shall repair or replace the PV System within a reasonable period of time.

11.5 The time period allowed to the service provider to repair or replace the faulty/damaged PV System will be determined by a Severity Level Clause, attached as Annexure 4, If damages due to the fault of customer when damage occurs both the parties will jointly assess the damage and determine the severity as per the severity clause, based on which time will be given to the service provider to either repair or replace the system. The Customer shall also pay to the Service Provider an amount equivalent to the Unit Price, multiplied by unit of the Deemed Generation of Solar Power which would have otherwise produced if there was no damage or loss to the PV System, only till such time as is agreed to be allotted to the service provider to repair or replace the faulty system and as determined in terms of the Severity Clause.

12 ARTICLE 12: INTERRUPTION OF SERVICE

12.1 Power Supply Interruptions

The Parties acknowledge and understand that the System is an intermittent generation facility, and will not provide the Customer with an uninterrupted supply of Output. The Service Provider shall not be liable for any damages or Losses caused, directly or indirectly, by or resulting from or

Page 113 of 151

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arising out of any interruption in the provision of the Output during the Term for any reason whatsoever, nor shall the Service Provider be responsible for the cost of alternative supplies of electricity during any interruption. Subject to the terms of this Agreement including provisions contained in Articles 11 and 14, if delivery of Output from the System is interrupted the Service Provider will use Prudent Utility Practice to restore Output in a timely manner, if the interruptions is not intentional.

12.2 Obstructions

The customer shall not install or permit to be installed on the Premises or the Site (or any other property owned or controlled by the Customer) any physical obstruction including to sun light falling on all PV modules forming part of Project that has or could reasonably be expected to have the effect of reducing Output.

12.3 Service Provider's Interruption of Output

Notwithstanding anything to the contrary herein, the Service Provider shall have the right to interrupt, reduce or discontinue the delivery of Output for purposes of inspection, maintenance, repair, replacement, construction, installation, removal or alteration of the equipment used for the production or delivery of Output, or at the direction of authorized Governmental Authorities or electric utilities. Other than in the event of unexpected interruptions or in the event of an Emergency or as required by authorized Governmental Authorities or electric utilities, the Service Provider shall give the notice to customer at least five (7) Business Days prior to an interruption of Output deliveries and an estimate of the expected duration of the interruption.

13 ARTICLE 13: PURCHASE OPTIONS

13.1 Purchase Option

13.1.1 Under the following scenarios the customer can exercise the purchase option. A) The Customer terminates the power purchase agreement before the end of 25 years PPA tenure B.) If there is a customer default as covered in clause no. 15 C) The Power plant is shifted/relocated owing to the building/Roof Top where the system is installed is demolished/reconstructed/changed. The Customer shall have the option to purchase the System by providing notice of at least one hundred twenty (120 days) in advance. Till the Customer elects not to exercise a Purchase Option, the Customer shall remain bound by all terms and conditions of the Agreement, and to the Early Termination provision.

13.1.2 Upon exercising the Purchase Option, the customer shall pay the Service Provider, through electronic funds transfer/cheque, an amount in accordance with Annexure 2 of this Agreement, after cost assessment is made and recommended by the appropriated agencies.

13.1.3 Upon the Customer's payment for the System, the Service Provider shall handover the System, including all components thereof and operation manuals, to the Customer.

13.2. Transfer to the Customer

After the termination of PPA term the Solar System shall be transferred to the Power Purchaser free of cost. Upon transfer of ownership of the System to the Customer, the Service Providers shall have no further obligation with respect to the performance installation, operation or maintenance of any part or component of the System unless otherwise agreed to in writing between the Parties. Along with such transfer, the Service Provider also agrees to assign to the Customer, any applicable manufacturer's warranties provided on the system and any agreement for the operation and maintenance of the System, as may be existing at the time of such transfer.

ARTICLE 14: FORCE MAJEURE

14.1 Neither the Service Provider nor the Customer shall be considered to be in default in the performance of his obligations under this Agreement to the extent that performance of any such obligation is prevented or delayed by a Force Majeure Event, which shall be defined as follows:

14.2 Force Majeure

Force Majeure Events means any unforeseen or unanticipated act, event, cause or condition that:

- (a) Wholly or partly prevents or delays a Party from performing his obligations under the Agreement, and
- (b) Is beyond the affected Party's reasonable control,

Except that no act, event, cause or condition shall be considered to be an event of Force Majeure if and to the extent the party seeking to invoke Force Majeure has caused or contributed to the applicable act, event, cause or condition by his act, fault or negligence.

Force Majeure Event shall include without limitation the following acts or events (i) natural phenomena, such as storms, hurricanes, flood, lightning, volcanic eruptions and earthquakes; (ii) explosions or fire arising from lightening or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, terrorist acts, or rebellion, acts of wild animals. A force Majeure event shall not be based on the economic hardship of either Party.

14.3 If a Party is prevented or delayed in the performance of any such obligation by a Force Majeure Event, such Party shall within (Five (5)) Business Days of the occurrence of same provide written notice to the other Party of the circumstances preventing or delaying performance and the expected duration for which performance is expected to be so affected thereof. The Party affected by a Force Majeure Event shall resume performance of its obligations as soon as reasonably practicable, keeping the cost of Force Majeure as low as possible. Repair or replacement of any loss or damage caused to the PV System due to any Force Majeure Event shall be carried out by the Service Provider at his own cost. Neither Party may use his claim of Force Majeure Event as an excuse for failure to make payments of amount owed to the other Party hereunder.

14.4 Result of Force Majeure:

The non-affected Party shall be entitled to terminate this Agreement upon thirty (30) days' prior written notice to the affected Party if any Force Majeure Event affecting the other Party has been in existence and has caused a complete shut-down of the System for a period of one hundred eighty (180) consecutive days or longer, unless such Force Majeure Event ceases prior to the expiration of such thirty (30days) period. Following such termination, the Service Provider shall remove the System from the Site within one hundred twenty (120) days after such termination.

ARTICLE 15: DEFAULT AND TERMINATION

15.1 The occurrence of any of the following events unless any such event occurs as a result of a Force Majeure Event shall be an —Event of Default with respect to the applicable Party under this Agreement.

15.1.1 Service Provider Failure to Perform

With respect to the Service Provider, following the Commercial Operation Date, if the Service Provider fails to provide any Output for a period of at least one hundred eighty (180) consecutive

days during the Term (—Non-Delivery PeriodII) ; provided that non-operation of the System for the duration of a Force Majeure Event, as defined in Article 14, or for any period during which the Customer is in default hereunder or otherwise cannot accept delivery of Output (for any reason) shall not be used in calculating the Non-Delivery Period.

15.1.2 Customer Failure

- (a) The Customer fails to pay any Monthly Invoice on the Due Date, and such failure continues for a period of thirty (30) Business Days after being duly notified in writing by the Service Provider.
- (b) Failure or default by the Customer to provide the Service Provider free, continuous, unencumbered, unhindered and unrestricted access to the Premises and Site.
- (c) Revocation or cancellation or impairment of any Government Approvals, license, or permit obtained by the Customer which has a material adverse effect on the Project.

15.1.3 Bankruptcy

A Party (a) voluntarily or involuntarily files or has filed against it a winding up or bankruptcy or other similar petition seeking any composition, liquidation or similar relief under any applicable Law, and which petition remains un-dismissed or un-stayed for a period of ninety (90) days or entry of a decree or order of a court having jurisdiction, for the appointment of a receiver, custodian, liquidator of the Party or of all or any substantial part of its property or for the winding up or liquidation of its affairs and the continuation of such decree or order in force, as undercharged or un-stayed, for a period of ninety (90) days, (b) enters into an transfer or assignment of his assets or undertakings for the benefits of his creditors; or (c) otherwise is unable to pay his debts as they become due.

15.1.4 Breach

Failure of either Party to perform any material covenants, obligations, representations and warranties set forth in this Agreement, despite being duly notified in writing by the other party to remedy the breach.

15.1.5 Misrepresentation

Any intentional and material misrepresentation made by a Party to this Agreement of or concerning any term contained in this Agreement or any warranty herein.

15.2 Opportunity to Cure

Within seven (7) business days of occurrence of an Event of Default, the Party claiming default shall send a written notice to the other Party, specifying in reasonable detail the provision pursuant to which the alleged default has occurred. The party accused of default shall have thirty (30) days from the date of receipt of the notice to cure the default or such other period as mutually agreed between the Parties (—Cure PeriodII). In the event that the defaulting party fails to cure the default within the Cure Period, the non-defaulting party shall be entitled to send a notice of termination of this Agreement to the defaulting party and shall be entitled to pursue any and all remedies available in Law or in equity or under the Agreement. Unless otherwise agreed to between the Parties, any of the events specified in Article 15.1.3 shall constitute an immediate Event of Default and the non-defaulting Party shall be entitled to terminate the Agreement by issuing a written notice to the defaulting Party without providing an opportunity to the defaulting Party to cure such default.

