

# REQUEST FOR PROPOSAL FOR

Ref No:06/GVSCCL/CE/Projects/Floating Solar PV Power Project/ 2017-18, Dt:05-07-2017

“Design, Procurement, Supply, erection, testing, commissioning and maintenance for Five years of 2MWp grid connected Floating Type Solar PV Power Project on Mudasarlova Reservoir in VISAKHAPATNAM District along with grid connecting equipment including associated Electrical & Civil Works” under implementation of Smart City Mission.

. The detailed RFP including EMD, TOR, Eligibility criteria etc., can be downloaded from website of [www.apecurement.gov.in](http://www.apecurement.gov.in) and available at [www.gvmc.gov.in](http://www.gvmc.gov.in) from 05 July 2017 onwards. **The last date for online submission of bids is 09<sup>TH</sup> AUGUST 2017 up to 5.00 PM.**

***For more details contact:***

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Sd/-  
Managing Director & CEO,  
GVSCCL

GREATER VISAKHAPATNAM SMART CITY CORPORATION LIMITED-VISAKHAPATNAM

**CONTENTS**

Sl.No	Part	Section	Description of Item	PageNo
1	I	I	Notice Inviting Tender	3
2		II	Instructions to BID	10
3		III	Eligibility Criteria & Proof of documents to be submitted	20
4	II	I	General Terms & Conditions	21
5		II	Financial	30
6	III	I	Scope of Contract-Abstract	48
7		II	Detailed scope of Contract	53
8			Price schedules	67
9			Form od Bid Security	76
10	IV		Schedules	77
11		1	List of Previous Installations/Contractors Experience	79
12		2	Details of Manufacturer	80
13		3	Performa of letteroftransmittal	81
14		4	Performa for certificate to be given by Tenderer	82
15		5	Principal Business & Technical Capability	83
16		6	Performa& General Terms & Conditions	85
17		7	Schedule of Tests	87
18		8	Schedule of Deviations from the Specifications	88
19		9	Financial Statements for the last 5 Years	89
20		10	Performa for Guarantee for Equipment performance	90
21		11	Schedule of places and Tests	91
22		12	Schedule of Weights & Dimensions	92
23		13	Annexure-B Check List for documents	93
24		14	Contract Forms	94
25		15	Historical Contract Non-Performance Pending Litigation & Litigation History	103
26		16	Current Contract Commitments/Works in Progress	104

GREATER VISAKHAPATNAM SMART CITY CORPORATION LIMITED-VISAKHAPATNAM

**Ref No:06/GVSCCL/CE/Projects/Floating Solar PV Power Project/ 2017-18, Dt:05-07-2017**

BID DOCUMENTS

**FOR THE WORK of“Design, Procurement, Supply, erection, testing, commissioning and maintenance for Five years of 2MWp grid connected Floating Type Solar PV Power Project on Mudasarlova Reservoir in VISAKHAPATNAM District along with grid connecting equipment including associated Electrical & Civil Works” under implementation of Smart City Mission**

SL.NO	DETAILS	PARTICULARS
1	Name of the Office	Managing Director & CEO, Greater Visakhapatnam Smart City Corporation Limited
2	RFP Notice	Ref No:06/GVSCCL/CE/Projects/Floating Solar PV Power Project/ 2017-18, Dt:05-07-2017
3	Name of the Work	“Design, Procurement, Supply, erection, testing, commissioning and maintenance for Five years of 2 MWp grid connected Floating Type Solar PV Power Project on Mudasarlova Reservoir in VISAKHAPATNAM District along with grid connecting equipment including associated Electrical & Civil Works” under implementation of Smart City Mission.
4	Capacity and Location	2 MWp on Mudasarlova Reservoir in Visakhapatnam
5	Estimated Contract Value	
6	Period of Contract	Six (6) Months from the date of award
7	Form of Contract	L.S.as per schedules provided
8	Tender Type	OPEN
9	Tender Category	
10	Tender Fee	Rs.10,000/- (Ten Thousand) only in the form of Demand Draft drawn in favour of MD&CEO,GVSCCL,payable at Visakhapatnam.
11	BID SECURITY(EMD)	Rs.14.00 Lakhs(Rupees Fourteen Lakhs Only)
12	Form of BID Security	<p>a) In the Form of Bank Guarantee.</p> <ul style="list-style-type: none"> <li>The Bank Guarantee shall be obtained from a Nationalized Bank in the prescribed Proforma (enclosed Annexure).The BG should have Validity Period of 120 Days</li> </ul>
13	Schedule available Date in web site	05-07-2017, 5.00 PM onwards
14	Pre- Bid Meeting & Date	20-07-2017, 2.00 PM
15	Bid Submission Closing Daye & Time	09-08-2016, 5.00 PM
16	Bid Validity	120 Days from Bid Submission Closing Date.
17	Pre-Qualification/Opening of Technical Bid	14-08-2017, 3.00 PM
18	Price Bid Opening Date & Time	Shall be intimated to successful Bidder Separately
19	Eligibility Criteria	<p>1. (i) The bidder may be an experienced contractor having executed Turnkey solar power projects. He should have executed solar power projects in India for an aggregate capacity of at least 2MWp at a single or multiple locations.</p> <p>(ii) The bidder shall have executed aggregate capacity grid connected solar power project solar with capacity of at least 2 MWp, running</p>

		<p>successfully without any major problem for a minimum period of one year as on the date of submission of the Bid.</p> <p>(iii)The bidder should have an average annual turnover of Rs.7 Cr. The bidder shall exhibit the turnover for at least Three (3) financial years</p> <p>(iv)The bidder shall be in profit during the last 2 years Preceding the last date of the Bid submission.</p> <p>(v) The bidder shall have access to line (s) of credit and availability of other financial resources facilities for Rs. 4 Cr. Evidence to be provided and should be certified by the Bankers for proposed work.</p>
20	Transaction Fee Payable to 'APTS' payable @	(As per G.O.Ms.No.4 dated 17-02-2015 IT &CDept.) Rs.10000 (Cap Fixed as per G.O)
21	Officer Inviting Bids	Managing Director, Greater Visakhapatnam Smart City Corporation Limited(GVSCCL), Visakhapatnam
22	Bid Opening Authority	Managing Director (GVSCCL)
23	Department Address for Submission of Documents	ROOM NO 306, TENNETI BHAVAN, ASILMETTA, VISAKHAPATNAM,ANDHRA PRADESH,INDIA, Pin:530003  Telephone: +91-891-2746301-7  Facsimile No: +91-891-2568545  Electronic mail address: visakhapatnamsmartcity@gmail.com  Web page: www.apecprocurement.gov.in (for downloading, Uploading and submission of Bids).  PMC: Email: <a href="mailto:Prabhu.Sheelavantha@aecom.com">Prabhu.Sheelavantha@aecom.com</a>
24	Last date of receipt of queries on Tender	By Electronic submission/Physical Submission (Within 14 days from Publishing of NIT). Replies to the Pre-Bid addendum queries will be uploaded in E-Procurement Platform as corrigendum/addendum.  NOTE: The Bidders shall check the addendum before final submission of bids.

**Procedure for Bid Submission:**

1. The bidder shall submit his response through Bid Submission to the tender on eProcurement platform at [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in) by following the procedure given below. The bidder would be required to register on the e-procurement market place [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in) or <https://tender.apecprocurement.gov.in> and shall submit their bids online only. The bidders shall submit their eligibility and qualification details, Technical bid, Financial bid etc., in the online standard formats displayed in e Procurement web site. The bidders shall unload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria/technical bids and other certificate/documents in the eProcurement web site. The bidder shall sign on the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity. **Two hard Copies of uploaded technical documents shall be submitted as per the requirement of NIT/RFP.** If Financial Bid/Proposal is submitted in hard copy, the bid shall be rejected. Failure to submit the hard copies of technical proposal shall be

treated as non-responsive.

The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document. Registration with eProcurement platform:

2. For registration and online submission bidders may contact HELP DESK [www.apecurement.gov.in](http://www.apecurement.gov.in) or <https://tender.apecurement.gov.in>

Digital Certificate authentication: The bidder shall authenticate the bid with his Digital Certificate for submitting the Bid electronically on eProcurement platform and the bids not authenticated by digital certificate of the bidder will not be accepted on the e-procurement platform. For obtaining Digital Signature Certificate, you may please Contact:Andhra Pradesh Technology Services Limited BRKR Bhavan, B-Block, Tank bund Road, Hyderabad-500022.Phone:+91-40-23220305,Fax:+91-40-23228057(OR)you may please contact Registration Authorities of any Certifying Authorities in India. The list of CA's available can be viewed by clicking the link <https://tenderapecurement.go.in/digital-signature.html>

3. Hard copies: (i) vide ref.G.O.Ms.No174, I& CAD dept. dated 1-9-2008, and submission of original hardcopies of the uploaded scanned copies of Proof of online payment (Remittance) /BG towards EMD/Bid Security by participating bidders to the tender inviting authority before the opening of the price bid is dispensed forth with. (ii)All the bidders shall invariably upload the scanned copies of Proof of Online Payment (remittance)/BG in eProcurement system and this will be the primary requirement to consider the bid responsive. (iii)The department shall carry out the technical evaluation solely based on the uploaded certificates/documents, Proof of Online Payment. (Remittance/BG towards EMD in the eProcurement system and open the price bids of the responsive bidders. (iv)The department will notify the successful bidder for submission of original hardcopies of all the uploaded documents, Proof of online Payment (Remittance)/BG towards EMD prior to entering into agreement. (v)The successful bidder shall invariably furnish the original proof of online Payment (remittance/BG towards EMD, Certificates/Documents of the uploaded scan copies to the Tender Inviting Authority before entering into Agreement either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder. The department will not take any responsibility for any delay in receipt/non-receipt of original Proof of online Payment (Remittance/BG towards EMD, Certificates/Documents from the successful bidder before the stipulated time. On receipt of Documents, the department shall ensure the genuinity of the Proof of online Payment (Remittance)/BG towards EMD and all other certificates/documents uploaded by the bidder in eProcurement System. In support of the qualification criteria before concluding the agreement. The GO.Ms. No. 174-I&CAD dated 1-9-2008, Deactivation of Bidders, if any successful bidder fails to submit the original hard copies of uploaded certificates/documents, Proof of online Payment (Remittance)/BG towards EMD within stipulated time or if any variation is noticed between the uploaded documents and the hard copies submitted by the bidders the successful bidder will be suspended from participating in the Tenders in eProcurement platform for a period of 3 Years. The eProcurement system would deactivate the user ID of such defaulting bidder Based on the trigger/recommendation by the Tender Inviting Authority in the system. Besides this the department shall invoke all processes of law including criminal prosecution of such defaulting bidder as an act of extreme deterrence to avoid delays in the tender process for execution of the development schemes taken up by the Government. Other conditions as per tender document are applicable. The bidder is requested to get a confirmed acknowledgement from the Tender Inviting Authority a proof of Hard Copies submission to avoid any discrepancy.

4. Payment of EMD: It is mandatory for all participant bidders to electronically pay EMD online by utilizing the "Payment Gateway Services on E-Procurement Platform". The electronic payment Gateway accepts all Master and

Visa-Credit Cards issued by any bank and Direct Debit facility/Net Banking/NEFT payment modes through ICICI Bank and /or Axis Bank Payment Gateways to facilitate the transaction. This is in compliance as per G.O. Ms. No.8 dated 8-05-2016. A service Tax of 15.00%+Bank charges on the transaction amount payable to APTS shall be applicable. In addition to this, Bidders can also pay the EMD through Download of PDF format of RTGS Challan for respective Payment Gateway and Pay the EMD through their Parent Bank account. Once the EMD is received by the E-Procurement application, Bidders can automatically continue with their BID Submission online.

**IMPORTANT NOTE REGARDING EMD PAYMENT:**

- Bidders are encouraged to use only net banking facility for payment of EMD's as far as possible for faster refunds in case of unsuccessful Bids for the Tender.
- Bidders are advised not to use RTGS Challan downloads at their penultimate hour of Bid submission closing as any delay by the banker would not enable Bid submission on the Platform. Please allow a minimum of 60 minutes for enabling "Continuation of Bid Submission" from the time the Pool Account receives credit of the EMD from the Bidder's Bank for both NEFT and RTGS transfers. For RTGS transfers, the Pool Account may be immediate credit whereas NEFT transfers would follow RBI payment cycle time.
- Bidders are advised to pay the EMD online at least T-1 or T-2 days before Bid submission closing date (T= Bid submission closing date) to avoid last minute delays and denials of successful Bid submission and to take care of any delays in banking procedures.
- **Unsuccessful Bidder EMD Refund Process:** -The Bid is declared unsuccessful, under the following circumstances. Bid submitted by the bidder is not the lowest Bid. Upon finalisation of the L1 Bid. Technical Disqualification of the Bid in case of 2 cover system. EMD paid but bid not submitted. EMD refund will be initiated by the Tender Inviting Authority directly and through online only and through the same payment channels as EMD received by the Department. (RTGS/NEFT/Credit Card/Debit Card Refund), within 30 days from the date of publishing the Decision/Result. However, Vupadhi/GOAP will not be held responsible for the delays occurring due to banking channels/procedures/processes of the respective vendor.
- **IMPORTANT NOTE REGARDING EMD REFUNDS:** Bidders are requested to use discretion in their choice of payment channel for remittance of EMD. Time taken for Refunds under Ideal conditions (1). Net Banking/NEFT/RTGS Challan: One (1) Banking Business Day from time of initiation of refund by Tender Inviting Authority subject to RTGS/NEFT timings of RBI. (2) Credit Card/Debit Card: 7-10 working days from time of initiation of refund of Tender by the Tender Inviting Authority. However, this may be longer in case of certain Bank Cards. In case of delays, Bidders are requested to contact the card issuing bank for faster resolution.
- **Payment of Transaction Fee:** It is mandatory for all the participant bidders from 1<sup>st</sup> January 2006 to electronically pay a Non-refundable Transaction Fee to M/s. APTS, the service providers through "Payment Gateway Service on E-Procurement Platform". The Electronic Payment Gateway accepts all Master and Visa Credit Cards issued by any Bank and Direct Debit facility/Net Banking of ICICI Bank, Axis Bank to facilitate the transaction. This is in compliance as per G.O. Ms. 13 dated 07-05-2006. A service Tax of 15.00 % plus (+) Bank charges on the transaction amount payable to APTS shall be applicable.
- **Corpus Fund:** As per G.O. Ms. No. 4 User Departments shall collect 0.04% of ECV (Estimated Contract Value) with a cap of Rs.10000/- (Rupees Ten Thousand only) for all works with ECV upto Rs.50.00 crores, and Rs.25000 (Rupees Twenty-Five Thousand Only) for works with ECV above Rs.50.00 crores, from successful bidders on e-Procurement Platform before entering into agreement/issue of purchase orders towards e-procurement fund in favour of Managing Director APTS. There shall not be any charge towards e-procurement fund in case of works, goods and services with ECV less than and up to Rs.10.00

Lakhs.

- **Tender Document:** The bidder is requested to download the tender/RFP document and read all the terms and conditions mentioned in the tender Document and seek clarification/s from **any from** the Tender Inviting Authority. Any offline bid submission clause in the tender document could be neglected. The bidder has to keep track of any changes by viewing the Addendum/Corrigendum issued by the Tender Inviting Authority on time- to- time basis in the E-procurement platform. The Department calling for tenders shall not be responsible for any claims /problems arising out of this.

**Bid Submission Acknowledgement:** The bidder shall complete all the processes and steps required for Bid submission. The system will generate an acknowledgement with a unique bid submission number after completing all the prescribed steps and processes by the bidder. User may also note that the bids for which an acknowledgement is not generated by the E-procurement system are treated as invalid or not saved in the system. Such invalid bids are not made available to the Tender Inviting Authority for processing the bids. The Govt. of AP is not responsible for incomplete bid submission by users.

PART-I

SECTION-I

GREATER VISAKHAPATNAM SMART CITY CORPORATION LIMITED

NOTICE INVITING RFP: Ref No:06/GVSCCL/CE/Projects/Floating Solar PV Power Project/ 2017-18,  
Dt:05-07-2017

(THIS IS A TWO-PART BID)

**IMPORTANT INSTRUCTIONS**

**A) PRELIMINARY EXAMINATION:**

The "Bid" received before the due date and time will be opened to assess whether the Bidder qualifies and whether his offer is technically acceptable and substantially Responsive. The Client will examine the Bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. The bids of only such Bidders whose bids are technically and commercially in accordance with the specification and who have submitted the necessary Bid Security/EMD in the form required will be considered for opening of price bid.

A responsive Bid is the one which accepts and fulfils all the terms and conditions of this specification and documents, supported by the necessary sureties, and are complete in respect of details as asked for in the Bid document.

The responsive Bids received will be evaluated by the Client to ascertain the lowest evaluated Bid for complete works covered under these specifications and documents.

Bidder shall quote for full quantity against all items. Part bids are liable for rejection.

The client is the final authority in deciding the above and his decision cannot be contested.

PART-I  
SECTION - II: INSTRUCTIONS TO BIDDERS

1.2.1 (I) General Information

GVSCCL/GVMC department, will here in after be referred to as “Client” for purposes to implement a 2.0 MWp grid connected solar PV (crystalline technology) plant at the location mentioned in NIT and intends to receive Bids from well-established and reliable contractors for following scope of Supply/work, intending to be completed during the period as specified in the NIT and relevant place of these bid documents.

“Design, Procurement, Supply, erection, testing, commissioning and maintenance for Five years of 2 MWp grid connected Floating Type Solar PV Power Project on Mudasarlova Reservoir in VISAKHAPATNAM District along with grid connecting equipment including associated Electrical & Civil Works” under implementation of Smart City Mission.  
The work referred here in above shall cover the scope as indicated in clause: 1.2.7

(II) SCHEDULE DATES OF BID: Please refer to the NIT

(III) PROJECT INFORMATION:

- A. Name of the project: 2 MWp, Captive Floating Type Solar PV Plant at Mudasarlova Reservoir in Visakhapatnam district (Andhra Pradesh)
- B. Location of site:
  - Longitude : 83.3337<sup>0</sup>E
  - Latitude : 17.7613<sup>0</sup>N

Note: The above information is general and indicative only. However, the Bidder is advised to visit the site to gather first-hand information to assess the basic parameters required for design of the Solar PV Plants and then quote.

1.2.2 The Bidder shall furnish the following documents along with his bid: Attested copies of documents relating to the Registration of the firm, Partnership deed, Articles of Association, Commercial Tax Registration, Latest Income Tax Clearance certificate /latest IT return and copy of PAN card issued by the IT Department etc.

1.2.3. ELIGIBILITY CRITERIA:

The bidder shall fulfil the following eligibility criteria:

- 1) The bidder may be an experienced contractor having executed Turnkey solar power projects. He should have executed solar power projects for an aggregate capacity of at least **2 MWp** at a single or multiple locations, and running successfully without any major problem for a minimum period of one year as on the date of submission of the Bid.

- 2) The bidder should have an average annual turnover of Rs.7 Cr. The bidder shall exhibit the turnover for at least three financial years during the last five years. The bidder shall be in profit during the last 2 years preceding the last date of the Bid submission.

N.B:

1. The dealers or agencies are not allowed to participate in the tender.
2. The consortiums/Joint Ventures of manufacturers and EPC contractors can participate in the bid to meet the eligibility criteria, provided:
  - i. Not more than two parties can jointly bid for the contract.
  - ii. Any individual party of the Consortium/Joint Venture should have successfully executed one grid connected solar project with capacity of at least 2 MWp.
  - iii. All the parties of the consortium jointly and separately take the responsibility of fulfilling the contractual obligations.
  - iv. The consortium/JVs, shall fulfil the eligibility criteria mentioned at para-1.
  - v. They shall have to submit the agreement/ deed fulfilling the relevant conditions of the eligibility criteria and responsibilities.
3. The bidders are required to quote for full capacity of the project and not allowed to quote for the part capacity.

Note: The computation of Net Worth shall be based on unconsolidated audited annual accounts of the company. The company would be required to submit annual audited accounts for the last 3 financial Years along with a certificate, from the Chartered Accountant to demonstrate the fulfilment of the criteria.

Net Worth	=	Paid Up share capital
Add	:	Reserves
Subtract	:	Revaluation Reserves
Subtract	:	Intangible Assets.
Subtract	:	Miscellaneous Expenditures to the extent not written off and carry forward losses.

5. The bidder shall have access to line (s) of credit and availability of other financial resources facilities for Rs. 4 Cr (Four Crores). Evidence to be provided and should be certified by the Bankers for proposed work.

The bidder shall furnish the relevant documents fulfilling the qualifying criteria along with his bid, otherwise the bid is liable for rejection. Therefore, the bidder is advised to study all terms and conditions of the tender including technical specifications for submitting complete and comprehensive tender.

Failure to comply with any of the terms and conditions or instructions of the offer with insufficient particulars which are likely to render fair comparison of tender as a whole impossible may lead to rejection even if otherwise it is a competitive offer/ tender.

#### 1.2.4. COST OF BIDDING:

The Bidders shall bear all costs associated with the preparation and submission of his bid and MD&CEO, GVSCCL, will in no case be responsible or liable for those costs, regardless of the contract or outcome of the bidding process.

**1.2.5. AMENDMENT OF BIDDING DOCUMENTS:**

At any time prior to the due date & time for submission of bids, the MD&CEO, GVSCCL, may, for any reason, whether on his own initiative or in response to a clarification requested by a prospective Bidder, modify the bidding documents, bidding process, terms and conditions, specification, etc. MD&CEO, GVSCCL, may, at his discretion, extend the due date & time for submission of bids.

**1.2.6 LANGUAGE OF BIDS:**

The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Client, shall be written in English language only.

**1.2.7 SCOPE OF THE CONTRACT:**

The scope of the contract shall be on the basis of Single bidder's responsibility completely covering all the equipment/components/material and services specified under the Accompanying technical specifications (Part-III of specification). The contract shall be signed with the successful bidder alone who would be referred to as the contractor. The scope of the contract generally includes the following:

- a) Detailed design of the entire plant
- b) Arranging complete manufacture of all the equipment/material/components required for plant including their shop testing, Supply including packing, loading and transportation from the manufacturer's works to the sites/stores and intra-site transport with unloading, loading and stacking /storage at site as specified or required duly obtaining insurance cover for transit, storage cum erection.
- c) All associated Civil Engineering works like tree/bush clearance/site levelling, fabrication of structures, and construction of foundations for SPV plant mounting structures, construction of control room cum office room, water pipe line required for washing/cleaning of panels.
- d) The cable trenches within and outside the control room i.e., area transformer & outdoor yard, etc.
- e) Supply of Tools & Plants required for erection, testing and commissioning and Maintenance of Plant.
- f) Installation/Erection, Testing and Commissioning of the equipment in co-ordination with the other contractors, if any, as per the scope of the contract.
- g) Furnishing of design calculations, drawings, data, test reports, instruction manuals, operation manuals etc., for client's approval, and on approval, submission of specified quantities.
- h) Training to the client operating personnel at Manufacturer's works, Operating power stations and at site.
- i) Extending guarantee to the Supplied material for the period specified during maintenance period and also after taking over by the Client.
- j) Comprehensive Maintenance (routine, preventive and break down etc) of Plant for specified period including required men, spares and consumables etc.
- k) The equipment/Solar Power Plant offered shall be complete with all Components necessary for its effective and trouble-free operation. Such components shall be deemed to be within the scope of Bidder's Supply irrespective of whether those are specifically mentioned in the specification, his bid and/or the commercial order or not. Only for equipment's & material of plant.

- l) The bidder shall clearly specify the guaranteed output (DC Input at PCU and AC output at HV side of the Transformer), both minimum and maximum for the site conditions and all other technical parameters, expected electricity generation from the plant, overall performance ratio of the plant, the applicable correction factors/curves, model calculations for performance testing, etc. along with their bid. The bidder shall also indicate the estimated generation from the plant month wise and basis for arriving such assessment viz., solar insolation, correction factors, etc. In case of non-submission of the data, it is the discretion of the MD & CEO, GVSCCL, Visakhapatnam whether to consider the least values of all the other bids for comparison or total rejection of the bid. MD & CEO, GVSCCL, Visakhapatnam will not entertain post-tender correspondence with any bidder. In no case the guaranteed output per annum will be ..... units in the first year with a depreciation of .....% per annum.

1.2.8. SUBMISSION OF DOCUMENTS:

The documents to be submitted shall be signed, stamped and sent to reach the tender inviting authority on or before the specified time and date. The tender must be completed in all technical and commercial respect and should contain requisite certificates, drawings, informative literature etc. as required in the tender document. In Technical bid (sealed envelope) (Envelope-A), the following documents are to be inserted:

1. Total tender document duly signed on every page and stamped.
2. Schedules 1 to 12.
3. Tender Fee
4. EMD
5. Other documents as per the tender conditions.
6. Employee and technical persons' detail. If necessary, additional papers may be attached by the tenderer to furnish/submit the required information.

It should be Superscripted with "Tender for 2.0 MWp Floating Type Solar PV Power Project at Mudasarlova Reservoir, Visakhapatnam-Technical Bid"

Second sealed envelope (Envelope- B) should contain financial bid only (Price Bids 1 to 6). It should be Superscripted with "Tender for 2.0 MWp Floating Type Solar PV Power Project on Mudasarlova Reservoir in district Visakhapatnam (A.P). Financial bid". The tenderer should submit his duly signed and stamped financial bid on the financial bid attached (format Price Bids 1 to 6) with this tender document, after writing the prices only.

Both the above sealed envelopes are closely marked as Envelope-A (Technical Bid) and Envelope-B (Financial Bid) will be sealed in another one envelope, subscribed with TENDER notice: Ref No:06/GVSCCL/CE/Projects/Floating Solar PV Power Project/ 2017-18, Dt:05-07-2017

+ and Name of Work: "Tender for 2.0MWp Floating Type Solar PV Power Project on Mudasarlova Reservoir in district Visakhapatnam (A.P this envelope shall be addressed to "Managing Director, GVSCCL,"

1.2.9. PRICE:

The bidders shall quote in their proposals a firm lump sum price as per schedules provided for the entire scope of Supplying and erecting the equipment (covered under the Technical Specification) including maintenance period.

The above lump sum price shall be as on the date of opening of the bid and shall include all taxes and duties as applicable.

1.2.10. ARTICLES OF ASSOCIATION:

All Bids must be accompanied with duly authenticated copies of the documents defining the constitution of the company, power of attorney and other relevant documents, and any bid submitted by a partnership firm must be accompanied by duly authenticated extracts from the partnership deed or other documents, so as to show by which person and in what manner contracts may be entered into, by or on behalf of the company, partnership for the due execution of such contracts and responsibilities. "The said documents must be legalized by the local authorities at the place of issue." Such documents should indicate current address of the firm and full name and current address of all partners of the firm.

Any Bid not containing these documents, or if such documents are incomplete, or do not conform to the aforesaid forms, may at the discretion of the Client be excluded.

1.2.11. DUE DATE & TIME FOR SUBMISSION OF BIDS:

The bidder shall ensure that all their bids along with all documents shall reach the tender inviting authority before the stipulated time and date.

1.2.12. OPENING AND EVALUATION OF BIDS:

1. Opening of bids (Technical & Financial):

- a) The client or his nominee will open the bids in the presence of bidders and or their representative who choose to attend may be present on the scheduled date & time as per NIT at the office of the MD&CEO, GVSCCL, Visakhapatnam, Andhra Pradesh. Those who present shall sign a register in evidence of their presence while opening the bids. Date for opening of the price bid (Financial Bid) shall be informed by the office of MD&CEO, GVSCCL, Visakhapatnam to the successful bidder.
- b) Bids for which acceptable notice of withdrawal has been submitted shall not be opened.
- c) The client or his nominee will examine the bids to determine whether they are complete in all respects, properly signed and are generally in order.
- d) The client or his nominee will announce bidders name, written notification of bid modifications and withdrawals and such other details, as the client may consider appropriate at bid opening.
- e) While opening the bids, care will be taken to first open Cover "C" in the presence of bidders or their authorised representatives on the specified date and time and if found unsealed, will be summarily rejected.
- f) It will be ascertained whether "Cover - A" and "Cover - B" are properly sealed and generally in order. In case the Covers "A" & "B" or any one of them are found unsealed, such bids will not be opened and summarily rejected.
- g) The client or his nominee shall prepare for his own record, Minutes of the bid opening including the information disclosed to those present at the bid opening.
- h) First cover (Cover A) with superscription, as "TECHNICAL BID" will be opened in the first instance.

- i) (i) The bid opening authority will reserve the right to reject any bid' or all Bids, disqualify the bidder at his discretion without assigning any reasons.
- (ii) Conditional bids or with incomplete information or incomplete documents will be rejected summarily.

2. Bid evaluation:

A two-stage procedure will be adopted in evaluating the proposals with technical evaluation being completed prior to any financial proposals being opened. The technical proposals will be evaluated using the following Criteria.

1.2.13 BID SECURITY (EMD):

Offers must accompany EMD in the form as stated in NIT/RFP.

Total EMD can also be furnished by way of NSC/FDR/CDR or Bank Guarantee (from a nationalized bank) new/Bankers Cheque drawn in favour of "(MD&CEO, GVSCCL payable at Visakhapatnam. Submission of EMD in any other form shall not be considered and shall be treated as disqualification. The EMD shall be forfeited, if

- i. Bidder withdraws the bid before expiry of its validity.
- ii. Successful bidder does not accept the Letter of Acceptance or fails to enter in to a contract within the specified period.
- iii. Successful bidder fails to furnish Contract performance security within 14 days, or within the period specified, from the date of issue of Letter of Acceptance.

The offer is disqualified for the reasons stated in the bid documents, for example, where the EMD is super-scribed on the tender cover as if it was furnished, but not found within or found insufficient.

The EMD of the unsuccessful bidders will be returned as soon as possible after the bids are settled. EMD shall be non-interest bearing.

1.2.14. Validity of offers:

The offers made as part of the bid shall be valid for a period specified in the NIT/RFP, counted from the last date of submission of bids. The period of validity cannot be counted from any other date other than the last date of submission of bids.

During this period, the bidder shall not be permitted to withdraw or vary their offers, once made and if they do so, the EMD shall be forfeited.

1.2.15. Past Experience:

- a) The comprehensive list of past projects implemented by the bidder in India and abroad indicating clients, dates, size of the projects and any other relevant information along with P.O. details and performance certificates from the Customers issued by project in-charge only, shall be furnished along with offer.

1.2.16. Cost Compensation for Deviation:

Deviations specifically declared by the bidders in respective Deviation Schedules of Bid Proposal Sheets only will be taken into account for the purpose of evaluation. The bidders are required to declare the prices for the withdrawal of the deviations declared by them in the Deviation Schedules. In case the bidder refuses to withdraw the deviations at the cost of withdrawal indicated by the bidder in the deviation schedule, the EMD of bidder will be forfeited. Bidder may note that deviations, variations and additional conditions etc., found elsewhere in the bid other than those stated in the Deviation schedules, save those Pertaining to any rebates, will not be given effect to in evaluation and it will be assumed that the bidder complies with all the conditions of Bidding Documents. In case bidder refuses to withdraw, without any cost to (GVSCCL), those deviations, which the bidder did not state in the Deviation Schedules, the EMD of the bidder will be forfeited.

Offers should strictly be in conformity with specifications/ drawings/ samples as stipulated in the enquiry. In case no deviations are indicated, it will be taken for granted that item (s) has/ have been offered strictly as per the requirements given in the enquiry.

1.2.17. UNDERSTANDING AND CLARIFICATIONS ON DOCUMENTS AND SPECIFICATIONS:

The Bidder is required to carefully examine the specifications and documents and fully inform himself as to all the conditions of matters which may in any way affect the works or the cost thereof. If any Bidder finds discrepancies or the omissions in the specifications and documents or is in doubt as to the true meaning of any part, he shall at once request in writing for an interpretation/ clarification, to the Client in duplicate. Such clarifications shall be submitted 3 days before due date preferably before pre-bid meeting. The clarifications found necessary will be furnished in the form of corrigendum/ Addendum to all the Bidders, which will form Part of Bid Documents.

Verbal clarifications and information given by the Client or his employee(s) or his representative (s) shall not in any way be binding on the Client.

1.2.18. LOCAL CONDITIONS:

It will be imperative on each Bidder to fully inform himself of all local conditions and factors which may have any effect on the execution of the works covered under these documents and specifications. The Client will not entertain any request for clarifications from the Bidders, regarding such local conditions. It must be understood and agreed that such factors have properly been investigated and considered while submitting the proposals. No claim for financial adjustment to the contract awarded under these specifications and documents will be entertained by the client neither any change in the time schedule of the contract nor any financial adjustment arising thereof which are based on the lack of such clear information, its effect on the cost of the works to the Bidder shall be permitted by the Client.

1.2.19. PRICED QUOTATIONS:

- a) All priced quotations should be in Indian Rupees only. The tenderer should quote his lowest firm prices valid for the duration and completion of the contract i.e. Supply, erection, testing, commissioning and maintenance of the plant. No enhancement of prices for what so ever reason will be allowed once the offer is accepted. Quotation should carry the name of the manufacturers for the plant offered.

b) The bidder shall transfer the subsidy amount (if availed) to the GVSCCL within 15 days of receipt of the same.

1.2.20. INSURANCE:

Transit cum storage cum erection, testing and commissioning insurance is the responsibility of the bidder. Any loss or damage to the equipment for whatever reasons shall be to the account of the bidder. The bidder shall promptly make good the loss or damage by way of replacement and/or repair of the portion of the equipment damaged or lost, irrespective of settlement of claims with the insurance underwriters. There shall be no extra cost to the Client on account of such replacement/repair of losses or damages for whatever reasons. All costs on account of insurance liabilities covered under the contract will be to the Bidder's account and principal of the insurance will be to the Client.

1.2.21. AWARD OF CONTRACT:

Notification of Award of contract will be made in writing to the successful Bidder by the Client.

1.2.22. COMPLETION PERIOD:

Completion period is the essence of the Contract. In case of delay in implementation of the project, (GVSCCL) has to incur heavy penalties /financial loss including cancellation of the PPA, etc. Therefore, the project shall be completed in all respects including synchronization of Plant with Grid within Eight months from the date of issue of LOI/LOA order. In order to meet the stipulated completion period, all the equipment /materials shall be delivered within 120 days and meet the following mile-stones:

Sl. No	Description of mile stone	Period of Completion (from the date of issue of LOA/LOI)
1	Furnishing of Design calculations, Drawings and obtaining of approvals	20 Days
2	Supply of structures required for SolarPV Modules	50 Days
3	Supply of PCUs, SPV Modules, Transformer, Grid connected Equipment and all other balance of Plant.	90 Days
4	Erection of PV module Structures.	120 Days
5	Erection of all Equipment	150 Days
6	Testing & commissioning	180 Days
7	Total completion period	180 Days

**Note:** In case the contractor fails to achieve the successful commissioning of the plant within the due date for completion as indicated in these bid documents, then the Department shall levy the liquidated damages on the contractor at the rate of 1% (one percent) of the contract price per week of delay or part thereof subject to a maximum of 10% of total

contract price. Liquidated Damages so levied will be recovered from the Supply/erection bills of the Contractor.

**The Offers not complying with the delivery schedule shall be considered non-responsive and shall not be evaluated.**

In case, the Supply of all the material required for the project are not completed within 160 days, the MD&CEO, GVSCCL or his authorised deputy/PMC AECOM, may resort to purchase the materials/equipment from elsewhere at the risk and cost of the Supplier and recover all such extra cost incurred by the (GVSCCL) in procuring the material by above procedure.

Alternatively, the MD&CEO, GVSCCL Visakhapatnam, may cancel the Purchase Order completely or partly without prejudice to his right under the alternative mentioned above.

In case of recourse to alternatives above, the (M.D& CEO, GVSCCL) shall have the right to purchase the materials to meet the urgency of requirements irrespective of the fact whether the materials/equipment are the right to place orders for individual items with different bidders and to revise the quantities at the time of placing the order. The order for purchase the materials to meet the urgency of requirements irrespective of the fact whether the materials/equipment are similar or not.

The MD&CEO (GVSCCL) reserves materials may also be split up between different bidders to facilitate to quick delivery of critically required materials. MD & CEO (GVSCCL), further reserves the right to accept or reject any/ all bids without assigning any reasons thereof

1.2.23. CONTRACT QUALITY ASSURANCE:

The Bidder shall include in his proposal the Quality Assurance Programme containing the overall quality management and procedures which he proposes to follow in the performance of the works during various phases as detailed in relevant clauses of the "General Technical Conditions" of this part.

1.2.24. MAINTENANCE TOOLS AND TACKLES:

The proposal shall include all special tools and tackles required for the operation and maintenance of the equipment in each equipment package.

The Bidder shall indicate all the above items in the proposal sheets in the form of a schedule giving therein the description and the quantity of each item. The item wise Price to be quoted by the Bidder shall be furnished in the format, which will be delivered with the first shipment of the main equipment.

1.2.25. GUARANTEE:

The contractor shall guarantee that the equipment being Supplied under this contract shall be new and of best quality, workmanship and shall have no defects in manufacture, shall meet the requirements of the specifications, and shall be in all aspects suited for the purpose intended.

The bidder shall guarantee the satisfactory performance of entire plant for five (5) years from the date of taking over the Plant after commissioning as the O&M is also within the

scope of the bidder for 5 years. Further, the bidder shall extend material guarantee of 25 years for PV modules, 10 years for inverters, transformers, switchgear, etc.

If during the said guarantee period, the client finds any materials to be containing manufacturing defects or defect in workmanship or otherwise, the contractor would be required to promptly repair/Supply/replace such defective equipment free of charge to client.

The contractor shall bear all the expenses incurred in connection with the repair or replacement against such defective equipment inclusive of all freight and insurance, Taxes & Duties levies forwarding and clearing and demurrages and other incidental charges involved in delivering the said equipment to the clients specified destination. The charges for erection and Supervision of such replacement shall not be paid by the client. The decision whether correction of the defects should be by repair or replacement shall be the sole discretion of the client.

The client and contractor shall mutually agree to a programme of replacement, renewal or repair which will minimize any interruption in the commercial use of the equipment.

In the event, the contractor fails to undertake necessary steps to repair or replace defective materials as stipulated above after receiving notice from the Client of any defect in the material, or failure of any material to conform with the specifications, the client may proceed to undertake the repair or replacement of such defective equipment at bidder's risk and expense but without prejudice to any other rights with the client may have against the bidder in respect of such defects.

1.2.26. CHECK LIST:

The Bidders are requested to duly verify the checklist enclosed in the Annexure. This checklist gives only some of the important items. The Bidders are, however, advised to carefully go through the Bid documents and furnish the necessary information/documents etc., as required. The checklist shall be attached to the letter of Transmittal.

1.2.27. It is not binding on MD & CEO GVSCCL, Visakhapatnam, Andhra Pradesh to accept the lowest or any other bid.

1.2.28. The bidders are requested to refer to the "General Terms & Conditions (Part-II). Bidders are requested to refer to these conditions and confirm acceptance in their offer.

1.2.29. Make/Brand of items offered shall be specified failing which offers are liable to be rejected. It shall be appreciated if one copy of detailed descriptive literature/ pamphlets shall be enclosed along with the offer, which may help technical evaluation.

1.2.30. DRAWINGS, DATA AND LITERATURE TO BE FURNISHED:

The Bidder shall include in his offer the following: -

Undertaking to furnish details of special precautions and instructions to be followed and check list for erection, testing and commissioning of the plant.

Undertaking to furnish all required drawings, documentations for assembly, erection, testing and commissioning of the plant. Instructions regarding storage, handling, precautions etc., and checklists at various stages, till the plant is installed.

Time schedule for design, manufacture, testing, shipment, installation and commissioning.

PART-I  
SECTION -III

1.3.1.

S. No	ELIGIBILITY CRITERIA	PROOF OF DOCUMENTS TO BE SUBMITTED BY BIDDER
1	(i) The bidder would be an experienced contractor having executed Turnkey solar power projects. He should have executed solar power projects in India for an aggregate capacity of at least 2 MWp at a single or multiple locations, and	The Supporting documents from the licensing authorities i.e., Departments of industries, excise, customs, etc. along with production capacities achieved in the previous years shall be submitted. Further, the Supporting documents having designed and executed the solar power plants shall also be submitted
2	(ii) The bidder shall have executed One grid connected solar project with capacity of at least 2 MWp, running successfully without any major problem for a minimum period of one year as on the date of submission of the Bid.	The copies of orders, Commissioning/completion reports or certificates, etc. received from the customers shall be submitted. The bidders are advised to furnish the contact persons of the respective projects for ascertaining the performance of those plants directly by MD&CEO, GVSCCL.
3	The bidder should have an average annual turnover of Rs. 7 Cr. The bidder shall exhibit the turnover for at least three financial years during the last five years	The audited results of financial years 2012-13 to 2016-17 shall be submitted
4	The bidder shall be in profit during the last 2 years Preceding the last date of the Bid submission	Certificate to be issued by the Chartered Accountant.
5	The bidder shall have access to line (s) of credit and availability of other financial resources facilities for Rs. 4 Cr.	Evidence to be provided and should be certified by the Bankers for proposed work.

PART - II  
GENERAL TERMS & CONDITIONS

SECTION – I -GENERAL

- 2.1.1. In construing these general conditions and the annexed specification, the following words shall have the meaning herein assigned to them unless there is something in the subject inconsistent with such construction.

The “Client/Department/(MD&CEO, GVSCCL)” shall mean GVMC Department.

The “Bidder/contractor/Supplier/vendor” shall mean the Tenderer/Bidder whose tender shall be accepted by the client and shall include the tenderer’s legal personal representatives, successors and assigns and for the purpose of disclosure of information and execution of the contract, shall mean and include its Consortium/Joint Venture Associate and their legal representatives, successors and assigns.

The “Engineer” shall mean the Chief Engineer, GVMC /PD AECOM/PMC for the time being, or such other officer as may be duly authorized and appointed in writing by the Client to act as engineer for the purposes of the contract. In case where no such engineer has been so appointed, the word “Engineer” shall mean the Client or his duly authorized representative.

“Plant Work or Works” shall mean and include plant and materials to be provided and work to be done by the bidder under the contract.

The “Contract” shall mean and include the general conditions, specification, schedules, drawings, form of tender, covering letter, schedule of prices, or the final general conditions, any special conditions applying to the particular contract specification and drawings and the agreement to be entered into under clause 2.1.2 of these general conditions, all of which must be accepted under the signatures and stamp of the bidder in order to construe the same within the meaning of Contract.

Scope of contract:

For general reading of various clauses mentioned in these documents, the term “Supply” shall be deemed to be treated as “Supply, Erection, Testing & Commissioning including 5 years maintenance period” unless specifically mentioned otherwise.

Tech "Specification" shall mean the specification annexed to these general conditions and the schedules there to (if any).

"Tests on completion" shall mean such tests as prescribed by the requirements of specification and performance & operation of the plant to be made by the bidder before the plant is taken over by the Client.