15.3 Termination of the Agreement for Default

15.3.1. Event of Default by the Customer

- (a) If there has occurred an Event of Default by the Customer as pursuant to Article 15.1.2 of this Agreement, (i) the Service Provider shall, in addition to any legal and equitable rights and remedies, have the right to terminate this Agreement in accordance with Article 15.2 and remove the System from the Premises at the Customer's expense, and (ii) the Customer shall pay to the Service Provider by delivery of cheque or through electronic funds transfer/RTGS, the Early Termination Payment calculated pursuant to Article 15.4 plus all other amounts due and payable to the Service Provider under this Agreement as of the termination date, which amounts shall be due and payable to the service provider within Fifteen (15) Business Days from the date of termination.
- (b) At all times following an Event of Default by the Customer until the termination of this Agreement as provided in Article 15.2, the Service Provider shall have the right, but not the obligation, to deliver the solar Power to the Customer and the Customer shall be obligated to receive and pay for such solar Power in accordance with this Agreement.

15.3.2 Event of Default by the Service Provider

If there has occurred an Event of Default by the Service Provider pursuant to Article 15.1.1 of this Agreement, the Customer shall, in addition to any legal and equitable rights and remedies, have the right to terminate this Agreement in accordance with Article 15.2. Following such termination, (i) The Service provider shall remove the System from the Site within one hundred twenty (120) days after such termination, and shall, subject to natural wear and tear, make promptly any repairs necessary to repair any damage to the Premises caused by the removal of the System by the Service Provider and not attributable to the acts or omission of the Customer, and (ii) the Customer shall pay to the Service Provider, by delivery of through electronic funds transfer/RTGs, all amounts due and payable to the Service Provider under this Agreement upto the termination date, which amounts shall be due and payable to the Service Provider within Fifteen (15) Business Days from the date of termination.

15.3.3 Reservation of Rights

Neither termination of this Agreement nor the exercise of any other rights or remedies pursuant to Article 15 shall be a waiver of the non-defaulting Party's right to pursue any other remedy in this Agreement or available in Law or in equity or otherwise.

15.4 Termination Payment

15.4.1 Upon early termination of this Agreement in accordance with Article 15.3.1, being termination upon an event of default attributable to the customer, the Customer shall pay to the Service provider at the time of delivery of the notice of termination, through electronic funds transfer/Cheque, the Early Termination Payment amount calculated pursuant to Article 15.4.2.

15.4.2. For purposes hereof, the —Early Termination Paymentll shall be an amount computed in accordance with Annexure 2 of this Agreement.

15.5 Substitute Solar Energy Agreement

At any point of time during the Term, if the customer, directly or indirectly or voluntarily or involuntarily, intends to discontinue its occupation and/ or ownership of the Premises, the

customer shall be obligated to purchase the System as set forth in Article 13 prior to the discontinuance of its occupation and/or ownership of the Premises, unless this Agreement is assigned to the successor occupant/owner of the Premises with the prior written consent of the Service Providers such that the successor occupant steps into the shoes of the Customer under the Agreement and agrees to abide by all the terms and conditions applicable to the Customer under this Agreement including purchase of Output from and payment of Tariff to the Service Provider.

Article 16: LIABILITY AND INDEMNIFICATION

16.1 Customer's Liability:

In the event any loss or damage to the System, directly or indirectly, as a result of any act or omission attributable to the Customer, its employees, agents, contractors, second-tier contractors, designates or invitees or the failure of the Customer to reasonably protect the System from trespass or other unauthorized access as provided herein, the Customer shall pay to the Service Provider (i) all losses, costs and experience incurred or suffered by the Service Provider as a result of such loss or damage to the System and (ii) subject to clause 11.5, an amount equivalent to the Unit Price, multiplied by unit of the Deemed Generation of Solar Power which would have otherwise produced if there was no damage or loss to the System till the replacement or rectification of the System. The time allotted for replacement and rectification of the system shall be governed by a Severity Level Clause (Annexure 4).

16.2 Service Provider Liability:

The service Provider agrees to pay the Customer, reasonable costs and expenses relating to any repairs or loss of the Premises or the Site or the Customer's property on the Premises or the Site, to the extent such repairs or loss has resulted from the action or inaction of the Service Provider or any of his contractors, second-tier contractors, agents, employees, and not attributable to the acts or omission of the Customer.

16.3 Disruption in Delivery

In the event that the System is capable of generating and delivering output to Customer, but the Customer does not accept delivery of such Output (except for a Force Majeure Event), the Customer agrees to pay the Service Provider for the Deemed Generation, not delivered.

16.4 Mutual General Indemnity

The Parties assure each other that the representations made herein are true and correct. Either Party undertakes to indemnify the other for any loss or damage which the other Party may incur on account of incorrect or false representations or averments. Either Party undertakes to indemnify the other for any loss or damage which the other party may sustain due to negligent or intentional acts or omissions of the Indemnifying Party or its failure to comply with the provisions of this Agreement.

16.5 Limitation of Liability

Except as provided under the Agreement, neither Party nor its directors, officers, shareholders, partners, members, agents, employees, subcontractors or suppliers shall be liable for any loss of revenue, loss of profit, loss of opportunities, loss of use, loss of production, loss of contracts or for any other financial or economic loss whatsoever nor for any indirect or consequential loss of any kind arising out of their performance or non-performance hereunder and under the law of torts, except those arising from any fraud, intentional or willful misconduct or illegal or unlawful acts on its part.

17. ARTICLE 17: DISPUTE RESOLUTION

17.1 Governing Law:

This Agreement shall be governed by and construed in accordance with the Laws of India. Any legal proceedings in respect of any matters, claims or disputes under this Agreement shall be under the jurisdiction of appropriate courts in Chennai.

17.2 Amicable Settlement and Dispute Resolution:

17.2.1 Either party is entitled to raise any claim, dispute or difference of whatever nature arising under, out of or in connection with this Agreement or the breach, termination or invalidity of the Agreement hereof (—Disputell) by giving a written notice (the —Dispute Noticell) to the other Party, which shall contain:

- (a) A description of the Dispute
- (b) The grounds for such Dispute; and
- (c) All written material in support of his claim.

17.2.2 The other Party shall, within thirty (30) days of receipt of Dispute Notice issued under Article 17.2.1, furnish:

- (a) Counter-claim and defenses, if any, regarding the Dispute; and
- (b) All written material in support of his defenses and counter claim.

17.2.3 Both the Parties shall attempt in the first instance to amicably settle the Dispute by mutual discussions between the Parties within thirty (30) days (i) from the date of receipts of counter claims or defense by the other Party as per Article 17.2.2 or (ii) from receipt of Dispute Notice by any Party pursuant to Article 17.2.1 if other the party does not furnish any counter claim or defense in accordance with the provisions of Article 17.2.2 If the Parties fail to resolve the Dispute amicably as above, the Dispute shall be referred for dispute resolution in accordance with Article 17.3.

17.3 Dispute Resolution

17.3.1. Negotiation and Amicable Settlement:

In the event of any dispute (of any kind whatsoever) arises between the Parties in connection with or arising out of the contract between the parties (—DisputesII), the parties shall firstly attempt to amicably resolve such disputes through the highest level of negotiations and discussions.

17.3.2. Conciliation:

There shall be a Conciliator well experienced in the required field who will carry out the conciliation process under part III of the Arbitration and Conciliation Act, 1996 as amended by the Arbitration and Conciliation (Amendment) Act 2015.

a. If the disputes are not resolved through Negotiation and Amicable settlement, the parties shall attempt to settle such dispute through Conciliation.

b. Both parties will agree for nominating sole Conciliator from the list provided by CMRL, CMRL shall, within fifteen days from the date of failure of Negotiation and Amicable settlement, send a panel of 5 (Five) independent and neutral members who shall be professionals, experienced in the relevant field. The Contractor shall nominate one member from the List within fifteen days from the date of receipt of the List from CMRL

c. Conciliation proceedings shall commence when the party submits a brief statement of the

claims/disputes to the conciliator.