"Taking over" shall mean taking over of the plant by the Client after completion of "tests on completion" and completion of 72 hours/three days of continuous trouble free operation of the plant without any outages/ breakdowns attributable to the contractor.

"Commercial use" shall mean that use of the work, which the contract contemplates or of which it is to be commercially capable.

"Month" shall mean calendar month.

"Writing" shall include any manuscript, typewritten or printed statement, under or over signature or seal as the case may be.

Words importing persons shall include firms, companies, Department, and other bodies whether incorporated or not.

Words importing the singular only shall also include the plural and vice versa where the context requires.

#### BIDDER TO INFORM HIMSELF FULLY

The bidder shall be deemed to have carefully examined the general conditions of specifications, schedules, and drawings. If he has any doubt as to the meaning of any portion of these general conditions or of the specification he shall, before signing the contract, set forth the particulars thereof, and submit them to the client in writing, in order that such doubt may be clarified.

##### 2.1.2. CONTRACT:

A formal agreement shall be entered into between the bidder and the client for the proper fulfilment of the contract.

##### 2.1.3. Specifications and drawings:

Any information or details which are included in the specification but not indicated in the drawings and vice-versa shall have the same effect and meaning as if included for and shown both in the specifications and drawings. In case of any dispute between the specifications and drawings, the decision of the Department or its authorized representative shall be final and binding.

##### 2.1.4. Additions/ Alteration/ Modifications:

The Department reserves the right to make additions/alterations/ modifications to the quantity of items in the purchase order. The Supplier shall supply such quantities also at the same rate as originally agreed to + 20% of the quantity ordered and incorporated in the purchase order. The variation shall, however, be limited Waiver.

2.1.5. Any waiver by the authority of any breach of the conditions of the purchase order shall not constitute any right for subsequent waiver of any other terms and conditions.

2.1.6. Subletting and Assignment:

The Supplier shall not, save with prior consent in writing of the Department, sublet, transfer or assign the order or any part thereof or interest therein or benefit or advantage thereof in any manner, whatsoever, provided further that any such consent issued by the Department under the exigencies of the contract, shall not relieve the Supplier from any obligation, duty or responsibilities under the contract. However, the Supplier shall be free to sub-contract any part of the execution of the project to any supplier/vendor/manufacturer or EPC contractor at its nature for joint execution of the entire contract using the experience, discretion including, but not limited to, entering into a Consortium/Joint expertise and services of its Associate under the said Consortium/Joint Venture.

2.1.7. Information Provided by the Department:

All drawings, Data and documentation that are given to the Suppliers by the Department for the execution of the order are the property of the Department and shall be returned when demanded. Except for the purpose of executing the order of the Department, Supplier shall ensure that the above documents are not used for any other purpose. The Supplier shall further ensure that the information given by the Department is not disclosed to any person, firm, body, corporate and / or authority and every effort shall be made to keep the above information confidential. All such information shall remain the absolute property of the Department.

2.1.8. Rating & Name Plates:

Equipment should be provided with name plate giving full details of manufacture, capacity and other details as specified in the relevant IS or other specification stipulated. The purchase order No and date and year of Supply and the words "(GVSCCL)" must be etched on the name plate.

**RATING PLATE:** Each main and auxiliary item of plant shall have permanently attached to it a rating plate in a conspicuous position. This shall be of a non-corrodible material preferably chromium plated steel to stand the prevalent atmospheric conditions as indicated. The inscription shall be engraved in black on the plate. The size of the rating plate shall depend Upon space availability and inscriptions shall be approved by the client. The plates shall be reasonably sized for clarity and clear inscription. The plates shall be attached to the body of the equipment by screws.

**NAME PLATE:** Each item of plant shall be provided with a name plate or label designating the service of the particular equipment. The shape and size of the plate and inscriptions shall be approved by the client. Such name plates shall be of non-corrodible material preferably chromium plated steel having engraved black lettering or otherwise as specified. In case of indoor equipment, the plate shall be of transparent plastic material with black lettering engraved on the back. The name plates shall be screwed to the body of the equipment.

2.1.9. Interchange ability:

All similar materials and removable parts of similar equipment shall be interchangeable with each other. A specific confirmation of this should be furnished along with the invoices for the Supplies.

2.1.10. Materials & Workmanship:

Supplier shall fully warrant that the stores, equipment and component Supplied shall be new and first quality, according to the specifications and shall be free from defects (even concealed faults, deficiency in design, materials and workmanship).

2.1.11. Spare Parts, Oil & Lubricants:

Wherever applicable, the Supplier shall furnish to the Department, item-wise price list of spares required for regular operation and maintenance of the ordered equipment. The Supplier shall also furnish necessary instructions and drawings to identify the spare part numbers and their location as well as an interchange ability chart.

2.1.12. Supplier's liability:

Supplier accepts full responsibility and indemnifies the Department and shall hold the Department harmless from all acts of omission and commission on the part of the Supplier, his agents, his subcontractors and employees in execution of the contract. The Supplier also agrees to defend and undertakes to indemnify the Department and also hold it harmless from any and all claims for injury to or death of any and all persons including but not limited to employees and for damage to the property arising out of or in connection with the performance of the work under the contract. The Supplier's liability and indemnity under the Contract shall be limited to execution and maintenance of the Solar Power Plant except in case of Force Majeure.

2.1.13. Access to Supplier's Premises:

The Department and /or its authorized representative shall be provided Access to Supplier's and / or his sub-contractor's premises, at any time during the pendency of the contract, for expediting the Supplies, inspection, checking etc.

2.1.14. Inspection/checking/ testing:

All materials/equipment to be Supplied shall be subject to Inspection/checking/ testing by the Department or its authorized representative at all stages and places, before, during and after the manufacture. All tests shall be carried out in the presence of authorized representative of the Department. Supplier shall notify the Department for the inspection of materials/ equipment when they are ready, giving at least 15 days' notice. If Upon receipt at Department's stores, the materials/ equipment do not meet the specifications, they shall be rejected and returned to the Supplier for repair/ modification etc., or for replacement. In such cases all expenses including to and fro freight charges, repacking charges, transit insurance etc., shall be to the account of Supplier. However, checking/testing, the time frame/schedule for execution of the in case of any delay by the Department in carrying out the inspection contract shall automatically stand extended by the amount of the said delay or any further time required.

Inspection by the authorized representative of the Department or failure of the Department to inspect the material/ equipment shall not relieve the Supplier of any responsibility or liability in respect of such materials /equipment and shall not be interpreted in any way to imply acceptance thereof by the Department. Whenever specifically asked for by the Department, the Supplier shall arrange for inspection/ testing by institutional Agencies etc. In such cases Supplier shall adhere to the inspection/ testing procedures laid down by such agencies. All expenses including inspection fees shall be to the Suppliers account unless agreed to the contrary and specified in the contract.

2.1.15. PACKING AND MARKING:

All materials/equipment shall be securely packed to the requirement of transportation by Rail/Road/Sea transport. All exposed services/connections/ protrusions shall be properly protected. All unexposed parts shall be packed with due care and the packages should bear the words "Handle with Care". The packing requirements of Rail/ Road transport shall be complied with so as to obtain clear Railway/Lorry Receipt i.e. without any qualifying remarks.

All packages and unpacked materials shall be marked with the name of the Consignor, Consignee, Purchase Order/Contract No., gross and net weight, sign of handling, if any, with indelible paint in English at least at two places. In tagged with such bundles.

All Equipment case of bundles, metallic plates marked with the above details shall be/material shall be protected for ocean shipment, inland transport, carriage at the Site and outdoor storage during transit and at the Site, strictly according to the instructions given in this specification.

The contractor shall be responsible for any damage to the equipment during transit due to improper and inadequate packing. Only packages constructed out of sound material and of dimensions proportional to the size and weight of contents shall be used. Bundled materials shall be strapped rigidly with steel band over the protective covering. Fragile materials shall be securely braced with the containers or otherwise amply fastened and packed to prevent hitting or rattling. Soft non-hygroscopic packing materials shall be placed between the hard packing materials and the fragile equipment. Articles which do not completely fill the selected container must be cushioned, braced, fastened or blocked to prevent damage to the article itself or destruction of the container. Inner bracing or blocking must be such that the content's weight is distributed over interior surfaces rather than concentrate on one or two critical points. Loose material, e.g. bolts, nuts etc., shall be packed in gunny bags and sealed in polythene bags with proper tagging.

Components containing glass shall be carefully covered with shock absorbing protective material such as expanded polystyrene ('ThermoCole').

All openings in the equipment shall be tightly covered, plugged or capped to prevent foreign material from entering.

In the case of large and bulky equipment, the contractor shall be responsible for ascertaining transport limitations and supply the equipment in the minimum number of components or subassemblies, within the framework of transport limitations.

Wherever necessary, proper arrangements for attaching slings for lifting shall be provided.

The contents of the packages shall be sealed in thick polythene sheets and all the inside walls of the packages shall be lined with waterproof paper to protect the equipment from damage due to dust and moisture.

All equipment shall be protected for the entire period of dispatch, storage and erection against corrosion, incidental damage due to vermin, sunlight, rain, high temperature, humid

atmosphere, rough handling in transit and storage in the open including possible delays in transit. Material and equipment shipped across the sea shall be packed to withstand without damage, the effects of salt spray. All machined and plated parts shall be protected with anti-rust grease. At such points, wrapping impregnated with anti-rust composition or vapour phase inhibitors shall be used. These shall have sufficient strength to resist chafing and indentation due to the movement which is likely to occur in transit. The protective wrappings and impregnation shall last for a minimum period of three months.

Silica-gel or approved equivalent moisture absorbing material in small cotton bags shall be placed and tied at various points on the equipment, wherever necessary. Adequate provision of skids or pallets shall be made to keep the packages above the collecting drainage. Crates, event collection and other large containers should have drain holes in the bottom top of water within the packing. This is especially important where the cargo itself is subject to condensation (cargo sweat).

All cases shall be provided with suitable cut outs, closed by bolted wooden planks to facilitate inspection by customs authorities. Waterproof transparent papers shall be provided at the cut-out locations to prevent water ingress into the casing through the cut-out. Each crate or package shall contain a packing list in a waterproof envelope. Copies of the packing list, in triplicate, shall be forwarded to the Prior to dispatch. All items of material shall be clearly marked for MD& CEO, GVSCCL easy identification against the packing list. All spare parts shall be packed and treated for long storage conditions at site. Any material found short inside the packing cases shall be supplied by the contractor at no extra cost to the client. All packing cover and packing material shall become the property of the client.

The Contractor is responsible for safe delivery of the material and no compensation for any losses in transit or handling shall be compensated.

#### 2.1.16. MARKING:

All packages shall be clearly, legibly and durably marked with uniform block letters (preferably with waterproof paint) on at least three sides with:

- a) Destination address as communicated.
- b) Contract NO.
- c) Dimensions.
- d) Net and gross weights.
- e) Sign showing 'side Up'.
- f) Sign showing 'fragile' marks in case of delicate Equipment.
- g) Sign showing slinging and sling position.
- h) Any handling and unpacking instructions, if considered necessary.
- i) Identification mark relating them to the appropriate shipping documents.
- j) In case of spare parts, each spare part shall be clearly marked and labelled on the outside of its packing with its description and catalogue/part number.

#### 2.1.17. ERECTION MARKS:

All equipment comprising multipart assemblies, e.g. steel frame works, piping etc., shall be marked with identifying numbers and/or letters corresponding to those of the approved drawings or material lists. These erection marks shall be clearly readable. The contents of the package shall be punched on non-corrosive metal plate and nailed to the package on a prominently visible place. If the number of items in the package is too many, a typed list in

transparent waterproof bag shall be kept inside a galvanized steel sheet pocket nailed on to the outside of package in prominently visible location.

**2.1.18. ELECTRICAL EQUIPMENT:**

Solar panels, modules, inverters, Control cabinets, lighting panels etc. shall be packed and shipped in convenient sections. All withdrawable equipment's like circuit breakers, and its accessories, relays, instruments are so packed such that their operating mechanisms are secured from movement/ vibrations and damage. Transformer may be shipped separately.

Cables shall be shipped in non-returnable drums, adequately braced, and with cable ends adequately sealed to prevent ingress of moisture.

**2.1.19. STORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENTS AT SITE:**

The types of storage are broadly classified as i) Special storage - Air conditioned, ii) Closed storage, iii) Semi-closed storage and iv) Open storage.

The equipment covered under this Specification shall be stored in the type of storage as recommended by the manufacturer.

**2.1.20. STORAGE:**

The Department will make available the place at site for storing the material, if available at no extra cost on chargeable basis. The contractor shall arrange construction of storage sheds, etc. for proper storage of materials and to minimize wasteful handling during retrieval of items required for erection. The outdoor storage areas as well as semi-closed stores shall be provided with adequate drainage facilities to prevent water logging.

The stores sheds shall be built in conformity with fire safety requirements and with adequate lighting and fire extinguishers. No smoking signs shall be placed at strategic locations. Safety precautions shall be strictly enforced.

Adequate lighting facility shall be provided by the contractor in storage areas and storage sheds and security personnel positioned to ensure enforcement of security measures to prevent theft and loss of materials.

The contractor shall carry out regular inventory of materials received, issued and erected and notify the client of any loss when noticed. The contractor shall provide adequate number of competent stores personnel including store-keepers, clerical staff, inspection engineers, watchmen and security staff to efficiently store and maintain the equipment/material entrusted to him.

Any equipment left in the open under such conditions shall be, if required, covered with tarpaulin.

**2.1.21. MAINTENANCE DURING STORAGE:**

The Contractor is responsible for maintenance of the equipment stored at site as per standard practices for storage and as per manufacturer's recommendations of each of the equipment.

2.1.22. PROGRESS REPORTS AND PHOTOGRAPHS/ VIDEOS:

During various stages of the manufacture in the pursuance of the contract, the contractor shall at his own cost submit progress reports as may be reasonably required by the Client with such materials, such as charts, networks, photographs/Videos, test certificates etc., Such progress reports, shall be in the form and size as per industry standards and shall be submitted at least in four copies. During coordination meetings or review meetings, presentation shall be made by power point presentation with photographs for important mile stones.

2.1.23. Progress Reports:

Daily/weekly and Monthly progress reports shall be prepared by the Contractor and submitted to the client in six copies. The first report shall cover the period Up to the end of the first calendar month following the Commencement Date.

Reporting shall continue until the Contractor has completed all work, which is shown to be satisfactory outstanding at the completion date stated in the Taking-Over Certificate for the Works. Each report shall include:

- a) Charts and detailed descriptions of progress, including each stage of surveys, Investigation, design, Contractor's Documents, procurement, manufacture, delivery to Site, construction, commissioning and trial operation;
- b) Digital photographs/videos showing the status of progress on the Site;
- c) For the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of: Commencement of manufacture, Contractor's inspections, tests, and Dispatch and arrival at the Site;
- d) The details of Contractor's Personnel and Equipment;
- e) Copies of quality assurance documents, test results and certificates of Material;
- f) List of Variations, notices given
- g) Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- h) Comparisons of actual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to minimize or overcome delays.

2.1.24. DOCUMENTATION:

The contractor's store keeping function will include maintaining various records. These records shall include but not limited to Supplier-wise record of equipment/material received, stored and issued for erection as well as stock position.

Record of inspection and repairs carried out, protective measures and lubrication equipment in storage as well as erected until the same is taken over by the owner.

2.1.25. Dispatch of materials:

The Supplier is responsible for the safe delivery of the goods in good condition at the project site of the pant. Destination stores. The Supplier should acquaint himself of the conditions for handling and transport of the goods to destination and shall include and provide for security and protective packing of the goods so as to avoid damage in transit. Packing of the materials / equipment shall be strictly as per the provision of the contract or standards or as required. All formalities related to allotment of wagons, loading permission from railways shall be completed by the Supplier. The Supplier shall communicate immediately the dispatch details to the consignee as specified in the contract. The original dispatch documents shall be forwarded immediately either directly or through bank, failing which the Supplier shall be responsible for any delay in payment and consequential payments of demurrages and wharf ages to the transporter.

2.1.26. Demurrage/wharf age:

Supplier shall also be responsible for all payments due to late receipt of RR/LR and other documents.

PART - II  
SECTION – II-FINANCIAL

2.2.1. Prices:

- i. Price(s) shall be firm and not subject to escalation on any account, till the contract is executed in full and its subsequent amendments accepted by the Supplier even though the completion/execution of order may take longer time than delivery period incorporated and accepted in contract.
- ii. The bidder shall quote their prices for Supply, Erection & Commissioning and Maintenance portion separately as per schedule of prices indicated in the schedules.
- iii. **The prices quoted shall be lump sum and on for Destination basis inclusive of all taxes and duties.** The prices shall be FIRM throughout and until Supply, Delivery, Erection, Testing and commissioning and maintenance of the equipment/system Maintenance period covered under the contract is completed.
- iv. All applicable taxes/duties/levies such as GST, Excise duty, CST, APVAT, Works Contract Tax, Octroi, Cess, Entry Tax etc., and any other taxes and duties that are applicable for such contracts in the State of Andhra Pradesh as on the date of Opening of bid shall be considered.

2.2.2. Taxes, Levies and Duties:

Sales Tax, Excise Duty and other payable shall be shown separately in the invoice.

**Variations in Statutory Levies:**

Any variation, Upward or down ward, in statutory levies or new levy is introduced after opening of the bids/placement of order shall be to the account of the Supplier only, unless otherwise mentioned in the contract, provided that the delivery is completed within the contractual delivery schedule. In cases where delivery schedule is not adhered to by the Supplier and there is upward variation/revision after the agreed delivery date, the

bidder/Supplier shall bear the impact of such increased levies and if there is downward variation/revision, the Department shall be given advantage to that extent.

2.2.3. All royalties for patent or charges for the use or infringement thereof that may be involved in the construction or use of any equipment shall be included in the bid price. The bidder /Supplier shall protect the Department against any and all claims arising on account of the use thereof. The Department agrees to furnish the Supplier any appropriate information or assistance.

2.2.4. Contract performance Security- For contract:

- a) The successful bidder shall furnish within 14 Days or as specified period from the date of issue of Letter of Acceptance, the contract performance Security equal to 5% of Contract value of purchase order/contract (including Taxes and Duties) and balance 5% security amount shall be deducted from running bill in proportion of bill amount and contract value, the deducted amount shall be equal to the 5% of the contract value, for proper fulfilment of the terms and conditions of the contract till full execution of the plant and fulfilment of terms and conditions thereof. The amount of Contract Performance Security shall be forfeited to the extent of financial loss suffered by the GVSCCL, if Supplier fails to execute the order and fulfil its terms and conditions.
- b) Contract performance Security shall be furnished in the shape of NSC/FDR/CDR drawn on any nationalized bank in favour of, MD& CEO, GVSCCL or in the form of bank guarantee from any nationalized bank in the prescribed Proforma.
- c) The Bank guarantee should be valid for a period of 6 months 28 days initially from the last of submission of bid and shall be extended from time to time as per requirement.
- d) Contract Performance Security shall be returned to the contractor after 6 months of successful commercial operation of the solar plant provided,
  - i. the contractor has fulfilled all contractual obligations,
  - ii. the contractor has proven the satisfactory performance of the plant as per the terms and conditions set out in the contract,
  - iii. the contractor has to submit the additional performance security Deposit equivalent to 10% of the O&M Contract Amount for the period of 5 years set out herein below,
  - iv. and there should not be any outstanding either against the contract or any other purchase orders/contracts placed by the GVSCCL on the Contractor.

Contract performance Security - For O&M contract:

- a) After successful commissioning of the plant the bidder shall commence the O&M contract by providing the performance security of 10% of O&M contract value for the stipulated 5 years of O&M period.

The amount of Contract Performance Security shall be forfeited to the extent of financial loss suffered by the Department, if Supplier fails to operate and maintain the plant properly and fulfil terms and conditions of the contract.
- b) Contract performance Security shall be furnished in the shape of bank guarantee drawn on any nationalized bank in favour of, (MD & CEO, GVSCCL) payable at Visakhapatnam or in the form of bank guarantee from any nationalized bank in the prescribed Proforma.

- c) The Bank guarantee should be valid for a period of One year initially and shall be extended from time to time as per requirement.
- d) Contract Performance Security shall be returned to the contractor after Five years of successful operation & maintenance of the solar plant provided,
  - i. the contractor has fulfilled all contractual obligations,
  - ii. the contractor has maintained the plant properly to generate maximum power by the plant as per the terms and conditions set out in the contract with production as per output guaranteed in 3.1.4 (Part-III Technical Specification),
  - iii. and there should not be any outstanding either against the contract or any other purchase orders/contracts placed by the GVSCCL on the Contractor.

2.2.5. Terms of payment:

- A. Mobilization advance: Mobilisation Advance of 10 % will be paid to the Contractor against submission of BG in valid format as follows,  
10% the Contract value will be paid after the Contractor submits Performance Security and concludes agreement and on application by the contractor.

The mobilization advance attracts interest at the rate of SBI SLR Rate + 3%. The mobilization advance shall be adjusted from the bills of the contractor in equal instalments from the Contractors Bills.

- B. Contract Payment:

- i. Within the Contractual delivery period:

- a) 35% of the Contract Value after furnishing of detail designs with drawings showing all details. including materials required for erection & commissioning of project and Supply of structures required for Solar PV Modules.

- b) 40 % of the Contract Value Supply of PCUs, SPV Modules, transformer, Grid connected Equipment and all other balance materials of Plant.

- c) Balance 25% of the Contract Value will be paid after erection & completion of the work.

- d) The taxes shall be deducted as per prevailing norms of the Government.

**OPERATION & ANNUAL MAINTENANCE CHARGES:**

Annual maintenance charges will be paid in quarterly basis after completion of satisfactory maintenance of the plant as per tendered rates.

**NOTE:**

1. The payment will be processed only after submission of contractor's commercial invoice along with required documents like test certificates, inspection reports, bank guarantees, etc.
2. The bidders who take deviation from the above terms of payment will be evaluated by loading their price with 15% rate of interest per annum.
3. Payments shall be made through account payee cheques/drafts only.
4. Provided proper document in support of paid taxes are submitted with the bills.

2.2.6 If the Supplier has received any over payments by mistake or if any amounts are due to the GVSCCL due to any other reasons, when it is not possible to recover such amount under the contract the Department reserves the right to collect the same from any other amounts and/or Bank Guarantee given by the Supplier due to or with the Department. When the Supplier does not at any time fulfil his obligations in replacing/rectifying, etc., of the damages/defective materials in part or whole, promptly to the satisfaction of the Engineer-in-Charge or his representative, the Department reserves the right not to accept the bills against subsequent dispatches made by the Supplier and under these circumstances, the Supplier only will be responsible for any demurrage, wharfage or damages occurring to the consignments so dispatched.

2.2.7. Delivery Period:

The bidder has to submit a detailed Bar/PERT Chart conforming to the delivery schedules for material and completion of erection, testing and commissioning of the plant stipulated in the bid documents.

2.2.8. Liquidated Damages:

In case the contractor fails to achieve the successful commissioning of the plant within the due date for completion as indicated in these bid documents, then the Department shall levy the liquidated damages on the contractor at the rate of 1% (one percent) of the contract price per week of delay or part thereof subject to a maximum of 10% of total contract price. Liquidated Damages so levied will be recovered from the Supply/erection bills of the Contractor.

2.2.9. Timely Completion:

The solar projects are proposed by (GVSCCL) under smart City Development are time bound. and thus, the completion period is essence of the contract and the successful bidder shall take all necessary measures to execute the project in the least possible period preferably before scheduled completion period.

2.2.10. Removal of Rejected Goods and Replacement:

- a) If Upon delivery, the material/ equipment is found not in Conformity with the specifications stipulated in the contract, whether inspected and approved earlier or otherwise, those shall be unacceptable to the Department or its authorized representative. A notification to this effect shall be issued to the Supplier, normally within 10 days from the date of receipt of materials at stores/ project site of the solar power plant.
- b) Supplier shall arrange suitable replacement Supplies and remove the rejected goods within 10 days from the date of notification failing which, the goods shall be dispatched to vendor by road transport on freight to pay basis at Suppliers risk and cost.
- c) External damages or shortages that are prima-facie the results of rough handling in transit or due to defective packing shall be intimated within a fortnight of the receipt of the materials. In case of internal defects, damage or shortages or any internal parts, which cannot ordinarily be detected on a superficial visual examination, though due to bad handling in transit or defective packing should be intimated within 3 months from

the date of receipt of these articles. In either case the damaged or defective material should be replaced by the Supplier free of cost to the Department.

- d) If no steps are taken within 30 days of receipt of intimation of defects or such other reasonable time as the Department may deem proper to afford, the Department may without prejudice to its other rights and remedies arrange for repairs/rectification of the defective materials or replace the same and recover the expenditure incurred from the deposits such as EMD, Performance Security/guarantees or other monies available with the Department or by resorting to legal action.

#### 2.2.11. ERECTION CONDITIONS OF CONTRACT:

##### 2.2.11.1. CONDITIONS:

The following shall Supplement the conditions already contained in the other parts of these specifications and documents and shall govern the scope of contract related to the erection, testing and commissioning. Scope of services: - The scope of the work and duties and responsibilities of the contractor shall broadly include the following:

1. Re-checking and re-verification of plant and equipment and materials Supplied by the contractor and their sub-vendors
2. Erection including disassembly, pre- assembly etc. and performing trial and pre-commissioning tests, adjustment, calibration, etc, of the plant and equipment.
3. Initial operation of the plant and equipment till successful completion of trial operations.
4. Carrying out the performance and guarantee tests in terms of General technical conditions.
5. Repairs, modifications and alterations, etc., of the plant and equipment, whenever necessary.
6. Training personnel of the Client in erection, testing and operation and maintenance of the plant and equipment at site.
7. Rendering clarification and guidance, on technical problems and drawings/ documents relating to the plant and equipment.
8. Preparation of detailed programmes/schedules for erection, testing and commissioning activities of the plant and equipment including material and manpower planning.
9. Any other related services though not specifically mentioned herein before but necessary for proper execution of the work, as stipulated.
10. The bidder shall indicate the requirement for adequate storage space at site on the basis of availability.

##### WORK AND SERVICES

The contractor shall undertake to perform the complete job as per scope above. Such parts as may have not been specifically included but otherwise form part of the job are deemed to be included unless otherwise specifically excluded.

The contractor shall arrange for the services of fully qualified and competent supervising Engineer/Engineers and necessary number of personnel as the contractor deems it

absolutely necessary with the requisite specialized skills for the erection, testing and commissioning of equipment.

All tools required for installation shall be arranged by the contractor. Inspection and testing of the complete installation and putting in regular service and shall bear the overall responsibility of the satisfactory installation, testing and commissioning of the equipment. The contractor shall make his own arrangements for Boarding & Lodging of his personnel. The following facilities and services are also covered in the scope of Tenderer. Unloading and loading of equipment and accessories, transportation to the site and storage. Providing of necessary labour force required for the execution of the job. Providing of necessary transport facilities for the staff to be deputed by the contractor for installation work.

2.2. 11.2 ERECTION LABOUR AND TOOLS:

- I. The contractor shall furnish the list of special erection tools. Special tools which in the opinion of the contractor would be required for erection work during maintenance should be indicated in schedule for special tools and plants.
- II. The contractor may select to bring with him certain personal tools required for erection which will remain his property at all times. Use of such personal tools for erection work shall not entitle the contractor to any additional payment. Any assistance required by the contractor in securing entry and exit permits for such tools shall be rendered by the Department.
- III. Checking for necessary positions, levels and dimension of foundation shall be done by the contractor.
- IV. Cleaning and Servicing: The contractor shall ensure that inside of all tubes, pipes, valves fittings and actuators shall be free from dirt and loose scales by thoroughly blowing and /or flushing of service before being erected by them.

2.2. 11.3. FIELD ENGINEERING CLARIFICATIONS:

The contractor shall provide all necessary field engineering clarifications to the client that they may require for the purposes of their works. The contractor shall also provide all engineering clarifications and details to the client for the overall engineering / start-Up of the plant and equipment Supplied by them.

2.2.11.4. IMPLEMENTATION AND FIELD QUALITY PLANS:

It will be the responsibility of the Contractor to ensure that the erection of the equipment is carried out according to the quality plans and standard manufacturing practices / instructions as given by the manufacturer without any deviations in performing the erection in accordance with such quality plans, etc. The contractor shall further identify specific hold points beyond which work will not proceed without Client's consent so as to further ensure that he performs the above quality functions effectively.

2.2. 11.5. PRE-COMMISSIONING TRIALS AND INITIAL OPERATIONS:

1. On completion of all works, all the measurements shall be jointly taken by the contractor and client and a protocol signed. The tests and trial operations shall be conducted only after signing of the protocol.
2. The pre-commissioning trials and initial operations of the equipment Supplied by the contractor shall be the responsibility of the contractor. The contractor shall provide, in

addition, any special instruments/calibrating devices, etc., if required for the successful performance of these trials.

2.2. 11 .6. COMMISSIONING REPORT:

The client and contractor shall properly maintain in the agreed formats their respective records of all observations and measurements taken in respect of all tests and operations. Joint protocol shall be signed on completion of each and every test / check till the trial operation. During trial operations, all readings shall be jointly maintained and signed. On successful completion of trial operations, a report shall be jointly prepared and signed indicating results of all the tests / checks and trial operation readings.

2.2. 11.7. RELEASE OF CLAIMS:

After completion of work and prior to final payment, contractor shall furnish a release of claims against the (DEPARTMENT) arising out of the contract other than the claims specifically identified, evaluated and accepted.

2.2. 11.8. TAKING OVER:

Upon successful completion of erection, testing and commissioning in respect of all equipment's under the scope of the specification, (Engineer-in-Charge) shall issue to the contractor, a taking over certificate as a proof of final acceptance of the equipment. Such certificate shall not unreasonably be held up on account of minor omission or defects, which does not affect the commercial operation or do not constitute any serious risk to the equipment. The contractor shall undertake to make good such omissions and defects at the earliest possible time. The estimated amount as decided by the (Engineer-in-Charge) for making good such omissions or defects or deficiency in observed performance over the assessed or guaranteed performance shall be deducted from the invoice of the contractor and the amount deducted shall be paid as soon as the omissions or defects are rectified or made good the financial loss, etc. to the satisfaction of (GVSCCL). The taking over certificate however shall not relieve the contractor of his obligation which otherwise survive by the terms and conditions of the contract after issuance of such certificate.

2.2. 11.9. REGULATION OF LOCAL AUTHORITIES AND STATUS:

The contractor shall, to the extent relevant and applicable, comply with all the rules and regulations of local authorities/governments, during the performance of his field activities. He shall also comply with the minimum wage Act: 1948 and any modifications thereof and the payment of wages Act (both of the Government of India) and the rules made there under, in respect of employees or workmen employed or engaged by him. The contractor shall also supply the equipment in conformity with the electricity laws, rules, etc. and obtain all permissions and approvals from the competent authorities such as CEIG, etc. before charging the equipment for testing and commissioning.

2.2. 11.10. CONSTRUCTION MANAGEMENT:

1. The field activities of different contractors working at site, will be co-ordinated by the (Engineer-in-Charge) and his decision shall be final in resolving any disputes or conflicts between the Contractor another Contractors and regarding scheduling and co-ordination of work. For any disputes, the decision of MD&CEO<GVSCCL shall be final and binding on both the parties.

2. The Engineer-in-Charge or his representative shall hold meetings of all the Contractors working at site, at a time and a place to be designated. The Contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of (Engineer-in-Charge) and shall strictly adhere to these decisions in performing his services. In addition to the above weekly meetings, (Engineer-in-Charge) may call for other meetings either with individual contractor or with selected number of contractors and in all such cases the contractor, if called shall attend such meetings.  
HOWEVER, any delay in timely completion of the work under the contract on account of any such decision of the Engineer-in-Charge causing such delay or suspension of work for any period of time shall not be attributable to the contractor.

2.2.11.11. CONTRACTOR'S ASSISTANCE IN WORK PLAN FOR FIELD OPERATION:

1. Erection network submitted by the Contractor and discussed with the client and finalized with necessary modifications to form a part of Contract documents will be the essence for planning erection activities. Accordingly, the Contractor will prepare work plan in line with erection network for erection activities to be performed.
2. First preparation of such erection plan will cover erection activities to be Performed for two months' period. Every subsequent plan prepared in the last week of every month, will contain Updated report for reflecting progress achieved Up to 20th day of the month (hereinafter "reporting month") a firm programme for the first ensuing month and tentative programme for the second ensuing month. The firm erection programme for the first ensuing month will reflect the progress of the reporting month erectable equipment and material available at site, resources at the immediate disposal of the Contractor and the inputs to be provided by the Client. The firm work plan shall be broken down by the Contractor in week-wise erection plan. The tentative work plan must set target for complete work based on progress achieved in the reporting month, progress likely to be achieved through firm plan of first ensuing month and identify constraints.
  - I. The erection work plan will be reviewed periodically for effective implementation of work plan.
  - II. The Contractor shall also intimate the programme of the visit of his personnel to site and departure from site. (Engineer-in-Charge) will have the right to review the list of such personnel and ask for increase in the strength or reschedule the visits of such personnel, if in the opinion of (Engineer-in-Charge), the list of personnel furnished by the Contractor is not sufficient for effective performance of the Contract.
  - III. The Contractor shall have the complete responsibility for the safety of all persons employed by him, and all the properties under his custody during the Contract. This requirement with respect to the persons employed by the contractor shall be limited to work site only and with respect to the equipment and properties shall apply continuously till the completion of the contract and shall not be limited to normal working hours.

2.2. 11.12. ACCESS TO SITE:

1. The Contract, so far as it is executed on the client premises, shall be carried out till such time as the client may approve.

2. During the execution of the work, no person's other than the contractor, or his duly appointed representative, sub-contractors and workmen shall be allowed to do work on the site, except by the special permission in writing. But access to the works at all times shall be accorded to the (Department) representatives and other authorized officials.

2.2.11.13. CONTRACTOR'S SITE OFFICE ESTABLISHMENT:

The Contractor shall establish a site office at the site and keep posted a client authorized representative for the purpose of Contact. Any written order or instructions of (Engineer-in-Charge or his representative) shall be handed over to the Contractor's representative under receipt duly taken from the said representative and such communication shall be treated as a communication to the contractor's legal address.

2.2.11.14. CO-OPERATION WITH OTHER CONTRACTORS:

1. The Contractor shall co-operate with all other Contractors and staff of the Client, who may be performing other services on behalf of the Client and the workmen who may be employed by the Client and doing work in the vicinity of the Contractor's work site.
2. Client shall be informed promptly by the Contractor of any defects in the work that could affect the performance of the equipment. The Contractor and the client shall determine the corrective measures, if any, required to rectify this situation after inspection of the works.

2.2. 11.15. QUALIFICATION OF CONTRACTORS PERSONNEL:

1. The Contractor's personnel will be adequately qualified, trained and experienced so as to carry out the duties most efficiently and effectively as expected of them. The Contractor's personnel shall have adequate experience of working on similar type of the equipment and similar job.
2. Notwithstanding above if any of the personnel is not found to be performing his services in a manner as expected of him, under the contract, the Contractor on advice from (Engineer-in-Charge), shall replace such person(s) at his cost with those acceptable to (Engineer-in-Charge), by mutual agreement.

2.2.11.16. DISCIPLINE OF WORKMEN:

The Contractor shall adhere to the disciplinary procedure set by (Engineer-in-Charge) in respect of his employees and workmen, if any, at site. The (Engineer-in-Charge) shall be at liberty to object to the presence of any representative or employee of the Contractor at the site, if in the opinion of (Engineer-in-Charge), such employee has committed misconduct, or is incompetent or negligent or otherwise undesirable, and then the contractor, after mutual agreement, shall replace such a person objected to.

2.2. 11.17. MANPOWER REPORT:

The Contractor shall furnish, on the first day of every month, manpower report of the previous month detailing the number of persons scheduled to have been deployed and actually deployed for timely and successful commissioning of the equipment.

2.2. 11.18. CLEANLINESS:

The offices and the residential areas of the Contractor's employees within the premises of the client or those allotted by the client, shall be kept neat and clean to the entire satisfaction of the client.

2.2. 11.19. FIELD OFFICE RECORD:

The Contractor shall maintain at his office, Up-to-date copies of all drawings, specifications and other contract documents and any other Supplementary data, complete with all the latest revisions thereto. The Contractor shall also maintain, in addition, the continuous record of all changes to the above Contract documents, drawings, specifications, Supplementary data etc., effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other engineering data to indicate "as installed" conditions of the equipment furnished under the Contract. Such drawings and engineering data shall be submitted to (Engineer-in-Charge) in requisite number of copies as per terms of the Contract.

2.2. 11.20. EPF & INSURANCE:

If an existing EPF account code is not in place, then the bidder should obtain independent EPF account code in his name, from the competent authority. Documentary evidence for the same should be produced at the time of entering into agreement or before commencement of works, as demanded by (Engineer-in-Charge).

The insurance of all Contractors' personnel against any accident during erection, testing and commissioning etc., shall be arranged by the Contractor at his cost. The Contractor shall also indemnify the Client against all liabilities arising out of any accidents, loss and/ or any other reasons. The personal insurance for the contractor's personnel deputed to site shall also be arranged by the Contractor at his cost.

I. COMPREHENSIVE AUTOMOBILE INSURANCE:

This insurance shall be in such a form as to protect the Contractor against all claims for injuries, disability, disease and death to member of public including the Client's men and damage to the property of others arising from the use by the Contractor's personnel of motor vehicles during on or off the site operations, irrespective of the ownership of such vehicles.

II. WORKMEN'S COMPENSATION INSURANCE:

This insurance shall protect the Contractor against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his sub-contractor's employees which for any reason are not covered under the Workmen's Compensation Act, 1948. The responsibility and liability of this insurance be as provided in the statutes and the liability shall not be less than the liability provided in the statutes.

III. COMPREHENSIVE GENERAL LIABILITY INSURANCE:

This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and sub-contractors or from riots, strikes and civil commotion.

The hazards to be covered will pertain to all the works and areas where the Contractor, his Sub-Contractors, his agents and his employees have to perform work pursuant to the Contract. The above are only illustrative lists of insurance covers normally required and it will be the responsibility of the Contractor to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect in pursuance of the Contract.

**2.2.11.21. SERVICE AND FACILITIES TO BE PROVIDED BY THE CLIENT:**

The Department shall make suitable arrangement at Substation/transformer for the solar power plant and operation of adequate capacity and transmission lines for connection of the solar power plant to the invertors and sub-station/transformer/feeder. Any failure/delay of the bidder to timely execute and complete the contract shall be the liability of the Department and the bidder shall not be held responsible for the same. Notwithstanding anything to the contrary stated anywhere in the contract, the Department shall further make arrangement for security safety of the plant after commissioning and hand over of plant.

Necessary area required for construction of contractor's office and quarters for contractor's supervisors/workmen shall be arranged by themselves by the Contractor near project site. It is the responsibility of the contractor to establish the office and to provide necessary residential accommodation to his employees at his own cost. Power Supply for construction purpose shall be arranged by themselves by the Contractor. Contractor shall arrange distribution of power as required for construction works. The distribution shall be with proper protection with MCCB's/MCB's etc. as per Indian standards. Contractor has to make his own arrangement for water for construction activities and maintenance of plant or providing water to the employees and their residential quarters.

**2.2.11.22. WORKING HOURS:**

The personnel shall work normally 8 hours per day in one shift during the hours in between 6.00AM to 8.00PM including one-hour rest and six days working per week. The works can be allowed to be carried out during night, Sundays or authorized holidays in order to meet the schedule targets keeping in view;

1. The provisions of labour laws are adhering to;
2. Adequate lighting, Supervision and safety measures are established,
3. The construction program given by the contractor and agree for working during Sundays or authorized holidays.

**2.2.11.23. REGULATIONS OF LOCAL AUTHORITIES:**

The contractor shall, throughout the continuance of the contract and in respect of all matters arising in the performance thereof obtain consents, way leaves, approvals and permissions required in connection with the regulations and by-laws of the local or other authority which shall be applicable to the works.

All work shall be executed in accordance with the Indian Electricity Rules,1956 and any statutory modifications thereof, and any local regulation and laws, wherever applicable, unless otherwise agreed to in writing by the Engineer.

All works shall be carried out by and under the supervision of qualified personnel having required skills and certifications. The necessary approvals for installation and operating the equipment such as CEIG approval, etc. shall be obtained by the contractor. The client shall provide necessary assistance in furnishing the required details.

**2.2.11.24. LIABILITY FOR ACCIDENTS AND DAMAGE:**

The bidder shall be responsible for all loss, damage or depreciation to the plant until the plant is taken over or extended period as agreed. The bidder shall, during the progress of the work, properly cover Up and protect the plant from injury by exposure to the weather, and shall take every reasonable, proper, timely, and useful precaution against accident or

injury to the same from any cause and shall remain answerable and liable for all accidents or injuries thereto which until the same or be deemed to be taken over, may arise or be occasioned by the acts or omissions of the bidder or his workmen or sub-bidder, and all losses and damages arising from such accidents or injuries as aforesaid shall be made good in the most complete and substantial manner by and at the sole cost of the bidder to the reasonable satisfaction of the client.

Until the plant shall be or be deemed to be taken over as aforesaid the bidder shall also be liable for and shall be deemed to have indemnified the client in respect of all damage or injury to any person or property of the client or of other occasioned by the negligence of the bidder or his workmen or sub-bidders or by defective design, work or material, but not otherwise provided that the bidder shall not be liable under the contracts for any loss of profit or loss of contracts or any claims made against the client not already provided for in the contract, nor for any damage or injury caused by or arising from the acts of the client or of others, or (save as to damage by fire, acts of God or any event of force majeure as hereinafter provided) due to circumstances over which the bidder has no control, nor shall his total liability for loss, damage or injury exceed the total value of the contract.

The bidders shall be deemed to have indemnified and saved harmless the client against mal actions, suits, claims, costs or expenses arising, in connection with injuries suffered prior to the date when the plant shall have been taken over and during maintenance period by persons employed by the bidder or his sub-bidders on the works whether under the General law or under the Workmen's Compensation Act, 1923, or any other statute in force at the date of the contract dealing with the question of the liability of employers for injuries suffered by employees and to have taken steps properly to insure against any claims hereunder.

On the occurrence of an accident which results in the death of any of the workmen employed by the bidder or which is so serious as to be likely to result in the death of any such workmen, the bidder shall within 24 hours of the happening of such accident, intimate in writing to the (Engineer-in-Charge), the fact of such accident. The bidder shall indemnify (UP IRRIGATION) against all loss or damage sustained by the Department resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or fines if any payable by the Department as a consequence of its failure to give notice under the Workmen Compensation Act or otherwise, to conform to the provision of the said Act in regard to such accident.