- d. The Conciliator shall be paid a fee of Rs. 25000/- per sitting plus Rs.3000/- towards local transport charges for each day of proceedings. An outstation member shall be reimbursed the air fare economy class and hotel accommodation additionally. Applicable taxes, if any, shall be reimbursed as per actuals. The expenditure shall be shared equally by both the parties.
- e. The Conciliator shall hold its sitting at a designated place in Chennai. Conciliator may hold as many sittings every month as he deems appropriate keeping in view the volume of work at its disposal. The proceedings shall be completed within 10 sittings in a period of 6 months. In case more sittings are required by the Conciliator, the same may be held at the discretion of the Conciliator with the consent of the parties.
- f. The procedures and methodologies of the Conciliation proceedings shall be evolved by the Conciliator in its first meeting. The Forum of Conciliator is a settlement forum, where mutual give and take constitutes the essence, rather than strict legal positions of the parties. The parties are expected to be brief and to the point before the conciliator with regards to their respective stand and views to exercise the spirit of settlement.
- g. The Parties before the Conciliator shall be represented by a senior Executive and regular employee of the company, supported by an Authorization letter to enter into a Settlement Agreement. The representing parties appearing before the Conciliator shall be capable of taking decision immediately and settle the dispute.
- h. The Conciliator shall be guided by principles of objectivity, fairness and justice, giving consideration to other things, the rights and obligations of the parties and usage of the trade practice and circumstances surrounding the dispute and suggest the proposal for a settlement of the dispute. If a settlement is arrived at, the same shall be recorded as a settlement agreement and signed by the Contractor, CMRL and the Conciliator. The settlement agreement shall be final and binding on the parties in terms of section 73 of the Arbitration and Conciliation Act 1996 as amended.
- i. In case of failure of the conciliation process, the Conciliator shall write a declaration after consultation with the parties to the effect that further efforts at conciliation are no longer justified on the date of declaration.
- j. If any dispute between the parties is not resolved through Conciliation, either party on or before 30 days from the date of declaration of Conciliator, shall give notice in writing to the other party of its intention to refer such dispute to Arbitration.

17.3.3. Arbitration:

The dispute so referred shall be settled by Arbitration and the parties agree on the following procedure for appointing the Arbitrator:

- a. The dispute shall be referred to a Sole-Member Arbitral Tribunal. Such Sole-Member shall be nominated by the party seeking arbitration from the List of Arbitrators, maintained by CMRL, consisting of independent persons to be nominated as Arbitrators, who shall meet with the requirements relating to the independence or impartiality of arbitrators referred to in the Fifth and Seventh schedules, read with Section 12, sub-sections (1) (a), (b) and (5) of the Arbitration and Conciliation Act, 1996 as amended by the Arbitration and Conciliation (Amendment) Act 2015.

- b. If the party seeking Arbitration is the Contractor, such proposal shall be addressed to CMRL and CMRL shall, within fifteen days from the date of receipt of such proposal, send the List of Arbitrators maintained by CMRL, referred in clause (a) above, to the Contractor. The Contractor shall nominate an arbitrator from the List within fifteen days from the date of receipt of the List from CMRL. If the party seeking Arbitration is CMRL, it shall forward such proposal to the Contractor along with the nomination of an Arbitrator from the List referred to in clause (a) above.
- c. If either party fails to nominate the arbitrator within the prescribed time limit, as mentioned above, then such other party, after the expiry of the prescribed time limit, has the right to nominate the Arbitrator from the said List on behalf of the party failing to nominate.
- d. The Parties agree that the selection and nomination of Arbitrator from the List should be based on the nature and subject matter of dispute to be adjudicated upon, that is, the nominated Arbitrator shall have sufficient knowledge and experience to decide upon the disputed matter.
- e. In the event of an arbitrator dying, neglecting or refusing to act or resigning or being unable to act for any reason, it shall be lawful to appoint another arbitrator in the manner aforesaid.
- f. Subject to the aforesaid, the Arbitration and Conciliation Act, 1996, as amended from time to time and the rules thereunder and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceedings under this clause.
- g. The Seat and venue of the arbitration shall be Chennai. The cost of Arbitration including the fees of the Arbitrator shall be borne equally by both the parties.

17.4 Parties to Perform Obligations

17.4.1 Notwithstanding the existence of any Dispute and difference referred to the Arbitration as provided in Article 17.3 and save as the Arbitrator may otherwise direct by a final or interim award, the Parties hereto shall continue to perform their respective obligations (which are not in dispute) under this Agreement throughout the Term of the Agreement and the Customer shall make the payments against the Monthly Invoices, other than those invoices under disputes.

18. ARTICLE 18: MISCELLANEOUS PROVISIONS

18.1 Representations and Warranties

Each Party represents and warrants to the other Party as of the Effective Date as follows:

- (a) The customer is a Public Sector Corporation and the service provider is a corporation duly organized and validly existing in the jurisdiction of his incorporation and is duly qualified to do business in all places where it is conducting his business, they have full power and authority to execute and deliver this Agreement.
- (b) This Agreement
 - (i) Has been duly authorized executed and delivered on their behalf by a duly authorized officer; and
 - (ii) Constitutes their legal, valid and binding obligation enforceable against them in accordance with Companies Act 1956.
- (c) The execution, delivery and performance of this Agreement does not and will not (a) except as provided in this Agreement, require any consent or approval of any person which has not been obtained; (b) violate the provisions of any Law, regulation or order of any Governmental Authority applicable to it, or the terms of any Government Approvals

required for the Project that has been obtained by such Party; or (c) contravene its charter documents, resolutions or other organizational documents, or any other Agreement, lease or instrument to which it is a Party or by which it may be bound.

- (d) There is no lawsuit, arbitration, or legal, administrative or other proceeding or governmental investigation pending or, to the best of the knowledge of such Party, threatened against it with respect to the subject matter of this Agreement or that would affect in any way its ability to enter into or perform its obligations under this Agreement.
- (e) It has not received any written notice of any order being made, petition presented, resolution passed or meeting convened for its winding up (or other process whereby its business is terminated or its assets are distributed amongst the creditors or shareholders or other contributories) or for an administration order against it and there are no proceedings that it has received a written notice under any applicable insolvency, reorganization or similar applicable Laws concerning it.
- (f) All the representations, warranties, other statements made or information provided by it to the other Party under this Agreement are true, accurate, complete and not misleading as on the date of this Agreement and shall remain so through the Term of this Agreement.

18.2 Cumulative Rights

The rights and remedies provided in this Agreement are cumulative and not exclusive of any other rights or remedies provided by Law or equity.

18.3 Amendment

This Agreement may only be amended or supplemented by a written agreement between the Parties.

18.4 Entire Agreement

The Agreement constitutes the entire agreement between the Parties relating to the subject matter of the Agreement and shall supersede all other prior understandings or agreements, both written and oral, between the Parties relating to the subject matter of the Agreement.

18.5 Third Party Beneficiaries/Assignment

18.5.1 This Agreement is solely for the benefit of the Parties and their respective successors and permitted assigns and shall not be construed as creating any duty, standard of care or any liability to, any person not a party to this Agreement.

(a) This Agreement shall not be assigned by any Party other than by mutual consent between the Parties to be evidenced in writing. Provided that, such consent shall not be required if the Service Provider seeks to transfer to any Affiliate all of its rights and obligations under this Agreement.

(b) Provided further that any successor (S) or permitted assign(s) identified after mutual agreement between the Parties may be required to execute a new agreement on the same terms and conditions as are included in this Agreement.

18.6 No Party Deemed Drafter

The Parties agree that no Party shall be deemed to be the drafter of this Agreement and that in the event this Agreement is ever construed by arbitrator or by a Court of Law, no inference shall be drawn against either Party on account of this Agreement or any provision hereof being drafted by them.

18.7 No Agency

This Agreement is not intended, and shall not be construed to create any association joint venture, agency relationship or partnership between the Parties or to impose any such obligation or liability upon either Party. Neither Party shall have any right, power or authority to enter into any Agreement or undertaking for, or act as or be an agent or representative of, or otherwise bind, the other Party. Each Party assumes full responsibility for the acts and omissions of its employees and agents.

18.8 Waiver

18.8.1 No waiver by either Party of any default or breach by the other Party in the performance of any of the provisions of this Agreement shall be effective unless it is in writing duly executed by an authorized representative of such Party.

18.8.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement nor time or other indulgence granted by one Party to the other Parties shall act as a waiver of such breach or acceptance of any variation or the relinquishment of any such right or any other right under this Agreement, which shall remain in full force and effect.

18.9 Counterparts

The Agreement may be executed in several counterparts, each of which shall be an original and all of which together shall constitute but one and the same instrument.

18.10 Costs

Except as otherwise provided in the Agreement, each Party shall be responsible for its own costs, charges and expenses (including those of its affiliates) incurred in connection with the negotiation, preparation, entering into and completion of the Agreement and the consummation of the transactions contemplated herein. The stamp duty on this Agreement shall be paid by Service Provider.

18.11. Confidentiality

18.11.1 The Parties undertake to hold in confidence this Agreement and not to disclose to any third parties the terms and conditions of the transaction contemplated herein and all documents and other information, whether technical or commercial, relating to the design, financing, construction, ownership, operation or maintenance of the Project supplied to a Party by or on behalf of the other Party that is of a confidential nature or is designated as such (—Confidential Information) without the prior written consent of the other Party, except:

- (a) To their professional advisors
- (b) To their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities; or
- (c) Disclosures required under Law.