In the event of any claim made, or action brought against the client involving the bidder and arising out of the matter referred to and in respect of which bidder is liable under this clause, the bidder shall immediately notify, and he shall, with the assistance, if he so required, of the client, but at the sole expense of the bidder conduct all negotiations for the settlement of the same or of any litigation that may arise there from. In such case the client shall, at the expense of the bidder, afford all available assistance for any such purpose.

In the event of an accident in respect of which compensation may become payable under workmen's Compensation Act VIII of 1923, whether by the bidder or by the (DEPARTMENT) as principal, it shall be lawful for (DEPARTMENT) to retain out of moneys due and payable to the bidder such sums of money as may be in the opinion of the said Engineer be sufficient to meet such liability. The decision of (Engineer-in-Charge) shall be final in regard to all matters arising under this clause.

#### 2.2.11.25. FENCING AND LIGHTING:

Except as herein after provided the bidder shall, unless otherwise specified, be responsible for the proper fencing, guarding, lighting, and watching of all works comprised in the contract and for the proper provision of temporary roadway, footways, guards, and fences as far as the same may be rendered necessary by reason of the work for the accommodation and protection of foot passengers or other traffic and of the owners and occupiers of adjacent property and of the public. Fencing & lighting provided in and around control rooms.

**2.2.11.26. MATERIALS BROUGHT ON TO THE SITE:**

All materials, and equipment brought to and delivered Upon the site for the purpose of the work shall, from the time of their being so brought, vest and be the property of the client but may be used for the purpose of the work but for that purpose only and shall not on any account be removed or taken away by the bidder or any other person without the express permission in writing of the Engineer but the bidder shall nevertheless be solely liable and responsible for any loss or destruction thereof or damage there to unless resulting from causes beyond the bidder's control not being causes insurance against destruction or damage.

**2.2.11.27. BIDDER REPRESENTATIVE AND WORKMEN:**

Complete Erection, Testing and Commissioning is included in scope of works. The bidder shall employ at least one competent representative, whose name or names shall have previously been communicated in writing to the client by the bidder, to supervise the erection of the plant and carrying out the works. The said representatives, or if more than one shall be employed then one of such representatives, shall be present at the site during working hours and any written orders or instructions to the said representative of the bidder, shall be deemed to have been given to the bidder. The client shall be at liberty to object to any representative or person employed by the bidder in the execution or otherwise about the works who shall misconduct himself or be incompetent or negligent, and the bidder shall remove the person so objected to Upon receipt of notice in writing from the client requiring him (the bidder) so to do, and provide in his place a competent representative at the bidder's expense.

**2.2.11.28. ENGINEER'S SUPERVISION:**

All the works shall be carried out under the direction and to the reasonable satisfaction of the Engineer-in-Charge. The bidder shall be responsible for the correctness of the positions, levels, and dimensions of the works according to the drawings notwithstanding that he may have been assisted by the Engineer in setting out the same.

**2.2.12. REPLACEMENT OF DEFECTIVE WORK OR MATERIALS:**

If during the progress of work the Engineer-in-Charge decides and notifies in writing to the bidder that the bidder has executed any unsound or imperfect work, or has Supplied any plant or materials inferior quality or quantity to these specified, the bidder on receiving details of such defects or deficiency shall, at his own expense, within seven days of his receiving the notice, or within such time as may reasonably necessary for making it good, proceed to alter, reconstruct, or remove such work or Supply fresh materials Up to the standard of the specification, and in case the bidder fails to do so, the client may on

giving the bidder seven days' notice in writing of his intention so to do proceed to remove the works, the materials complained of, and at the cost of the bidder, perform all such work or Supply all such materials, provided that nothing in this clause shall be deemed to deprive the client of or affect any rights under the contract which he may otherwise have in respect of such defects or deficiencies.

**2.2.13. TESTS ON COMPLETION:**

Whenever possible all tests shall be carried out before shipment should, however, it be necessary for the final tests as to performance and guarantees to be held over until the plant is erected at site they shall be carried out in the presence of the bidder's representative within one month of the completion of erection or the taking over of the solar power plant by the department whichever is earlier.

**2.2.14. TESTS AT SITE:**

In all cases where the contract provides for tests at site, the bidder except where otherwise specified, shall provide, free of charge, such labour, materials, fuel, stores, apparatus and instruments as may be required from time to time, and as may reasonably be demanded, efficiently to carry out such tests of the plant, material, or workmanship in accordance with the contract.

In the case of contracts requiring electricity for carrying out tests on site at the time of commissioning, such electricity shall be Supplied free of costs to the bidder.

**2.2.15. POWER TO VARY OR OMIT WORK:**

No alterations, amendments, omissions, additions, suspensions, or variations of the work (herein after referred to as "Variations") under the contract as shown by the contract drawings or the specification shall be made by the bidder except as directed in writing by the client, but the client shall have full power, subject to the provision herein after contained, from time to time during the execution of the contract by notice in writing to instruct the bidder to make such variation without prejudice to the contract, and the bidder shall carry out such variations, and be bound by the same conditions, as far as applicable, though the said variations not occurred in the specification and the bidder will compensate in this situation if applicable.

If any suggested variations, would, in the opinion of the bidder, if carried out, prevent him fulfilling any of his obligations or guarantees under the contract, he shall notify the client thereof in writing, and the client shall decide forthwith whether or not the same shall be carried out, and if the client confirms his instructions, the bidder's obligations and guarantees shall be modified to such an extent as may be justified. The difference of cost, if any, occasioned by any such variations shall be added to or deducted from the contract price as the case may require. The amount of such difference, if any, shall be ascertained and determined in accordance with the rates specified in the schedules of prices, so far as the same may be applicable, and where the rates are not specified in the said schedules, they shall be settled by the client and bidder jointly. But the client shall not become liable, for the payment of any charge in respect of any such variations, unless the instructions for the performance of the same shall have been given in writing by the client.

In the event of the client requiring any variations, such reasonable and proper notice shall be given to the bidder as will enable him to make his arrangements accordingly, and in cases where goods or materials are already prepared, or any designs, drawing, or patterns made or work done that require to be altered, a reasonable sum in respect thereof shall be

allowed by the client. Provided that no such variation shall, except with the consent in writing of the bidder, be such as will involve an increase or decrease of the total price payable under the contract by more than 10 (Ten) percent thereof.

In any case in which the bidder has received instructions, from the client as to carrying out the work, which either then or later will, in the opinion of bidder, involve a claim for additional payment, the bidder shall, as soon as reasonably possible after the receipt of the instructions, aforesaid, advise the client to that effect.

#### 2.2.16. NEGLIGENCE:

If the bidder neglects to execute the work with due diligence and expedition or shall refuse or neglect to comply with any reasonable orders given to him in writing by the Engineer-in-charge connection with the work, or shall contravene the provisions of the contract, the client may give seven days' notice, in writing, to the bidder, to make good the failure, neglect, or contravention complained of and should the bidder fail to comply with the notice within a reasonable time from the date of service thereof in the case of failure, neglect or contravention capable of being made good within that time or, otherwise within such time as may be reasonably necessary for making good, and in such case, the client shall be at liberty to employ other workmen, and forthwith perform such work as the bidder may have neglected to do or if the client shall think fit, it shall be lawful for him to take the work wholly, or in part, out of the bidder's hands and re-contract at a reasonable price with any other person or persons, or provide any other materials, tools, tackle or labour for the purpose of completing the work or any part thereof and in that event the client shall, without being responsible to the bidder for fair wear and tear of the same to have the free use of all the materials, tools, construction plant or other things which may be on the site, for use at any time in connection with the work, to the exclusion of any right of bidder over the same, and the client shall be entitled to retain and apply any balance which may be otherwise due on the contract by him to the bidder or such part thereof as may be necessary to the payment of cost of executing such work as aforesaid.

If the cost of executing the work as aforesaid shall exceed the balance due to the bidder and the bidder fail to make good the deficit, the said materials, tackle, construction plant or other things, the property of the bidder may be sold by the client, and the proceeds applied towards the payment of such difference and the cost of an incidental to such sale. Any outstanding balance existing after crediting the proceeds of such sale shall be paid by the bidder on the certificate of the Engineer, but when all expenses, costs and charges incurred in the completion of the work are paid by the bidder, all such materials, tools, tackles, construction plant or other things remaining unsold shall be removed by the bidder.

#### 2.2.17. DEATH, BANKRUPTCY, ETC:

If the bidder die or commit any act of Bankruptcy, or being a Department commence to be wound Up except for reconstruction purposes or carry on its business under a receiver, the executor successors, or other representative in law of the estate of the bidder or any such receiver, liquidator, or any person in whom the contract may become vested, shall forthwith give notice thereof in writing to the client and shall for one month, during which he shall take all reasonable steps to prevent as stoppage of the works, have the option of carrying out the contract subject to his or their providing such guarantee as may be required by the client but not exceeding the value of the work for the time being remaining unexecuted. In the event of stoppage of the work the period of the option under this clause shall be 14 (fourteen) days only. Provided that, should above option not be exercised, the contract

may be determined by the client by notice in writing to the bidder. And the same power and provisions so reserved to the client in the last proceeding clause on taking of the work out of the bidder's hands shall immediately become operative.

2.2.18. AFTER SALES SERVICE:

The contractor shall agree to provide after-sales service and spare parts, at prevailing rates for a period of not less than five years or specified in the bid documents. The contractor shall state in the bid the name and address of his representative or that of the manufacturer in India who is qualified to render such services and from whom spare parts can be obtained in respect to each item of equipment in bid. In the event, such a representative has not been established; contractor shall guarantee that arrangements for such service and spare parts will be made simultaneously with the delivery of the equipment. The after-sales service shall provide directly or through arrangements with an established operating service organization having shop facilities and qualified mechanics to service equipment similar to that in the contract. The client reserves the right to visit and inspect the named service representative to determine compliance with this requirement of the contract. The client reserves the right to request the contractor to depute one service engineer to check the equipment at site and advice on servicing, maintenance and adjustment of the equipment for a period of one week free of charge during the Guarantee period. The contractor shall supply necessary repair, service and spare parts at any time during the life of the machine at a price not in excess of prevailing rates charged to others for similar work. The contractor shall submit shop drawings along with detailed technical specifications of such spare parts liable for frequent wear and tear to enable the Client to get such spare parts manufactured indigenously.

Bidder shall guarantee that before going out of production the spare parts, he will give adequate notice to the client so that the latter will have adequate time to order for future requirement of spares. Seller shall further guarantee that if he goes out of production of spare parts, then he will make available the blue prints, drawings of the spare parts and specification of material at no cost to the Client if and when required.

2.2.19. TRAINING OF PERSONNEL:

The contractor shall undertake to train Engineers of the Department free of cost in installation, operation and maintenance of Plant and associated auxiliary equipment at the works of the contractor or at installations using similar equipment. The period and nature of training for the individual personnel shall be agreed upon mutually between the contractor and the Client. These Engineering personnel shall be given special training in the shops, where the equipment will be manufactured and/ or in their collaborators work and where possible, in any other plant where equipment manufactured by the contractor or his collaborator is under installation or test, to enable these personnel to become familiar with the equipment, being supplied by the contractor.

2.2.20. MAINTENANCE CONDITIONS OF THE CONTRACT:

The plant after successful testing and commissioning shall be taken over by the Department. However, comprehensive regular maintenance of the plant is within the scope of the successful tenderer for the specified period. The tenderer shall operate and maintain the plant and equipment by suitable personnel. The spares required for maintenance of the plant is within the scope of the contractor. The comprehensive maintenance is inclusive of regular/Break down maintenance, preventive maintenance as per the manufacturer's manuals, etc. and to get the better performance and maximum output from the plant.

All the break-downs, repairs, etc. are to be attended by the contractor immediately so as to put the plant in service within the least possible time in any case not later than the periods mentioned in this tender specification.

2.2.21. GRAFTS AND COMMISONS ETC.:

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the contractor or his partner, agent, officers, director, employee or servant or any one on his or their behalf in relation to the obtaining or to the execution of this or any other contract with the Client, shall result in cancellation of contract, in addition to any criminal liability which it may incur. The Client shall be entitled to deduct the amounts payable from any moneys otherwise due to the contractor under this contract. Any question or dispute as to amount of damage payable under this clause shall be referred to sole Arbitrator appointed by mutual consent of the contractor and the department or as provided in the Arbitration and conciliation Act.

2.2.22. RELEASE OF INFORMATION:

The contractor shall not communicate or use in advertising, publicity, sales releases or in any other medium photographs or other reproduction of the works under this contract, or description of the site, dimensions, quality or other information, concerning the work unless prior written permission has been obtained from the Client.

2.2.23. COMPLETION OF CONTRACT:

Unless otherwise terminated under the provisions of any other relevant clause, this contract shall be deemed to have been completed at the expiration of the guarantee period, completion of maintenance contract period, and fulfilment of all contractual terms and conditions.

2.2.24 LIMIT OF CONTRACT:

Equipment Supplied shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment" s and / or needed for erection, completion and safe operation of the equipment's as required by applicable codes though they may not have been specifically detailed in the respective specifications unless included inthe list of exclusions. All similar standard equipment's provided, shall be interchangeable with one another.

2.2.25 GENERAL:

The Bidder shall be responsible for provision of health and sanitary arrangement more particularly described in contract labour (regulation and abolition Act), safety precautions, etc. as may be required for safe and satisfactory execution of the contract.

The Bidder shall fulfil all his obligations in respect of accommodation including proper facilities for the personnel employed by him.

The bidder shall be responsible for the proper behaviour at site and observance of all regulations by the staff employed by him. Insurance for the labour engaged shall be the responsibility of the bidder till the equipment is taken over after completion of works in full shape and completion of maintenance period, as per applicability, by the (DEPARTMENT). The insurance of the labour engaged for maintenance of the plant by the contractor shall also be the responsibility of the contractor. The bidder shall be responsible for settlement of insurance claims arising out of accident/injury to staff employed by him.

2.2.26. Force Majeure:

1. The Supplier shall not be liable for any delay or failure to Supply the materials /equipment for reasons of Force Majeure such as Acts of God, Acts of War, Act of Public Enemy, Natural calamities, Fires, Floods, Frost, Strikes, Lockouts etc. Only those causes which have duration of more than 3 days and their reparations shall be considered for force majeure.
2. The contractor shall within 15 days from the beginning of such delay notify to the Department in writing the cause of delay or telephonically or through email where written communication is not possible due to such force majeure event) the cause of delay. The Department shall be considered to have direct and sufficient knowledge of such force majeure event where the same is published by the media. The time of completion of the project under the contract shall automatically stand extended till the persistence of such force majeure event and its repercussions preventing resumption of execution of the project under the contract.
3. No price variation shall be allowed during the period of force majeure and liquidated damages would not be levied for this period.
4. If the performance in whole or part by the contractor or any obligation under the Contract is prevented or delayed by "Force Majeure" conditions for a period exceeding 180 days, the client may at his option terminate the contract by notice in writing.

2.2.27. Cancellation of Order:

The Department reserves the right to cancel the contract in part or in full by giving two weeks' notice there by, if The contractor fails to comply with any of the terms of the contract. The contractor becomes bankrupt or goes into liquidation. The contractor makes general assignment for the benefit of the creditors and Any Receiver is appointed for the property owned by the contractor.

2.2.28. Jurisdiction:

Any dispute under this contract shall be referred to a sole Arbitrator appointed by mutual consent of the Contractor and the Department or as provided in the Arbitration and Conciliation Act. The courts or Tribunals situated in Visakhapatnam-Andhra Pradesh shall have exclusive jurisdiction in this matter.

PART - III  
SECTION – I

**SCOPE OF CONTRACT ABSTRACT**

**Acronyms**

AC	Alternating Current
BOD	Biological Oxygen Demand
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CERC	Central Electricity Regulation Commission
CUF	Capacity Utilization Factor
DBT	Dry Bulb Temperature
DC	Direct Current
DHI	Diffuse Horizontal Irradiation
DNI	Direct Normal Irradiation

DSCR	Debt Service Coverage Ratio
EPC	Equipment, procurement and commissioning
EPS	Expanded Polyesterene
GHI	Global Horizontal Irradiation
Gol	Government of India
GW	Giga Watt
GWh	Giga Watt Hour
HDPE	High Density Poly Ethylene
IEC	International Electro-Technical Commission
INR	Indian Rupees
IRR	Internal Rate of Return
ISO	International Standards Organization
KVA	Kilo Volt Amps
KWh	Kilo Watt Hour
MNRE	Ministry of New and Renewable Energy
MPP	Maximum Power Point
MW	Mega Watt
NASDAQ	National Association for Securities Dealers Automated Quotations
NPV	Net Present Value
NREL	National Renewable Energy Laboratory
ONAN	Oil Natural Air Natural
PLF	Plant Load Factor
PPP	Public-Private-Partnership
PV	Photo Voltaic
SCADA	Supervisory Control and Data Acquisition
USD	US Dollars
UV	Ultra violet
Wspd	Wind Speed

## Background

Anthropogenic activities, with emissions from fossil fuels at the core, contribute to a variety of climate change impacts. These impacts range from diminished food security, increased frequency of natural disasters, extinction of species, escalated spread of vector borne diseases, rise in sea-level and accelerated erosion of coastal zones (Barros et al., 2015; Harley et al., 2006; Pearson & Dawson, 2003). The Intergovernmental Panel on Climate Change (IPCC) indicates that the net damage costs of climate change are likely to be significant and to increase over time (ESCT, 2016).

India's National Action Plan on Climate Change (NAPCC), in its vision articulates the need to create a prosperous but a prudent society that thrives on responsible and sustainable innovation (Gol, 2008). Amongst the guiding principles of NAPCC is the deployment of "appropriate technologies for both adaptation and mitigation of greenhouse gas emissions extensively as well as at an accelerated pace" (Gol, 2008).

This guiding principle also forms the core of the national action plan and advocates a shift in India's energy mix for electricity generation, thereby increasing the share of renewable energy.

India, located in the equatorial sun belt of the earth, receives an annual global radiation, within the range of 1600 to 2200 kWh/sq.m. The equivalent energy potential is about 6,000 million GWh of energy per year (CERC, 2015). Utility-scale solar PV power plants, however, have a large spatial footprint. Large tracts of land are required to undertake any multi-megawatt scale energy generation. This puts a restriction on (required) land, which usually has multiple uses ranging from agriculture and ancillary functions to supporting habitats and industries. These multiple uses also put an economic premium on land and provide the central motivation behind the development of land-neutral solar PV power plants with some level of innovation in design, and optimum use of available natural resources, the aforementioned issues can be easily avoided. A land neutral solar power plant further claims *additionally* over the contemporary ground mounted solar PV power plants. Improvements in operating conditions of the solar PV panels (in case of land-neutral solar PV power plant), along with optimization of available solar resource, results in not only an improvement in the capacity utilization factor (CUF) but also may yield substantial water savings which is otherwise lost to the atmosphere because of regular cleaning of solar modules and evaporation losses from the reservoir.

The land-neutral solar PV power plant, therefore, envisages demonstrating the several benefits of adopting this technology and broadly captures the motivation behind two national missions, namely, 'National Solar Mission' and 'National Water Mission'.

## Technical specifications

### 1. FOREWORD

- 1.1. India is laying great emphasis on reducing the country's carbon footprint. Utility-scale solar PV power plants, however, have a large spatial footprint. Large tracts of land are required to undertake any megawatt scale energy generation. This puts a restriction on (required) land, which usually has multiple uses ranging from agriculture and ancillary functions to supporting habitats and industries. These multiple uses also put an economic premium on land and provide the central motivation behind the development of floating/land-neutral solar PV power plant(s) at raw water reservoir (RWH). The energy generated by grid connect solar photovoltaic system will be utilized to feed electrical loads during daytime.
- 1.2. The motivation behind the development of 2000 kWp land-neutral solar PV power plants is threefold, namely
  - [a] avoiding the displacement of land that could be used for agricultural expansion;
  - [b] reduction in evaporation losses from reservoir, a definite positive for the plant;
  - [c] accumulation of benefits from additional energy yield, largely due to the result of cooling (of solar PV modules) from water, consistent with the negative temperature coefficient performance for PV modules.

### 2. SCOPE

- 2.1. This specification provides the generic requirement for grid connected floating solar photovoltaic (SPV) system capacity of 2000 kWp.

- 2.2. The specification covers general and technical requirements for design, manufacturing, testing, supply, installation and commissioning of Grid connect floating solar generating system.
- 2.3. Tenderer must have experience in designing, planning and executing and maintaining (or currently under execution) at least 2 MWp capacity grid connected projects in India as investor, consultant or integrator.
- 2.4. Selected tenderer agrees to set up and commission floating solar plant within 6 months from date of signing of LOA. If the tenderer fails to commission the sanctioned project within specified time, as per milestones fixed, Liquidated damages as indicated would be levied.
- 2.5. State of art plant efficiency monitoring and data logging system will be an integral part of the solar power plant. GVSCCL should be able to do diagnostics & monitor all plant efficiency related parameters.
- 2.6. Metering and grid connectivity of the solar PV system would be the responsibility of the tenderer in accordance with the prevailing guidelines of the concerned DISCOM and (if available by the time of implementation) GVSCCL could facilitate connectivity as and wherever possible; however, the entire responsibility lies solely with tenderer.
- 2.7. Operation and Maintenance of the Solar PV plant for 5 years will be the responsibility of tenderer.
- 2.8. Tenderer shall be liable to guarantee a minimum number of units of electricity that it shall supply annually.
- 2.9. Tenderer will submit technical details like Generation estimate, preliminary system design used along with the tentative bill of material such as panel, inverter make etc.
- 2.10. The bidder shall clearly specify the guaranteed output (DC Input at PCU and AC output at HV side of the Transformer), both minimum and maximum for the site conditions and all other technical parameters, expected electricity generation from the plant, overall performance ratio of the plant, the applicable correction factors/curves, model calculations for performance testing, etc. along with their bid. The bidder shall also indicate the estimated generation from the plant month wise and basis for arriving such assessment viz., solar insolation, correction factors, etc. In case of non-submission of the data, it is the discretion of the MD & CEO, GVSCCL, Visakhapatnam whether to consider the least values of all the other bids for comparison or total rejection of the bid. MD & CEO, GVSCCL, Visakhapatnam will not entertain post-tender correspondence with any bidder. In no case the guaranteed output per annum will be ..... units in the first year with a depreciation of ..... % per annum.
- 2.11. Cabling, LT and HT shall be in the scope of tenderer and to be done as per IEC rules. Tenderer will follow all internationally applicable electrical safety norms in installation of solar plant and during operation and maintenance of the plant.

- 2.12. Tenderer shall take permission from Chief Electricity Inspector for setting up the plant.
- 2.13. Tenderer shall take permission from concerned authorities (Local/state/central) if required under any Laws, rules and regulations.

### 3. REFERENCE STANDARDS

- 3.1. The table below provides reference standards for solar photovoltaic modules

IS: 12834:1989 (reaffirmed 2000)	Solar Photovoltaic Energy Systems – Terminology
IEC: 61215 Ed 2 or latest/eqv. IS Std	Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval
IEC: 61730 Pt 1 & 2	Photovoltaic (PV) module safety qualification -Part 1: Requirements for construction, Part 2: Requirements for testing
IEC:60904-1(2006)	Photovoltaic Devices- Part-I: Measurement of Photovoltaic current-Voltage Characteristic
IS: 9000	Basic environmental testing procedure for Electronic and electrical items.
IEC:60068	Environmental testing

- 3.2. The table below provides technical standards for Balance of Systems (BoS).

Item / System	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
	Standard Description	Standard Number
Solar PV Systems: Charge Controller/MPPT units Power Conditioners/ Inverters**including MPPT and Protections	Environmental Testing	IEC 60068-2 (1,2,14,30) / Equivalent BIS Std.
	Efficiency	IEC 61683 / IS 61683
	Measurements	IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Std.
Cables	General Test and Measuring Method PVC insulated cables for working voltage up to and including 1100 V and UV resistant for outdoor installation	IEC 60227 / IS 694 IEC 60502 / IS 1554 (Pt. I & II)
Switches/Circuit Breakers /Connectors	General Requirements Connectors –safety A.C. /D.C.	IEC 60947 part I, II, III / IS 60947 Part I, II, III EN 50521

Junction Boxes / Enclosures for Inverters / Charge Controllers / Luminaries	General Requirements	IP 65/66(for outdoor) IP 54(for indoor)
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**Note:** Latest version of the standards shall be referred to.

#### 4. SYSTEM DESCRIPTION

- 4.1. Floating solar photovoltaic (SPV) grid connect system shall consist of mainly the following:
  - 4.1.1. Solar photovoltaic panels
  - 4.1.2. Flotation unit for mounting of solar panels and PCU
  - 4.1.3. Module mounting structure
  - 4.1.4. Mooring and anchoring system
  - 4.1.5. Junction boxes
  - 4.1.6. Power conditioning unit (PCU)
  - 4.1.7. Import and export metering
  - 4.1.8. Cable and other accessories
  - 4.1.9. Transformer
- 4.2. The module mounting structure shall be installed over an appropriately designed modular and pre-fabricated flotation device with appropriate buoyancy to support the weight of at least one solar panel and one person per solar panel. The flotation device shall be designed for simple mechanical on-site installation. There shall be no requirement of welding, masonry or complex machinery at the installation site.
- 4.3. The PV array converts the light energy of the sun to DC power. The module mounting structure shall be used to hold the module in position. The DC power shall be converted to AC by PCU to supply AC loads. Solar power shall be integrated and synchronized with the Grid.
- 4.4. DC distribution board/ combiner shall be provided in between solar array and PCU. It shall have DC Disconnecter/MCCB of suitable rating for connection and disconnection of array section. Type II Surge Arrestor should be incorporated for surge protection. It shall have meters for measuring the array voltage and array current. Appropriate IP protection shall be provided. In case of string inverters, if the requirements served by DC distribution board are fully taken care of by string inverter(s), then firms' proposal (if any) for elimination of DC distribution board from the system design, can be considered.

**Note:** All items including cables are in vendor's scope.

- 4.5. AC distribution board shall be provided in between PCU and loads. It shall have an integrated energy meter, voltmeter and ammeter. As for energy, generally the parameter of interest shall be the aggregate energy output of inverter(s) fed into the individual AC distribution board(s). Party must offer the facility for recording the energy output data of each inverter (wherever multiple inverters are feeding into an AC distribution board). Class I + II (as per IEC 62305) 100 kA Surge Arrestor should be incorporated for protection against surges.
- 4.6. No electrical storage batteries shall be required and accordingly, these are not included in the scope of work. In case, energy storage is required appropriate pumped hydro storages would be set-up.
- 4.7. The system shall comply with IEC 62446.

PART - III  
SECTION – II  
**DETAILED SCOPE OF CONTRACT**

**5. GENERAL REQUIREMENTS**

- 5.1. Total capacity of Solar PV power plant to be installed is **2000 kWp**. The total **2000 kWp** shall be distributed on the available water reservoir(s). The final locations will be decided during the pre-bid meeting. The measurement of cabling, if required, can be taken during pre-bid meeting. Interested bidders may participate ensure their attendance during pre-bid meeting.
- 5.2. Solar panels and array junction boxes shall be installed on shade free areas while the PCU and distribution boards, etc. shall be housed inside an appropriate canopy. In case of string inverters, the client shall carefully weigh the option of indoor vs outdoor installation and shall be finalized during design stage. The installation of SPV modules in raw water reservoirs must not negatively impact the ecology of the reservoir.
- 5.3. Array structure of PV yard and all electrical equipment's such as PCU, inverters, etc. shall be grounded properly. All PCU/inverters should be enclosed in appropriate housing that are rated IP 65/66. Towards this end, the contractor will supply and install an adequate number and appropriate size of IS: 3043 – 1987 compliant earthing kits; at least one each for AC circuit, DC circuit and lighting protection system. The complete earthing job and connecting with the existing earthing grid is in vendor's scope.
- 5.4. Suitable marking shall be provided on the bus for easy identification.
- 5.5. PV modules may be connected in series up to the maximum allowed operating voltage of the PV modules and the PV inverter whichever is lower.
- 5.6. The reverse current of blocking diodes (connected in series), if required/provided, shall be rated for 2 X VOC STC of the PV string. Reverse blocking diode would not be required if inverter has reverse polarity protection feature.
- 5.7. All cables that are submerged or in contact with water should be with IP 68 rating defined in IEC 60529.
- 5.8. Proper sealing arrangements at the points of cables entering the enclosures should be incorporated. Although not mandatory, manufacturers are however encouraged that the cables entering into the enclosures be sealed with modular EPDM based cable sealing and protection system based on multi-diameter technology.

**6. TECHNICAL REQUIREMENTS**

- 6.1. The DC output from the modules shall be fed to array junction box and the strings are paralleled at sub Main & Main junction boxes. Then PCU shall convert DC energy produced by the solar array to AC energy. The AC power output of the inverter shall be fed to the AC distribution board (metering panel & isolation panel), which also houses the energy meter. The AC output of grid-connect SPV system should be paralleled with electric power supply from the grid.
- 6.2. The system shall automatically wake-up in the morning and supply power, provided there is sufficient solar energy and the grid voltage and frequency are in range.
- 6.3. When the grid voltage and/or frequency go out of pre-set range, the inverter shall be immediately disconnected from the grid. The inverter will reconnect after a pre-determined time when the grid is back in the range (which should not be more than 5 minutes).

- 6.4. Array to inverter voltage drop shall be less than 3% at the maximum power output of the array.
- 6.5. In case of central inverters adequate space and ventilation for the inverter shall be provided. In case of string inverter, the same shall be installed within a range of 100 m from the solar PV array.
- 6.6. For safety reasons, PV inverter system shall be disconnected from the network following a fault or loss of supply on the power network.
- 6.7. The performance and generation data shall be recorded using a data logger. The monitoring system shall comprise of the following main components:
  - 6.7.1. PCU will log the inverter performance data and transmit the same to the data logger. It shall also monitor basic parameters like power generated, etc.
  - 6.7.2. Data logger shall gather information and monitor the performance of the inverter. It shall also support measurements from the external sensors. Data Logger shall also monitor the Solar Insolation and Temp of Array Yard.
  - 6.7.3. Data logging system/software shall enable automatic long-term storage of measured data from PV plant. It shall allow visualization, monitoring, commissioning and service of the installation. The data logger shall be web enabled. It should be possible to access the data logger with any standard web browser like internet explorer, google chrome, safari etc. from any PC/Mac using client's private LAN and for this purpose, relevant software/hardware will be supplied by the contractor. In addition to the web portal, it should also be possible to see the data directly from the data logger. This is basically for inverter display; Inverter must have display where the client can see and change required parameter directly on the inverter. The software for access/ visualization of data from data logger should also be provided by the supplier. Necessary executable files, if any, will be required to be given free of cost by the supplier on a CD/ any other storage device along with lifetime license (if applicable).
  - 6.7.4. **Communication interface:** The system should offer Ethernet port and LAN/WAN interface to facilitate remote monitoring of the system. All necessary components, cables, software and one (01) laptop are in vendor's scope. Monitoring of inverters from any PC on client's local LAN must be possible.
  - 6.7.5. Monitoring mechanism to include the following
    - 6.7.5.1. Remote monitoring and digital metering unit
    - 6.7.5.2. Built-in meter and data logger to monitor plant performance through external computer
    - 6.7.5.3. String monitoring unit (SMU; to be provided in case of central inverters) if installed it should be UV resistant in accordance with UL 746C suitable for outdoor application. The mechanical impact resistance of IK 07 or better as per IEC 62262 or equivalent standard must be ensured.

6.8. Sizing of the SPV system: **2000 kWp floating SPV system.**

6.9. **SPV module:**

- 6.9.1. Individual Solar PV Module should be of minimum capacity 250 Wp for 60-cell and 300 Wp for 72 cell conforming to IEC: 61215 Ed 2/ IS14286

(Standard for PV module design qualification and type approval) and latest, IEC: 61730 – I :2007 (Standard of requirements for construction), IEC: 61730 – II : 2007 or equivalent IS (Standard of requirements for testing and safety qualifications), manufactured in a plant certified under ISO 9001 : 2008 and type tested by an accredited national/international testing laboratory. The Solar PV Module should be made from mono/poly crystalline Silicon Solar Cell connected in series. Cut cells should not be used.

- 6.9.2. Individual solar PV modules must be Potential Induced Degradation (PID) free. **Double-glass module will be preferred**, which replaces the traditional polymer back sheet with heat strengthened glass. This typology of solar module has no metal frame and is Potential Induced Degradation (PID) free because it requires no module level grounding, which eliminates the cause of PID.
- 6.9.3. SPV modules of similar output with **+5 Wp tolerance** in single string shall be employed to avoid array mismatch losses.
- 6.9.4. SPV module shall contain crystalline high power silicon solar cells. The solar cell shall have surface anti-reflective coating to help to absorb more light in all weather conditions.
- 6.9.5. Photo-electric conversion efficiency of SPV module shall not be less than **15.5%**.
- 6.9.6. Fill factor of the module shall not be less **than 72%**.
- 6.9.7. Each module shall have low iron tempered glass front for strength and superior light transmission. It shall also have tough multi-layered polymer **back sheet/ heat strengthened glass for environmental protection against moisture and provide high voltage electrical insulation. Transitivity of glass shall not be less than 91%**.
- 6.9.8. Module junction box and terminal block (weather resistant) shall be designed for long life outdoor operation in harsh environment.
- 6.9.9. SPV module shall be highly reliable, light weight and shall have a service life of more **than 25 years**. SPV modules shall have a limited power loss of not more than 10% of nominal output at the end of 10 years and of not more than 20% of nominal output at the end of 25 years.
- 6.9.10. The output of any supplied module shall not be less than the rated output and shall not exceed the rated power by more than 5Wp. Each module, therefore, has to be tested and rating displayed.
- 6.9.11. Whenever more than one module is required, identical modules shall be used.
- 6.9.12. The module shall perform satisfactorily in relative humidity upto 95% and temperature between -10oC and +85oC.
- 6.9.13. The solar modules shall have suitable encapsulation and sealing arrangements to protect the silicon cells from the environment. The encapsulation arrangement shall ensure complete moisture proofing for the entire life of solar modules. The terminal block shall be of Noryl rubber with weatherproof design (min. IP 65) and shall have a provision for opening /replacing the cables if required.
- 6.9.14. SPV Modules shall be tested and approved/certified as per above standards. Qualification Test certificate to be submitted with supply which can be from any NABL/ IEC /MNRE/BIS accredited/recognized testing/calibrating laboratories/Solar Energy Centre. Bidder to provide certification proof/verification of Testing Lab along-with certificates.
- 6.9.15. All the SPV modules to be tested for performance at vendor's works.

- 6.9.16. The performance of PV module (minimum 1% of total PV modules) at STC conditions must be tested and approved by one of the IEC / NABL/MNRE/BIS accredited/recognized Testing/calibrating Laboratories/ Solar Energy Centre. Bidder to provide certification proof/verification of Testing Lab along-with certificates.
- 6.10. **Markings:** Each module would carry the following clear and indelible markings.
- 6.10.1. Name, monogram or symbol of manufacturer of PV module
  - 6.10.2. Name of manufacturer of Solar Cell
  - 6.10.3. Type or model number
  - 6.10.4. Serial number
  - 6.10.5. Polarity of terminals or leads (colour coding is permissible)
  - 6.10.6. Open-circuit voltage
  - 6.10.7. Operating voltage
  - 6.10.8. Maximum system voltage for which module is suitable
  - 6.10.9. Operating current
  - 6.10.10. Short-circuit current
  - 6.10.11. Date and place of manufacture
  - 6.10.12. Weight of module
  - 6.10.13. Module Wp tolerance
- 6.11. RFID Tag: Each PV module must use a RF identification tag (RFID), which must contain the following information. The RFID can be inside or outside the module laminate, but must be able to withstand harsh environmental conditions. Four (04) compatible RFID readers shall also be provided by the successful bidder along with supply of panels.
- 6.11.1. Name of the manufacturer of PV Module
  - 6.11.2. Name of the Manufacturer of Solar cells
  - 6.11.3. Month and year of the manufacture (separately for solar cells and module)
  - 6.11.4. Country of origin (separately for solar cells and module)
  - 6.11.5. I-V curve for the module
  - 6.11.6. Peak Wattage,  $I_m$ ,  $V_m$  and FF for the module
  - 6.11.7. Unique Serial No and Model No of the module
  - 6.11.8. Date and year of obtaining IEC PV module qualification certificate
  - 6.11.9. Name of the test lab issuing IEC certificate
  - 6.11.10. Other relevant information on traceability of solar cells and modules as per ISO 9000 series

**6.12. Flotation device:**

- 6.12.1. The floatation device should be prefabricated and designed for simple mechanical on-site installation. There shall be no requirement of welding, masonry or complex machinery at the installation site.
- 6.12.2. The floatation device should be modular, such that the installed assembly can be easily expanded and scaled up if required. Each module/combination of maximum two modules should support at least one solar panel. All modules should be standardized and independently created.
- 6.12.3. The floatation device should be manufactured from appropriate thermoplastic. The grade of thermoplastic used should have a good Environmental Stress Crack Resistance (ESCR) and a combination of hardness and impact strength (ASTM D1693). The thermoplastic used

- should be safe for use when in contact with drinking water and meet requirements stipulated in standard IS 15410:2003.
- 6.12.4. The material of the floatation device would be UV stabilized.
  - 6.12.5. The material used shall be halogen, silicon free conforming to RoHS directive 2002/95/EC
  - 6.12.6. The floatation device should be chemically resistant to acid, lye, petrol, mineral oil & partially resistant to benzene.
  - 6.12.7. The floatation device, when installed in the raw water reservoir, should not restrict the process of gas exchange across the air water interface. In order to facilitate this, the design of the floatation device should be such that appropriate voids, greater than at least 30% of all area covered by the floatation device, are provided and form an integral part of the floatation device design.
  - 6.12.8. The floatation device should be designed such that it arrests evaporation and facilitates in evaporation loss mitigation. To this end, the vendor should provide appropriate cover of not less than 60% from the floatation device and not less than 90%, when combined with solar panels, of all area covered by the floatation device. Appropriate vapour escape vents should be provided for each floatation device and solar panel assembly for the purpose of maintaining BOD of the water body.
  - 6.12.9. The design of the floatation device should incorporate appropriately sized walking platforms for regular maintenance and inspection. The walking platform should have a continuous uninterrupted surface with the minimum width of at least 500 mm. The buoyancy, on an average, of the floatation device should be greater than 75 kg/m<sup>2</sup> of area covered by the floatation device.
  - 6.12.10. In order to increase longevity of the floatation device and reduce the maintenance requirements, the floatation device should be foam filled with rigid closed-cell cellular polystyrene with moisture retention of less than 5%.
  - 6.12.11. The floatation device should be reprocessible and recyclable at the end of its useful life.

### 6.13. Module mounting structure:

- 6.13.1. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from SPV panels.
- 6.13.2. The structure shall be designed to allow easy replacement of any module by authorized personnel and shall be in line with the site requirements.
- 6.13.3. The array structure shall be made of Aluminum alloy/ stainless steel SS 304 of suitable size.
- 6.13.4. The support structure, design and foundation shall normally be designed to withstand wind speed upto 200 kmph.
- 6.13.5. The clearance between lowest part of the module structure and the water level shall normally not be more than 250mm.
- 6.13.6. The module alignment and tilt angle, in case of floating SPV power plant, shall be between 1 degree to 18 degrees. It shall be mounted facing south and tilted to an angle within the range of 1 degree to 18 degrees for optimum performance and appropriate wind resistance that must be

mentioned in engineering drawing for approval of GVSCCL with documentary proof.

- 6.13.7. In general bolts, nuts, shims and other hardware should be stainless steel SS304. Fasteners visible outside shall be of stainless steel SS304.

**6.14. Anchoring and mooring system:** The water level variation and prevailing wind speed are the primary safety considerations, to be taken into account, while designing the plant such that the plant has no impact on the reservoir. The mooring system thus needs to be designed that it not only restricts the lateral movement of the proposed plant but also accommodates the water level variability. In addition, the mooring system should also have minimal impact on the overall ecosystem of the reservoir, specifically on the flora and fauna.

- 6.14.1. Placement of plant: The floating solar PV power plant should be at a minimum distance of 5 M from the edge of the reservoir.
- 6.14.2. Prevailing wind load: the mooring system should be designed for worst-case scenario, for a wind load of 200 km/hr. The design of the mooring system should prevent the lateral movement of the plant in case of maximum wind loads.
- 6.14.3. Water variability: The mooring system should accommodate any fluctuations in water level. Further the orientation of the plant needs to be maintained; hence any fluctuations in water level should not result in lateral movement of the plant.
- 6.14.4. Flora and fauna: the mooring system should minimize its impact on the flora and fauna, and thus as far as possible pilings or movement of mooring system on the reservoir bed should be avoided.

#### **6.15. Junction boxes:**

- 6.15.1. The module junction box (if any) shall be certified as per IEC 61215. Else, they should have the same properties as mentioned for array junction boxes. Array sub-main and main junction boxes, shall have the following properties:
- 6.15.1.1.** They shall be dust, vermin & waterproof and made of Polycarbonate-Glass Fibre Substance (PC-GFS) thermoplastic. The enclosure should be double insulated with protection class II as per IEC 61439-1. Material and the protection class shall be marked on the enclosure.
- 6.15.1.2.** The enclosure shall have a transparent front lid for enabling easy visibility.
- 6.15.1.3.** The enclosures shall have IP 65/66 protection in accordance with IEC 60529. Third party conformance certificate is required to be given for IP 65/ IP 66 degree of protection.
- 6.15.1.4.** Minimum requirements for fire protection in the event of internal faults: Glow wire test in accordance with IEC 60 695- 2-11 at 960°C for box and 850°C for conducting components.
- 6.15.1.5.** Burning Behaviour: Base part of Polycarbonate Enclosure shall be UL94-V-0 compliant and Lid part of PC Enclosure shall be UL94-V-2 compliant.
- 6.15.1.6.** The enclosures shall have IK 08 degree of protection for mechanical load.
- 6.15.1.7.** The material used shall be halogen, silicon free conforming to RoHS directive 2002/95/EC.
- 6.15.1.8.** The enclosure shall have a usage temperature rating of -10<sup>0</sup> C to 55<sup>0</sup> C.
- 6.15.1.9.** The enclosure should be chemically resistant to acid, petrol, mineral oil & partially resistant to benzene.