18.11.2 The provisions of Paragraph 18.11.1 above shall not apply to any information.

- (a) That is or becomes available to the public other than by breach of this Agreement.
- (b) That is in or comes into the possession of the receiving party prior to the aforesaid publication or disclosure by the other Party and was or is not obtained under any obligation of confidentiality.
- (c) That was or is obtained from a third Party who is free to divulge the same and was or is not obtained under any obligation of confidentiality; or
- (d) That is required by Law or appropriate regulatory authorities to be disclosed, provided that the Party supplying the information is notified of any such requirement at least five (5) business days prior to such disclosure and the disclosure is limited to the maximum extent possible.

18.12 Severability

The invalidity or unenforceability, for any reason, of any part of this Agreement shall not prejudice or affect the validity or enforceability of the remaining portion of this Agreement, unless the part held invalid or unenforceable is fundamental to this Agreement.

18.13. Liens

The Customer shall not directly or indirectly cause, create, incur, assume or suffer to exist any liens on or with respect to the System or any interest therein.

18.14 Notices

18.14.1 All Monthly Invoices, notices, requests, consents or other communications which are required to be given under this Agreement shall be in writing and in the English language. If any of the Agreements, correspondence, communications or documents are prepared in any language, other than English, the English translation of such Agreements, correspondence, communications or documents shall prevail in matters of interpretation.

18.14.2 All notices, request, consents or other communications which are required must be delivered personally or by registered post or facsimile or email or any other method duly acknowledged by the recipient to the addresses below.

If delivered to the Service Provider.

Address: -----

Attention: ----:

Fax No:

Telephone No:

18.14.3 If delivered to the Customer

Address:

Attention:

Email: Fax No:

Telephone No:

18.14.4 All notices, requests, consents or communications given by facsimile shall be confirmed by sending a copy of the same in an envelope properly addressed to the appropriate Party for delivery by registered Post. All notices shall be deemed validly delivered upon receipt evidenced by an acknowledgement of the recipients unless the Party delivering the notice or communication can prove in case of delivery through the registered post that the recipient refused to acknowledge the receipt of the notice or communications despite efforts of the postal authorities.

18.14.5 Any Party may change the address and/or addresses (provided above) by a notice, of atleast fifteen (15) days, to the other Party.

18.15 Restriction of Shareholders/Owner's Liability

18.15.1 Parties expressly agree and acknowledge that none of the shareholders or owners of the Parties hereto shall be liable to the other Parties for any of the contractual obligations of the concerned Party under this Agreement.

IN WITNESS WHEREOF the Parties have caused the Agreement to be executed through their duly authorized representatives as of the date and place set forth above.

For and on Behalf of

For and on behalf of

Chennai Metro Corporation Ltd. -----

Name, Designation and Address Name, Designation and Address

Witness:

Witness

Annexure 1

Yearly Tariff for Solar Power Purchase

Following are the details of the tariff agreed by the parties.

The customer shall pay the solar power provider for solar power at the rate equal to Rs. ---/KWH which is fixed tariff as per CMRL Tender

Levelized Tariff:

Tariff Stream for 25 years for M/s-- TARIFF STREAM FOR 25 YEARS		
S. No.	Year Of Operation	Tariff (Rs/KWH)
1	Levelized Tariff for 25 Years	

Annexure-2

The following is the purchase value of the system over a period of 25 years.

This may be applicable under the following conditions.

1. If there is a Default as specified under Article 15 and as per the Termination payment as per Article 15.4.
2. The customer terminates the PPA before the 25 years PPA Tenure.
3. The Customer wishes to own the Project before the Tenure of the PPA.
4. The Solar Project is relocated or shifted owing to demolition of the Building, damage to the Building change of city plans or any other reason.

Purchase Price for Kwp system @Rs /Watt

Year of Term (End of Term)	% of Initial Cost	Purchase Price in Lakhs
1 st Year	97%	
2 nd Year	94%	
3 rd Year	91%	
4 th Year	88%	
5 th Year	85%	
6 th Year	82%	
7 th Year	79%	
8 th Year	76%	
9 th Year	73%	
10 th Year	70%	
11 th Year	66%	
12 th Year	62%	
13 th Year	58%	
14 th Year	54%	
15 th Year	50%	
16 th Year	46%	
17 th Year	42%	
18 th Year	38%	
19 th Year	34%	
20 th Year	30%	
21 st Year	26%	
22 nd Year	22%	
23 rd Year	18%	
24 th Year	14%	
25 th Year	10%	

Annexure 3
List of Statutory approval with Responsibility

1. To be obtained by the Service Provider:

*CMRL Sanction for project as per CMRL Tender Guideline.

*CMRL Inspection and Approval for plant commissioning.

*CEIG Inspection and approval for Grid Synchronization at 33KV HT side.

*Approval from Local Discom (TANGEDCO).

Project			
Location			
Design Criteria			
Expected Yearly Generation Sheet			
End of Year	Yearly Degradation —MWhll (Modules &System)	Global incident in coll. Plane (GlobInc) kWh / Sq. Mtr Yearly	Energy injected into grid (E_Grid) —MWhll Yearly —All
	Degradation consider in PV system generation data		
1			
2			
.			
.			
25			

ANNEXURE-4

Severity levels of damages and Deemed Generation Period allotted to Power Producer.

Sr.No.	Levels of Severity	Damages under the Category	Period of corrective action and Deemed generation
1	Severity Level 1	Damage to complete system, and no generation is taking place.	45 days from the identification of damage
2	Severity Level 2	Damages to the system and partial generation are taking place. Modules or individual inverters are damaged or have been subjected to acts of theft	15 Days from the identification of Damage
3	Severity Level 3	Damage to the system but reduced generation is taking place. Cabling or Interconnection faults have taken place	7 Days from the Identification of Damage

SECTION – VIII

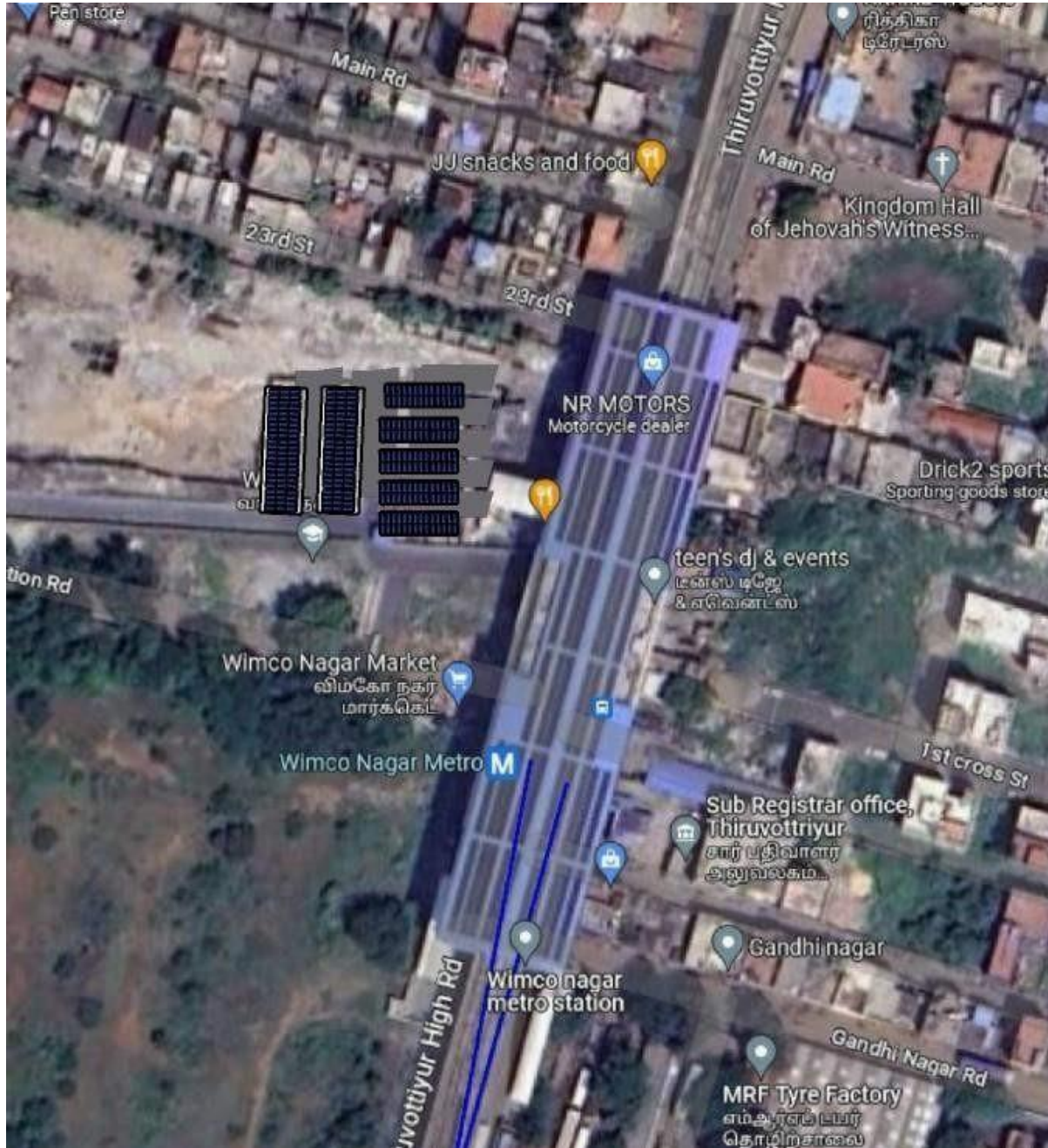
LAYOUT OF PROPOSED SOLAR PLANTS

Sl. No	Station Name	Ground Mounted (kWp)	Parking (kWp)
	<u>Blue Line</u>		
1	Wimco Nagar		150
2	Washermanpet		500
3	Mannadi		850
4	High Court		50
5	Government Estate		60
6	Saidapet	120	
7	Nanganallur Road		300
	<u>Green Line</u>		
8	Egmore		300
9	Shenoy Nagar		30
10	Anna Nagar East		50
11	Thirumangalam		75
12	Koyambedu		350
Total Capacity (MWp)		120	2715

WIMCO NAGAR METRO STATION

Wimco Nagar metro station is an elevated metro station and 400kWp solar Plant installed in shed building. Station parking is available for solar project and approximate capacity of solar project is 150 kWp in parking area. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) – 150 kWp



WASHERMANPET

Washermanpet metro station is an underground metro station. Station parking area is available for solar project and approximate capacity of solar project is 500kWp at parking area. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) – 500 kWp



MANNADI

Mannadi metro station is underground metro station and 20kWp solar rooftop installed at roof area. Only car parking area is available for solar project. The approximate capacity of solar project is 850kWp.

Total Proposed Capacity in kWp (Parking) - 850 kWp



HIGH COURT

High court metro station is an underground metro station. Station parking area is available for solar project and approximate capacity of solar project is 50kWp at parking area. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) - 50 kWp



GOVERNMENT ESTATE

Government Estate metro station is an underground metro station. Station parking area is available for solar project and approximate capacity of solar project is 60kWp at parking area. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) - 60 kWp



SAIDAPET

Saidapet is also an underground metro station. Metro station RCC roof and ground is available for solar project. Approximate solar project capacity is 120kW in ground.

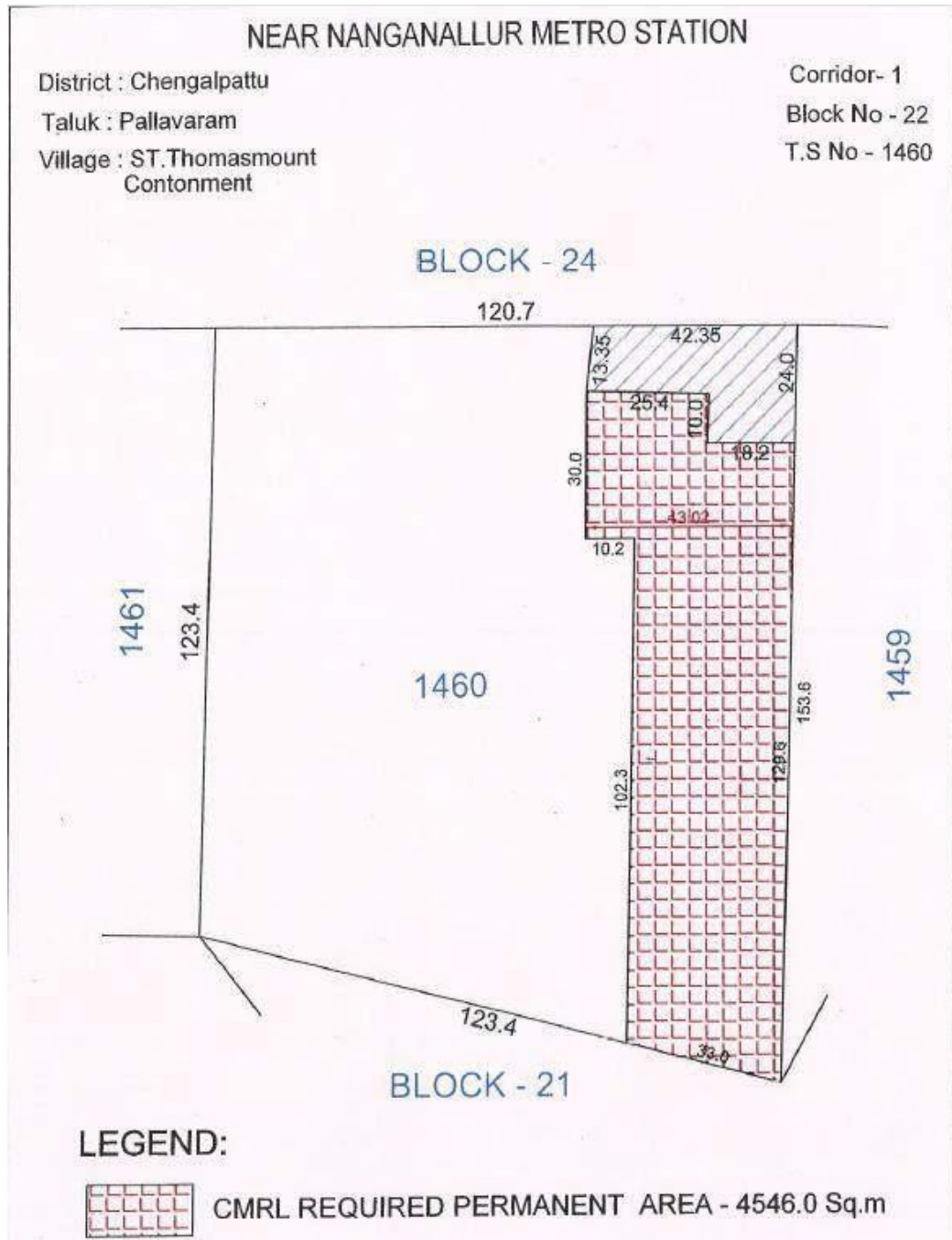
Total Proposed Capacity in kWp (Ground) - 120 kWp



NANGANALLUR ROAD

Nanganallur Road (OTA) is an elevated metro station. Metro Station Parking Area is available for solar project. Approximate solar project capacity is 300kW at parking area.

Total Proposed Capacity in kWp (Parking) - 300 kWp



EGMORE

Egmore metro station is an underground metro station and 33kWp solar Plant installed at ancillary building and parking. Other parking area is available for solar project and approximate capacity of solar project is 300 kWp. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) - 300 kWp

SHENOY NAGAR

Shenoy Nagar metro station is underground metro station and 33kw solar Plant already installed in ancillary building. Parking area is available for solar project and approximate capacity of solar project is 30 kWp. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) - 30 kWp



ANNA NAGAR EAST

Anna Nagar East metro station is underground metro station and 45kw solar Plant already installed in ancillary building and parking. Another ancillary building area is available for solar project and approximate capacity of solar project is 50 kWp. Layout of the solar project in available area is shown in figure.

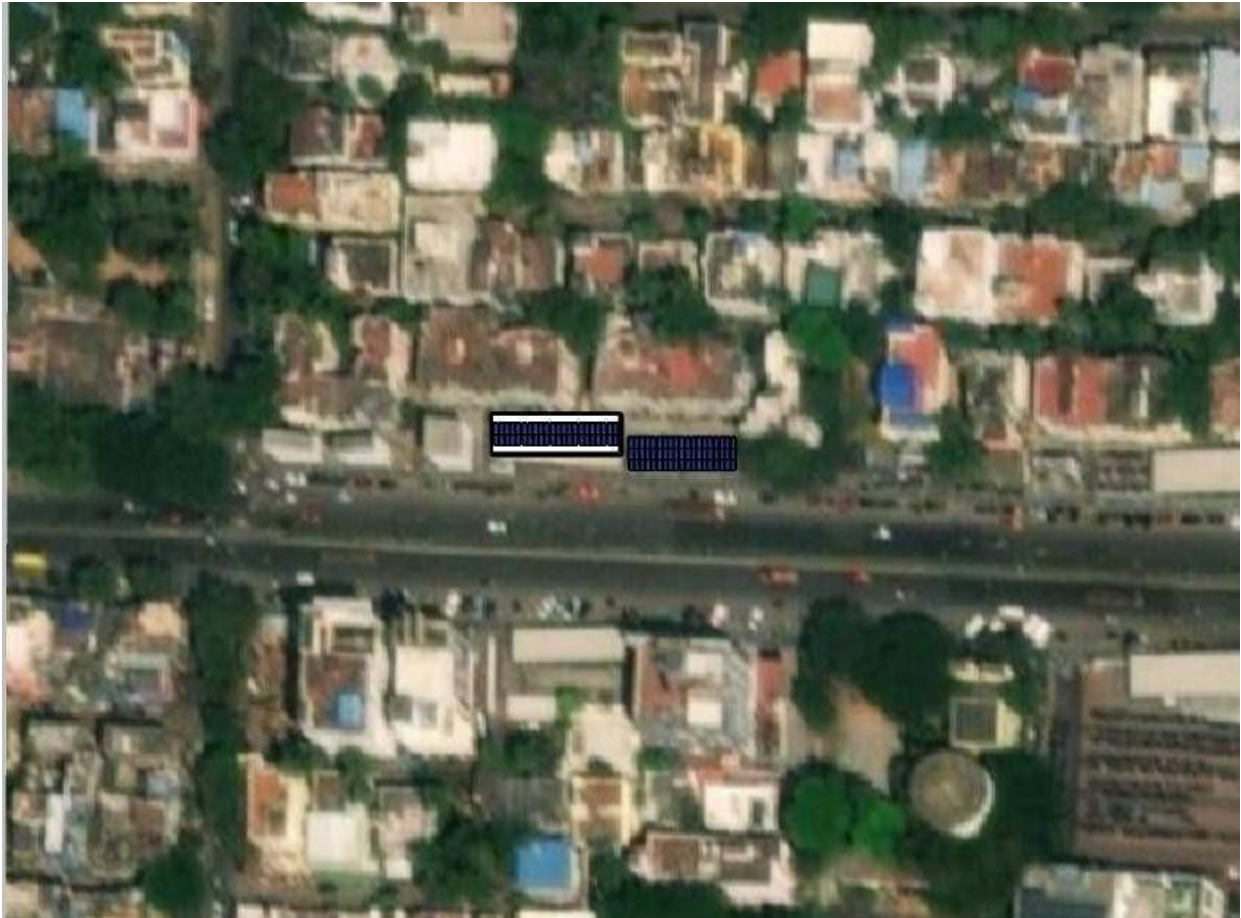
Total Proposed Capacity in kWp (Parking) - 50 kWp