- 6.15.1.10.** The enclosures shall have a rated insulated voltage of 1000V DC and dielectric strength of 4.65 KV DC.
- 6.15.1.11.** The material of the enclosure shall be UV stabilized.
- 6.15.1.12.** Though not mandatory, manufacturers are encouraged to provide breather glands in the array junction boxes to prevent overheating and explosions.
- 6.15.1.13.** MAKE: TYCO / HENSEL/ or equivalent.
- 6.15.2. **SPDs Class II as per IEC 61643-1**, shall be used at the terminals of array junction boxes for external surge protection. Internal Surge protection (SPDs) shall consist of three MOV type arrestors connected from + ve and – ve terminal to earth (Via Y arrangement) for higher withstand of the continuous PV-DC voltage during earth fault condition. SPD shall have safe disconnection & short circuit interruption arrangement through integrated DC in-built bypass fuse (parallel) which should get tripped during failure mode of MOV, extinguishing DC arc safely (created by inbuilt thermal disconnection) in order to protect the installation against fire hazards. Nominal discharge current ( $I_n$ ) at 8/ 20 microseconds shall be minimum 10 KA with maximum discharge current ( $I_{max}$ ) of minimum 20 KA at 8/20 microseconds with visual indication (through mechanical flag) in all modules to monitor the life of SPD. The  $I_{scwpv}$  (Short Circuit current withstand capacity of arrester) would be at least 10% more than Nominal output current of the combiner box and AJB. Detailed internal schematic for the above SPDs, compliant to these specifications, should be submitted by the manufacturers.
- 6.15.3. The junction boxes shall have suitable cable entry points with cable glands of appropriate sizes for both incoming and outgoing cables
- 6.15.4. Suitable markings should be provided on the bus bar for easy identification, and cable ferrules shall be fitted at the cable termination points for identification.
- 6.16. Earthing for PV array, Balance of System (BOS), lightning protection and other components.**
- 6.16.1. The photovoltaic modules (in case of PV modules with polymer back sheet), Balance of system (BOS) and other components of power plant require proper grounding for protection against any serious faults as guided by IEC 60364.
- 6.16.2. Soil resistivity measurement at the site need to be undertaken prior to deciding on earthing solutions required.
- 6.16.3. Vendor must ensure requisite earthing for inverters, junction box, SMU etc. as per standard procedure.
- 6.16.4. The construction of earth pit shall be in vendor's scope.
- 6.16.5. Each row in the solar array (if photovoltaic modules with polymer back sheet is installed) need to be earthed and all earthing electrodes need to be interconnected to form an earthing grid. The earthing resistance must not exceed the limits generally in practice for such applications.
- 6.16.6. The Bidder shall submit the detailed scheme of earthing and grounding.

- 6.16.7. The contractor will supply and install an adequate number and appropriate size of IS:3043 – 1987 compliant earthing kits; **at least two each for AC circuit, DC circuit and lighting protection system.**
- 6.16.8. The source of over voltage can be lightning or other atmospheric disturbance. Main aim of over voltage protection is to reduce the overvoltage to a tolerable level before it reaches the PV or other sub system components. Lightning protection should be provided as per IEC 62305 or NFC 17 (ESE type).
- 6.16.9. Necessary concrete foundation or any other arrangement for holding the lightning conductor in position is to be made after giving due consideration to shadow on PV array, maximum wind speed and maintenance requirement at site in future.
- 6.16.10. The lightning conductor and structures shall be earthed through flats as per applicable Indian Standards with earth pits. Each lightning conductor shall be fitted with individual earth pit as per required Standards including accessories, and providing masonry enclosure. Else, a matrix of lightning conductors is to be created which will be required to be connected to an earth.
- 6.16.11. If necessary, more numbers of lightning conductors may be provided.
- 6.16.12. The Bidder shall submit the drawings and detailed specifications of the PV array lightning protection equipment.
- 6.17. **Power conditioning unit (PCU):** PCU shall supply the DC energy produced by array to DC bus for inverting to AC voltage using its MPPT (Maximum Power Point Tracking) control to extract maximum energy from solar array and produce current within the range of 415V – 480V (+15% and -20%) AC, 3 phase,  $50 \pm 5\%$  Hz (47.5 to 52.5 Hz) to synchronize with the local grid (captive power plant supply). For sizing of grid connect inverter, the general guideline will be that the ratio of SPV KWp rating to inverter's KVA rating **shall be within 1.15**. The array output should be well within the input voltage range of the inverter so that the inverter works in MPPT range for most of the solar insolation range. This should be applicable for the whole life of the solar array and needs to be substantiated through design calculations.
- 6.17.1. MPPT controller, inverter and associated control and protection devices, etc. all shall be integrated into the PCU.
- 6.17.2. PCU/ string inverter shall provide 3 phase, 415V – 480V (with grid tracking of +15%/-20%), 50 Hz (with grid tracking of  $\pm 5\%$  i.e. 47.5 to 52.5 Hz) supply on AC side with voltage THD of less than 3% and current THD of less than 5%.
- 6.17.3. The efficiency of the PCU shall be equal to or **more than 95% at 75% load as per IEC 61683**. The bidder shall specify the conversion efficiency at different load say 25%, 50%, 75% and 100% in their offer.
- 6.17.4. Each PCU shall be compliant with IEEE Standard 929-200 or equivalent and should be at least IP54. For inverters to be installed outdoors, IP65 protection shall be required.
- 6.17.5. The inverter shall be efficient with IGBT based reliable design. The control system should be of highest reliability preferably based on Digital Signal Processors. The manufacturers are encouraged to provide the control system of redundant type.
- 6.17.6. The PCU shall be capable of complete automatic operation, including wake-up, synchronization and shut down.
- 6.17.7. PCU shall have the facility to display the basic parameters of the system LED/LCD display.
- 6.17.8. PCU shall be able to synchronize independently and automatically/ phase-lock with available grid power line frequency to attain synchronization.

- 6.17.9.** Built-in data logging to monitor plant performance through external PC shall be provided. The communication should be in such a way that the inverter can be monitored from any PC connected to the internal LAN of GVSCCL. All necessary components, cable and software with license is in vendor's scope and is to be provided by the vendor.
- 6.17.10.** Inverter shall be tested for anti-islanding protection performance.
- 6.17.11.** Only isolated inverters shall be grounded on DC side. Usually not required in transformer less inverter.
- 6.17.12.** Indications (through LEDs/ LCD display) Following is an indicative list of indications (the actual scheme will be finalized at design stage):
- 6.17.12.1. Inverter ON
  - 6.17.12.2. Grid ON
  - 6.17.12.3. Inverter under voltage/over voltage
  - 6.17.12.4. Inverter over-load
  - 6.17.12.5. Inverter over-temperature
  - 6.17.12.6. Earth Fault
- 6.17.13.** Protections: Following is an indicative list of protections (the actual scheme will be finalized at design stage):
- 6.17.13.1. Over-voltage both at input and output
  - 6.17.13.2. Over-current both at input and output
  - 6.17.13.3. Over/under grid frequency
  - 6.17.13.4. Over temperature
  - 6.17.13.5. Short circuit on AC side
  - 6.17.13.6. Reverse polarity protection
  - 6.17.13.7. Array ground fault protection
  - 6.17.13.8. Protection against lightning induced surges Class II, 10 kA as per IEC 61643-1. SPD box is acceptable.
  - 6.17.13.9. Protection against surge voltage induced at output due to external source
- 6.17.14.** Night consumption of the PCU shall be less than 0.2% of the rated power of the inverter.
- 6.17.15.** Noise level of the PCU should be less than 65 dBA (nominal) at 1m.
- 6.17.16.** DC insulation resistance should be more than 50MΩ.
- 6.17.16.1. Emitted interference as per IEC: 61000-6-4.
  - 6.17.16.2. Interference emitted as per IEC: 61000-6-2.
- 6.17.17.** An integrated earth fault detection device is to be provided to detect eventual earth fault on DC side and shall send message to the supervisory system.
- 6.17.18.** Idling current at no load shall not exceed 2% of the full load current.
- 6.17.19.** PCU shall withstand high voltage test of 2,000 Vrms between either the input or the output terminals and the cabinet (chassis).
- 6.17.20.** PCU includes ground lugs for equipment and PV array groundings. The DC circuit ground shall be a solid single point ground connection.
- 6.17.21.** Where PCU has not been provided with galvanic isolation, a type B residual current device (RCD) according to IEC 60755 amendments 2 shall be installed to provide fault protection by automatic disconnection of supply. Inbuilt RCD will also be accepted.
- 6.17.22.** To allow maintenance of the PCU, means of isolating the PCU from the DC side and the AC side shall be provided.
- 6.17.23.** PCU can be a centralized unit or a combination of multiple string inverters. In case of centralised inverters, the inverter shall have low voltage ride through feature

- 6.17.24.** Makes: OPS/REFU sol/Delta/OEM/SMA/Schneider/ABB vendor to Mention if others. Vendor should be prepared to prove track record of the make, if not mentioned in the names here.
- 6.17.25.** The PCU should withstand the environmental tests (as per IEC 60068/ IS 9000) listed below with the PCU working at full load for at least last half an hour. Environmental test results in respect of any similar design PCU for at least 10 KWp SPV systems will be adequate.
- 6.17.25.1. Dry Heat Test: 50°C ± 2°C for 16 hours
- 6.17.25.2. Damp Heat Test (Steady state): 40° C, 93% RH for 4 days
- 6.17.25.3. Damp Heat Test (Cyclic): 40°C, 93% RH for 6 cycles (duration of one cycle shall be 24hrs)
- 6.17.25.4. Cold Test: 0° C for 16 hours
- 6.17.25.5. Change of temperature Test: -10°C /-5° C to 50°C for 3 cycles (rate of change in temperature shall be 3oC per minute)
- 6.18. Cables and hardware:** The cables used in module/ array wiring shall be TUV 2Pfg 1169/08.2007 or VDE EPV 01:2008-02 or UL4703 certified.
- 6.18.1. Cables of appropriate size to be used in the rest of the system shall have the following characteristics
- 6.18.1.1. Temp. Range 0 degC to +90 degC. Cable must be able to withstand this ambient temp range while carrying max current. Maximum and minimum withstand temperature of cable must be mentioned in engineering drawing for approval of GVSCCL/APEPDCL/CEIG with documentary proof.
- 6.18.1.2. Voltage rating 600/1100V
- 6.18.1.3. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation, ozone and weathering
- 6.18.1.4. Halogen-free, low smoke, low toxicity.
- 6.18.1.5. Flame retardant
- 6.18.1.6. Flexible. Armoured or un-armoured cable should have flexibility as per applicable standard respectively.
- 6.18.1.7. Fulfils IEC 60332-1 requirements. Accredited lab test report/Manufacturer's test report shall be attached. (Details of test lab is as per clause 21).
- 6.18.1.8. Conductor class IEC 60228 class 5. Accredited lab test report/Manufacturer's test report shall be attached. Only Copper conductor is to be used.
- 6.18.2. Cabling on DC side of the system shall be as short as possible to minimize the voltage drop in the wiring.
- 6.18.3. Components and hardware shall be vandal and theft resistant. All parts shall be corrosion-resistant.
- 6.18.4. All cables required must be supplied by vendor.
- 6.18.5. Voltage drop on the DC side from array to the inverter should not be more than 3%. Necessary calculations in this regard shall also be submitted during design approval.
- 6.18.6. Overload protection is to be provided. Design Overload capacity for 10 sec of 125% of continuous rating. The principle aim in this protection is to reduce the over voltage to a tolerable value before it reaches the PV or other subsystem components. The source of over voltage can be lightning or any other atmospheric disturbance.
- 6.18.7. The system description, general/technical requirements, etc. are given for general guidance only. The supplier/manufacturer shall submit the detailed design of the complete solar generating system by using their software to optimize the

combination of modules considering the specific location, insulation, nature of load, etc.

- 6.18.8. Cable to be routed in standard manner through cable trays & cable marker to be placed for future identification.
- 6.18.9. For physical protection of unarmoured cables (wherever used) suitable conduit to be provided wherever necessary. Armoured cable is to be used wherever required.
- 6.19. AC Distribution Board (ACDB): The ACDB shall be used to terminate single or multiple PCU outputs. The ACDB must have the following features:
  - 6.19.1. Input Grid Line should come from such Distribution Board of client so that the [?] load is fed simultaneously in parallel (synchronized) by the grid as well as SPV system.
  - 6.19.2. The Solar Power should be exported to the bus bar inside the ACDB through a LCD display Energy Meter.
  - 6.19.3. The Designated Load should be routed through ACDB and an Energy Meter to register the Load Energy Consumption from Solar and Grid during Week Days and Holiday. The meter must show the exact line current, voltage, instantaneous power and energy reading (daily & cumulative).
  - 6.19.4. ACDB should have Class I + II (as per IEC 62305; IEC 61643 and IEC 60364-5-53), 100 kA Surge Suppression inbuilt for surge protection. Surge protection on AC side (Type 1 + Type 2) shall consist of Prewired metal encapsulated spark gap based solution for fire safe and fire proof operation at site, consisting of base part and plug in protection modules. Total discharge capacity/ Lightning Impulse current (Iimp) at 10/350  $\mu$  sec and nominal discharge current (In) at 8/ 20  $\mu$  sec shall be minimum 100 KA for three phase power supply system and 50 KA for single phase power supply system. The discharge capability of L-N connected module shall be 25 KA at 10/350  $\mu$  sec and 8/20  $\mu$  sec. All the L-N & N-E connected arresters shall have built in mechanical health indication. Complete solution shall have voltage protection level (Up) of  $\leq$  1.5 KV to protect the sensitive electronics inside the Invertors, having follow current extinguishing and limiting capability up to 25 KA rms (at 255V) without tripping of even small rating 32 AGL/gG fuse and approved from international independent test labs like KEMA or VDE or UL as per latest IEC 61643-1 or equivalent EN 61643-11 standard. SPDs on the ACDB shall be provided if the same haven't been provided on the PCU.
  - 6.19.5. Appropriate IP protection shall be provided, at least IP54.
- 6.20. **Pyranometer & Silicon Irradiance Sensor:** A provision of Pyranometer or Silicon Irradiance Sensor for measurement of solar irradiance is preferred to be kept in the contract. The pyranometers must be very accurate and give an accuracy of > 98%. Test certificate to be produced by vendor for the same. Atleast one (01) Pyranometer must be installed per rooftop.
- 6.21 **AC DISTRIBUTION PANEL BOARD:**  
AC Distribution Panel Board (DPB) shall control the AC power from inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar to be carried out and complete equipment along with metering to be installed in the ACDB. Requirement/specifications of ACDB may be changed as per site conditions. An ACDB to be provided at the cable terminating point emanating from inverter for interconnection control of dedicated electrical loads. All switches at the, circuit breakers, connectors should confirm to IEC 0947, part I, II and III.

- i. The Panel shall have adequate inputs to take in, from individual PCUs & adequate outputs to, Transformer with adequate number of spare terminals.
- ii. The Panel shall be floor mounted type and equipped with all measuring instruments such as voltmeter, ammeter, frequency meter, Electronic Energy Meter (for measuring the deliverable units (kwh), selector switches, Mimic front panel.
- iii. All the Power cables shall be taken through backside of the Panel and cable shall be avoided from sides.
- iv. The Panel shall be fitted with suitable rating & size copper bus, HRC fuses/circuit breaker/isolator indicators for all incomer and outgoing Feeders, Voltmeter & Ammeter with suitable selector switches to monitor & measure the power to be evacuated.
- v. Nut & bolts including metallic cubicle shall have to be adequately protected against atmosphere and weather prevailing in the area.
- vi. The overall dimension shall be fitted with other Power Conditioning Units of the Power Plant. However, dimension, weight, sheet thickness, painting etc., should be indicated by the Contractor. The bill of material associated with the equipment should be clearly indicated while delivering the equipment.

**6.22. Cables:**

- i. All cables shall be PVC insulated with appropriate grade conforming to IS.
- ii. The wiring for module inter-connection shall have hard PVC conduit of approved make. All Tees, Bends etc., shall be approved make. Before procurement, approval for materials should be obtained from Engineer-in-charge or his representative.
- iii. All wires used on the LT side and HT side shall conform to IS and should be appropriate voltage grade and of reputed make shall be used.
- iv. Cable terminations shall be made with suitable cable lugs & sockets etc., crimped properly and passed through brass compression type cable glands at the entry & exist point of the cubicles. The panel's bottoms should be properly sealed to prevent entry of snakes / lizard etc., inside the panel.
- v. All cable/wires shall be marked with good quality letter and number ferrules of proper sizes so that the cables can be identified easily.
- vi. As-built wiring diagrams shall be provided.

The HT & LT cables should comply with the following standards. LT side Zebra conductor and HT side Panther conductor is preferable.

**HT Cables:**

The 33KV Cables shall be unearthed grade suitable for use in medium resistance earthed system, with stranded & compacted Copper conductors, extruded semi-conducting compound screen, extruded XLPE insulated, extruded semi-conducting compound with a layer of non-magnetic metallic tape for insulation screen, extruded PVC (Type ST-2) FRLS inner sheath, Aluminium/galvanized steel round wire armoured extruded PVC (Type ST-2) FRLS outer sheathed, single / multi Core conforming to IS 7098 (Part II) IEC-60502 for constructional details and tests. 3 Core XLPE Cable of 35 sq. mm. or suitable higher size Copper armoured cable conforming to IS 7098 of required length shall be provided for power evacuation from Power Transformer to Double/Four Pole Structure through HT Switchgear.

**LT Power Cables:**

LT Power Cable shall be 1100V grade, single Core, 300 Sq.mm or suitable higher size of Multi-Stranded Copper conductor, XLPE insulated with PVC inner sheath and outer sheath made on FRLS PVC compound. The armouring shall be of Aluminium/ galvanized steel round wire.

The cable used for DC system shall be of Two core, 16 Sq.mm or Higher Size Multi-Stranded Copper conductor type. The cable used for 24V Battery Charger shall be of Two core, 6 Sq.mm or Higher Size Multi-Stranded Copper conductor type.

Minimum conductor cross section of power cables shall be 4 Sq.mm for lighting, Ventilation Blowers, Jet pump and other auxiliaries.

**6.23. TRANSFORMER & METERING:**

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

**6.24. DRAWINGS & MANUALS:**

- a) Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Tenderers 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, tenderers shall supply complete design, details and drawings for approval to GVSCCL/APEPDCL/CEIG before progressing with the installation work.

**6.25. PLANNING AND DESIGNING:**

- a) The tenderer should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The tenderer should submit the array layout drawings along with Shadow Analysis Report to BIAL for approval.
- b) GVSCCL reserves the right to modify the design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.
- c) The tenderer shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The tenderer should submit three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

- 6.26. **DRAWINGS TO BE FURNISHED BY TENDERER AFTER AWARD OF CONTRACT:**
- a) The successful bidder shall furnish the following drawings Award/Intent and obtain approval
  - b) General arrangement and dimensioned layout
  - c) Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, Junction Boxes, AC and DC Distribution Boards, meters etc.
  - d) Structural drawing along with foundation details for the structure.
  - e) Itemized bill of material for complete SV plant covering all the components and associated accessories.
  - f) Layout of solar Power Array

6.27. **SYNCHRONISATION, COMMISSIONING AND COMMERCIAL OPERATION**

- 1. The bidder shall provide at least fifteen (15) days advanced preliminary written notice and at least Six (6) days advanced final written notice to GVSCL/APEPDCL/CEIG of the date on which it intends to synchronize the Power Project to the Grid System.
- 2. The Power Project shall be synchronized by the bidder with the Grid System when it meets all the connection conditions prescribed in applicable Grid Code then in effect and otherwise meets all other Indian legal requirements for synchronization to the Grid System.
- 3. The plant civil works, evacuation line and termination at transmission network of APEPDCL Sub Stations are in the scope of Contractor.
- 4. The bidder shall synchronize its system with the Grid System only after the approval of synchronization scheme is granted by the head of the concerned sub-station/Grid System and checking/verification is made by the concerned authorities of the Grid System.
- 5. The bidder shall immediately after each synchronization/, inform the substation of the Grid System to which the Power Project is electrically connected in accordance with applicable Grid Code.
- 6. The Developer shall commission the Project within 8 (eight) months from the Effective Date.

6.28. **Fire Extinguishers:**

- 6.28.1. CO2 type fire extinguisher and dry powder type fire extinguisher to be provided.
- 6.28.2. CO2 type fire extinguisher to be placed near inverter.

PART-IV  
SCHEDULES

**Price Schedules**

In order to receive consistent and responsive bids, it is recommended that Employers include a PREAMBLE to the Price Schedules indicating exactly what is required of bidders when completing and pricing their bids.

The following Preamble is given as an example only. Employers are responsible for ensuring that the Preamble included in the bidding documents is complete and appropriate for the contract in question.

**PREAMBLE**

**General**

1. The Price Schedules are divided into separate Schedules as follows:

- Schedule No. 1 Plant and Equipment (including Mandatory Spare Parts) Supplied from Abroad
- Schedule No. 2 Plant and Equipment (including Mandatory Spare Parts) Supplied from within the Employer's Country
- Schedule No. 3 Local Transportation
- Schedule No. 4 Installation Services
- Schedule No. 5 Grand Summary
- Schedule No. 6 Recommended Spare Parts

*Add any other Schedules as appropriate*

2. The Schedules do not generally give a full description of the plant and equipment to be supplied and the services to be performed under each item. Bidders shall be deemed to have read the Technical Specifications and other sections of the bidding documents and reviewed the Drawings to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices. The entered rates and prices shall be deemed to include for the full scope as aforesaid, including overheads and profit.
3. If bidders are unclear or uncertain as to the scope of any item, they shall seek clarification in accordance with the Instructions to Bidders in the bidding documents prior to submitting their bid.

**Pricing**

4. Prices shall be filled in indelible ink, and any alterations necessary due to errors, etc., shall be initialled by the Bidder.

As specified in the Conditions of Contract, prices shall be fixed and firm for the duration of the Contract.

5. Bid prices shall be quoted in the manner indicated and in the currencies specified in the Instructions to Bidders in the bidding documents.

For each item, bidders shall complete each appropriate column in the respective Schedules, giving the price breakdown as indicated in the Schedules.

Prices given in the Schedules against each item shall be for the scope covered by that item as detailed in the Technical Specifications, Drawings or elsewhere in the bidding documents.