THIRUMANGALAM

Thirumangalam metro station is underground metro station and 33kw solar Plant already installed in ancillary building. Another parking area is available for solar project and approximate capacity of solar project is 75 kWp. Layout of the solar project in available area is shown in figure.

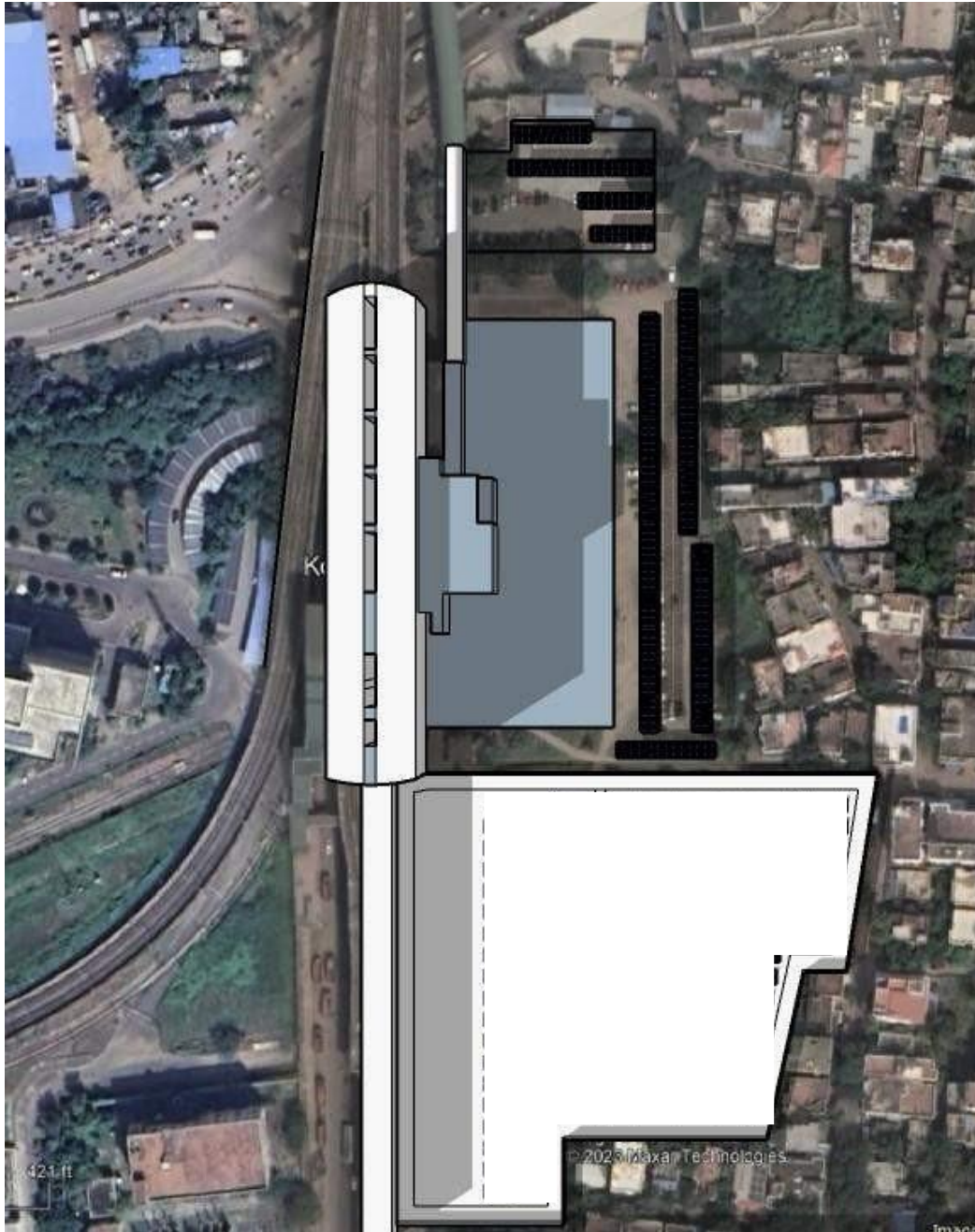
Total Proposed Capacity in kWp (Parking) - 75 kWp



KOYAMBEDU METRO

Koyambedu metro station is elevated metro station and no solar Plant installed in parking and right-side ground. Metro station parking is available for solar project and approximate capacity of solar parking project is 350 kWp. Layout of the solar project in available area is shown in figure.

Total Proposed Capacity in kWp (Parking) - 350 kWp



SECTION – IX

**TECHNICAL SPECIFICATION FOR ELEVATED
STRUCTURES**

1. All civil works to be carried out as per relevant IS codes.
2. Design and drawings to be developed based on the soil bearing capacity of the designated location and the same needs to be vetted by IIT-Madras or Anna University, Chennai.
3. Material test certificates for structural steel members to be produced before start of the work.

The detailed specifications of the mounting structures on which the solar panels will be installed are as below:

1. General Specification

This specification covers the scope of work of structural steel works, submittals by the Contractor, applicable codes of practice for structural steel work and the specifications for the materials to be used, including steel, bolts & nuts, washers etc. and the storage thereof. These specifications shall be read in conjunction with the CPWD specifications 1996 / 2002, MORTH, IRC Specifications, and other relevant reference specifications.

2. Scope of Work

The scope of work for the contractor in respect of structural steel work shall cover, but shall not be limited to the following:

- a) Preparation of complete detailed fabrication drawings and erection marking drawing based on the design drawings, required for all the permanent and temporary structures.
- b) Submittal of revised design, with calculations and detailed fabrication drawings, in case any substitution of the designed sections is required.
- c) Loading, Transportation and unloading of all fabricated structural steel materials from site storage yard to erection site, handling, assembling, bolting, welding and satisfactory installation of all fabricated structural steel materials in proper location, according to approved erection drawings and/or as directed by the Engineer.
- d) Setting out, aligning, plumbing, leveling, bolting, welding and securely fixing the fabricated steel structures in accordance with the erection scheme, or as directed by the Engineer.
- e) Provision of requisite site painting to all fabricated steelwork, as per requirements of related specifications of the painting.
- f) Providing protective treatment to the erected steel structures, as per Specification.
- g) The Contractor shall observe all safety requirements for erection of structural steelwork as covered in IS:7205.
- h) All major modifications of the fabricated steel structures, as directed by the Engineer, including but not limited to the following:
 - i. Removal of bends, kinks, twists etc. for parts damaged during transport and handling.
 - ii. Cutting, chipping, filling, grinding etc. if required or preparation and finishing of site connections.
 - iii. Reaming of holes for use of higher size bolt if required.
 - iv. Re-fabrication of parts damaged beyond repair during transport and handling or re-fabrication of parts which are incorrectly fabricated.
 - v. Fabrication of parts omitted during fabrications by error, or subsequently found necessary.
 - vi. Drilling of holes which are either not drilled at all or are drilled in incorrect location during fabrication.
 - vii. Carry out tests in accordance with the related Specification.