6. Where there are errors between the total of the amounts given under the column for the price breakdown and the amount given under the Total Price, the former shall prevail and the latter will be corrected accordingly.

Where there are errors between the total of the amounts of Schedule Nos. 1 to 4 and the amount given in Schedule No. 5 (Grand Summary), the former shall prevail and the latter will be corrected accordingly.

Where there are discrepancies between amounts stated in figures and amounts stated in words, the amounts stated in words shall prevail.

7. Payments will be made to the Contractor in the currency or currencies indicated under each respective item.
8. Items left blank will be deemed to have been included in other items. The TOTAL for each Schedule and the TOTAL of the Grand Summary shall be deemed to be the total price for executing the Facilities and sections thereof in complete accordance with the Contract, whether or not each individual item has been priced.
9. When requested by the Employer for the purposes of making payments or part payments, valuing variations or evaluating claims, or for such other purposes as the Employer may reasonably require, the Contractor shall provide the Employer with a breakdown of any composite or lump sum items included in the Schedules.

**Schedules of Rates and Prices**

**Schedule No. 1. Plant, Equipment, and Mandatory Spare Parts Supplied from Abroad**

Item	Description	Code <sup>1</sup>	Qty. <i>(1)</i>	Unit Price <sup>2</sup>		Total Price <sup>2</sup> <i>(1) x (3)</i>
				FOB or FCA <i>(2)</i>	CIF or CIP <i>(3)</i>	
TOTAL (to Schedule No. 5. Grand Summary)						

Code	Country

Name of Bidder	_____
Signature of Bidder	_____

<sup>1</sup> Bidders shall enter a code representing the country of origin of all imported plant and equipment.  
<sup>2</sup> Specify currency.

**Schedule No. 2. Plant, Equipment, and Mandatory Spare Parts Supplied from Within the Employer's Country**

Item	Description	Qty. (1)	EXW Unit Price <sup>1</sup> (2)	EXW Total Price <sup>1</sup> (1) x (2)
TOTAL (to Schedule No. 5. Grand Summary)				

<p>Name of Bidder _____</p> <p>Signature of Bidder _____</p>
--

**Schedule No. 3. Local Transportation, Insurance and Other Incidental Services**

Item	Description	Qty. <i>(1)</i>	Unit Price <sup>1</sup>		Total Price <sup>1</sup> <i>(1) x (2)</i>
			Local Currency Portion <i>(2)</i>	Foreign Currency Portion <i>(optional)</i>	
TOTAL (to Schedule No. 5. Grand Summary)					

Name of Bidder \_\_\_\_\_

Signature of Bidder \_\_\_\_\_

**Schedule No. 4. Installation Services**

Item	Description	Qty. <i>(1)</i>	Unit Price <sup>1</sup>		Total Price <sup>1</sup>	
			Foreign Currency Portion <i>(2)</i>	Local Currency Portion <i>(3)</i>	Foreign <i>(1) x (2)</i>	Local <i>(1) x (3)</i>
TOTAL (to Schedule No. 5. Grand Summary)						

Name of Bidder \_\_\_\_\_

Signature of Bidder \_\_\_\_\_

**Schedule No. 5. Operation & Maintenance for a period of 5 years**

Item	Description	Qty. <i>(1)</i>	Unit Price <sup>1</sup>		Total Price <sup>1</sup>	
			Foreign Currency Portion <i>(2)</i>	Local Currency Portion <i>(3)</i>	Foreign <i>(1) x (2)</i>	Local <i>(1) x (3)</i>
TOTAL (to Schedule No. 5. Grand Summary)						

Name of Bidder \_\_\_\_\_

Signature of Bidder \_\_\_\_\_

**Schedule No. 6. Grand Summary**

Item	Description	Total Price <sup>1</sup>	
		Foreign	Local
	Total Schedule No. 1. Plant, Equipment, and Mandatory Spare Parts Supplied from Abroad		
	Total Schedule No. 2. Plant, Equipment, and Mandatory Spare Parts Supplied from Within the Employer's Country		
	Total Schedule No. 3. Local Transportation, Insurance and Other Incidental Services		
	Total Schedule No. 4. Installation Services		
	Total Schedule No.5-O&M Charges for 5 Years		
TOTAL (to Bid Form)			

Name of Bidder	_____
Signature of Bidder	_____



## Form of Bid Security (Bank Guarantee)

\_\_\_\_\_  
*[Bank's Name, and Address of Issuing Branch or Office]*

**Beneficiary:** MD&CEO, GVSCCL, Visakhapatnam \_\_\_\_\_ *[Name and Address of Employer]*

**Date:** \_\_\_\_\_

**BID GUARANTEE No.:** \_\_\_\_\_

We have been informed that *[name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of *[name of contract]* under Invitation for Bids No. *[IFB number]* ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB") of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB.

This guarantee will expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful bidder; or (ii) twenty-eight days after the expiration of the Bidder's Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

\_\_\_\_\_  
*[signature(s)]*

## Form of Bid Security (Bid Bond)

BOND NO. \_\_\_\_\_

BY THIS BOND *[name of Bidder]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Employer]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Employer]* as Obligee (hereinafter called “the Employer”) in the sum of *[amount of Bond]*<sup>1</sup> *[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted a written Bid to the Employer dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, for the construction of *[name of Contract]* (hereinafter called the “Bid”).

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

- (1) withdraws its Bid during the period of bid validity specified in the Form of Bid; or
- (2) refuses to accept the correction of its Bid Price, pursuant to Sub-Clause 29.2 of the Instructions to Bidders; or
- (3) having been notified of the acceptance of its Bid by the Employer during the period of Bid validity;
  - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
  - (b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

then the Surety undertakes to immediately pay to the Employer up to the above amount upon receipt of the Employer’s first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

The Surety hereby agrees that its obligation will remain in full force and affect up to and including the date 28 days after the date of expiration of the Bid validity as stated in the Invitation to Bid or extended by the Employer at any time prior to this date, notice of which extension(s) to the Surety being hereby waived.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Principal: \_\_\_\_\_ Surety: \_\_\_\_\_  
Corporate Seal (where appropriate)

<sup>1</sup> The amount of the Bond shall be denominated in the currency of the Employer’s country or the equivalent amount in a freely convertible currency.

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*(Signature)*

---

*(Signature)*

---

*(Printed name and title)*

---

*(Printed name and title)*

SCHEDULE - 1

LIST OF PREVIOUS INSTALLATIONS/CONTRACTOR'S EXPERIENCE

Sl.No	Particulars	Description
	1.Name of the Project	
	2. Name, designation and full Postal address of order placing Authority	
	3. Date of award of the contract and detailed order No. of the project authority	
	i.Contractual Date of completion	
	ii.Actual date of completion of work	
	4.	
	(a)Reasonsfordelayin Completion of work, if any	
	(b) Whether the solar power plant is in Trouble free operation for a duration of at least 12/24 months after put into commercial operation	
	5.Nature of arbitration with the project authority, if any	
	6.Value of the contract	

Seal of the Tenderer  
And address of the Tenderer.

Signature, Designation

NOTE:

- 1.The above information should be furnished contract wise
- 2.Necessary performance certificates obtained from the executing agency Issued by respective project in-charges shall be furnished by the contractor.

## SCHEDULE – 2

### DETAILS OF MANUFACTURER

BIDDER shall furnish the following particulars for SPV Modules, PCU's, SCADA, UPS, Transformers, Batteries etc. being offered.

1. Name of the Company :
2. Address :
3. Year of Establishment under quoted Name :
4. Telegraphically Address :
5. Type of Organization :  
(Property/Partnership/Pvt. Ltd./  
PublicLtd./Government)
6. Name and designation of the Officer of:  
BIDDER to whom all reference shall be :  
made for expeditious technical co-  
ordination
7. Place of manufacture (give equipment-  
wise list) :
8. Current registration No. with D.G.S & D :
9. Details of service facilities available :
10. Bidder's proposal No. & Date :
11. Product manufactured based on : YES/NO  
indigenous know-how
12. Any foreign collaborator : YES/NO
13. Name & Address of Foreign collaborator :
14. Extent of collaboration :  
Technical  
Financial
15. Brand Name of product offered :

Seal of the  
Tenderer  
Tenderer

Signature, Designation  
and address of the

SCHEDULE-3  
Proforma of letter of transmittal  
(To be furnished on Principal's Letterhead)

To  
The Managing Director & CEO,  
GVSCCL, Asilmetta,  
Visakhapatnam, Pin Code: 530003.  
Sir,  
Sub: -

Ref: -Tender Notice No xx/CE/Smart City/2017-18 dtd -6-2017

\*\*\*

1. We have carefully examined the conditions, instructions, specifications, drawings etc. in your tender documents for "Design, Procurement, testing at manufacturers works, Supply, erection, testing, commissioning and maintenance for Five years of 2.0MWp grid connected Solar PV Crystalline power project Floating Typr Solar Power Plant at Mudasarlova Reservoir along with grid connecting equipment including associated Civil Works"
2. Accordingly we hereby submit this Application for assessment of our qualification duly accompanied by an Earnest Money Deposit of Rs .....  
in the form of .....
3. We further confirm that our bid contains no deviation from your tenderconditions and specifications except those mentioned in the schedule of deviations.
4. Besides furnishing the information inthe schedules, we submit additional data/certificates as indicated in the list of Enclosures.
5. We hereby certify that all the statements made and information Supplied in the Schedules and additional data etc. furnished are true and correct.
6. We have furnished all information and details necessary for demonstrating our qualification and have no further pertinent information to Supply.
7. We also hereby declare that we have not been blacklisted/ debarred/ disqualified by any government entity compliance or corrUpt/ fraudulent practices.

Seal of the  
Tenderer

Signature, Designation  
and address of theTenderer

Encl:- As per list attached

SCHEDULE -4

PROFORMA FOR THE CERTIFICATE TO BE GIVEN BY THE TENDERER

I certify that all the above typed in data and information on Sheets through are correct and give a true representation of the Equipment covered by our Proposal Number dated.

I hereby certify that I am duly authorized representative of the Supplier whose name appears above my signature.

Suppliers Name.

Authorized Representative's Name.

Signature with date:

Designation:

Seal:

SCHEDULE -5  
FINANCIAL, BUSINESS AND TECHNICAL CAPABILITY

(To be enclosed in prequalification bid)

Name and address the tenderer:

Telephone No.:

1. Latest Balance sheet filed with (Copy attached).
2. Latest profit and loss statement From toon (Copy attached).
3. Financial Position:
  - a. Cash
  - b. Current assets
  - c. Current Liabilities
  - d. Working capital
  - e. Current Liabilities
4. Total liabilities
  - a. Current ratio  
Current assets to  
Current Liabilities
  - b. Test Ratio :  
Cash, temporary investment held in lieu of cash and current receivable to current  
Liabilities
  - c. Total liability to Net  
worth Capital

Authorized  
Issued

Annual value (Turn over) of erection/work undertaken for each of the last five years and projected for current year:

Year	Last	2nd last	3rd last	4th last	5th last
Home					
Aboard					

1. Net Profit before tax;
  - a. Current period
  - b. During last financial year
  - c. During the year last financial year.The profit and loss statements have been certified through by.
2. Financial arrangements(Check appropriate item)

- a. Own resource
  - b. Bank Credits
  - c. Others (Specify)
3. Certificate of financial soundness from Bankers of applicants.
4. The copies of "Annual Report: of the company for last five years may be attached

Seal of the Tenderer  
and address of the Tenderer.

Signature, Designation

(To be enclosed in the Part-I Pre-qualification bid)

Bidders are requested to fill in the blank space and send the same along with offer in duplicate otherwise their offer will be either treated as non-responsive or suitable cost compensated for deficiencies as deemed fit by the Department.

- 01.Tender Specification No., date and due date :
- 02.Offer/quotation No. & Date :
- 03.Name of the bidder :
- 04.Central/StateSales Tax
- 05.DGS&D's Registration No., if any (Please enclose copy of rate contract, if any) :
- 06.NSIC/SSI Registration No., if any (Copy of certificate to be enclosed) :
- 07.Price Basis (F.O.R.) :
- 08.Discount, if any :
- 09.Packing and forwarding charges (If price basis ex-works) :
10. Excise Duty (if exempted, copy of certificate) : Included/Excluded  
(Indicate rate of Excise Duty) : %
- 11.Sales Tax/ VAT : Included/Excluded  
(Also indicate concessional rate against Form „C“ or State Tax concessional form) : %
- 12.Freight charges including service tax : Included/Excluded %
- 13.Insurance charges including service tax : Included/Excluded %
- 14.Whether (MD&CEO, GVSCCL) Terms of payment : Accepted/Not Accepted
- 15.Bank charges : To be borne by seller.

- |  |   |  |
|--|---|--|
| 16. Delivery Period  | : | Within days/weeks<br>From the date of receipt of<br>Purchase Order |
| 17. Whether delivery is made in whole/100<br>Phased delivery           | : |  |
| 18. Mode of dispatch   | : |  |
| 19. Whether submission of contract<br>performance security guarantee   | : | Accepted/ Not accepted   |
| 20. Guarantee Period   | : |  |
| 21. Transit Insurance  | : | Provided/Not provided  |
| 22. Confirmation of submission of EMD                                  | : |  |
| 23. 180 day's validity of offer from the<br>date of opening of bids    | : | Accepted/ Not accepted   |
| 24. Whether (MD&CEO.GVSCCL)'s liquidated<br>Damages Clause is accepted | : | Accepted/ Not accepted   |

(Signature of Bidder with Name, Designation and Office Seal)

## SCHEDULE OF TESTS

Seal of the Tenderer  
And address of the Tenderer.

Signature, Designation

SCHEDULE - 8

SCHEDULE OF DEVIATIONS FROM THE SPECIFICATION

Tenderer shall carefully state below all points which are not in accordance with the enclosed specification

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Sl. No	Chapter	Section	Deviation
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The tenderer hereby certifies that the above mentioned are the only deviations from the specification No.

Seal of the Tenderer  
And address of the Tenderer.

Signature, Designation

SCHEDULE-9

FINANCIAL STATEMENTS FOR THE LAST FIVE YEARS

Seal of the Tenderer  
And address of the Tenderer.

Signature, Designation

PROFORMA OF GUARANTEE FOR EQUIPMENT PERFORMANCE

The tenderer hereby guarantees the requirements of this specification. If any of the requirements of the guarantees given are not fulfilled, the Client has the right to reject the equipment, and if capacity, performance and efficiency obtained during acceptance tests falls short of that guaranteed by the tenderer, the tenderer hereby affirms that such deficiency will be made good by rectifying/replacing the defective parts. All the replaced parts shall be removed from the site. While the facility for making good the deficiency will be normally given once, the purchaser is entitled to reject the equipment in case of repeated failure to meet the guarantee as per the specification.

Seal of the Company :

Name of the Firm :

Signature of the Tenderer:

Designation :

Date :

Seal of the Tenderer  
And address of the Tenderer.

Signature, Designation

SCHEDULE OF PLACES OF TEST AND INSPECTION

The BIDDER shall indicate the item of equipment of Supply, name of the MANUFACTURER or SUB-CONTRACTOR and place of test and inspection as shown below:

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Item of Equipment	MANUFACTURER OR SUB-CONTRACTOR	Place of Test and Inspection
-------------------	-----------------------------------	---------------------------------

SIGNATURE	:
DESIGNATION	:
COMPANY	:
COMPANY SEAL	:
DATE	:

SCHEDULE -12

SCHEDULE OF WEIGHT AND DIMENSIONS

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Description (In Tonnes)	Dimensions Weight
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We, the undersigned hereby undertake to meet above time schedule from the date of order.

SIGNATURE :

DESIGNATION :

COMPANY :

COMPANY SEAL :

DATE :

ANNEXURE-B

CHECK LIST for the documents

S.No	Description of documents	Annexure No
	Part-I: Pre-qualification(Technical Bid)	
1	Bid Security (EMD)	
2	<i>Schedule-1: LIST OF PREVIOUS INSTALLATION/ EXPERIENCE -( Also enclose photocopies of purchase orders/ work orders/ contracts of the same)</i>	
3	<i>Schedule-2 :Details of Manufacturer</i>	
4	<i>Schedule-3: letter of transmittal</i>	
5	<i>Schedule-4:Proforma for certificate to be given by the Tenderer</i>	
6	<i>Schedule-5: Financial Details</i>	
7	<i>Schedule-6: Schedule of general terms &amp; conditions</i>	
8	<i>Schedule-7: Schedule of Tests.</i>	
9	<i>Schedule 8: Schedule of deviations from specification</i>	
10	<i>Schedule 9: Financial statements for the last three years</i>	
11	<i>Schedule 10: Proformae of guarantee for equipment performance</i>	
12	<i>Schedule 11&amp;12</i>	
13	<i>Price schedules 1 to 6 (in separate sealed cover)</i>	
14	<i>Documents as per table 1.3.1</i>	
15	MNRE empannelment certificate/documents to be enclosed along with technical bid documents.	
16	<p><u>Drawings:</u></p> <ul style="list-style-type: none"> <li>a. General Arrangement and Dimensional Layout of SPV Plant</li> <li>b. Drawing showing the layout of SPV panel, Transformers, Mounting etc.</li> <li>c. Drawing showing the Terminal connection between the SPV Modules, Transformer, 33KV Switchgear, Lines etc.</li> <li>d. Single Line Diagram of the system</li> <li>e. Detailed design calculation on expected electrical energy Generation</li> <li>f. General arrangement of Control room</li> <li>g. Any other relevant drawings/documents as may be required for clear understanding of Equipment/ System</li> <li>h. Abstract of material with specifications</li> </ul>	

## **Contract Forms**

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

### **Table of Forms**

<b>Letter of Acceptance .....</b>	
<b>Contract Agreement .....</b>	
<b>Performance Security (Bank Guarantee) .....</b>	
<b>Advance Payment Security .....</b>	

# Letter of Acceptance

*[ on letterhead paper of the Employer]*

..... *[date]* .....

To: ..... *[name and address of the Contractor]* .....

Subject: ..... *[Notification of Award Contract No]* .....

This is to notify you that your Bid dated . . . . *[insert date]* . . . . for execution of the . . . .  
. . . . *[insert name of the contract and identification number, as given in the PCC]* . . . . .  
. for the Accepted Contract Amount of . . . . . *[insert amount in numbers and words and  
name of currency]*, as corrected and modified in accordance with the Instructions to  
Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance  
with the Conditions of Contract, using for that purpose the of the Performance Security  
Form included in Section X. Contract Forms, of the Bidding Document.

***[Choose one of the following statements:]***

We accept that \_\_\_\_\_ *[insert the name of Adjudicator proposed  
by the Bidder]* be appointed as the Adjudicator.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

# Contract Agreement

THIS AGREEMENT made the . . . . . day of . . . . ., . . . . ., between . . . . .  
[name of the Employer]. . . . . (hereinafter “the Employer”), of the one part, and . . . . .  
[name of the Contractor]. . . . .(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as . . . . .[name of the Contract]. . . . .  
. . . should be executed by the Contractor, and has accepted a Bid by the Contractor for the  
execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
  - (i) the Letter of Acceptance
  - (ii) the Letter of Bid
  - (iii) the addenda Nos \_\_\_\_\_(if any)
  - (iv) the Particular Conditions
  - (v) the General Conditions of Contract, including appendix;
  - (vi) the Specification
  - (vii) the Drawings
  - (viii) Bill of Quantities and
  - (ix) any other document **listed in the PCC** as forming part of the Contract,
3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of . . . . . *[name of the borrowing country]* . . . . . on the day, month and year specified above.

Signed by: \_\_\_\_\_  
for and on behalf of the Employer

Signed by: \_\_\_\_\_  
for and on behalf the Contractor

in the  
presence of: \_\_\_\_\_  
Witness, Name, Signature, Address, Date

in the  
presence of: \_\_\_\_\_  
Witness, Name, Signature, Address, Date

# Performance Security (Bank Guarantee)

## (Bank Guarantee)

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of Employer]*

**Date:** *\_ [Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *\_ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *\_ [insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_) *[insert amount in words]*,<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup> Insert the date twenty-eight days after the expected completion date as described in GC Clause 53.1. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

# Advance Payment Security

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:***[Insert name and Address of Employer]*

**Date:** *[Insert date of issue]*

**ADVANCE PAYMENT GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* () *[insert amount in words]* is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* () *[insert amount in words]*<sup>1</sup> upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
- (b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant's bank]*..

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for

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• <sup>1</sup> *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.*

payment, or on the *[insert day]* day of *[insert month]*, 2 *[insert year]*,<sup>2</sup> whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date. The guarantee is subject to Uniform Rules for Demand Guarantees(UDRG) 2010, Revision ICC Publication NO. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted.***

- 
- *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

## Form CON-2: Historical Contract Non-Performance, Pending Litigation & Litigation History

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Joint Venture Member's Name \_\_\_\_\_

RFP No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Non-Performed Contracts in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> Contract non-performance did not occur since 1 <sup>st</sup> January [ <i>insert year</i> ] specified in Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 <sup>st</sup> January [ <i>insert year</i> ] specified in Section III, Evaluation Criteria and Qualifications, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and INR equivalent)
		Contract Identification: Name of Employer: Address of Employer: Reason(s) for non-performance:	
Pending Litigation, in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3 as indicated below.			

## Form CCC: Current Contract Commitments / Works in Progress

Bidders and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Name of contract	Employer, contact address/tel/fax	Value of outstanding work (current INR equivalent)	Estimated completion date	Average monthly invoicing over last six months (INR/month)
1.				
2.				
3.				
4.				
5.				
etc.				