3. Submittals

- a) On commencement of the Project, the Contractor shall submit the following:
- b) Prior to the technical submittals, the contractor shall submit the proposed overall schedule for documentation such as calculations, shop/ working drawings, plan/ procedures and records. Submission of samples, process of fabrication/ delivery/

erection for the approval of the Engineer.

- c) Complete fabrication drawings, materials list s, cutting lists, bolt lists, welding schedules and QC schedules, based on the design drawing furnished to him and in accordance with the approved schedule. It is highlighted that structural steel members dimensions indicated in tender drawings are tentative only and may be modified during final design stage.
- d) Results of any tests, as and when conducted and as required by the Engineer.
- e) The contractor shall submit a detailed erection programme for completion of the work in time and in accordance with contract. This will show, in a Performa approved by the Engineer, the target programme, with details of erection proposed to be carried out in each week, details of major equipment required and an assessment of required strength of various categories of workers.
- f) Use of any alternative section shall be subject to approval of the Engineer. However, no escalation in unit rates of work should be allowed for such cases.

4. Furnishing of Information

- a) The Engineer reserves the right to make changes in the design drawings even after release for preparation of shop drawings to reflect addition, omission & modifications in data/details and requirements. The contractor shall consider such changes as part of these Specifications and the contract, and no extra claims shall be entertained on this account.
- b) Design drawings, approved by the Engineer, will show as appropriate the salient dimensions, design loads, sizes of members, location of openings at various levels and other necessary information required for the preparation of fabrication drawings, designs and erection details.
- c) In case of variations in design drawings and specifications, the decision of the Engineer shall be final. Should the contractor find any discrepancy in the information furnished by the Engineer, same shall be immediately brought to the notice of Engineer for resolution. The contractor shall obtain clarifications on discrepancies from Engineer before proceeding with the work.
- d) No fabrication work shall be started by the contractor without having obtained the approval of the Engineer on the relevant drawings. Approval by the Engineer of any of the drawings shall not relieve the contractor of his responsibility to provide correct design of connections, workmanship, fit of parts, details, materials and errors or omissions of all work shown thereon. The approval of Engineer shall constitute approval of the size of members, dimensions, and general arrangement, but shall not constitute approval of the connections between members and other details.
- e) The contractor has to submit erection sequence drawings/ method statements in line with the approved GFC drawings and construction programme.
- f) The drawings prepared by the Contractor, and all subsequent revisions thereof shall be at the cost of the Contractor, and no separate payments shall be made for the same. Revisions shall incorporate all modifications, field changes, substitutions etc. effected. The rates/ prices quoted for fabrication work shall be deemed to include the cost of such drawing work.
- g) All the drawings shall be prepared in metric units. The drawings should preferably be of A-1 standard size, and the details shown therein should be clear and legible. These drawings shall include but shall not be limited to the following:
 - i. Assembly drawings, giving exact sizes of the sections to be used and identification marks of the various sections.
 - ii. Dimensional drawings of base plans, anchorages details in foundation, foundation bolt's location etc.
 - iii. Shop details of temporary structures together with detailed calculations.

- iv. Detailed shop drawings for proper co-ordination with the concrete components to which the steel members shall be connected, as required.
- v. Any other drawings or calculations that may be required for proper completion of the works and clarification of the works or substituted parts thereof.
- vi. All 'as-built' drawings.

5. Applicable Codes of Practice

The following specifications, standards and codes are included as part of this Specification. All Standards, specifications, codes of practice as on date of signing of agreement as referred in section.

6. Products

Materials

1. All materials to be supplied by the Contractor shall conform to relevant Indian Standards or equivalent, as approved by the Engineer.
2. Steel materials required for the work shall be free from imperfections, mill scales, slag intrusions, laminations, pitting, rusts etc. that may impair strength, durability, and appearance. All materials shall be of tested quality only. If desired by the Engineer test Certificates in respect of each consignment shall be submitted in triplicate. Whenever the materials are permitted for procurement from identified stocks, a random sample shall be tested at an approved laboratory, as directed by the Engineer.

Structural Steel

All structural steel shall be of tested quality and shall conform to one of the following standards.

- IS: 226 Structural steels (Standard Quality)
- IS: 2062 Grade-B Structural steel (Fusion welding quality)
- IS:961 High Tensile Structural Steel (Ordinary)
- IS:1161 Steel Tubes for Structural purposes
- IS:8500 Grade Fe 540 HT

The Contractor shall supply to the Engineer copies of the manufacturer's certificate that the steel brought to the site for incorporation in the works is of a quality fully complying with the specification. If required by the Engineer, the Contractor shall arrange for testing of the steel samples as per IS:1608 - 1599.

Bolts and Nuts

For splicing of any structural member wherever required HSFG bolts and nuts of property class-8 .8 conforming to IS:3757 and IS:6623 (1985) respectively shall be used. Unless specified otherwise, the bolts shall be hexagonal.

All anchor bolts shall be of property class of 8.8 and nuts shall conform to IS:1363 (1992), IS:1364 (1992) and IS:1367, as applicable, and unless specified otherwise, shall be hexagonal. All nuts shall conform to property class compatible with the property class of the bolt used.

Washers

For HSFG bolts, washer shall be conforming to IS:6649 (1985).

Plain washers shall be conforming to IS: 5369 (1975), unless otherwise specified. One

washer shall be supplied with each bolt and, in the case of special types of bolts, more than one washer as needed for the purpose shall be supplied. An additional double coil helical spring washer, conforming to IS: 6755 (1980), shall be provided for bolts carrying dynamic or fluctuating loads and those in direct tension. Tapered washers, conforming to IS: 5372 (1975) and IS:5374 (1975), shall be used for channels and beams respectively wherever required.

7. Storage of Materials

General

All materials shall be stored so as to prevent deterioration, and to ensure the preservation of their quality and fitness for the work. If required by the Engineer, the materials shall be stored under cover and suitably painted for protection against weather. Any material which has deteriorated or has been damaged shall be removed from the site and replaced by new members, as directed by the Engineer at no extra cost and time.

- a. The steel to be used in fabrication shall be stored in separate stack clear of the ground section wise and lengthwise.
- b. The storage area shall be kept clean and properly drained. Structural steel shall be stored and handled in such a manner that members are not subjected to excessive stress and damage. Girders and beams shall be placed in upright position. Long members shall be supported on closely spaced skids to avoid unacceptable deflection.

Covered Store

All field connection materials, paints etc., shall be stored on racks and platforms, off the ground in a properly covered building by the contractor.

8. Quality Control.

In order to exercise proper control of the quality of the welding, Contractor shall enforce methods of control as tabulated below.

Tests & Testing Procedures

Agency for testing of weld shall be approved by the Engineer prior to testing.

8.1. Visual Examination

The contractor shall conduct visual examination and measurement of the external dimensions of the weld for all joints. Before examining the welded joints, areas close to it on both sides of the weld for a width not less than 20 mm shall be cleaned of slag and other impurities. Examination shall be done by a magnifying glass which has a magnification power often (10) and measuring instrument which has an accuracy of ± 0.1 mm or by weld gauges. Welded joints shall be examined from both sides. The contractor shall examine the following during the visual checks.

- i. Correctness and shape of the welded joints
- ii. Incomplete penetration of weld metal.
- iii. Influx
- iv. Burns
- v. Unwelded craters
- vi. Undercuts
- vii. Cracks in welded spots and heat affected zones.
- viii. Porosity in welds and spot welds
- ix. Compression in welded joints as a result of electrode impact while carrying out contact welding.
- x. Displacement of welded element

The contractor shall document all data as per sound practices.

8.2. Mechanical Test

The Contractor shall carry out various mechanical tests to determine weldability, metal alloy ability, nature of break, correct size and type of electrodes, degree of pre-heat and post-heat treatment. The type, scope and sample of various mechanical tests shall be determined in agreement with the purchaser. The number of tests conducted shall depend on the result obtained to satisfy the Engineer that the correct type and size of electrode, degree of pre-heating and post-heating and weldability of metal are being followed.

8.3. Dye Penetration Test

All welds shall be tested by "Dye Penetration test" as per current practices.

8.4. Ultrasonic Test

Ultrasonic test shall be conducted by the contractor wherever radiographic test is not possible.

9. STRUCTURAL STEEL SPECIFICATIONS - ERECTION

9.1. Scope of Specification

This Specification covers the delivery to site, storage and erection of structural steelwork at site. This includes plant and equipment requirements, installation of fabricated steel work in position and grouting all complete as per drawings, specifications and other provisions of the Contract.

9.2. Submittals

The contractor shall submit for approval a full description of his proposed erection method including sequence of erection, use of temporary supports, connection details and erection camber diagram and design calculations covering various stages of erection process.

9.3. Execution

9.4. Delivery, Storage & Handling

Before the shop assembling is dismantled, all members and sections shall be appropriately marked with paint or grooved with their identification numbers as detailed in shop drawings.

The Contractor shall deliver the fabricated structural steel materials to site, with all necessary field connection materials, in such sequence as will permit the most efficient and economical performance of the erection work. As per the scheduled programme, the Engineer may, at his discretion prescribe or control the sequence of delivery of materials.

Fabricated parts shall be handled and stacked in such a way that no damage is caused to the components. Measures shall be taken to minimize damage to the protective treatment on the steelwork. All work shall be protected from damage in transit. Particular care shall be taken to stiffen free ends, prevent permanent distortion and adequately protect all machined surfaces. All bolts, nuts, washers, screws, small plates and articles generally shall be suitably packed and identified.

9.5. Plant and Equipment

All erection tools and plant & equipment proposed to be used shall be efficient, dependable and in good working condition, and the suitability and adequacy of such shall be determined by the Engineer. The Contractor shall, in his technical proposal submittal, specify the plant and equipment proposed by him for erection of structural steelwork at Site.

9.6. Storage

Materials to be stored shall be placed on skids above the ground and shall be kept clean and properly drained.

9.7. Method and Sequence of Erection

The method and sequence of erection shall have the prior approval of the Engineer. The contractor shall arrange for the most economic method and sequence consistent with the drawings and Specifications and such information as may be furnished to him prior to the execution of the Contract. The erection of steelwork shall be planned so as to ensure safe•

working conditions at all times. The Contractor shall be solely responsible for enhancing the safety of his construction activities at Site.

9.8. Assembly & Erection

- a) During erection, the members and sections shall be accurately assembled as shown on the approved shop drawings and any matchmarks shall be followed. The material shall be carefully handled so that pre-sections will be bent, broken or otherwise damaged. Hammering which will damage or distort the members shall not be done. Bearing surfaces and surfaces to be in permanent contact shall be cleaned before the members are assembled. Splices and field connections shall have one half of the holes filled with bolts and cylindrical erection pins (half bolts and half pins) before bolting with high-strength bolts. Fitting-up bolts shall be of the same nominal diameter as the high-strength bolts, and cylindrical erection pins shall be 1 mm or larger.
- b) The correction of minor misfits involving harmless amounts of reaming, cutting and chipping will be considered a legitimate part of the erection. However, any error in the shop fabrication or deformation resulting from handling and transportation which prevents the proper assembling and fitting up of parts by the moderate use of drift pins or by a moderate amount of reaming and slight chipping or cutting, shall be reported immediately to the Engineer and his approval of the method of correction obtained. The contractor shall be responsible for all misfits, errors and injuries and shall make the necessary corrections and replacements.
- c) The straightening of plates, angles, other shapes and built-up members, when permitted by the Engineer, shall be done by methods that will not produce fracture or other damage. Distorted members shall be straightened by mechanical means or, if approved by the Engineer, by the carefully planned and supervised application of a limited amount of localized heat, each application subject to the approval of the Engineer.
- d) The responsibility in respect of temporary bracing and guys shall rest with the Contractor until the structural steel is located, plumbed, leveled, aligned and grouted within the tolerances permitted under the Specification, and the permanent bracing/framing system has been installed.
- e) The temporary guys, braces, false work and cribbing shall not be the property of the department and may be removed by the Contractor, with the approval of the Engineer, without any charge, once the permanent framing system has been installed to the satisfaction of the Engineer and when the temporary bracing, guys etc. can be removed without any potential danger/damage to the erected structure.
- f) Setting out
 - i. The positioning and leveling of all steelworks, maintaining verticality, and placing of every part of the structure, with accuracy, shall be in accordance with the approved drawings and to the satisfaction of the Engineer. The Contractor shall check the positions and levels of the anchor bolts etc. before concreting and ensure that they are properly secured against disturbance during pouring operations. The Contractor shall remain responsible for correct positioning and shall set proper screed bars to maintain the proper level. No extra payment shall be made on this account.
 - ii. No permanent field connections by bolting shall be carried out until proper alignment and plumbing guides have been attached.
- g) Field Bolting
 - i. Bolts shall be inserted in such a way that they remain in position under gravity, even before fixing the nut. Bolted parts shall fit solidly together when assembled and shall not be separated by gaskets or any other interposed compressible materials. When assembled all joint surfaces including those adjacent to the washers shall be free of scale s. They shall be free of dirt, loose scales, burns and other defects that would prevent solid seating of the parts.

- ii. Holes for turned bolts to be inserted in the field shall be renamed in the field. All drilling and reaming for turned bolts shall be done only after the parts to be connected are assembled. Tolerances applicable in the fit of the bolts shall be in accordance with relevant Indian Standard Specifications.
 - iii. All high tensile bolts shall be tightened to provide when all fasteners in the joint are tight, the required minimum bolt tension as per relevant Indian Standard/ Specification.
 - iv. The manufacturer and use of high strength friction grip bolts shall comply with the requirements of IS:3757 (1985).
 - v. Load indicating bolts or washers may be used, subject to the approval of the Engineer.
- h) Holes, Cutting and Fitting
- i. No cutting of sections, flanges, webs, and cleats, rivets, bolts, welds etc. shall be done unless specifically approved and/ or instructed by the Engineer.
 - ii. The erector shall not cut, drill or otherwise alter the work of other trades, or his own work to accommodate other trades, unless such work is clearly specified in the Contract, or directed by the Engineer. Wherever such work is specified, the Contractor shall obtain complete information as to size, location and number of alterations, prior to carrying out any work.
- i) Drifting
- i. Correction of minor misfits will be considered as permissible. For this, light drifting may be used to draw holes together and drills shall be used to enlarge holes, as necessary, to make connections. Reaming, that weakens the member or makes it impossible to fill the holes properly or to adjust accurately after reaming, shall not be allowed.
 - ii. Any error in shop work which prevents the proper assembling and fitting of parts by moderate use of drift pins and reamers shall immediately be called to the attention of the Engineer, and approval of the method of correction obtained. The use of gas cutting torches at the erection site is prohibited.
- j) Grouting
- i. The positions to be grouted shall be cleaned thoroughly with compressed air jet and wetted with water, and any accumulated water shall be removed. Grouting shall be carried out under expert supervision, taking care to avoid air locks. Edges shall be finished properly.
 - ii. Whatever method of grouting is employed, the operation shall not be carried out until the steelwork has been finally leveled. Immediately before grouting, the space under steel is thoroughly cleaned. Where packing is to be left in place, they shall be placed such that they are completely covered with grout.
 - iii. The grout to be used shall be non-shrink grout conbextra GP-2 of M/S Fosroc or equivalent.
 - iv. All steel in foundations shall be solidly encased in Portland Cement Concrete of minimum characteristic strength at 28 days as specified in the drawings, subject to a minimum of 35 N/ mm². A minimum cover of 100mm shall be provided to all steelwork where surrounding concrete is in contact with soil.
- k) Inserts and Embedment's
- Various steel inserts and embedment's are required under the contract to be fabricated, positioned, and secured firmly into place inside the formwork prior to concrete being poured. There are also requirements of jointing, threading, bolting and welding inserts and embedment's of different concrete and structural steel elements in order to establish structural continuity and connection. Great care shall be exercised by the contractor in executing all aspects of the work related to inserts and embedment's, including tolerances, so that the final assembly of the concrete elements can meet satisfactorily the continuity and contiguity requirements intended in the structure.

l) Painting after Erection

- i. Steelwork coated with rust inhibitor shall not be left exposed for a period exceeding 15 days otherwise, such steelwork shall be re-cleaned and re-coated with such finish until encased in concrete.
- ii. No steelwork with shop paint shall be left exposed at site for a period exceeding that approved by the Engineer.
- iii. The surfaces required to remain unpainted at a shop shall be given a protective coating after the structure is erected, leveled, plumbed, aligned in its final position, and accepted by the Engineer. However, touch up painting, making good any damaged shop painting and completion of any unfinished portion of the shop coat shall be progressively carried out by the Contractor.
- iv. Painting shall not be done in foggy weather, or when humidity is such as to cause condensation on the surfaces to be painted. Before, commencing the painting of steel, which is delivered unpainted, all surfaces to be painted shall be dried and thoroughly cleaned from all loose scale and rust.
- v. All field bolts, welds and abrasions to the shop coat, and surfaces delivered unpainted from fabrication shop, shall receive the full protective treatment as specified in Table defined in painting specifications before delivery to Site.
- vi. Surfaces, which will be inaccessible after field assembly, shall receive the full• specified protective treatment before assembly. Bolts and fabricated steel members, which are galvanized or otherwise treated, shall not be painted.
- vii. The contractor shall be responsible for any damage caused to other components of the structure including the substructure. In particular, he shall take all necessary precautions to minimize concrete splash onto completed steelwork or rust staining of concrete due to erected steel work and clean and/or repair all stains and other damages to completed work prior to tests on completion.

m) Final cleaning up

Upon completion of erection, and before final acceptance of the work by the Engineer, the Contractor shall remove, free of cost, all falsework, rubbish and all temporary works, resulting from or in connection with the performance of his work.